

Non-pharmacological interventions for attention-deficit/hyperactivity disorder (ADHD) delivered in school settings: systematic reviews of quantitative and qualitative research

Michelle Richardson, Darren A Moore, Ruth Gwernan-Jones, Jo Thompson-Coon, Obioha Ukoumunne, Morwenna Rogers, Rebecca Whear, Tamsin V Newlove-Delgado, Stuart Logan, Christopher Morris, Eric Taylor, Paul Cooper, Ken Stein, Ruth Garside and Tamsin J Ford



**National Institute for
Health Research**

Non-pharmacological interventions for attention-deficit/hyperactivity disorder (ADHD) delivered in school settings: systematic reviews of quantitative and qualitative research

Michelle Richardson,¹ Darren A Moore,^{2†}
Ruth Gwernan-Jones,^{2†} Jo Thompson-Coon,³
Obioha Ukoumunne,³ Morwenna Rogers,³
Rebecca Whear,³ Tamsin V Newlove-Delgado,³
Stuart Logan,³ Christopher Morris,⁴ Eric Taylor,⁵
Paul Cooper,⁶ Ken Stein,³ Ruth Garside⁷
and Tamsin J Ford^{1*}

¹Child Health Group, University of Exeter Medical School, Exeter, UK

²Evidence Synthesis & Modelling for Health Improvement,
University of Exeter Medical School, Exeter, UK

³National Institute for Health Research (NIHR) Collaboration for Leadership in
Applied Health Research and Care South West Peninsula (PenCLAHRC),
University of Exeter Medical School, Exeter, UK

⁴Peninsula Cerebra Research Unit (PenCRU), University of Exeter Medical School,
Exeter, UK

⁵Institute of Psychiatry, King's College London, London, UK

⁶Centre for Special Educational Needs and Inclusive Education (CSENIE),
Hong Kong Institute of Education, Hong Kong, China

⁷The European Centre for Environment and Human Health (ECEHH),
University of Exeter Medical School, Truro, UK

*Corresponding author

†Joint second authors

Declared competing interests of authors: Ken Stein is chair of the NIHR HTA Editorial Board and a member of the NIHR Journals Library Board.

Disclaimer: This report contains quotations from transcripts of interviews conducted in the course of research and contains language that may offend some readers.

Published June 2015

DOI: 10.3310/hta19450

This report should be referenced as follows:

Richardson M, Moore DA, Gwernan-Jones R, Thompson-Coon J, Ukoumunne O, Rogers M, *et al.* Non-pharmacological interventions for attention-deficit/hyperactivity disorder (ADHD) delivered in school settings: systematic reviews of quantitative and qualitative research. *Health Technol Assess* 2015;**19**(45).

Health Technology Assessment is indexed and abstracted in *Index Medicus/MEDLINE*, *Excerpta Medica/EMBASE*, *Science Citation Index Expanded (SciSearch®)* and *Current Contents®/Clinical Medicine*.

ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 5.116

Health Technology Assessment is indexed in MEDLINE, CINAHL, EMBASE, The Cochrane Library and the ISI Science Citation Index.

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics (COPE) (www.publicationethics.org/).

Editorial contact: nhredit@southampton.ac.uk

The full HTA archive is freely available to view online at www.journalslibrary.nihr.ac.uk/hta. Print-on-demand copies can be purchased from the report pages of the NIHR Journals Library website: www.journalslibrary.nihr.ac.uk

Criteria for inclusion in the *Health Technology Assessment* journal

Reports are published in *Health Technology Assessment* (HTA) if (1) they have resulted from work for the HTA programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

Reviews in *Health Technology Assessment* are termed 'systematic' when the account of the search appraisal and synthesis methods (to minimise biases and random errors) would, in theory, permit the replication of the review by others.

HTA programme

The HTA programme, part of the National Institute for Health Research (NIHR), was set up in 1993. It produces high-quality research information on the effectiveness, costs and broader impact of health technologies for those who use, manage and provide care in the NHS. 'Health technologies' are broadly defined as all interventions used to promote health, prevent and treat disease, and improve rehabilitation and long-term care.

The journal is indexed in NHS Evidence via its abstracts included in MEDLINE and its Technology Assessment Reports inform National Institute for Health and Care Excellence (NICE) guidance. HTA research is also an important source of evidence for National Screening Committee (NSC) policy decisions.

For more information about the HTA programme please visit the website: <http://www.nets.nihr.ac.uk/programmes/hta>

This report

The research reported in this issue of the journal was funded by the HTA programme as project number 10/140/02. The contractual start date was in May 2012. The draft report began editorial review in November 2013 and was accepted for publication in April 2014. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

This report presents independent research funded by the National Institute for Health Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health. If there are verbatim quotations included in this publication the views and opinions expressed by the interviewees are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health.

© Queen's Printer and Controller of HMSO 2015. This work was produced by Richardson *et al.* under the terms of a commissioning contract issued by the Secretary of State for Health. This issue may be freely reproduced for the purposes of private research and study and extracts (or indeed, the full report) may be included in professional journals provided that suitable acknowledgement is made and the reproduction is not associated with any form of advertising. Applications for commercial reproduction should be addressed to: NIHR Journals Library, National Institute for Health Research, Evaluation, Trials and Studies Coordinating Centre, Alpha House, University of Southampton Science Park, Southampton SO16 7NS, UK.

Published by the NIHR Journals Library (www.journalslibrary.nihr.ac.uk), produced by Prepress Projects Ltd, Perth, Scotland (www.prepress-projects.co.uk).

Editor-in-Chief of *Health Technology Assessment* and NIHR Journals Library

Professor Tom Walley Director, NIHR Evaluation, Trials and Studies and Director of the HTA Programme, UK

NIHR Journals Library Editors

Professor Ken Stein Chair of HTA Editorial Board and Professor of Public Health, University of Exeter Medical School, UK

Professor Andree Le May Chair of NIHR Journals Library Editorial Group (EME, HS&DR, PGfAR, PHR journals)

Dr Martin Ashton-Key Consultant in Public Health Medicine/Consultant Advisor, NETSCC, UK

Professor Matthias Beck Chair in Public Sector Management and Subject Leader (Management Group), Queen's University Management School, Queen's University Belfast, UK

Professor Aileen Clarke Professor of Public Health and Health Services Research, Warwick Medical School, University of Warwick, UK

Dr Tessa Crilly Director, Crystal Blue Consulting Ltd, UK

Dr Peter Davidson Director of NETSCC, HTA, UK

Ms Tara Lamont Scientific Advisor, NETSCC, UK

Professor Elaine McColl Director, Newcastle Clinical Trials Unit, Institute of Health and Society, Newcastle University, UK

Professor William McGuire Professor of Child Health, Hull York Medical School, University of York, UK

Professor Geoffrey Meads Professor of Health Sciences Research, Faculty of Education, University of Winchester, UK

Professor John Powell Consultant Clinical Adviser, National Institute for Health and Care Excellence (NICE), UK

Professor James Raftery Professor of Health Technology Assessment, Wessex Institute, Faculty of Medicine, University of Southampton, UK

Dr Rob Riemsma Reviews Manager, Kleijnen Systematic Reviews Ltd, UK

Professor Helen Roberts Professor of Child Health Research, UCL Institute of Child Health, UK

Professor Helen Snooks Professor of Health Services Research, Institute of Life Science, College of Medicine, Swansea University, UK

Please visit the website for a list of members of the NIHR Journals Library Board:
www.journalslibrary.nihr.ac.uk/about/editors

Editorial contact: nihredit@southampton.ac.uk

Abstract

Non-pharmacological interventions for attention-deficit/hyperactivity disorder (ADHD) delivered in school settings: systematic reviews of quantitative and qualitative research

Michelle Richardson,¹ Darren A Moore,^{2†} Ruth Gwernan-Jones,^{2†} Jo Thompson-Coon,³ Obioha Ukoumunne,³ Morwenna Rogers,³ Rebecca Whear,³ Tamsin V Newlove-Delgado,³ Stuart Logan,³ Christopher Morris,⁴ Eric Taylor,⁵ Paul Cooper,⁶ Ken Stein,³ Ruth Garside⁷ and Tamsin J Ford^{1*}

¹Child Health Group, University of Exeter Medical School, Exeter, UK

²Evidence Synthesis & Modelling for Health Improvement, University of Exeter Medical School, Exeter, UK

³National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care South West Peninsula (PenCLAHRC), University of Exeter Medical School, Exeter, UK

⁴Peninsula Cerebra Research Unit (PenCRU), University of Exeter Medical School, Exeter, UK

⁵Institute of Psychiatry, King's College London, London, UK

⁶Centre for Special Educational Needs and Inclusive Education (CSENIE), Hong Kong Institute of Education, Hong Kong, China

⁷The European Centre for Environment and Human Health (ECEHH), University of Exeter Medical School, Truro, UK

*Corresponding author T.J.Ford@Exeter.ac.uk

†Joint second authors

Background: Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterised by age-inappropriate levels of inattention, impulsivity and hyperactivity. School can be particularly challenging for children with ADHD. Few reviews have considered non-pharmacological interventions in school settings.

Objectives: To assess the effectiveness of non-pharmacological interventions delivered in school settings for pupils with, or at risk of, ADHD and to explore the factors that may enhance, or limit, their delivery.

Data sources: Twenty electronic databases (including PsycINFO, MEDLINE, EMBASE, Education Resources Information Centre, The Cochrane Library and Education Research Complete) were searched from 1980 to February–August 2013. Three separate searches were conducted for four systematic reviews; they were supplemented with forward and backwards citation chasing, website searching, author recommendations and hand-searches of key journals.

Review methods: The systematic reviews focused on (1) the effectiveness of school-based interventions for children with or at risk of ADHD; (2) quantitative research that explores attitudes towards school-based non-pharmacological interventions for pupils with ADHD; (3) qualitative research investigating the attitudes and experiences of children, teachers, parents and others using ADHD interventions in school settings; and (4) qualitative research exploring the experience of ADHD in school among pupils, their parents and teachers

more generally. Methods of synthesis included a random-effects meta-analysis, meta-regression and narrative synthesis for review 1, narrative synthesis for review 2 and meta-ethnography and thematic analysis for reviews 3 and 4.

Results: For review 1, 54 controlled trials met the inclusion criteria. For the 36 meta-analysed randomised controlled trials, beneficial effects ($p < 0.05$) were observed for several symptom and scholastic outcomes. Mean weighted effect sizes ranged from very small ($d_+ < 0.20$) to large ($d_+ \geq 0.80$), but substantial heterogeneity in effect size estimates across studies was reported. Moderator analyses were not able to clarify which intervention features were linked with effectiveness. For review 2, 28 included studies revealed that educators' attitudes towards interventions ranged in positivity. Most interventions were rated positively or neutrally across different studies. The only intervention that consistently recorded positive attitudes from educators was daily report cards. For review 3, 33 studies met the inclusion criteria. Key findings included tensions regarding the preferred format of interventions, particularly how structured interventions were and the extent to which they are tailored to the child with ADHD. There were mixed views about the impact of interventions, although it was clear that interventions both influence and are influenced by the relationships held by children with ADHD and participants' attitudes towards school and ADHD. For review 4, 34 studies met the inclusion criteria. Key findings included the importance of causal attributions that teachers, parents and pupils made about ADHD symptoms, the decisions teachers made about treatment, the self-perceptions pupils developed about themselves, the role of the classroom environment and stigma in aggravating ADHD symptoms, and the significant barrier to treatment posed by the common presence of conflict in relationships between pupils–teachers, parents–teachers and pupils–peers in relation to ADHD. An overarching synthesis of the four reviews highlighted the importance of the context affecting interventions. It suggested that ADHD psychoeducation and relationship-building skills are potential implications for interventions.

Limitations: The breadth of both interventions and outcomes in the reviewed studies presented a challenge for categorisation, analysis and interpretation in reviews 1–3. Across reviews, relatively few studies were conducted in the UK, limiting the applicability of findings to UK education. In reviews 1 and 2, the poor methodological quality of some included studies was identified as a barrier to establishing effectiveness or comparing attitudes. In review 3 the descriptive analysis used by the majority of studies constrained theorising during synthesis. Studies in review 4 lacked detail regarding important issues like gender, pupil maturity and school level.

Conclusion: Findings suggest some beneficial effects of non-pharmacological interventions for ADHD used in school settings, but substantial heterogeneity in effect sizes was seen across studies. The qualitative reviews demonstrate the importance of the context in which interventions are used. Future work should consider more rigorous evaluation of interventions, as well as focus on what works, for whom and in which contexts. Gaps in current research present opportunities for the development and testing of standardised tools to describe interventions, agreement on gold-standard outcome measures assessing ADHD behaviour and testing a range of potential moderators alongside intervention trials.

Study registration: This study is registered as PROSPERO CRD42011001716.

Funding: The National Institute for Health Research Health Technology Assessment programme.

Contents

List of tables	xv
List of figures	xix
List of boxes	xxi
List of abbreviations	xxiii
Plain English summary	xxv
Scientific summary	xxvii
Chapter 1 Background	1
What is attention-deficit/hyperactivity disorder?	1
Prevalence	1
Co-existing issues	2
Controversy	2
Interventions for children with or at risk of attention-deficit/hyperactivity disorder	3
Pharmacological interventions	3
Non-pharmacological intervention	4
School-based interventions	5
Methodological considerations	6
The measurement of attention-deficit/hyperactivity disorder symptoms and outcomes	7
Assessments	7
Triangulation of data in quantitative versus qualitative research	7
Rationale	8
Aim and research questions	9
<i>Review 1</i>	9
<i>Review 2</i>	9
<i>Review 3</i>	10
<i>Review 4</i>	10
Overarching synthesis	10
Chapter 2 Review 1: effectiveness of non-pharmacological interventions in school settings for children with or at risk of attention-deficit/hyperactivity disorder	11
Research questions	11
Methods	11
<i>Search strategy</i>	11
<i>Inclusion and exclusion criteria</i>	12
<i>Data extraction</i>	12
<i>Statistical information</i>	18
<i>Analytic strategy</i>	19
<i>Empirical findings synthesised narratively</i>	21
Results	21
<i>Number of studies included</i>	21
<i>Descriptive statistics</i>	22
<i>Interventions</i>	22
<i>Quality of trials</i>	39

Analysis	43
<i>Data description for the meta-analysed randomised controlled trials: constructs and informants</i>	43
<i>Meta-analyses of the randomised controlled trials</i>	44
<i>Data description for the meta-analysed non-randomised controlled trials: constructs and informants</i>	45
<i>Comparison of meta-analysed randomised controlled trials and non-randomised controlled trials</i>	47
<i>Publication bias</i>	47
<i>Heterogeneity</i>	47
<i>Narrative synthesis</i>	53
Discussion	55
<i>Pooled effect sizes across constructs</i>	55
<i>Moderator analyses</i>	56
<i>Comparison with previous reviews</i>	56
<i>The design and evaluation of interventions to optimise outcomes for children with or at risk of attention-deficit/hyperactivity disorder</i>	57
<i>Limitations</i>	57
<i>Recommendations for research</i>	59
<i>Implications for practice</i>	60
Chapter 3 Review 2: a systematic review of quantitative research investigating attitudes towards non-pharmacological interventions for attention-deficit/hyperactivity disorder used in school settings	61
Aims	61
Identification of evidence	61
<i>Inclusion/exclusion criteria</i>	61
<i>Search strategy</i>	62
<i>Study selection</i>	64
Methods of analysis/synthesis	64
<i>Data extraction</i>	64
<i>Quality assessment</i>	64
<i>Data analysis and synthesis</i>	65
Findings	65
<i>The studies</i>	65
<i>Quality appraisal</i>	81
<i>Synthesis of attitudes findings</i>	84
Discussion	90
Chapter 4 Methods for qualitative reviews 3 and 4	91
Aims	91
Identification of evidence	91
<i>Inclusion/exclusion criteria</i>	91
<i>Search strategy</i>	94
<i>Study selection</i>	94
Methods of analysis/synthesis	94
<i>Data extraction</i>	94
<i>Quality assessment</i>	95
<i>Data analysis and synthesis</i>	96

Chapter 5 Review 3: a synthesis of qualitative studies about the use of non-pharmacological interventions and strategies for attention-deficit/hyperactivity disorder in school settings	101
Introduction	101
Included studies	101
<i>Study characteristics</i>	102
Findings	116
<i>Overview</i>	116
<i>Responding to attention-deficit/hyperactivity disorder in schools</i>	118
<i>Action and reaction</i>	130
<i>Socialisation</i>	132
<i>Facilitators, challenges and moderators</i>	144
Discussion	144
<i>Summary of findings</i>	144
<i>Strengths and limitations</i>	145
<i>Quality appraisal</i>	145
<i>Applicability</i>	146
<i>Implications for practice and recommendations for research</i>	146
Chapter 6 Review 4: a synthesis of qualitative studies about the school-related experiences and perceptions of pupils diagnosed with, or at risk of, attention-deficit/hyperactivity disorder, their teachers, parents and peers	149
Aims	149
Included studies	149
Structure of review 4	150
Review 4a: the school experiences and perceptions of pupils diagnosed with attention-deficit/hyperactivity disorder	151
<i>Study characteristics for review 4a</i>	151
<i>Study methodology for review 4a (pupil views)</i>	154
<i>Findings for review 4a (pupil views)</i>	154
Review 4b: the experiences and perspectives of teachers of pupils diagnosed with or at risk of attention-deficit/hyperactivity disorder	177
<i>Study characteristics for review 4b (teacher views)</i>	177
<i>Study methodologies for review 4b (teacher views)</i>	180
<i>Findings review 4b (teacher views)</i>	185
Review 4c: the experiences and perspectives of parents of pupils diagnosed with attention-deficit/hyperactivity disorder	201
<i>Study characteristics for review 4c (parent views)</i>	201
<i>Study methodologies for review 4c (parent views)</i>	202
<i>Findings for review 4c (parent views)</i>	202
Review 4d: the school experiences and perceptions of pupils diagnosed with, or at risk of, attention-deficit/hyperactivity disorder, their teachers, parents and peers	215
<i>Study characteristics for review 4d (mixed views)</i>	215
<i>Study methodologies for review 4d (mixed views)</i>	219
<i>Findings for review 4d (mixed views)</i>	219
Discussion	241
<i>Reviews 4a–d</i>	241
<i>Quality appraisal</i>	241
<i>Applicability</i>	246
<i>Limitations</i>	247
<i>Findings from the synthesis of reviews 4a–d</i>	248

Conclusion	253
<i>Implications for policy and practice</i>	253
Recommendations for research	254
<i>Gaps in content</i>	254
<i>Methodological gaps</i>	254
Chapter 7 Overarching synthesis	257
Aims	257
Method	257
Findings	274
<i>Inductive synthesis: complexity of context</i>	274
<i>Deductive synthesis: effectiveness</i>	277
<i>Deductive synthesis: sources of heterogeneity – potential moderators identified in review 1</i>	278
Discussion	281
<i>Strengths and limitations</i>	281
<i>Implications</i>	282
Chapter 8 Discussion and conclusions	285
Summary of findings	285
<i>Summary of review 1</i>	285
<i>Summary of review 2</i>	286
<i>Summary of review 3</i>	286
<i>Summary of review 4</i>	287
Summary of the overarching synthesis	289
Strengths and limitations	290
Implications for policy and practice	291
Suggested research priorities	292
<i>Methodological issues</i>	292
<i>Gaps in the current research literature</i>	293
Acknowledgements	295
References	299
Appendix 1 Search strategy used for review 1	325
Appendix 2 Websites and supplemental electronic resources	329
Appendix 3 Studies excluded at full text from review 1, with reasons	331
Appendix 4 Search strategy used for review 2	365
Appendix 5 Studies excluded at full text from review 2, with reasons	367
Appendix 6 List of Organisation for Economic Co-operation and Development countries	377
Appendix 7 Search strategy used for reviews 3 and 4	379
Appendix 8 Qualitative title/abstract screening checklist	381

Appendix 9 Example of a completed qualitative data extraction form for review 4	383
Appendix 10 Example of a completed qualitative data extraction form for review 3	391
Appendix 11 Stakeholder involvement activities	399
Appendix 12 Example of a structured summary for review 4c	415
Appendix 13 Example of concept map (review 4a)	423
Appendix 14 Studies excluded at full text from review 3, with reasons	435
Appendix 15 Studies excluded during full-text screening for review 4, with reasons	453

List of tables

TABLE 1 Inclusion and exclusion criteria	13
TABLE 2 Methodological information extracted	14
TABLE 3 Categorisation of measures and informants onto nine commonly assessed child-related constructs assessing aspects of ADHD	14
TABLE 4 Labels and definitions of child-based intervention packages included in the primary studies	17
TABLE 5 Quality appraisal criteria	19
TABLE 6 Planned moderator analyses	20
TABLE 7 Study and participant characteristics for the RCTs	23
TABLE 8 Study and participant characteristics for the non-RCTs	26
TABLE 9 Frequency of intervention packages among the RCTs	28
TABLE 10 Frequency of intervention packages among the non-RCTs	32
TABLE 11 Intervention delivery characteristics for the RCTs	35
TABLE 12 Intervention delivery characteristics for the non-RCTs	38
TABLE 13 Quality appraisal of the RCTs and non-RCTs	40
TABLE 14 Effectiveness in RCTs that assess non-pharmacological interventions for children with or at risk of ADHD in school settings	44
TABLE 15 Effectiveness of non-RCTs that assess non-pharmacological interventions for children with or at risk of ADHD	46
TABLE 16 High, moderate and low levels of heterogeneity among meta-analysed RCTs	47
TABLE 17 Categorisation of moderators by outcome assessed	49
TABLE 18 Meta-regression results for teacher-informed inattention	50
TABLE 19 Meta-regression results for teacher-informed hyperactivity/impulsivity	51
TABLE 20 Meta-regression results for teacher-informed external symptoms	52
TABLE 21 Meta-regression results for teacher informed perceptions of school adjustment	52
TABLE 22 Summary of the effectiveness findings synthesised narratively	54

TABLE 23 Inclusion and exclusion criteria	63
TABLE 24 Study characteristics	67
TABLE 25 Intervention frequencies	73
TABLE 26 Measures used in included studies	75
TABLE 27 Quality of included studies (<i>n</i> = 28)	82
TABLE 28 Educators' attitudes (positive vs. neutral/negative)	85
TABLE 29 Attitudes of educators by intervention category	87
TABLE 30 Variables related to attitudes towards interventions for ADHD	88
TABLE 31 Inclusion and exclusion criteria for reviews 3 and 4	92
TABLE 32 Study characteristics	103
TABLE 33 Intervention details for relevant studies	107
TABLE 34 Methodological and analytical details of included studies	109
TABLE 35 Quality of included studies (<i>n</i> = 33)	114
TABLE 36 Meta-ethnography key terms	117
TABLE 37 Hierarchy of categories, themes and subthemes discussed during the synthesis and the papers that held evidence relating to each subtheme	119
TABLE 38 Key terms relevant to individualising interventions	120
TABLE 39 Key terms relevant to theme of structure	124
TABLE 40 Key terms related to theme of time	128
TABLE 41 Hierarchy of themes and subthemes discussed during the synthesis related to action and reaction and the papers that held evidence relating to each subtheme	130
TABLE 42 Hierarchy of themes and subthemes discussed during the synthesis of the category socialisation and the papers that held evidence relating to each subtheme	133
TABLE 43 Key terms relevant to theme problem situated within the child	133
TABLE 44 Number of included studies in each part of review 4	151
TABLE 45 Summary of included papers for review 4a: the school experiences and perceptions of pupils diagnosed with ADHD	151

TABLE 46 Numbers and ages of participants in included papers for review 4a: the school experiences and perceptions of pupils diagnosed with ADHD	153
TABLE 47 Methodological details of included papers for review 4a: the school experiences and perceptions of pupils diagnosed with ADHD	155
TABLE 48 Relationships between first- (participant) and/or second-order (researcher) concepts coded from included papers for review 4a (pupil views), and third-order (reviewer) concepts	160
TABLE 49 Summary of included papers for review 4b: the school-related experiences and perceptions of teachers of pupils diagnosed with or and at risk of ADHD	178
TABLE 50 Numbers and school year taught for teachers in review 4b: the school experiences and perceptions of teachers of pupils diagnosed with or at risk for ADHD	179
TABLE 51 Methodological details of included papers for review 4b: the school experiences and perceptions of teachers of pupils diagnosed with or at risk of ADHD	181
TABLE 52 Relationships between first- (participant) and/or second-order (researcher) concepts coded from review 4b included papers, and third-order (reviewer) concepts	185
TABLE 53 Summary of included papers for review 4c: the school experiences and perceptions of parents of pupils diagnosed with ADHD	201
TABLE 54 Methodological details of included papers for review 4c: the school experiences and perceptions of parents of pupils diagnosed with ADHD	203
TABLE 55 Relationships between first- (participant) and/or second-order (researcher) concepts coded from included papers in review 4c, and third-order (reviewer) concepts	205
TABLE 56 Summaries of included studies for review 4d: the school experiences and perceptions of pupils diagnosed with ADHD, their teachers, parents and peers	216
TABLE 57 Numbers, ages and gender (pupils), number and years taught (teachers) and number and gender (parents) for included studies in review 4d: the school experiences and perceptions of pupils diagnosed with ADHD, their teachers, parents and peers	218
TABLE 58 The methodological details of included papers for review 4d: the school-based experiences and perceptions of pupils diagnosed with or at risk of ADHD, their teachers, parents and peers	220
TABLE 59 Relationship between first- (participant) and second-order (researcher) concepts to third-order (reviewer) concepts in review 4d: the school experiences and perceptions of pupils diagnosed with, or at risk of, ADHD, their teachers, parents and peers	223

TABLE 60 Number of included studies in each part of review 4	241
TABLE 61 Quality appraisal of included studies for review 4 ($n = 34$)	242
TABLE 62 Country of participants for studies included in review 4	247
TABLE 63 Relationships between third-order concepts identified in reviews 4a–d and third-order concepts identified for the synthesis of reviews 4a–d	248
TABLE 64 Findings contributed by reviews 3 and 4 for levels of context, key categories and subthemes	259
TABLE 65 Effectiveness: comparison across reviews	266
TABLE 66 Sources of heterogeneity: intervention packages	267
TABLE 67 Potential sources of heterogeneity: study design, participant characteristics and intervention delivery characteristics	272

List of figures

FIGURE 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses diagram showing search process and study selection for review 1	21
FIGURE 2 Preferred Reporting Items for Systematic Reviews and Meta-Analyses diagram showing search process and study selection for review 2	66
FIGURE 3 Process of meta-ethnography for reviews 3 and 4	97
FIGURE 4 Preferred Reporting Items for Systematic Reviews and Meta-Analyses diagram showing search process and study selection for review 3	102
FIGURE 5 Model of line of argument	117
FIGURE 6 The PRISMA diagram showing search process and study selection for review 4	150
FIGURE 7 Schema of the experience of symptoms for pupils diagnosed with ADHD based on review 4a studies	176
FIGURE 8 Total number of included studies in review 4 by year of publication	246
FIGURE 9 Contextual levels and key categories identified through synthesis of reviews 3 and 4, categorised at pupil, classroom, school and sociopolitical levels of context	265
FIGURE 10 Discussion worksheet for event 2	407

List of boxes

BOX 1 Cohen's guidelines for interpreting effect sizes	45
BOX 2 Quality appraisal questions	64
BOX 3 Quality appraisal questions	95
BOX 4 Implications relating to individualising interventions	123
BOX 5 Implications related to structure	128
BOX 6 Implications relating to time	129
BOX 7 Implications about impact of interventions	132
BOX 8 Implications related to problem situated within the child	136
BOX 9 Implications about relationships	140
BOX 10 Implications relating to expectations	143
BOX 11 Definition of medicalisation	161
BOX 12 Implications for non-pharmacological interventions related to children's and young people's experiences of ADHD symptoms	163
BOX 13 Description of Bronfenbrenner's ecological theory	165
BOX 14 Implications for non-pharmacological interventions related to aspects of relationships that contribute to ADHD symptoms	165
BOX 15 Description of McDannel's 'classroom genres'	166
BOX 16 Implications for non-pharmacological interventions related to the role of classroom context in ADHD symptoms	167
BOX 17 Potential impact of a stigmatising label on a normal's behaviour	168
BOX 18 Implications for non-pharmacological interventions related to stigma and the expression of ADHD symptoms	169
BOX 19 Implications for non-pharmacological interventions related to ADHD pupils' desire for approval	170
BOX 20 Implications for non-pharmacological interventions related to pupil agency	172
BOX 21 Implications for non-pharmacological interventions related to identity	174
BOX 22 Implications for non-pharmacological interventions related to teachers' orientation to the class as a whole and to the individual pupil	191

BOX 23 Description of Foucauldian theory about power, knowledge and surveillance	196
BOX 24 Implications for non-pharmacological interventions in relation to attributions for ADHD symptoms	200
BOX 25 Implications for non-pharmacological interventions related to mothers' dashed expectations for their children diagnosed with ADHD	207
BOX 26 Implications for non-pharmacological interventions related to reasons for parent–teacher conflicts	210
BOX 27 Implications for non-pharmacological interventions related to resistance by mothers of pupils diagnosed with ADHD	214
BOX 28 Implications for non-pharmacological interventions related to disconnection between pupils diagnosed with ADHD and school	229
BOX 29 Implications for non-pharmacological interventions related to teachers' orientation to the class as a whole	231
BOX 30 Definition of 'funds of knowledge'	231
BOX 31 Implications for non-pharmacological interventions related to differences between funds of knowledge	235
BOX 32 Implications for non-pharmacological interventions related to issues of collaboration	237
BOX 33 Recap of the mechanisms and outcomes of stigma as described by Goffman and Thornicroft	251

List of abbreviations

ADHD	attention-deficit/hyperactivity disorder	ERIC	Education Resources Information Center
ASD	autistic spectrum disorder	HMIC	Health Management Information Consortium
ASSIA	Applied Social Sciences Index and Abstracts	HOPS	Homework, Organization, and Planning Skills
BCT	behaviour change technique	HTA	Health Technology Assessment
BIRS	Behavioural Intervention Rating Scale	ICD-10	<i>International Classification of Diseases, Tenth Edition</i>
BMC	behavioural modification in classroom settings	IEP	individual education plan
BPI	behavioural peer intervention	IQ	intelligence quotient
BPT	behavioural parent training	IRP-15	Intervention Rating Profile-15
CBT	cognitive-behavioural therapy	ITT	intention to treat
CDSR	Cochrane Database of Systematic Reviews	LD	learning disability
CENTRAL	Cochrane Central Register of Controlled Trials	NHS EED	NHS Economic Evaluation Database
CI	confidence interval	NICE	National Institute for Health and Care Excellence
CMR	Cochrane Methodology Register	OECD	Organisation for Economic Co-operation and Development
CRS	Conners' Rating Scale	PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
DARE	Database of Abstracts of Reviews of Effects	RCT	randomised controlled trial
DRC	daily report card	SD	standard deviation
DSM-III	<i>Diagnostic and Statistical Manual of Mental Disorders-Third Edition</i>	SEN	special educational needs
DSM-IV	<i>Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition</i>	SMD	standardised mean difference
DSM-5	<i>Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition</i>	TOVA	test of variables of attention

Plain English summary

Pupils diagnosed with attention-deficit/hyperactivity disorder (ADHD) are typically restless, act without thinking and struggle to concentrate. This project brought together findings from research about strategies used in schools to help pupils with these difficulties; these strategies are sometimes called 'interventions'.

We found 54 studies that evaluated school interventions. Overall, these interventions appeared to reduce hyperactivity, impulsiveness and inattentiveness, and improve some measures of problem behaviours, school skills and achievement. Short-term interventions seemed to be more beneficial than longer-term ones, and strategies targeting social skills did not seem particularly helpful. Separately, we also looked at relevant research that explored the attitudes and experiences of pupils showing ADHD symptoms in school, and their teachers and parents. We found 84 studies that highlighted the importance of taking account of the school's situation and national policies for education, as well as attempting to meet the individual needs of pupils. The research also suggests that negative attitudes about ADHD and the relationships children have with teachers and peers can influence how well interventions work.

Many of the studies we looked at were not very well designed or carried out, or were not described in enough detail, and it was difficult to bring the findings together as the studies used different methods and various ways to measure outcomes. Therefore, our conclusions must be considered cautiously. More carefully designed research is needed before we can be clear about what works for whom when trying to support pupils with ADHD in school.

Scientific summary

Background

Attention-deficit/hyperactivity disorder (ADHD) is one of the most common neurodevelopmental disorders. Approximately 2–5% of school-aged children hold diagnoses and the prevalence is reported to be rising. School can be particularly challenging for children with ADHD. ADHD-related behaviours impair them, as well as challenging their teachers, parents and peers. Although the effectiveness of medication is well established, it remains controversial. There has been less systematic synthesis into the effectiveness of non-pharmacological behavioural treatments, although beneficial effects have been reported for both symptom and scholastic outcomes. Few published reviews have considered non-pharmacological interventions in school settings independently of those delivered predominantly in other settings, such as at home and in clinic. Those that have do not focus on the synthesis of evidence from controlled trials or explore attitudes and experience. This series of systematic reviews sought to evaluate the effectiveness and cost-effectiveness of non-pharmacological interventions delivered in school settings for pupils with, or at risk of, ADHD and to explore the factors that may enhance, or limit, the effective delivery of such interventions.

Objectives

Four systematic reviews and an overarching synthesis of these reviews are reported.

Review 1 aimed to synthesise the effectiveness and the cost-effectiveness of non-pharmacological interventions delivered in school settings for children with, or at risk of, ADHD.

Review 2 considered quantitative studies that explore attitudes towards school-based non-pharmacological interventions for pupils with ADHD.

Review 3 synthesised the attitudes and experiences of pupils, teachers, parents and others who use ADHD interventions in school settings.

Review 4 explored the experience of ADHD in school among pupils, their parents and teachers more generally.

The four reviews were subsequently brought together in an overarching synthesis which aimed to relate the reviews to each other.

Data sources

Twenty electronic databases [Applied Social Sciences Index and Abstracts/ProQuest, MEDLINE/OvidSP, EMBASE/OvidSP, PsycINFO/OvidSP, British Education Index/ProQuest, Australian Education Index/ProQuest, Education Research Complete/EBSCOhost, Education Resources Information Center/ProQuest, The Cochrane Library (Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects, Cochrane Central Register of Controlled Trials, Cochrane Methodology Register, Health Technology Assessment, NHS Economic Evaluation Database), The Campbell Library, Health Management Information Consortium/OvidSP, Social Policy and Practice/OvidSP, Social Sciences Citation Index, Conference Proceedings Citation Index, Conference Proceedings Citation Index – Social Science & Humanities (via ISI Web of Science)] were searched from 1980 to February–August 2013. Three separate searches were conducted for the four systematic reviews; they were supplemented with forward and backwards citation chasing, website searching, author recommendations and hand-searches of key journals.

Review 1: synthesis of the effectiveness and the cost-effectiveness of non-pharmacological interventions

Method

Two independent reviewers were involved in study selection, data extraction and quality appraisal. Controlled trials were included where (1) non-drug interventions were evaluated; (2) participants were aged between 4 and 18 years; (3) participants were preschool, school or further education college attendees; (4) $\geq 50\%$ of participants were identified with or at risk of ADHD; and (5) one of the following child outcomes related to ADHD were assessed: core ADHD symptoms (inattention/hyperactivity/impulsivity); ADHD-related symptoms (internalising/externalising/social skills); and scholastic behaviours and outcomes (scholastic adjustment/curriculum achievement/standardised achievement).

Random-effects meta-analyses were conducted separately for randomised controlled trials (RCTs) and non-RCTs where data permitted, otherwise data were synthesised narratively. Moderator analyses were conducted to examine which programme features, including intervention packages, intervention delivery characteristics and participant characteristics, were linked with effectiveness.

Results

A total of 25,866 references were identified, of which 54 studies met the inclusion criteria (39 RCTs; 15 non-RCTs). Forty-seven contained suitable data for meta-analysis. Across studies, 15 types of intervention packages were classified; however, few interventions consisted of common sets of programme features. Focusing on the meta-analysed RCTs ($n = 36$), beneficial effects ($p < 0.05$) were observed for several outcomes including core ADHD symptoms [child-based neurocognitive assessments ($d_+ = 0.44$, $p = 0.001$ for 'inattention'; $d_+ = 0.33$, $p = 0.001$ for 'hyperactivity/impulsivity') and teacher-rated outcomes of 'inattention' ($d_+ = 0.60$, $p = 0.01$)], ADHD-related symptoms [teacher-rated 'externalising' symptoms ($d_+ = 0.28$, $p = 0.03$)], and scholastic behaviours and outcomes [teacher-rated 'perceptions of school adjustment' ($d_+ = 0.26$, $p = 0.02$) and 'standardised achievement' ($d_+ = 0.19$, $p = 0.02$)].

There was weaker evidence for the beneficial effect of non-pharmacological interventions on observer-rated 'inattention' ($p = 0.08$); teacher-rated 'hyperactivity/impulsivity' ($p = 0.08$) and 'curriculum achievement' ($p = 0.08$). Beneficial effects were more likely to be observed for relatively objective assessments than perception-based measures. Of these perception-based measures, beneficial effects were reported for teacher-rated outcomes, but not for children and parents. Substantial heterogeneity in effect size estimates across studies was reported. Effect sizes varied considerably both within and between different outcomes.

Moderator analyses were not able to clarify which programme features were linked with effectiveness. No studies included economic outcomes, thus the cost-effectiveness of non-pharmacological interventions targeting children with, or at risk of, ADHD cannot be established and compared with other available treatments. The majority of included studies targeted children at elementary school (40/54 studies) and none of the included studies was from the UK. The methodological quality of the trials was generally low. Although overall the evidence indicates the beneficial effects of non-drug intervention, the heterogeneity in effect sizes points to the lack of standardised interventions and shared outcome measures across the included studies.

Review 2: synthesis of quantitative studies that explore attitudes towards non-pharmacological interventions

Method

Included studies measured attitudes of those with experience of non-pharmacological school-based interventions for ADHD. Study selection, data extraction and quality appraisal assessment were independently conducted by two reviewers. A narrative synthesis was employed; mean scores on attitude scales were converted into percentages where possible and compared across studies.

Results

A total of 4114 references were identified, of which 28 papers met the inclusion criteria. The included studies represented the attitudes of a variety of school practitioners. Attitudes were measured in relation to nine types of intervention identified across studies. Most studies used bespoke attitude measures rather than existing standardised instruments. The included papers were of low quality and therefore prone to bias. Particular issues included lack of definitions of interventions and failure to pilot vignettes and attitude measures developed by authors.

Likert scale scores were converted to percentages, allowing comparison across 19 of the 28 included papers. There was a lack of consistency among attitudes towards particular types of interventions, although most interventions were rated positively or neutrally. The only intervention that consistently recorded positive attitudes from educators was daily report cards, an intervention where behaviour is monitored and recorded at school on a card or in a book that the pupil then takes home to share with their parent or carer. No variables were found to consistently affect attitudes towards interventions.

Review 3: synthesis of attitudes and experiences of pupils, teachers, parents and others using attention-deficit/hyperactivity disorder interventions in school settings

Method

Included studies reported primary research using qualitative data collection and analysis regarding attitudes towards, and experience of, non-pharmacological interventions in school settings. Study selection, data extraction and quality appraisal assessment were independently conducted by two reviewers. A meta-ethnographic approach was used to synthesise findings across included studies. Analysis used an iterative process of thematic analysis, reciprocal translation and a line-of-argument synthesis.

Results

A total of 10,573 references were identified, of which 33 papers met the inclusion criteria outlined above. Only 12 of the studies were focused on a particular intervention; the majority of included studies instead considered a range of interventions or strategies used in participants' school settings. All studies received more positive than negative quality appraisals, although they typically contained mainly descriptive analysis. Only two of the studies included participants from the UK.

Seven main themes were identified and used to organise and guide the synthesis:

1. individualising interventions
2. structure
3. time
4. impact of interventions
5. problem situated within the child
6. relationships
7. expectations.

A line-of-argument was developed that offers an explanatory model of the experience of interventions and teaching strategies for ADHD in school settings. The synthesis revealed three main tensions related to responding to ADHD in schools, regarding how structured and tailored they ought to be and issues regarding the time available for intervention use. There were some concerns reported by participants in reviewed studies that interventions may be effective for specific targeted skills and behaviours, but not impact the academic achievement. There were also issues concerning how well skills and knowledge learned during interventions are applied beyond the intervention period. It is clear that interventions may influence relationships, attitudes and participants' perception of ADHD and school, but, equally, these contextual factors may impact the experience of interventions.

Review 4: synthesis of the experience of attention-deficit/hyperactivity disorder in school among pupils, their parents and teachers more generally

Methods

Studies were included that involved school-related experiences about ADHD. Methods corresponded to those described for review 3, with the addition of the use of an index paper for two subreviews.

Results

A total of 10,573 references were identified, of which 34 studies met the inclusion criteria for review 4, seven of which included participants from the UK. These were divided into four groups for initial synthesis by participant type, then combined in a synthesis of reviews 4a–d.

Study data collection most often involved interviews, and data analysis most commonly included thematic analysis. Overall, the quality of study methods were good and many of the studies involved the development of theory.

In review 4a, which synthesised studies about pupils diagnosed with ADHD, pupils expressed most concern over difficulties in relationships. They described the classroom as a place in which they found it difficult to learn. Stigma was identified in a number of studies, as was the tendency for pupils to make polarised biological attributions for ADHD, and these contributed to poor pupil self-perceptions.

In review 4b, which synthesised studies about teachers, teachers of pupils diagnosed with or at risk of ADHD described their main professional responsibility to be to their classroom as a whole, and this could lead them to be reluctant to accommodate the individual needs of a pupil. Teachers described time pressures and lack of knowledge about ADHD to be further barriers. Teachers tended to attribute ADHD symptoms to problems in the home such as poor parenting, or to biological factors. Such polarised attributions could limit choices for treatment.

In review 4c, which synthesised studies about parents, mothers of pupils diagnosed with ADHD commonly reported experiencing conflict with school staff, feeling blamed for their child's behaviour and dismissed when sharing information or making requests to school staff.

Review 4d, which synthesised studies exploring experiences of multiple participant types, primarily detailed interactions of factors already identified in reviews 4a–c, but further illuminated the importance of support from the wider school and the national context.

The synthesis of reviews 4a–d found that the context of school could aggravate symptoms of ADHD through the nature of its expectations. When behaviour was determined to threaten learning in the school, stigma could operate to protect existing school practice. Stigma could impact relationships negatively and aggravate ADHD symptoms further, leading to escalating marginalisation. Polarised attributions for ADHD further drew attention away from school contributions to ADHD symptoms. It was concluded that an important aspect of addressing ADHD symptoms is to explore the potential for adaptation to school practice in interaction with existing knowledge about approaches to pupil adaptation.

Overarching synthesis

The overarching synthesis synthesised the findings from all four reviews. An inductive approach was used to explore the complexity of the context in which non-pharmacological school-based interventions for ADHD are used, drawing on findings from the two qualitative reviews (reviews 3 and 4). Second, a deductive approach to synthesis was taken to consider potential relationships between possible moderators and effectiveness, using review 1 results and examining how findings from the other reviews may provide potential explanations and relevant information.

The inductive approach identified contextual issues that impact the implementation and effectiveness of interventions operating at several levels. These levels formed a hierarchy moving from the pupil diagnosed with ADHD, the classroom, the school, to the sociopolitical level. Issues are seen across and within these levels and include the attributional beliefs that teachers and pupils hold about ADHD, the relationships that pupils with ADHD have with their teachers and peers and that their parents have with their teachers, and the stigma that may be experienced because of ADHD symptoms, diagnosis or attendance of an intervention. The hierarchical nature of these levels suggest that, without school and sociopolitical level policy and support, non-pharmacological interventions for ADHD may be less effective.

The deductive approach found links across the systematic reviews, as well as some refutational evidence. It emphasised the importance of psychoeducation for teachers, parents and pupils to help overcome lack of knowledge and stigma around ADHD. The relevance of building relationships between parents, teachers, pupils and peers was also highlighted. Outcomes that did not often feature in review 1 studies appeared to be important in reviews 3 and 4, such as attitudes held by pupils towards school and/or interventions, perceptions of agency, attributions about ADHD and self-concept. The overarching synthesis suggested that the following might be predicted to moderate intervention effectiveness: age, sex, duration of intervention, medication status, type of classroom, school level, support for teachers and the quality of relationships between the pupil with ADHD and their teachers and peers, home-school collaboration and the presence of stigma.

Discussion and conclusions

Strengths of the four reviews and overarching synthesis include the comprehensive search strategies employed. Review 1 included a wider range of non-pharmacological interventions and outcome measures and benefited from a larger set of controlled trials than previous reviews. Reviews 3 and 4 represent the first systematic reviews of qualitative research on the experience of school-based interventions for ADHD and the experience of ADHD in schools, respectively, of which we are aware. The breadth of both interventions and outcomes in reviewed studies presented a challenge for categorisation, analysis and interpretation in reviews 1–3. Across reviews, relatively few studies were conducted in the UK, limiting the applicability of findings to UK education. In reviews 1 and 2, the poor methodological quality of some included studies was identified as a barrier to establishing effectiveness or comparing attitudes. In review 3 the descriptive analysis used by the majority of studies constrained theorising during synthesis. Studies in review 4 lacked detail regarding important issues such as gender, pupil maturity and school level.

Given the nature of the review findings and challenges in synthesising across reviews, recommendations for research and, in particular, implications for policy and practice, can only be tentative. An implication for the design and implementation of interventions is that the particular context for a pupil with ADHD, their classroom, school and issues at the sociopolitical level need to be actively considered. The qualitative reviews suggest that stigma and marginalisation may be increased through intervention. This is an important consideration for implementation. The findings from reviews 3 and 4 suggest that psychoeducation about ADHD could usefully be provided to school staff, pupils with ADHD and their peers as an adjunct to any intervention that targets children with, or at risk of, ADHD.

Different stakeholder priorities imply a need for interventions with multiple components that tackle different aspects of the difficulties that young people with ADHD face in coping with school. Given the importance of relationships highlighted by reviews 3 and 4 and the possible reduced effectiveness of social skills training for pupils with ADHD suggested by review 1, support for relationships with teachers and peers seems an important additional component of interventions.

Recommendations for future research are organised by methodological issues and gaps in the research literature. Key methodological recommendations include more examination of both what works and for whom during intervention research. A formal intervention mapping process could enhance the selection of appropriate behaviour change techniques and examination of potential moderators. Non-pharmacological interventions that target children with or at risk of ADHD should be rigorously evaluated, conforming where feasible to Consolidated Standards of Reporting Trials (or other relevant) guidelines. In particular cluster randomised controlled designs should be used that aim to reduce bias wherever possible. Exploration of the experience and attitudes of participants, alongside such research, would provide information about participant meaning and intervention processes to support the development of theory about for whom, why and how these interventions might work.

Gaps in current research present opportunities for the development and testing of standardised tools to describe programme features relevant to ADHD, so that the design, reporting, replication, implementation and synthesis of interventions that target children with or at risk of ADHD can be enhanced. Given the wide range of outcome measures reported in review 1, identification of gold-standard outcome measures assessing aspects related to ADHD would facilitate comparison across studies. No relevant cost-effectiveness studies were detected during review 1. There may be scope for modelling of potential cost-savings should effectiveness be demonstrated. Findings from the overarching synthesis suggest that a range of potential moderators, including age, gender, medication use, method of intervention delivery, intensity and duration of intervention, ought to be researched alongside intervention trials given their potential importance.

Study registration

This study is registered as PROSPERO CRD42011001716.

Funding

Funding for this study was provided by the Health Technology Assessment programme of the National Institute for Health Research.

Chapter 1 Background

What is attention-deficit/hyperactivity disorder?

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterised by age-inappropriate levels of inattention, impulsivity and hyperactivity.¹ The current *Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition* (DSM-5) categorises particular constellations of symptoms into three presentations of ADHD. These are (1) predominantly inattentive; (2) predominantly hyperactive/impulsive; and (3) combined, where symptoms of both inattention and hyperactivity/impulsivity criteria are present.

The DSM-5 diagnostic criteria for ADHD, published in May 2013, increased the age by which some symptoms must have been present from 7 to 12 years of age.¹ Another potentially key change in DSM-5 relates to the level of impairment; *Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition* (DSM-IV)² required clear evidence of clinically significant impairment for diagnosis, whereas DSM-5 requires only interference or a reduction in functioning. DSM-5 also requires clinicians to specify the severity level of a diagnosis: mild, moderate or severe. Given the recent publication of DSM-5 and the retrospective nature of evidence synthesis, the studies included in this review refer to diagnoses made according to *Diagnostic and Statistical Manual of Mental Disorders-Third Edition* (DSM-III) or DSM-IV criteria.^{2,3}

The *International Classification of Diseases, Tenth Edition* (ICD-10) classifies core ADHD symptoms as hyperkinetic disorder.⁴ The diagnosis for hyperkinetic disorder is more restrictive, whereby inattention, hyperactivity and impulsivity must all be present. Thus, the ICD-10 diagnosis represents a subsample of the DSM-5 'combined presentation' of severe ADHD. In Europe, 'ADHD' has become the diagnostic phrase most commonly used in practice, even when the narrower ICD-10 criteria are being used.

The aetiology of ADHD is complex and may be most clearly understood as involving the interplay of biological, psychological and social factors.⁵ Several causal factors have been suggested to contribute to the onset and maintenance of ADHD. These include genetic factors, psychosocial factors, complications in pregnancy and delivery and environmental factors such as high lead exposure, head injury and diet.⁶⁻⁹ Heritability is a major factor and appears to contribute approximately 75% of the aetiology of ADHD.⁶ Although no large single gene effect has been isolated, the *DRD2*, *DRD4* and *DRD5* dopamine receptors appear to be involved.¹⁰ Although the current DSM-5 diagnostic criteria continue to weigh heavily on core symptoms of inattention, hyperactivity and impulsivity, some research suggests that deficits in self-regulation and executive functioning could explain many of the problems of the condition and its impairments.⁸ More recently, leading experts have argued for deficits in emotional self-regulation as a core feature of ADHD,⁹ but this has received relatively little research attention compared with the core symptoms of ADHD,¹¹ and problems in emotional self-regulation are now the basis of a new category in DSM-5, 'disruptive mood dysregulation disorder', which may be associated with ADHD.¹²

Prevalence

Attention-deficit/hyperactivity disorder is one of the most common disorders to present to child and adolescent mental health services; however, findings from studies that ascertain prevalence vary. The worldwide prevalence of ADHD is estimated at 2–5% for children aged < 18 years,¹³ with 3–16% of children displaying difficulties that do not reach the diagnostic threshold. Numerous studies have shown increases in the prevalence of clinical ADHD diagnoses and prescriptions for stimulant medication over recent decades, for instance, a 33% increase in prevalence of diagnosis from 5.69% in 1997–9 to 7.57% in 2006–8 according to US survey data.¹⁴ Prevalence in the UK was found to be 3.62% for boys and

0.85% for girls, for a sample of over 10,000 children aged from 5 to 15 years in 1999.¹⁵ Although a systematic review of research between 1978 and 2005 found no differences between European and US rates of ADHD,¹³ more recent studies sampling parent reports found that in the USA between 2008 and 2010, 6.3% of all children aged 5–9 years were reported by parents as having an ADHD diagnosis,¹⁶ whereas in the UK between 2007 and 2009, only 1.4% of children aged 6–8 years held ADHD diagnoses according to parent reports.¹⁷

Although boys are more commonly diagnosed with ADHD than girls, the ratio varies between two and nine boys to one girl, depending on the category of ADHD presentation² and whether prevalence is based on clinical or epidemiological populations.¹⁸ Girls with ADHD may be less likely to be seen in clinics.¹⁹ Younger childhood and low socioeconomic status have also been shown to be positively associated with prevalence.^{20,21} Although prevalence appears to decline with age, a 2013 prospective study reported that ADHD persisted into adulthood for nearly a third of young people.²² Despite the increasing clinical recognition in the UK, ADHD remains underdiagnosed in certain populations, including adults,²³ children with intellectual difficulties²⁴ and those with inattentive symptoms.²⁵ Differences in findings about prevalence are suggested to result from different study approaches to identification.¹⁷ Differences in clinical practice,²⁶ expression of symptoms and behaviour according to cultural, social and developmental contexts^{27,28} are argued to be additional contributing factors both within and between countries.

Co-existing issues

Attention-deficit/hyperactivity disorder frequently co-exists with other mental health disorders, particularly antisocial and oppositional behaviour, but also tic disorders, specific learning difficulties, autistic spectrum disorders (ASDs), anxiety and depression.^{11,29–31} As many as two-thirds of all children with ADHD in the general population are reported to have at least one other co-existing condition.³² Many children with ADHD also have difficulties with social interaction and low self-esteem that affect their relationships with their parents, relatives and friends, as well as practitioners at school.³³ Often, these problems are at least as important as ADHD in contributing to the longer-term outcome in the individual child.³⁴ In addition, ADHD has also been linked with lower than average intellectual potential and academic underachievement across the developmental spectrum, from preschoolers to adults.¹⁴ Inattentive symptoms and their related executive functioning deficits have been particularly associated with learning difficulties.⁷ In the longer term, those with ADHD are less likely to be employed full-time, and more likely to have a lower household income than age and gender matched controls.¹⁸

Controversy

Despite the breadth of research relating to prevalence, the diagnosis of ADHD has stimulated considerable debate and sometimes strong and conflicting views.³⁵ ADHD remains a contested disorder; for instance, in 2009 O'Regan found that 50% of general practitioners and 20% of special educational needs (SEN) co-ordinators in the UK did not believe that ADHD was a 'real neurological condition' (p. 4).³⁶ Bailey discusses the contested aetiology of ADHD and the issues that acceptance of a biological basis for ADHD can raise,³⁷ which include concern over the use of medication for long periods of time in young children³⁸ and the belief that the core symptoms of ADHD, inattention, hyperactivity and impulsivity, are traits seen in many children, especially the very young.³⁹ It has been shown that higher percentages of diagnosis of ADHD may occur for the youngest children in school year groups, which has led some to suggest that behavioural differences attributed to ADHD may be due at least in part to immaturity.⁴⁰ The labelling of hyperactivity, impulsivity and inattention as ADHD when these behaviours interfere with expectations for correct classroom behaviour has been criticised by those who believe ADHD is a constructed response to the demands of modern academic education.⁴¹ Timimi and Taylor argue that ADHD is best understood as a cultural construct, given the variability in prevalence internationally and rise in diagnosis rates in Western culture.⁴²

By contrast, other studies suggest that solely biological understandings of ADHD can be adopted by educational staff and/or parents and others as a means to transform 'multifaceted problems into organic dysfunctions' (p. 1).⁴³ The recently documented increase in diagnosis of, and medication for, ADHD has been linked to reduction in educational funding and restricted classroom discipline policies.⁴⁴ It has been suggested that pressures on health and educational institutions for higher attainment and rapid improvement mean that there is often a focus on short-term solutions provided by medication at the expense of more intensive, long-term educational support, such as that provided by non-pharmacological interventions.⁴⁵ Thus, polarised views of either cultural or biological origins continue to be reported in the literature, despite repeated research findings that suggest ADHD is a transaction between biological, environmental and psychosocial factors.^{6,8-10}

Interventions for children with or at risk of attention-deficit/hyperactivity disorder

The National Institute for Health and Care Excellence (NICE) clinical practice guidelines recommend that for school-age children and young people with severe ADHD, medication should be offered as the first-line treatment.⁴⁶ Parents should also be offered a group-based parent training/education programme. If the child or young person with ADHD has moderate levels of impairment, the parents or carers should first be offered referral to a group parent training/education programme, either on its own or together with a group treatment programme [such as cognitive-behavioural therapy (CBT) or social skills training] for the child or young person. Pharmacological treatment may then be added to the management plan if symptoms do not sufficiently respond to this approach. Teachers who have received training about ADHD and its management should provide behavioural interventions in the classroom to help children and young people with ADHD. Medication for children and young people with ADHD should always form part of a comprehensive treatment plan that includes psychological, behavioural and educational advice and interventions. Use of both medication and psychosocial treatment for ADHD varies widely within and across nations.⁴⁷ At present, the most common approaches to the treatment of ADHD are medication and/or psychological or behavioural interventions.

Pharmacological interventions

The most frequently used pharmacological treatments, and those with the largest evidence base, are the stimulant medications, methylphenidate and dexamfetamine,⁴⁸ but their use remains controversial among some people who work with children.^{49,50} The Care Quality Commission revealed in 2013 that the prescribing of methylphenidate for ADHD in the UK had risen by 56% in primary care from 420,421 in 2007 to 657,358 in 2012.⁵¹ Meta-analyses of stimulant medications have shown them to be effective at decreasing the symptoms of hyperactivity, impulsivity and inattention, although their effectiveness on cognition and achievement are more modest.⁵² However, any positive effects do not appear to persist once stimulants are no longer used⁵³ and as many as 30% of children do not respond to stimulants.⁵⁴ The potential adverse effects of treatment with stimulants include decreased appetite, weight loss, insomnia, stomach ache, headache and irritability.⁵⁵

Several studies of the cost-effectiveness of pharmacological ADHD interventions have been undertaken. In 2001 in the UK, Gilmore and Milne examined the cost-effectiveness of different medications from the perspective of the NHS, finding methylphenidate to offer the best value for money.⁵⁶ NICE estimated the cost per quality-adjusted life-year gained by methylphenidate at £9200 to £14,600.⁵⁷ Cost-effectiveness studies have compared medication to behavioural treatment and combined treatments, often finding in favour of medication alone.⁵⁸

Non-pharmacological intervention

Non-pharmacological interventions target behaviour directly or indirectly through cognitive and affective processes and typically target children, teachers and parents. Interventions that target teachers and parents usually involve training for delivery of interventions that target the children. An early meta-analysis compared a range of treatments for ADHD including both pharmacological and non-pharmacological interventions and found larger effects from all interventions on behavioural ($d = 0.56$) rather than educational outcomes ($d = 0.28$).⁵⁹ These overall effects were larger for medical interventions ($d = 0.45$) than for educational ($d = 0.39$), psychosocial ($d = 0.39$), or parent training interventions ($d = 0.31$). However, the effects on educational outcomes were greater for educational interventions ($d = 0.58$) than for other types of psychosocial intervention. There was little support for the influence of any reduction in behavioural problems on educational outcomes across studies. Although it is widely accepted that intervention in ADHD should be based on multimodal treatment,⁵⁵ some research has suggested that adding psychosocial interventions to medication does not improve outcomes significantly.^{60,61}

Several reviews point to the effectiveness of behavioural interventions, particularly behavioural parent training (BPT) and behavioural classroom management.^{62–64} For example, Pelham and Fabiano examined three types of interventions, including behavioural modification in classroom settings (BMC) that consisted of 'contingency management' based on 'social learning theory', BPT and behavioural peer intervention (BPI).⁶⁴ Results were synthesised across a range of constructs related to ADHD (including behavioural observations, family functioning, academic productivity, peer relationships and cognitive functioning), informants (e.g. parents, teachers, children and clinicians), and intervention type. Average effects by study design indicated that methodologically weaker single- and within-subject (treatment group received multiple treatments over time in a crossover fashion) designs generally reported larger effects than controlled trials. For the comparison of treatment with waitlist/no treatment Cohen's d ranged from -0.03 to 0.44 for BMC; -0.02 to 0.70 for BPT; and 0.29 to 0.63 for BPI. Cohen's classification for interpreting effect sizes distinguished between 'small' ($d = 0.20$), 'medium' ($d = 0.50$) and 'large' ($d = 0.80$) sizes, with very small findings < 0.20 having the least clinical impact.⁶⁵ Although these findings include evidence for the effectiveness of these interventions, the wide range of reported effects does not clarify their size and consistency. Pelham and Fabiano suggested a range of potential moderating variables that could have influenced the treatment outcomes, which included recipient gender, age, comorbidity, socioeconomic status, therapist characteristics and treatment characteristics such as intensity and adherence.⁶⁴

Fabiano *et al.* conducted meta-analyses to evaluate the effectiveness of behavioural interventions that included parent training, child training and classroom-based behavioural interventions.⁶³ Effects were synthesised across intervention type; constructs related to ADHD (including two observational behavioural measures; ADHD symptoms, externalising symptoms, impairment productivity and achievement); intervention context (school and clinic); and informant types. As was found by Pelham *et al.*,⁶⁶ average effects by study design indicated that methodologically weaker single-subject, within-subject (treatment group received multiple treatments over time in a crossover fashion) and pre–post (treatment groups assessed pre and post intervention) designs reported larger effects than controlled trials. For the 20 controlled trials, the average weighted effect size was 0.67 with 95% confidence intervals (CIs) from 0.54 to 0.80 . Significant reported heterogeneity across studies was perhaps due in part to the collapsing of data across different settings, outcomes and informants.⁶³

There is less evidence for the effectiveness of neurofeedback on ADHD. For example, Willis *et al.* conducted a systematic review of 14 empirical reports of neurofeedback treatment for children with ADHD and reported that neurofeedback is not well supported as an intervention for this disorder.⁶⁷ Furthermore, the cost-effectiveness of neurofeedback has been called into question.⁶⁸ Social skills training, summer treatment programmes and academic modifications have some support in the treatment of a range of ADHD symptoms and related impairments.⁶⁹ However, Barkley reports that social skills training shows less benefit for teenagers with ADHD compared with younger children, which suggests that age may be an important moderator of the effectiveness of social skills interventions.⁷⁰

In 2013 Sonuga-Barke *et al.* published a systematic review of peer-reviewed randomised controlled trials (RCTs) investigating the efficacy of non-pharmacological interventions delivered in various contexts (including home, school and clinic settings).⁶² Statistically significant treatment effects were found for all the non-pharmacological interventions when the person rating the outcome used was the closest to the intervention setting (e.g. teacher ratings for interventions in school settings).⁶² This was the case for all dietary [standardised mean difference (SMD) ranged from 0.21 to 0.48] and psychological treatments (SMD ranged from 0.40 to 0.64) that included cognitive training, neurofeedback and behavioural interventions. However, these treatment effects were not statistically significant for all psychological interventions when raters were blinded to the treatment participants were receiving.⁶²

School-based interventions

The education system has a front-line role in the management of ADHD. Results from the 2004 British Child Mental Health Survey showed that more families of children with ADHD had sought support from education in the past year than from professionals in specialist health services (74% vs. 51%).⁷¹ Few systematic reviews and meta-syntheses have examined the effectiveness of non-drug interventions in school settings independently of those delivered entirely in home and clinical contexts. One exception is DuPaul *et al.* who updated a previous meta-analysis to provide a quantitative review of school-based ADHD intervention research that had been conducted between 1996 and 2010.⁷² The authors examined the effects of three intervention types labelled as 'academic', 'contingency management' and 'cognitive-behavioural'. 'Academic' involved study skills training and modification of academic instruction; 'contingency management' involved the application of techniques grounded in operant conditioning (such as rewards and punishments) and 'cognitive-behavioural' encompassed the development of self-control skills including self-instruction and problem-solving strategies. For the behavioural outcome comprising symptoms related to ADHD, statistically significant positive effects were identified for the within-subjects group (treatment groups assessed pre and post intervention) and single-subject designs but not for the controlled trials ($d_+ = 0.18$, 95% CI -0.62 to 0.98). Similarly, all mean effect sizes were positive for the academic outcome and statistically significant results were reported for single-subject designs but not for controlled trials ($d_+ = 0.43$, 95% CI -0.36 to 1.21) and within-subjects designs. However, analyses for the controlled trials were severely limited by the small number of studies included ($n = 3$).

Although stimulant medication and behaviour modification typically target and have proven to be effective interventions to increase on task, and reduce disruptive behaviour among children with ADHD within the classroom, a literature review conducted in 2006 which focused on academic interventions for ADHD concluded that the manipulation of antecedent conditions, such as academic instruction or materials, often improved both behavioural and academic outcomes.⁷³ However, in 2007 Trout *et al.*⁷⁴ systematically reviewed non-pharmacological interventions that targeted academic outcomes using single-subject and within-group (treatment groups assessed pre and post intervention) study designs. They categorised interventions as 'antecedent' (interventions that target children prior to an academic task); 'consequence' [interventions that targeted children post performance of the target behaviour(s)]; 'peer-mediated' (intervention that were delivered in part by peers); 'parent-mediated' (interventions that were delivered in part by parents); 'self-regulation' (interventions that targeted self-regulation of cognition and behaviours); and other interventions that used a combination of treatments. The authors suggested that peer tutoring and self-regulation show some evidence of effectiveness. Nonetheless, the authors reported that there were few systematic lines of research and reached few firm conclusions regarding the effectiveness of behavioural interventions that target children with ADHD. In an earlier review conducted in 2005, Reid *et al.*⁷⁵ reported beneficial effects for interventions based on 'self-monitoring' related to 'self-regulation' in their review of symptom and scholastic outcomes, providing further support of the beneficial effect of self-monitoring. However, as single-subject and within-group designs were the focus of this review, it is yet to be established if these effects are observed in controlled trials.

A 2010 questionnaire study of first-grade teachers⁷⁶ points to the fact that interventions of the type reviewed in the studies cited above may not always match the interventions that teachers report using for children with ADHD difficulties. Teachers reported using environmental modifications, assignment modifications and behaviour modification strategies more frequently with inattentive students than with other students. Although some of the interventions mentioned by teachers, such as reward systems and time out, are considered evidence-based treatments for children with ADHD,⁶⁴ other strategies the teachers reported using, such as preferential seating and additional time, are less often researched.

Reported effectiveness of school-based interventions may vary depending on the outcome of interest. In their 2005 review, Pelham *et al.*⁶⁶ compared a contingency management intervention to methylphenidate or the use of both treatments and reported effect sizes that were four to five times greater for the effectiveness of the educational intervention for classroom rule violations than for teacher ratings of ADHD behaviours. Although school-based behavioural interventions can improve targeted behaviours in the short term, they have been found less useful in reducing the core symptoms of ADHD.⁶⁰

Because of its prevalence and at times refractory course, childhood ADHD results in considerable costs for society, particularly to the educational system. In 2013, Telford *et al.*⁷⁷ considered the wider education, health and social care costs of adolescents with ADHD in the UK. The mean cost per adolescent for NHS, social care and education resources used in a 12-month period related to ADHD was £5493 in 2010 prices and the median was £2327. Education resources accounted for approximately three times the cost of health-care costs. The total annual cost of adolescents with ADHD in the UK is estimated to be £670M.⁷⁷

Methodological considerations

Reviews of quantitative research in school settings have frequently evaluated the preponderance of within-subject group and single-subject designs, which, although valuable, are more prone to bias than RCTs, which are the scientific 'gold standard' for evaluating treatment effects.⁷⁸ Many of the findings are difficult to interpret, as they combine results across different contexts (e.g. school, clinical and home), interventions, outcomes and informants. Tests of statistical significance and CIs are often not reported, which makes the findings difficult to interpret, and there are no standardised guidelines for interpreting effect sizes for within-subject group and single-subject designs and comparing these effects with those found in other study designs such as between-group designs where Cohen's *d* is often reported. There are differences in the types of outcome measures used across study designs with most single-subject design studies employing proximal outcome measures such as curriculum-based measurements or direct observations of classroom behaviour.⁷² In contrast, most controlled trials and within-subject group design studies used more distal measures such as teacher ratings or report card grades.⁷²

Sociopolitical aspects of educational research in the UK may contribute to a lack of research employing the most rigorous experimental designs. RCTs provide general information about interventions that are particularly useful to policy-makers. In contrast, educational researchers and/or practitioners may be more concerned about knowledge about the application of information to specific cases^{79,80} or be concerned about aspects of education that are not represented by straightforwardly measurable outcomes,⁸¹ for example those who suggest that education involves norms, values and processes of judgement that cannot be separated from extrinsic variables.⁸² This may lead them to prefer approaches like case studies and action research. Educators may also be sensitive to moves towards a more central control of education, which some may associate with calls for evidence-based practice.⁸¹

The measurement of attention-deficit/hyperactivity disorder symptoms and outcomes

A range of constructs have been used to evaluate the effectiveness of treatments that target children with or at risk of ADHD in school settings. These constructs can be categorised into three higher-order groups: (1) core ADHD diagnostic symptom categories (including inattention, hyperactivity/impulsivity, ADHD combined); (2) symptoms commonly associated with ADHD (including externalising symptoms, internalising symptoms, social skills); and (3) scholastic behaviours and achievement (including 'perceptions of scholastic adjustment', 'standardised achievement' and 'curriculum'-based achievement). Core ADHD diagnostic symptom categories include the three diagnostic presentations of ADHD as specified in DSM-5: age-inappropriate 'inattention'; 'hyperactivity/impulsivity'; and 'combined' inattention and hyperactivity/impulsivity. The second category of ADHD-related symptoms encompass difficulties that frequently coexist with the core symptoms of ADHD and complicate its management, but are not relevant to diagnosis. Scholastic behaviours and achievement encompass perceived adjustment to school such as achievement, motivation, academic skills and abilities. These three higher-order constructs have been assessed by a range of behavioural measures, which include ratings and observations, as well as more relatively objective neurocognitive assessments and tests of scholastic achievement with objective performance criteria.

Assessments

When measuring the effectiveness of school-based interventions, the child's core ADHD symptoms, ADHD-related symptoms and scholastic behaviours and outcomes are typically assessed by teacher and parent perception-based measures [e.g. Conners' Rating Scale (CRS)],⁸³ although independent observers (who have had no previous relationship with the study participant) are sometimes used (e.g. observer-based assessments of on-task behaviour). Neurocognitive assessments such as the test of variables of attention (TOVA)⁸⁴ have also been employed to assess 'inattention' and 'hyperactivity/impulsivity' and a range of standardised achievement tests are used to measure academic outcomes (e.g. Wide Range Achievement Test).⁸⁵ Most studies include a range of outcomes assessed by a number of raters or informants.

Sonuga-Barke *et al.*'s 2013 systematic review of non-pharmacological interventions found significant treatment effects for all of the non-pharmacological interventions when the person rating the outcome used was the closest to the intervention setting (e.g. teacher ratings for interventions in school settings).⁶² However, these treatment effects were not statistically significant for all psychological interventions when using the most methodologically rigorous blinded assessments, which indicates the potential for bias in outcomes from raters who are involved in intervention delivery and/or expect the intervention to be successful. Blinding, however, was sometimes inferred from the study design rather than taken from the reported use of blinding. Moreover, findings were limited to a composite outcome combining core ADHD symptom measures and delivery settings, which may mask important effects and account for some of the significant heterogeneity in findings across the primary studies.⁶² In addition, there may plausibly be limited generalisation of the impact of an intervention in one setting to perceptions of the child's behaviour in another setting. Nonetheless, Sonuga-Barke *et al.*⁶² highlight the importance of methodological evaluation alongside evidence synthesis of interventions that target children with or at risk of children with ADHD.

Triangulation of data in quantitative versus qualitative research

Mixed methods in primary studies are considered to enable additional grounds for inference owing to triangulation of data, methods and analysis.⁸⁶ The benefits of mixed-methods systematic review are similar.⁸⁷ However, triangulation of data, when defined as the additional confirmation of a finding through repetition from different studies, can be problematic in qualitative studies. Unlike experimental evaluations, where repetition increases finding strength, an interpretive approach does not seek a true answer; rather, it

explores the meanings people make of their experiences.⁸⁸ In interpretive studies it is expected that different people will make sense of things in different ways. By contrast, similar sense of a topic made by different people is not taken as additional evidence of truth, but rather that the participants are drawing from a similar cultural ideology to make sense of their experiences.⁸⁹ Therefore, an isolated finding may be more important than repeated findings, for example because it illuminates a previously implicit and overlooked meaning.^{88,90} In interpretive research, triangulation of data can be understood as the compilation of multiple perspectives, where the resulting representation of complexity of perspective and depth of meaning is a sign of study rigour.⁹¹

Rationale

The research questions of a systematic review guide the criteria for included studies.^{87,92} Our research questions ask about effectiveness of ADHD interventions in schools, factors that enhance or limit the delivery of school interventions for ADHD, and the experience of ADHD in schools. We were unable to locate any systematic reviews of either the experience of non-pharmacological interventions for ADHD, or the experience of ADHD more generally; therefore the synthesis of qualitative primary studies holds important potential to contribute new information on this topic. In this systematic review, we synthesise qualitative research in addition to experimental evaluation studies in order to explore attitudes, experiences and factors that may help explain how or why interventions for ADHD in school settings are or are not effective. Through the overarching synthesis of both quantitative and qualitative reviews, we will explore similarities, contradictions and gaps between these syntheses, further informing the research questions and implications for further research.⁸⁷

This review also holds the potential to contribute important new information about the effectiveness of non-pharmacological interventions for ADHD in schools. A range of non-pharmacological interventions have been developed and delivered in school settings by parents, teachers or other professionals. As outlined above, few published reviews have considered the effectiveness of non-pharmacological interventions in school settings independently of those delivered predominantly in other settings such as at home and in clinics. Therefore, a gap remains for a systematic review that considers the effectiveness and cost-effectiveness of such non-pharmacological interventions that are delivered primarily in school settings.

The reviews reported have typically taken a narrow focus in terms of the interventions and outcomes included and few have distinguished between different types of informants (see Fabiano *et al.*⁶³ for exception). Moreover, the focus has been on single-subject and within-group designs rather than on controlled trials, which compromises evidence synthesis as study design, intervention type, delivery context, outcomes and informant type may produce important differential effects.⁶² Despite the current clinical recommendation for non-pharmacological ADHD interventions,⁴⁶ there is a lack of clarity regarding their effectiveness and in particular their effectiveness in school settings. Moreover, their cost-effectiveness has not been systematically reviewed.

To build evidence-based guidelines for the treatment of ADHD in school settings, knowledge of the effectiveness of interventions is required. However, heterogeneity among findings across studies of intervention effectiveness is a common conclusion for many reviews that assess non-pharmacological interventions that target children with or at risk of ADHD.^{62,63,72,74} Although average, weighted, effect sizes may help to establish the importance of non-pharmacological interventions in improving outcomes for children with or at risk of ADHD, it is critical that the components linked with the most successful interventions are identified so that the design, implementation and replication of future interventions can make the best use of scarce resources.

Repeated calls have been made for precise specification of what makes one behaviour change intervention more effective than another and how this can be understood theoretically (e.g. Rothman⁹³). A range of programme features have been highlighted as potentially moderating the effectiveness of interventions

that target children with or at risk of ADHD; these include characteristics of the child participant (e.g. age, medication status, sex), characteristics of the intervention (i.e. the change techniques constituting intervention content) and characteristics related to the delivery of the intervention (e.g. intensity of the intervention, fidelity of delivery).⁶⁴ The identification of programme features that are necessary for effective intervention implementation in school contexts will facilitate links between particular intervention components and effectiveness, and in turn could help resources to be used more efficiently and benefit children displaying ADHD symptoms, their carers and service providers.

Through the consideration of relevant qualitative research alongside the synthesis of quantitative studies this review has the potential to provide explanations of why particular interventions are effective and what factors operate as catalysts and barriers to effectiveness. The review will also identify any significant areas of uncertainty with regard to school-based interventions for ADHD and recommend any future research needed to address them.

Aim and research questions

The broad aim of this series of systematic reviews and their overarching synthesis is to evaluate the effectiveness and cost-effectiveness of non-pharmacological interventions delivered in school settings for children with, or at risk of, ADHD and to explore the factors that may enhance, or limit, the delivery of such interventions.

Four reviews were conducted. Review 1 (see *Chapter 2*) synthesises the effectiveness and the cost-effectiveness of non-pharmacological interventions delivered in school settings for children with or at risk of ADHD. Review 2 (see *Chapter 3*) considers quantitative studies that explore attitudes towards school-based non-pharmacological interventions for pupils with ADHD. Review 3 (see *Chapter 5*) synthesises the attitudes and experiences of children, teachers, parents and others using ADHD interventions in school settings. Review 4 (see *Chapter 6*) explores the experience of ADHD in school among children, their parents and teachers more generally. The four reviews are subsequently brought together in an overarching synthesis (see *Chapter 7*). Each review addresses particular research questions as outlined below.

Review 1

1. Are non-pharmacological interventions delivered in school settings for children with or at risk of ADHD effective in improving:
 - i. Core ADHD symptoms (inattention, hyperactivity/impulsivity, ADHD combined)?
 - ii. ADHD-related symptoms (externalising symptoms, internalising symptoms, social skills)?
 - iii. Scholastic behaviours and outcomes (perceptions of school adjustment, curriculum achievement, standardised achievement)?
2. Is effectiveness moderated by particular programme features?
3. Have such interventions been shown to be cost-effective?

Review 2

4. What attitudes do educators, children with or at risk of ADHD, their peers and their parents hold towards non-pharmacological interventions for ADHD used in school settings?
5. Which school-based non-pharmacological interventions for ADHD are preferred and how do attitudes towards these interventions compare to non-school interventions including pharmacological ones?
6. What factors affect attitudes held towards these non-pharmacological interventions (including children's ADHD subtype and teacher experience)?

Review 3

7. What are the experiences of and attitudes towards ADHD interventions in school settings?

Review 4

8. What are the school-related experiences and perceptions of pupils diagnosed with or at risk of ADHD, their teachers, parents and peers?

Overarching synthesis

The aim of the overarching synthesis is to synthesise findings from reviews 1–4.

Chapter 2 Review 1: effectiveness of non-pharmacological interventions in school settings for children with or at risk of attention-deficit/hyperactivity disorder

Research questions

This chapter describes systematic review 1 and addresses the following three research questions:

1. Are non-pharmacological interventions delivered in school settings for children with, or at risk of, ADHD effective in improving:
 - i. Core ADHD symptoms (inattention, hyperactivity/impulsivity, ADHD combined)?
 - ii. ADHD-related symptoms (externalising symptoms, internalising symptoms, social skills)?
 - iii. Scholastic behaviours and outcomes (perceptions of school adjustment, curriculum achievement, standardised achievement)?
2. Is effectiveness moderated by particular programme features?
3. Have such interventions been shown to be cost-effective?

Methods

Search strategy

Electronic database search

A database search strategy was developed which combined three elements: ADHD plus synonyms and derivatives; terms related to a school context; and intervention terms. The database search strategies used a mixture of subject headings (controlled vocabulary) and free-text terms. Searches were restricted to years from 1980 onwards. Twenty electronic databases were searched {Applied Social Sciences Index and Abstracts (ASSIA)/ProQuest, MEDLINE/OvidSP, EMBASE/OvidSP, PsycINFO/OvidSP, British Education Index/ProQuest, Australian Education Index/ProQuest, Education Research Complete/EBSCOhost, Education Resources Information Center (ERIC)/ProQuest, The Cochrane Library [Cochrane Database of Systematic Reviews (CDSR), Database of Abstracts of Reviews of Effects (DARE), Cochrane Central Register of Controlled Trials (CENTRAL), Cochrane Methodology Register (CMR), Health Technology Assessment (HTA), NHS Economic Evaluation Database (NHS EED)], The Campbell Library, Health Management Information Consortium (HMIC)/OvidSP, Social Policy and Practice/OvidSP, Social Sciences Citation Index, Conference Proceedings Citation Index, Conference Proceedings Citation Index – Social Science & Humanities (via ISI Web of Science)}, from 16 to 28 May 2012. Searches were updated between 11 and 18 February 2013. An example search strategy used for the PsycINFO/OvidSP database is shown in *Appendix 1*. No language or geographical limitations were applied. Titles and abstracts returned by the search strategy were exported into EndNote v.X5 (Thomson Reuters, CA, USA) and independently screened by two of six researchers (MR, DM, TND, RW, MRo and RA) using the predefined criteria specified below. All disagreements were resolved by discussion between MR and DM. Where it was not possible to decide on exclusion of a paper based on the information in the title and abstract, the full text was retrieved. Two researchers (MR and DM) examined these independently for inclusion or exclusion using modified predefined criteria (specified below). Again, all disagreements were resolved through discussion.

Where full-text papers were not easily retrievable (locally or from The British Library) authors were contacted. The same methods were applied to identify additional unique records from an updated search of the electronic databases conducted in February 2013.

Supplemental search strategies

Backward (searching the references of included articles) and forward (searching articles citing included articles using Web of Knowledge) searches were conducted by two researchers (MRo and DR) to locate further primary articles of potential relevance. In addition, DR searched websites (see *Appendix 2* for a list of websites searched) and hand-searched five key journals published between 2008 and 2012: *Journal of Child Psychology and Psychiatry*; *British Educational Research Journal*; *Journal of School Psychology*; *Journal of Attention Disorders*; and *Attention Deficit and Hyperactivity Disorders*.

Inclusion and exclusion criteria

The screening of potentially relevant articles was carried out in two stages: at stage 1, predefined criteria were applied to titles and abstracts and at stage 2, these criteria were modified and applied to the screening of full-text articles. The criteria are detailed in *Table 1* and parentheses indicate where they were applied at stage 2 only (for full-text screening).

Data extraction

Methodological information

A form was developed with reference to existing coding frames^{94,95} and modified after pilot testing to extract the relevant programme features of the included studies, which included bibliographic and study details, participant characteristics, outcome assessments, intervention package(s) and characteristics relating to the delivery of the intervention package(s). The typology of information extracted is reported in *Table 2*.

Conceptual synthesis: mapping measures onto child-related constructs that assessed aspects of attention-deficit/hyperactivity disorder

Owing to the heterogeneity in assessment of child outcome measures, a classification system that mapped the measures reported in included studies onto nine commonly assessed child-related constructs assessing aspects of the condition was developed by MR and checked by DM. The classification system was developed by reading and rereading descriptions of the measures and items located in the primary papers and other online resources, and mapping them to definitions of the constructs. This tool was then used by MR to map outcome assessment instruments reported in the primary papers onto nine commonly assessed child-related constructs assessing aspects of ADHD. The labels and definitions of these constructs, as well as the measures and informants (parents, teachers, children and observers), are reported in *Table 3*.

TABLE 1 Inclusion and exclusion criteria

Criteria	Specification
Population	<p>Inclusion:</p> <ul style="list-style-type: none"> • Aged between 4 and 18 years • Preschool, school or further education college attendees • $\geq 50\%$ with or at risk of ADHD <p>Exclusion:</p> <ul style="list-style-type: none"> • $\geq 80\%$ of sample with IQ scores of ≤ 70 • Samples with brain injury and those with neurological insult ascribed to a general medication condition • Samples with or at risk of ADHD with rare comorbidities (e.g. Fragile X syndrome). Presence of common comorbidities (e.g. conduct disorder, ODD, LDs) was not grounds for exclusion • Attendees at institutions for higher education (e.g. university)
Intervention	<p>Inclusion:</p> <ul style="list-style-type: none"> • Non-pharmacological treatments • Delivered primarily in non-higher educational setting(s) (including special schools, pupil referral units, public school, private school and residential school) • Targets child population directly (e.g. biofeedback) or indirectly (e.g. teacher training) <p>Exclusion:</p> <ul style="list-style-type: none"> • Summer residential treatment programmes, laboratory, hospital or prison settings (stage 2: full-text only)
Outcomes	<p>Inclusion:</p> <p>Child outcomes including ADHD symptoms (i.e. inattention, hyperactivity/impulsivity); ADHD-related symptoms (i.e. externalising, internalising and social skills) and scholastic behaviours (i.e. perception of scholastic adjustment, standardised achievement and curriculum achievement)</p> <ul style="list-style-type: none"> • Economic outcomes (e.g. cost-effectiveness)
Study design	<p>Inclusion:</p> <ul style="list-style-type: none"> • Controlled trials (randomised and non-randomised)
Comparators	<p>Inclusion:</p> <ul style="list-style-type: none"> • No treatment, treatment as usual, waitlist control, experimental control designs that match for time/contact <p>Exclusion:</p> <ul style="list-style-type: none"> • Active (stage 2: full-text only)
Other	<p>Exclusion:</p> <ul style="list-style-type: none"> • Unavailability of relevant empirical data from the report or study author(s) (stage 2: full-text only)

IQ, intelligence quotient; LD, learning disability; ODD, oppositional defiant disorder.

TABLE 2 Methodological information extracted

Programme feature	Information extracted
Bibliographic and study details	<ul style="list-style-type: none"> Reference details Country Publication status Target outcome: core symptoms; related symptoms; scholastic behaviours and outcomes Type of control Sample size
Child participant characteristics	<ul style="list-style-type: none"> Medication status at baseline School level (as proxy for age) Percentage of female participants
Outcome assessment(s)	<ul style="list-style-type: none"> Assessment instrument Measurement type (e.g. neurocognitive, behavioural) Informant(s)
Intervention package(s)	<ul style="list-style-type: none"> All text relating to the change techniques constituting intervention content that targeted the child population
Characteristics relating to the delivery of the intervention package(s)	<ul style="list-style-type: none"> Intervention context (i.e. school and home or school only) Setting within school Time of delivery Format of delivery Intervention provider Training for intervention provider Duration of intervention Intensity of intervention Fidelity of intervention

TABLE 3 Categorisation of measures and informants onto nine commonly assessed child-related constructs assessing aspects of ADHD

Construct label and definition	Measures (subscales italicised in parentheses where relevant)	Informant(s)
<i>Construct label:</i> inattention	BASC-II (<i>inattention</i>) ⁹⁶	Parent
<i>Construct definition:</i> inability to focus and pay attention appropriate to task and context. For example, inattention, easy distractibility, disorganisation, procrastination and forgetfulness	SKAMP (<i>cognitive impairment attention</i>) ⁹⁷	Teacher
	CRS; ⁹⁸ CRS-R (<i>inattention/passivity, cognitive problems/inattention, daydream/attention problems, DSM-IV inattention</i>) ⁹⁸	Parent and teacher
	DBD (<i>inattention</i>) ⁹⁹	Parent and teacher
	CBCL (<i>attention</i>) ¹⁰⁰	Parent and teacher
	ADHD (<i>inattention</i>) ²	Parent and teacher
	VADTRS; VADPRS (<i>inattention</i>) ¹⁰¹	Parent and teacher
	d2 test of attention ⁹	Child
	BRIEF ¹⁰²	Child
	MFFT (<i>number of errors</i>) ¹⁰³	Child
	TOVA (<i>visual and auditory omission</i>) ⁸⁴	Child
Per cent on/off task ¹⁰⁴	Observer	

TABLE 3 Categorisation of measures and informants onto nine commonly assessed child-related constructs assessing aspects of ADHD (*continued*)

Construct label and definition	Measures (subscales italicised in parentheses where relevant)	Informant(s)
<i>Construct label:</i> hyperactivity/impulsivity	VADTRS; VADPRS (<i>hyperactivity/impulsivity</i>) ¹⁰¹	Parent
<i>Construct definition:</i> inability to manage activity levels appropriate to task and context. Fidgets, interrupts others, constantly in motion, inability to stay seated without excessive movement, restlessness, excessive talking, inability to engage in tasks quietly, impatience and inability to regulate emotions	APRS (<i>impulse control</i>) ¹⁰⁵	Teacher
	IOWA Conners' Teacher Rating Scale (<i>hyperactivity</i>) ¹⁰⁶	Teacher
	SCRS ¹⁰⁷	Teacher
	ADHD (<i>hyperactivity/impulsivity subtype</i>) ²	Parent and teacher
	CRS, ⁹⁸ CRS-R (<i>hyperactivity, DSM-IV hyperactivity/impulsivity</i>) ⁹⁸	Parent and teacher
	DBD (<i>hyperactivity, impulsivity</i>) ⁹⁹	Parent and teacher
	Gordon's Vigilance Task (<i>impulsivity</i>) ¹⁰⁸	Child
	MFFT (<i>commission</i>) ¹⁰³	Child
	TOVA (<i>visual and auditory commission</i>) ⁸⁴	Child
<i>Construct label:</i> ADHD combined type	CSI-IV (<i>ADHD</i>) ¹⁰⁹	Teacher
<i>Construct definition:</i> inability to focus and pay attention and to manage activity levels appropriate to task and context	DBD (<i>ADHD</i>) ⁹⁹	Teacher
	ADHD Rating Scale ²	Parent and teacher
	CBCL (<i>ADHD</i>) ¹¹⁰	Parent and teacher
	CRS, ⁹⁸ CRS-R (<i>ADHD index, DSM-IV total</i>) ⁹⁸	Parent and teacher
<i>Construct label:</i> externalising symptoms	BASC-I (<i>externalising composite score; aggression, conduct</i>) ¹¹¹	Parent
<i>Construct definition:</i> emotional and behavioural symptoms that are undercontrolled and externalised, for example fighting, bullying, defiance	DBD (<i>oppositional defiant, conduct disorder</i>) ⁹⁹	Teacher
	IOWA Conners' Teacher Rating Scale (<i>aggression</i>) ¹⁰⁶	Teacher
	SSQ ¹¹²	Teacher
	SSRS (<i>problem behaviour subscale</i>) ¹¹³	Teacher
	CBCL (<i>delinquent, aggression, external</i>) ^{114,115}	Parent and teacher
	CRS, ⁹⁸ CRS-R (<i>oppositional, conduct problems</i>) ⁹⁸	Parent and teacher
	ODD ²	Parent and teacher
	Pianta Conflict Scale ¹¹⁶	Parent and teacher
<i>Construct label:</i> internalising symptoms	The Scale of Behavioural Problems (<i>internalisation, anxiety</i>) ¹¹⁷	Parent
<i>Construct definition:</i> emotional and behavioural symptoms that are overcontrolled and internalised, for example shyness, anxiety, withdrawal from social situations	CBCL (<i>withdrawal, anxiety, depression, internalising</i>) ^{115,118}	Parent and teacher
	CRS, ⁹⁸ CRS-R ⁹⁸ (<i>anxious/passive, emotional indulgent, perfectionism, anxiety</i>) ¹¹⁹	Parent and teacher
	Piers-Harris Children's Self-Concept Scale (<i>anxiety</i>) ¹²⁰	Child
<i>Construct label:</i> social skills	Scale of Behavioural Problems (<i>social adjustment</i>) ¹¹⁷	Teacher
<i>Construct definition:</i> capacity to communicate and interact with others effectively (including peers, siblings, teachers and parents) and appropriate to context	Merrell School Social Behaviour Scale (<i>interpersonal skills</i>) ¹²¹	Teacher
	Walker-McConnell Scale of Social Competence and School Adjustment ¹²²	Teacher
	CBCL (<i>social problems</i>) ¹¹⁰	Parent and teacher

continued

TABLE 3 Categorisation of measures and informants onto nine commonly assessed child-related constructs assessing aspects of ADHD (*continued*)

Construct label and definition	Measures (subscales italicised in parentheses where relevant)	Informant(s)
	CRS-R ⁹⁸ (<i>asocial</i>) ⁹⁸	Parent and teacher
	IRS (<i>social skills</i>) ¹²³	Parent and teacher
	SSRS (<i>co-operation</i>) ¹¹³	Parent and teacher
	Piers-Harris Children's Self-Concept Scale (<i>popularity</i>) ¹²⁰	Child
	Self-Esteem Inventory (<i>social self subscale</i>) ¹²⁴	Child
<i>Construct label:</i> school adjustment	Homework Problem Checklist ¹²⁵	Parent
<i>Construct definition:</i> perceptions of scholastic behaviours encompassing adjustment to school. For example, achievement, motivation, productivity, and study skills (including time management and organisation)	Scale of Behavioural Problems (<i>school problems</i>) ¹¹⁷	Parent
	APRS (<i>academic skills, productivity</i>) ¹⁰⁵	Teacher
	SSRS (<i>academics</i>) ¹¹³	Teacher
	IRS (<i>classroom and academics</i>) ¹²³	Parent and teacher
	Children's Organisational Skills (<i>maladjustments</i>) ¹²⁶	Parent and teacher
	BASC-I (<i>school maladjustment</i>) ¹¹¹	Child
	Piers-Harris Children's Self-Concept Scale (<i>intellectual, school status</i>) ¹²⁰	Child
	Self-Esteem Inventory (<i>school, academics</i>) ¹²⁴	Child
	Dimensions of Self-Concept (<i>academic interest, satisfaction</i>) ¹²⁷	Child
	<i>Construct label:</i> standardised achievement	CPM ¹²⁸
DIBELS (<i>maths, reading</i>) ¹²⁹		Child
<i>Construct definition:</i> achievement in scholastic tasks as assessed by standardised intelligence and achievement tests	Gates–MacGinitie Reading Tests (<i>vocabulary, comprehension</i>) ¹³⁰	Child
	Gray Oral Reading Test (<i>comprehension, fluency</i>) ¹³¹	Child
	IOWA Test of Basic Skills (<i>language</i>) ¹³²	Child
	Process Assessment of the Learner (<i>reading, writing</i>) ¹³³	Child
	Wechsler Individual Achievement Test, Second Edition (<i>numerical operations, maths fluency</i>) ¹³⁴	Child
	Wide Range Achievement Test, Third Edition (<i>spelling, word reading</i>) ⁸⁵	Child
	Woodcock–Johnson Psychoeducational Test Battery ¹³⁵	Child
	<i>Construct label:</i> curriculum achievement	School curriculum-based tests
<i>Construct definition:</i> scholastic attainment on school-based curriculum tests and coursework	GPA	Child

APRS, Academic Performance Rating Scale; BASC-I, Behaviour Assessment Scale for Children, First Edition; BASC-II, Behaviour Assessment Scale for Children, Second Edition; BRIEF, Behavior Rating Inventory of Executive Function; CBCL, Child Behaviour Checklist; CPM, coloured progressive matrices; CRS-R, Conners' Rating Scale-revised; CSI-IV, Child Symptom Inventory-IV; DBD, Disruptive Behaviour Disorder Rating Scale; DIBELS, Dynamic Indicators of Basic Early Literacy Skills; GPA, grade point average; IRS, Impairment Rating Scale; MFFT, Matching Familiar Figures Test; ODD, oppositional defiant disorder; SCRS, Self-Control Rating Scale; SKAMP, Swanson, Kotkin, Agler, M-Flynn and Pelham Scale; SSQ, School Situations Questionnaire; SSRS, Social Skills Rating System; VADPRS, Vanderbilt ADHD Parent Rating Scale; VADTRS, Vanderbilt ADHD Teacher Rating Scale.

Conceptual synthesis: developing a classification system of interventions

As there was also a great deal of heterogeneity across interventions, MR developed a classification system of intervention content by reading and rereading descriptions of interventions (reported in the study papers and extracted as part of the data extraction phase) and identified (inductively) discrete 'packages' of interventions. Although some interventions target a combination of recipients including teacher, parents and children, we focused on the intervention packages that targeted the children alone. This process led to the identification of 15 'packages' of techniques. The labels and definitions of these packages are reported in *Table 4* and were developed using the descriptions of interventions in the included studies and

TABLE 4 Labels and definitions of child-based intervention packages included in the primary studies

Intervention	Definition
Reward and punishment	
1. Contingency management	Systematic use of rewards and/or punishments to change, alter or redirect the child's behaviour(s)
2. DRC with contingency management	A method used in collaboration with a child to set goal(s) and monitor progress towards them. Rewards and/or punishments are then used in response to the child's progress towards their goals in order to reinforce the wanted behaviour(s) or create barriers to the unwanted behaviour(s)
Skills training and self-management	
3. Motivational beliefs	Encourage or facilitate the adoption of beliefs that facilitate self-motivation towards obtaining the focal behaviour(s) (e.g. the attribution of success at school to hard work and effort)
4. Cognitive-behavioural self-regulation training	Establish methods for the child to self-monitor and record their behaviour(s). Includes analysing the factors that lead to problem behaviour(s) and identifying solutions to overcome them ('problem solving') and self-instruction on how to perform the behaviour(s)
5. Cognitive retraining	Training and practice in the use of cognitive processes related to executive functioning (e.g. attention and working memory)
6. Academic and study skills training	Training and practice in academic skills (e.g. reading and writing strategies) and general study strategies (e.g. note taking, test taking, organisation and time management)
7. Social skills training	Training and practice in effective social interaction
8. Emotional skills training	Training and practice in learning to recognise and control emotions (e.g. relaxation training and/or enhancing positive emotion)
9. Biofeedback	Feedback about physiological or biochemical activity (e.g. heart rate and brain waves) using an external monitoring device to enhance self-control of wanted behaviour(s)
Creative-based therapy	
10. Music therapy	Music used in a prescribed way to modify or alter thoughts, emotions and behaviours
11. Play therapy	Play used in a prescribed way to modify or alter thoughts, emotions and behaviours
Physical treatment	
12. Massage	Applying pressure to parts of the body (e.g. rubbing or kneading) in a prescribed way to modify or alter thoughts, emotions and behaviours
13. Structured physical activity	Planned physical activity with the aim of increasing energy expenditure and improved physical fitness and health
Other packages	
14. Adaptations to learning environment	Alteration to the environment (physical and social) where learning takes place and/or learning materials in order to facilitate performance of the wanted behaviour or create barriers to the unwanted behaviour (e.g. adapt teaching methods, tasks and classroom)
15. Information	Provide information about focal behaviour(s) (e.g. information about positive peer relationships, communication skills)
DRC, daily report card.	

reference to previous general classifications of behaviour change interventions.^{136,137} These packages of interventions were categorised based on the similarity of active ingredients: (1) reward and punishment; (2) skills training and self-management; (3) creative-based therapies; and (4) physical treatments. Two packages ('adaptations to learning environment' and 'information only') could not be grouped into a higher-order category and were, therefore, categorised as 'other' packages. Packages in the 'reward and punishment' group are broadly based on the concepts of 'rewards' and 'punishments' originating from conditioning theories.¹³⁸ Self-management is more explicit in the 'skills training and self-management' group (as characterised by the skills training element) and can be broadly traced to self-regulation theories.¹³⁹ 'Creative-based therapies' include music and drama-based treatments, whereas 'physical treatments' target psychological processes indirectly via the physical body. 'Information only' refers to the provision of education only (independent of any further intervention), whereas 'adaptations to learning environment' refers to physical (e.g. change of seating arrangements in a classroom setting) and/or social adaptations (groups vs. one-to-one teaching format) implemented to enhance performance of the wanted behaviour(s) and/or a reduction in unwanted behaviour(s). The classification system was scrutinised conceptually by the other team members and subsequently used by MR (and checked by DM) to classify the text relating to the intervention(s) reported in the primary papers. The few disagreements were resolved through discussion between MR and DM. Teachers, parents and carers trained in managing children with ADHD were categorised as intervention providers and are detailed in *Intervention delivery characteristics*.

Statistical information

A data extraction form was developed to record the *relevant* statistical information for each trial meeting the inclusion criteria of review 1. For each relevant outcome/informant combination, post-test means, standard deviations (SDs) and sample sizes (or statistics that could be used to derive these) were extracted for the relevant treatment and control groups where available.

Effect size was calculated using the SMD, that is, the difference between the means in each of two groups divided by their pooled SD (Cohen's *d*) with Hedges' correction.¹⁴⁰ For continuous outcomes, the SMD and 95% CIs were calculated using the mean, SD and the sample size for intervention and control groups or, if these were not reported or were not available from the study authors, statistics that could be used to derive these (e.g. *t* statistic). For three studies that reported proportions rather than continuous data,^{141–143} the log-odds ratio was converted into a SMD [for formula see URL: www.campbellcollaboration.org/artman2/uploads/1/2_D_Wilson__Calculating_ES.pdf (accessed 16 December 2014)].¹⁴⁴ For one study reporting change scores, the SMD was estimated by dividing the difference between the gain scores in each trial arm by the pooled SD while taking account of the pre–post correlations within each arm. The above calculations were performed using the online calculator at www.campbellcollaboration.org/escal/html/EffectSizeCalculator-SMD1.php (accessed 16 December 2014).¹⁴⁴ For seven studies where the relevant empirical data were not reported or available from the study authors, only narrative synthesis was conducted.^{141,162,180,186,191,192,198} All data were extracted by MR and checked by DM with all disagreements resolved successfully through discussion.

Quality appraisal was conducted simultaneously with data extraction using criteria adapted from the Cochrane risk of bias tool¹⁴⁵ and an appraisal tool developed by Miller and Wilbourne.¹⁴⁶ The criteria assessed, reported in *Table 5*, consider selection bias (randomisation and allocation concealment for RCTs only); detection bias (blinding of outcome assessors); attrition bias [intention to treat (ITT) and response rate]; and use and length of follow-up(s). A trial was defined as meeting the ITT criteria when all participants remained in the intervention groups to which they were randomised and where data for all randomised participants were included in the analysis.¹⁴⁵ Quality appraisal decisions were made independently by two reviewers (DM and MR) and disagreements were resolved through discussion by these reviewers. The appraisals were used to evaluate study quality and were not used to exclude papers.

TABLE 5 Quality appraisal criteria

Criteria	Coding
RCTs only	
What was the unit of randomisation?	Individual; cluster
Was the method used to generate randomisation specified?	Yes/no/partial
Was allocation concealment of randomisation reported?	Yes/no
Was ITT employed?	Yes/no
RCTs and non-RCTs	
Was blinding of assessor reported for one or more outcomes?	Yes/no
Was the response rate adequate?	85–100%; 70–84%; < 70%; NR ¹⁴⁶
Were follow-ups assessed?	Yes/no
Was the longest follow-up ≥ 6 months?	Yes/no
NR, not reported.	

Analytic strategy

Characteristics of the studies were summarised using means and SDs for continuous variables and percentages for categorical variables. Separate meta-analyses were conducted for each construct/informant combination (where data permitted). Tests of interaction using meta-regression were carried out to investigate whether or not study characteristics modified the effect of the interventions.

Meta-analysis

Random-effects meta-analysis models were fitted based on the assumption that the studies are estimating different effects. We are therefore estimating the average of multiple effects but, for simplicity, we generally refer to a singular pooled effect. To avoid underestimation of the standard error of the pooled estimate, when two or more measures assessing the same construct were reported in a given study, the estimated effects were combined into a summary effect for that study, applying a method that uses the correlations among the conceptually similar measures to calculate the 95% standard error for the study-specific estimate.¹⁴⁰ The correlations were obtained from the study report itself or unrelated papers that administered the outcomes and reported the correlations. In studies with two relevant active intervention groups, the outcome was combined across intervention groups based on the group-specific means, SDs and sample sizes using the *ttesti* command in Stata v.12.1 (StataCorp, College Station, TX, USA) prior to calculation of the SMD. Combining results across multiple treatment groups within studies before pooling avoids double counting participants in the control group and underestimating the standard error of the pooled effect size.¹⁴⁰

Final score means (adjusted for baseline where reported) were compared between groups; in three studies that reported comparisons at several time points over the duration of the intervention, effect sizes were calculated for each time point after the baseline observation and then averaged before entry into the meta-analyses.^{159,160,197}

Separate meta-analyses were conducted for RCTs and non-RCTs. Cohen's⁶⁵ guidelines were used to interpret effect sizes. Classifications for what are considered to be 'small', 'medium' and 'large' effect sizes are $d_+ = 0.20$, $d_+ = 0.50$ and $d_+ = 0.80$, respectively.

Cochran's (1954)¹⁴⁷ test was used to assess evidence for heterogeneity, with a p -value < 0.05 taken to indicate evidence of heterogeneity. The I^2 statistic (possible range 0–100%) was used to quantify the amount of between-study heterogeneity.¹⁴⁸ Values $< 25\%$ have been suggested to indicate low heterogeneity; values between 25% and 50% moderate heterogeneity; and values $> 50\%$ high heterogeneity.¹⁴⁸ Given that the Q test is sensitive to the number of included studies, the I^2 statistic is our main method for identifying marked heterogeneity.¹⁴⁸

Publication bias was planned to be assessed by examining funnel plots for asymmetry using the *metafunnel* command in Stata v.12.1.¹⁴⁹ However, we were unable to assess funnel plots properly or use more advanced regression-based assessments to assess publication bias owing to the inadequate numbers of included trials and the substantial heterogeneity identified across studies.¹⁵⁰

Meta-regression analyses

Tests of interaction were performed using meta-regression to examine whether or not there was evidence that the pooled intervention effects differed across defined programme features. Planned analyses were conducted where there was evidence of heterogeneity (i.e. I^2 values $> 0\%$).⁶² A range of programme features, including study details, participant characteristics, intervention package and intervention delivery elements were assessed.

Table 6 describes the potential moderators. Although a minimum of 10 studies is often cited as sufficient, there are no hard and fast rules, and, in light of the data collated, we adopted a lower threshold of eight studies.¹⁴⁰ For the dichotomised constructs, at least three studies were required to provide intervention effect data in each category of the potential moderator. Meta-regression models were fitted using the *metareg* command in Stata v.12.1. The Knapp and Hartung adjustment for multiple testing was adopted.¹⁵¹ Adjusted R^2 , the proportion of between-cluster variability accounted for by the moderator variable, and I^2 , the proportion of residual between-study variation attributable to heterogeneity, were reported.

TABLE 6 Planned moderator analyses

Programme feature	Moderator
Study characteristic	<ul style="list-style-type: none"> • Treatment as usual vs. experimental control design that match for time/contact
Participant characteristics	<ul style="list-style-type: none"> • Percentage on medication for ADHD • Percentage of female participants • Elementary/primary vs. high school levels (proxy for age)
Intervention packages	<ul style="list-style-type: none"> • Number of packages • Package type: contingency management; DRC; motivational beliefs; cognitive-behavioural self-regulation; academic study skills; social skills; cognitive skills retraining; emotional skills training; biofeedback; music therapy; play therapy; massage; structured physical activity; adaptations to the environment; information only
Delivery characteristics	<ul style="list-style-type: none"> • Context: school and home vs. school only • Provider: includes teacher vs. other • Time: normal school hours vs. other • Setting: classroom vs. other • Duration: weeks • Intensity: hours

DRC, daily report card.

Empirical findings synthesised narratively

The findings from studies where meta-analysis was not appropriate or possible were summarised narratively.

Results

Number of studies included

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram¹⁵² in *Figure 1* summarises the search process.

After the removal of duplicates, a total of 15,481 records were screened at title and abstract stage and a total of 655 potentially relevant articles were identified for which full texts were required. Of these, 567 (87%) were successfully retrieved, and of those that were not obtainable, 24 were foreign-language papers.

Research questions 1 and 2: evaluations that assess child outcomes

Fifty-four English-language papers met our full-text screening criteria and were included in the synthesis. Of the seven foreign-language papers retrieved and translated by BG, AJ, AV, SI, HK, none met our inclusion criteria.

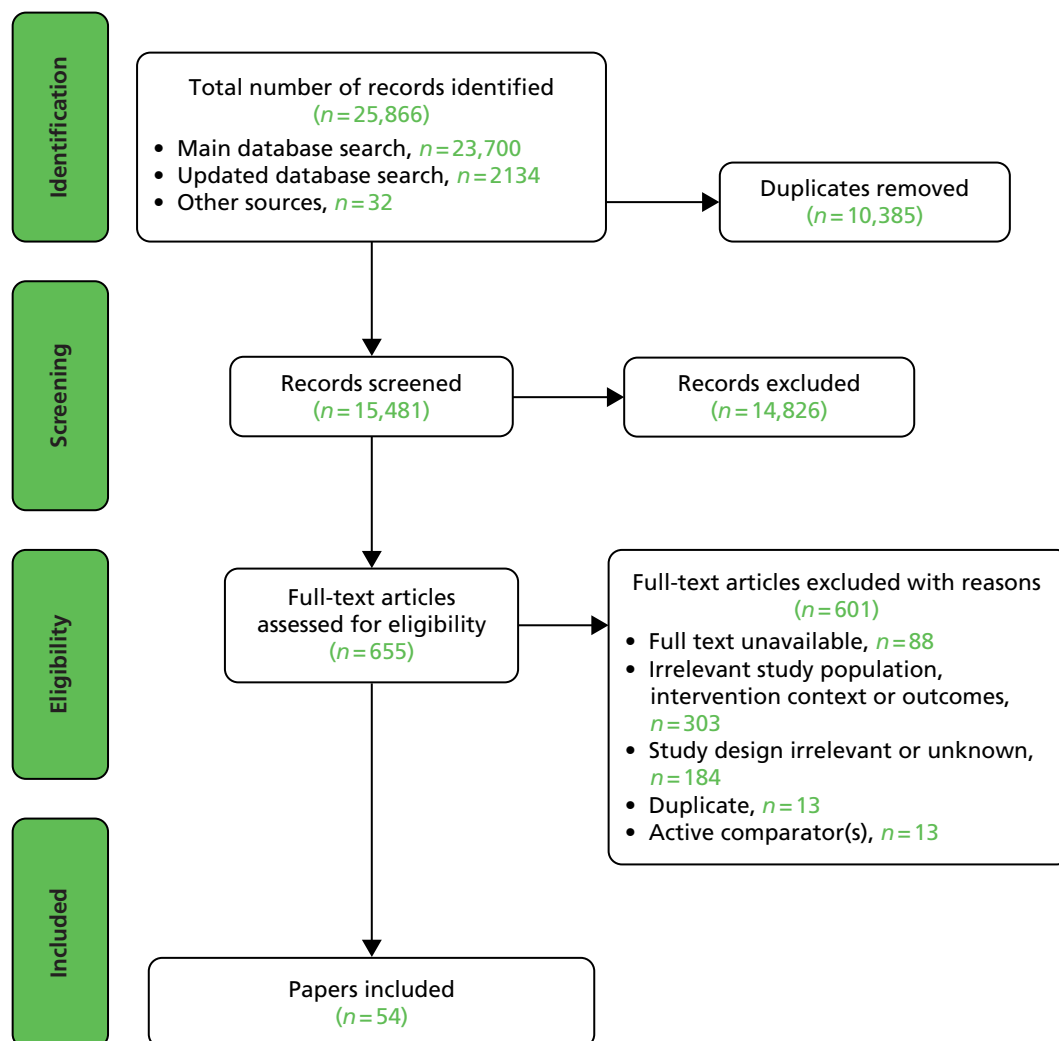


FIGURE 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses diagram showing search process and study selection for review 1.

Research question 3: evaluations that assess economic outcomes

Of the 54 studies that met the full-text screening criteria, there were no studies that included economic outcomes. Consequently, there are no further results in relation to research question 3 about the cost-effectiveness of interventions that target children with or at risk of ADHD in school settings.

Please refer to *Appendix 3* for a complete list of reasons for the exclusion of 601 papers after full-text screening.

Descriptive statistics

Study and participant information: descriptive statistics

Fifty-four studies met the inclusion criteria, of which 39 were RCTs^{104,142,143,153-188} and 15 were non-RCTs.^{141,189-202} Forty-seven contained data suitable for meta-analyses; seven studies^{141,162,180,186,191,192,198} included empirical data that could not be meta-analysed and that were, therefore, synthesised narratively. Three studies^{104,143,185} included some data that were meta-analysed and some data that were synthesised narratively. *Tables 7* and *8* report on the study and participant characteristics for the RCTs (see *Table 7*) and non-RCTs (see *Table 8*). Ten studies^{155,153,163,169,178,184,186,192,198,202} were dissertations or theses ($n = 10$: 7 RCTs; 3 non-RCTs); the remaining were journal articles ($n = 42$:^{104,141-143,153,154,157-162,164-168,170,172-177,179-183,185,187-188,190,191,193-197,199-201} 31 RCTs; 11 non-RCTs), a report (1 RCT)¹⁷¹ and a conference paper (1 non-RCT).¹⁸⁹ Studies were from North America ($n = 44$:^{104,141-143,153-169,171-176,178,179,181-184,188,189,191-194,197,198,200-202} 33 RCTs; 11 non-RCTs); Europe ($n = 6$: 2 RCTs including one each from the Netherlands¹⁸⁵ and Sweden;¹⁷⁷ 4 non-RCTs including 1 from Italy¹⁹⁹ and 3 from Spain^{190,195,196}); Asia (2 RCTs including 1 each from Iran¹⁷⁰ and Jordan¹⁸⁷); Africa (1 RCT)¹⁸⁶ and New Zealand (1 RCT).¹⁸⁰ Forty-two studies^{104,141-143,153,155,156,159-168,170-173,177,180,182-187,189,190,192-202} included a treatment-as-usual or waitlist control ($n = 42$: 28 RCTs; 14 non-RCTs). Treatment as usual refers to a usual school routine and/or treatment obtained in the community relative to the participants in the study's treatment arm. Eight RCTs^{154,157,158,174,175,176,181,188} and 1 non-RCT¹⁹¹ included comparators that were matched to the treatment group (i.e. irrelevant content, matched for time/contact). In the three studies^{169,178,179} where the control group included some but not all elements of the intervention, the unique components received by the treatment group were identified. Sample sizes were, on average, small and comprised fewer female than male students.

The mean (SD) sample size was 44.9 (24.81) children or young people for the RCTs and comprised, on average, a mean (SD) of 26% (0.21) females. For the non-RCTs, the mean (SD) sample size was 38.1 (26.0) and comprised, on average, a mean (SD) of 23% (0.17) females. Some of the studies described participants as using medication for ADHD ($n = 28$: 19 RCTs,^{142,143,159-162,164,165,167-169,172,173,177,178,180,182,183,186} 9 non-RCTs^{141,189,192-194,197,200-202}) whereas some reported that no medication for ADHD was used ($n = 11$: 9 RCTs,^{104,153,158,170,174,175,179,181,187} two non-RCTs^{195,196}). The reports for the remaining 15 studies did not clarify whether or not medication for ADHD was used ($n = 15$: 11 RCTs,^{154-157,163,166,171,176,184,185,188} 4 non-RCTs^{190,191,198,199}). The majority of intervention programmes targeted children at elementary/primary school level ($n = 40$: 28 RCTs,^{104,142,143,153-157,161-163,165,168-170,173,175-179,181-183,185-188} 12 non RCTs^{189-198,201,202}); with some that targeted children at middle school ($n = 9$: 7 RCTs,^{158-160,167,171,172,174} 2 non-RCT^{141,200}); high school ($n = 2$: 2 RCTs^{180,184}) and preschool ($n = 1$: 1 non-RCT¹⁹⁹). Only two studies included children at more than one school level ($n = 2$: 2 RCTs^{164,166}).

Interventions

Of the 54 studies, 10 included two relevant treatment groups ($n = 10$: 8 RCTs,^{104,142,153,157,165,180,183,184} 2 non-RCTs^{190,192}); the remaining studies included one relevant treatment group each. Thus, there were a total of 64 relevant intervention groups across the 54 studies ($n = 64$: 47 RCTs; 17 non-RCTs). Frequency of intervention packages across the treatment groups for the studies that were RCTs and non-RCTs are presented in *Tables 9* and *10*, respectively, where the frequency and types of packages in each treatment group are reported and identified. With the exception of 'structured physical activity', all intervention packages were identified among the 47 treatment groups specified in the 39 RCTs with contingency management ($n = 19$ ^{104,142,143,153,159-161,165,167,168,172,173,177,182,185,187}) being identified most frequently, followed by academic skills training ($n = 12$ ^{104,142,159,160,163,164,167,168,172,178,188}); emotional skills training ($n = 11$ ^{104,153,157,158,162,174-176,181}); self-regulation ($n = 10$ ^{104,153,156,163,164,172,178,184}); biofeedback ($n = 8$ ^{157,158,174-176,181,183,186}); daily report card (DRC)

TABLE 7 Study and participant characteristics for the RCTs

First study author and year	Country	Publication status	Target(s)	Relevant treatment groups (n)	Type of control	Sample size	School level	Percentage of female participants	Percentage on medication for ADHD
^a Barkley 2000 ¹⁰⁴	North America (USA)	Journal article	Core and related symptoms and academic/study skills	2	TAU	119	Elementary/primary	36	0
^b Bloomquist 1991 ¹⁵³	North America (USA)	Journal article	Core and related symptoms and academic/study skills	2	WLC	52	Elementary/primary	31	0
^b Cassar 2010 ¹⁵⁴	North America (Canada)	Journal article	Core symptoms and related symptoms	1	EXP	6	Elementary/primary	50	NR
^b Chacona 2008 ¹⁵⁵	North America (USA)	Thesis	Core symptoms	1	TAU	60	Elementary/primary	30	NR
^b Cloward 2003 ¹⁵⁶	North America (USA)	Thesis	Core symptoms	1	TAU	8	Elementary/primary	38	NR
^b Denkowski 1984 ¹⁵⁷	North America (USA)	Journal article	Related symptoms and academic/study skills	2	EXP	45	Elementary/primary	NR	NR
^b Denkowski 1983 ¹⁵⁸	North America (USA)	Journal article	Academic/study skills	1	EXP	48	Middle school	0	0
^a Dunson 1994 ¹⁴³	North America (USA)	Journal article	Core and related symptoms	1	TAU	20	Elementary/primary	35	Yes (% NR)
^b Evans 2011 ¹⁵⁹	North America (USA)	Journal article	Core and related symptoms and academic/study skills	1	TAU	49	Middle school	29	31
^b Evans 2007 ¹⁶⁰	North America (USA)	Journal article	Core and related symptoms and academic/study skills	1	TAU	79	Middle school	23	Yes (% NR)
^b Fabiano 2010 ¹⁶¹	North America (USA)	Journal article	Core and related symptoms and academic/study skills	1	TAU	63	Elementary/primary	14	52
^c Frame 2003 ¹⁶²	North America (USA)	Journal article	Related symptoms and academic/study skills	1	TAU	65	Elementary/primary	30	83
^b Hoover 1986 ¹⁶³	North America (USA)	Thesis	Core symptoms and academic/study skills	1	TAU	70	Elementary/primary	43	NR

continued

TABLE 7 Study and participant characteristics for the RCTs (continued)

First study author and year	Country	Publication status	Target(s)	Relevant treatment groups (n)	Type of control	Sample size	School level	Percentage of female participants	Percentage on medication for ADHD
^b Isleman 2011 ¹⁶⁴	North America (USA)	Journal article	Core symptoms and academic/study skills	1	TAU	29	Combination of school levels	28	66
^b Jurbergs 2010 ¹⁶⁵	North America (USA)	Journal article	Core symptoms and academic/study skills	2	TAU	45	Elementary/primary	26% (of 43)	23% (of 43)
^b Khilnani 2003 ¹⁶⁶	North America (USA)	Journal article	Core and related symptoms	1	WLC	30	Combination of school levels	20	NR
^b Langberg 2012 ¹⁶⁷	North America (USA)	Journal article	Core symptoms and academic/study skills	1	WLC	47	Middle school	23	66
^b Langberg 2008 ¹⁶⁸	North America (USA)	Journal article	Academic/study skills	1	WLC	37	Elementary/primary	16	43
^b Lomas 2002 ¹⁶⁹	North America (USA)	Thesis	Core and related symptoms	1	ADD	33	Elementary/primary	18	67
^b Looyeh 2012 ¹⁷⁰	Asia (Iran)	Journal article	Core symptoms	1	WLC	14	Elementary/primary	100	0
^b McGraw 2004 ¹⁷¹	North America (USA)	Report	Academic/study skills	1	WLC	53	Middle school	30	NR
^b Molina 2008 ¹⁷²	North America (USA)	Journal article	Related symptoms and academic/study skills	1	TAU	23	Middle school	25	30
^b Murray 2008 ¹⁷³	North America (USA)	Journal article	Core symptoms and academic/study skills	1	TAU	24	Elementary/primary	29	88
^b Ormizo 1980 ¹⁷⁴	North America (USA)	Journal article	Core and academic/study skills	1	EXP	56	Middle school	0	0
^b Ormizo 1980 ¹⁷⁵	North America (USA)	Journal article	Related symptoms and academic/study skills	1	EXP	52	Elementary/primary	0	0
^b Ormizo 1982 ¹⁷⁶	North America (USA)	Journal article	Core symptoms	1	EXP	32	Elementary/primary	0	NR
^b Ostberg 2012 ¹⁷⁷	Europe (Sweden)	Journal article	Core and related symptoms	1	TAU	70	Elementary/primary	16% (of 61)	82% (of 61)

First study author and year	Country	Publication status	Target(s)	Relevant treatment groups (n)	Type of control	Sample size	School level	Percentage of female participants	Percentage on medication for ADHD
^b Poley 1996 ¹⁷⁸	North America (USA)	Thesis	Core symptoms	1	ADD	26	Elementary/primary	12	85
^b Rabiner 2010 ¹⁴²	North America (USA)	Journal article	Core symptoms and academic/study skills	2	TAU	77	Elementary/primary	31	7
^b Reid 1987 ¹⁷⁹	North America (USA)	Journal article	Core symptoms and academic/study skills	1	ADD	77	Elementary/primary	NR	0
^c Rickson 2003 ¹⁸⁰	Australasia (New Zealand)	Journal article	Related symptoms	2	WLC	18	High school/secondary	0	50
^b Rivera 1980 ¹⁸¹	North America (USA)	Journal article	Core symptoms	1	EXP	36	Elementary/primary	0	0
^b Seeley 2009 ¹⁸²	North America (USA)	Journal article	Core and related symptoms and academic/study skills	1	TAU	42	Elementary/primary	7	10
^b Steiner 2011 ¹⁸³	North America (USA)	Journal article	Core symptoms	2	WLC	41	Elementary/primary	48	60
^b Storer 1994 ¹⁸⁴	North America (USA)	Thesis	Core and related symptoms	2	TAU	24	High school/secondary	25	NR
^a Van Lier 2004 ¹⁸⁵	Europe (the Netherlands)	Journal article	Core and related symptoms	1	TAU	92 (class I)	Elementary/primary	22	NR
^c Van der Westhuizen 2007 ¹⁸⁶	Africa (South Africa)	Thesis	Core symptoms and academic/study skills	1	WLC	12	Elementary/primary	17	8
^b Zaghlawan 2007 ¹⁸⁷	Asia (Jordan)	Journal article	Core symptoms	1	TAU	60	Elementary/primary	45	0
^b Zentall 2012 ¹⁸⁸	North America (USA)	Journal article	Academic/study skills	1	EXP	17 (ADHD)	Elementary/primary	71	NR

ADD, additive (includes one or more specific components of the active treatment); EXP, irrelevant content matched for contact time; NR, not reported; TAU, treatment as usual; WLC, waitlist control.

a Data meta-analysed where possible, otherwise data synthesised narratively.

b All data meta-analysed.

c Data synthesised narratively.

TABLE 8 Study and participant characteristics for the non-RCTs

First study author and year	Country	Publication status	Target(s)	Relevant treatment groups (n)	Type of control	Sample size	Grade level	Percentage of female participants	Percentage on medication for ADHD
^a Abikoff 1983 ¹⁸⁹	North America (USA)	Conference paper	Academic/study skills	1	TAU	20	Elementary/primary	0	100
^a Bornas 1992 ¹⁹⁰	Europe (Spain)	Journal article	Core symptoms and academic/study skills	1	TAU	21	Elementary/primary	48	NR
^b Eastman 1981 ¹⁹¹	North America (USA)	Journal article	Core symptoms and academic/study skills	1	EXP	11	Elementary/primary	NR	NR
^b Evans 2005 ¹⁴¹	North America (USA)	Journal article	Related symptoms and academic/study skills	1	TAU	27	Middle school	22	81
^b Harper 1996 ¹⁹²	North America (USA)	Thesis	Core and related symptoms	2	WLC	33	Elementary/primary	NR	100
^a Kapalka 2005 ¹⁹³	North America (USA)	Journal article	Core symptoms	1	TAU	86	Elementary/primary	0%	Yes (% NR)
^a Kendrick 1995 ¹⁹⁴	North America (USA)	Journal article	Related symptoms and academic/study skills	1	TAU	54	Elementary/primary	15	Yes (% NR)
^a Miranda 2006 ¹⁹⁵	Europe (Spain)	Journal article	Core and related symptoms and academic/study skills	1	TAU	33	Elementary/primary	12	0
^a Miranda 2002 ¹⁹⁶	Europe (Spain)	Journal article	Core and related symptoms and academic/study skills	1	TAU	50	Elementary/primary	16	0
^a Owens 2005 ¹⁹⁷	North America (USA)	Journal article	Core and related symptoms and academic/study skills	1	WLC	42	Elementary/primary	29	40
^b Poillion 1993 ¹⁹⁸	North America (USA)	Thesis	Core symptoms and academic/study skills	1	TAU	106	Elementary/primary	39	NR
^a Re 2007 ¹⁹⁹	Europe (Italy)	Journal article	Core symptoms	1	TAU	10	Nursery/preschool	50	NR

First study author and year	Country	Publication status	Target(s)	Relevant treatment groups (n)	Type of control	Sample size	Grade level	Percentage of female participants	Percentage on medication for ADHD
^a Semrud-Clikeman 1999 ²⁰⁰	North America (USA)	Journal article	Core symptoms	1	TAU	33	Middle school	16	Yes (% NR)
^a Verret 2012 ²⁰¹	North America (Canada)	Journal article	Core and related symptoms	1	TAU	21	Elementary/primary	10	67
^a Webber 2012 ²⁰²	North America (USA)	Thesis	Core symptoms and academic/study skills	1	TAU	24	Elementary/primary	42	Yes (% NR)

ADD, additive (includes one or more specific components of the active treatment); EXP, irrelevant content matched for contact time; NR, not reported; TAU, treatment as usual; WLC, waitlist control.
a All data meta-analysed.
b Data synthesised narratively.

TABLE 9 Frequency of intervention packages among the RCTs

First study author and year	Reward and punishment		Skills training and self-management				
	Contingency management	DRC with behaviour modification	Motivational beliefs	Cognitive-behavioural self-regulation	Cognitive skills retraining	Academic and study skills training	Social skills training
^a Barkley 2000 ¹⁰⁴ (tg2)	1	1		1		1	1
^a Barkley 2000 ¹⁰⁴ (tg3)	1	1		1		1	1
^b Bloomquist 1991 ¹⁵³ (tg2)	1			1			
^b Bloomquist 1991 ¹⁵³ (tg3)	1			1			
^b Cassar 2010 ¹⁵⁴							
^b Chacona 2008 ¹⁵⁵							
^b Cloward 2003 ¹⁵⁶				1			
^b Denkowski 1984 ¹⁵⁷ (tg1)							
^b Denkowski 1984 ¹⁵⁷ (tg2)							
^b Denkowski 1983 ¹⁵⁸							
^a Dunson 1994 ¹⁴³	1	1					
^b Evans 2011 ¹⁵⁹	1					1	1
^b Evans 2007 ¹⁶⁰	1					1	1
^b Fabiano 2010 ¹⁶¹	1	1					
^c Frame 2003 ¹⁶²							
^b Hoover 1986 ¹⁶³				1		1	
^b Iseman 2011 ¹⁶⁴				1		1	
^b Jurbergs 2010 ¹⁶⁵ (tg1)		1					
^b Jurbergs 2010 ¹⁶⁵ (tg2)	1	1					
^b Khilnani 2003 ¹⁶⁶							
^b Langberg 2012 ¹⁶⁷	1					1	
^b Langberg 2008 ¹⁶⁸	1					1	
^b Lomas 2002 ¹⁶⁹					1		
^b Looyeh 2012 ¹⁷⁰							
^b McGraw 2004 ¹⁷¹					1		
^b Molina 2008 ¹⁷²	1			1		1	1
^b Murray 2008 ¹⁷³	1	1					
^b Omizo 1980 ¹⁷⁴							
^b Omizo 1980 ¹⁷⁵							
^b Omizo 1982 ¹⁷⁶							

Emotional skills training	Creative therapies			Physical treatment		Other packages		n packages per treatment group
	Biofeedback	Music therapy	Play therapy	Massage	Structured physical activity	Adaptations to learning environment	Information only	
1								6
1								6
1								3
								2
						1		1
		1						1
1								1
1	1							2
1	1							2
						1		3
								3
								3
								2
1								1
								2
								2
								1
								2
				1				1
								2
								2
								1
								1
								1
								4
								2
1	1							2
1	1							2
1	1							2

continued

TABLE 9 Frequency of intervention packages among the RCTs (*continued*)

First study author and year	Reward and punishment		Skills training and self-management				
	Contingency management	DRC with behaviour modification	Motivational beliefs	Cognitive-behavioural self-regulation	Cognitive skills retraining	Academic and study skills training	Social skills training
^b Ostberg 2012 ¹⁷⁷	1						
^b Poley 1996 ¹⁷⁸				1		1	
^b Rabiner 2010 ¹⁴² (tg1)	1				1		
^b Rabiner 2010 ¹⁴² (tg2)	1					1	
^c Rickson 2003 ¹⁸⁰ (tg1)							
^c Rickson 2003 ¹⁸⁰ (tg2)							
^b Rivera 1980 ¹⁸¹							
^b Reid 1987 ¹⁷⁹ (tg1)			1				
^b Seeley 2009 ¹⁸²	1						1
^b Steiner 2011 ¹⁸³ (tg1)					1		
^b Steiner 2011 ¹⁸³ (tg2)							
^b Storer 1994 ¹⁸⁴ (tg1)				1			
^b Storer 1994 ¹⁸⁴ (tg2)							
^c Van der Westhuizen 2007 ¹⁸⁶							
^a van Lier 2004 ¹⁸⁵	1						
^b Zaghlawan 2007 ¹⁸⁷	1						
Zentall 2012 ¹⁸⁸			1			1	
Frequency of treatment package (n) across studies and treatment groups	19	7	2	10	4	12	6
Frequency of treatment package (%) across studies and treatment groups (denominator = 47 treatment groups)	40	15	4	21	9	26	13

DRC, daily report card; tg1, treatment group 1; tg2, treatment group 2; tg3, treatment group 3.

a Data meta-analysed where possible, otherwise data synthesised narratively.

b All data meta-analysed.

c Data synthesised narratively.

Emotional skills training	Creative therapies			Physical treatment		Other packages		n packages per treatment group
	Biofeedback	Music therapy	Play therapy	Massage	Structured physical activity	Adaptations to learning environment	Information only	
								1
								2
								2
								2
		1						1
		1						1
1	1							2
								1
								2
								1
	1							1
							1	1
	1							1
						1		1
								2
								2
11	8	3	1	1	0	3	1	
23	17	6	2	2	0	6	2	

TABLE 10 Frequency of intervention packages among the non-RCTs

First study author and year	Reward and punishment		Skills training and self-management				
	Contingency management	DRC with behaviour modification	Motivational beliefs	Cognitive-behavioural self-regulation	Cognitive skills retraining	Academic and study skills training	Social skills training
^a Abikoff 1983 ¹⁸⁹				1		1	
^a Bornas 1992 ¹⁹⁰ (tg1)				1		1	
^a Bornas 1992 ¹⁹⁰ (tg2)				1		1	
^b Eastman 1981 ¹⁹¹				1			
^b Evans 2005 ¹⁴¹	1					1	1
^b Harper 1996 ¹⁹² (tg1)							1
^b Harper 1996 ¹⁹² (tg2)							1
^a Kapalka 2005 ¹⁹³	1						
^a Kendrick 1995 ¹⁹⁴	1	1					
^a Miranda 2006 ¹⁹⁵ (tg1)	1			1			
^a Miranda 2002 ¹⁹⁶	1			1		1	
^a Owens 2005 ¹⁹⁷	1	1					
^b Poillion 1993 ¹⁹⁸ (tg2)							
^a Re 2007 ¹⁹⁹					1		
^a Semrud-Clikeman 1999 ²⁰⁰				1	1		
^a Verret 2012 ²⁰¹							
^a Webber 2012 ²⁰²	1				1		
Frequency of treatment package (n) across studies and treatment groups	7	2	0	7	3	5	3
Frequency of treatment package (%) across studies and treatment groups (denominator = 17 treatment groups)	41	12	0	41	18	29	18

DRC, daily report card; tg1, treatment group 1; tg2, treatment group 2.
 a All data meta-analysed.
 b Data synthesised narratively.

Emotional skills training	Creative therapies			Physical treatment		Other packages		n packages per treatment group
	Biofeedback	Music therapy	Play therapy	Massage	Structured physical activity	Adaptations to learning environment	Information only	
								2
								2
								2
								1
								3
								1
								1
								1
						1		2
						1		3
						1		4
								2
						1		1
								1
					1			2
	1							1
0	1	0	0	0	1	3	0	3
0	6	0	0	0	6	18	0	

($n = 7^{104,143,161,165,173}$); social skills training ($n = 6^{104,159,160,172,182}$); cognitive skills retraining ($n = 4^{142,169,171,182}$); adaptation to the learning environment ($n = 3^{143,154,187}$); music therapy ($n = 3^{155,180}$); motivational beliefs ($n = 2^{179,188}$); information only ($n = 1^{184}$); play therapy ($n = 1^{170}$); and massage ($n = 1^{166}$). At the level of the higher-order group, using the total number of intervention packages identified within and across the RCTs ($n = 88$) as the denominator, packages within the 'skills training and self-management' group were most frequently identified ($n = 53^{104,142,153,156-160,162-164,167-169,171,172,174-176,178-184,186,188}$) followed by packages within 'reward and punishment' ($n = 26^{104,142,143,153,159-161,165,167,168,172,173,177,182,185,187}$); 'adaptations to the environment' ($n = 3^{143,154,187}$); 'creative-based therapies' ($n = 4^{155,170,180}$); 'physical treatments' ($n = 1^{166}$); and 'information only' ($n = 1^{184}$) subgroups. Within each treatment group, the number of intervention packages ranged from one to six. Using the total number of RCT treatment groups as the denominator ($n = 47$), 45% ($n = 21^{154-157,162,165,166,169-171,177,179,180,183-186}$) included one package; 38% ($n = 18^{142,153,157,158,161,163-165,167,168,173-177,178,181,182,187,188}$) two treatment packages; 11% ($n = 5^{143,153,159,160}$) three treatment packages; 2% ($n = 1^{172}$) four treatment packages; and 4% ($n = 2^{104}$) six treatment packages.

Nine of the 15 types of intervention packages were reported for the 17 treatment groups specified in the 15 non-RCTs. The most frequently identified package was again contingency management ($n = 7^{141,193-197,202}$) followed by cognitive-behavioural self-regulation ($n = 7^{189-191,195,196,200}$); academic skills training ($n = 5^{141,189,190,196}$); cognitive skills retraining ($n = 3^{199,200,202}$); social skills training ($n = 3^{141,192}$); adaptation to the environment ($n = 3^{195,196,198}$); DRC ($n = 2^{194,197}$); biofeedback ($n = 1^{202}$); and physical activity ($n = 1^{201}$). When analysed at the level of the higher-order group, using the total number of intervention packages within and across the non-RCTs ($n = 32$) as the denominator, packages most frequently identified were in 'skills training and self-management' ($n = 19^{141,189-192,196,199,200,202}$), followed by 'reward and punishment' ($n = 9^{141,193-197,202}$), 'adaptations to learning environment' ($n = 3^{195,196,198}$) and 'physical treatments' ($n = 1^{201}$). The number of intervention packages reported per treatment group ranged from one to four. Using the total number of non-RCT interventions as the denominator ($n = 17$) the percentage of treatment conditions including one treatment package was 41% ($n = 7^{191-193,198,199,201}$); two treatment packages, 35% ($n = 6^{189,190,194,197,200}$); three treatment packages, 18% ($n = 3^{141,195,202}$); and four treatment packages, 6% ($n = 1$).

Intervention delivery characteristics

Tables 11 and 12 report on the intervention delivery characteristics for each treatment group among the RCTs (see Table 11) and non-RCTs (see Table 12).

Intervention location, format and time

Of the 64 treatment groups identified across all 54 included studies, 14 included elements delivered in both school and home settings ($n = 14$: 12 RCTs;^{104,153,159-161,165,167,168,172,173,177,182} 2 non-RCT^{141,197}) whereas the rest were based at school only ($n = 50$: 35 RCTs;^{104,142,143,153-158,162-166,169-171,174-176,178-181,183-188} 15 non-RCTs^{189-196,198-202}). Twenty-eight interventions were delivered in the classroom either entirely ($n = 24$: 16 RCTs,^{104,143,153,156,161,163-165,173,177,178,182,185,187} 8 non-RCTs^{192-197,199}) or partially ($n = 4$: 1 RCT,¹⁵³ 3 non-RCTs^{190,191}). Of these, some interventions targeted children individually ($n = 8$: 5 RCTs,^{104,143,161,173} 3 non-RCTs^{191,193,194}); some in groups or class-wide ($n = 13$: 8 RCTs;^{153,156,164,177,178,182,185,187} 5 non-RCTs^{192,195,196,199}) and some a combination of individual, group and class-wide formats ($n = 4$: 3 RCTs;^{104,163} 1 non-RCT¹⁹⁷). The precise format was unclear for two non-RCTs.

Some of the interventions that were not delivered in a classroom were delivered in school rooms other than classrooms, such as gymnasiums and music rooms ($n = 13$: 10 RCTs;^{155,174-176,179,181,184,188} 3 non-RCTs^{189,201,202}); contextual information about delivery was not reported for the remaining interventions ($n = 23$: 20 RCTs;^{142,153,154,157-160,162,167-172,180,183,186} 3 non-RCTs^{141,198,200}). Of the interventions delivered in settings other than classrooms, some were delivered in group format ($n = 17$: 14 RCTs;^{142,153-155,157,162,170,171,180,183,184} 3 non-RCTs²⁰⁰⁻²⁰²); some individually ($n = 11$: 10 RCTs;^{158,166,167,174-176,181,186,188} 1 non-RCT¹⁸⁹); some a combination of individual and group formats ($n = 5$: 4 RCTs;^{159,160,168,172} 1 non-RCT¹⁴¹); and for the rest the format of the intervention was unclear or not reported ($n = 3$: 2 RCTs;^{169,179} 1 non-RCT¹⁹⁸).

TABLE 11 Intervention delivery characteristics for the RCTs

First study author and year	Multicontext?	School location	Time	Format	Provider	Training provided?	Duration (weeks)	Intensity (hours)	Fidelity assessed?
^a Barkley 2000 ¹⁰⁴	School (tg2); school and home (tg3)	Classroom (tg2 and tg3)	Usual school hours (tg2 and tg3)	Classroom, group; individual (tg2 and tg3)	Teacher (tg2 and tg3)	Yes (tg2 and tg3)	36 (tg2 and tg3)	NR (tg2 and tg3)	Yes (tg2 and tg3)
^b Bloomquist 1991 ¹⁵³	School and home (tg1); school (tg2)	Classroom/NR (tg1); classroom (tg2)	Usual school hours (tg2 and tg3)	Group (tg1); classroom (tg2)	SMH; teacher; student/researcher (tg1); teacher (tg2)	Yes (tg1 and tg2)	10 (tg1 and tg2)	20 (tg1 and tg2)	Yes (tg1 and tg2)
^b Cassar 2010 ¹⁵⁴	School	NR	Usual school hours	Group	Student/researcher	NR	6	12	No/NR
^b Chacona 2008 ¹⁵⁵	School	Other school room	Usual school hours	Group	Teacher	NR	7	7	No/NR
^b Cloward 2003 ¹⁵⁶	School	Classroom	Usual school hours	Classroom	Teacher	Yes	NR	NR	No/NR
^b Denkowski 1984 ¹⁵⁷	School (tg1 and tg2)	NR (tg1 and tg2)	Usual school hours (tg1 and tg2)	Group (tg1); individual (tg2)	Student/researcher (tg1 and tg2)	NR (tg1 and tg2)	8 (tg1 and tg2)	3.3 (tg1 and tg2)	No/NR (tg1 and tg2)
^b Denkowski 1983 ¹⁵⁸	School	NR	Usual school hours	Individual	SMH	NR	12	2.5	No/NR
^a Dunson 1994 ¹⁴³	School	Classroom	Usual school hours	Individual	Teacher	Yes	2	NR	Yes
^b Evans 2011 ¹⁵⁹	School and home	NR	Before and after usual school hours	Individual; group	Student/researcher	Yes	20	86	Yes
^b Evans 2007 ¹⁶⁰	School and home	NR	Usual school hours	Individual; group	Variable	Yes	156	NR	Yes
^b Fabiano 2010 ¹⁶¹	School and home	Classroom	Usual school hours	Individual	Teacher	Yes	28	NR	Yes
^c Frame 2003 ¹⁶²	School	NR	NR	Group	SMH	NR	4	NR	No/NR
^b Hoover 1986 ¹⁶³	School	Classroom	Usual school hours	Individual; group	Teacher	Yes	8	6.66	No/NR
^b Iseman 2011 ¹⁶⁴	School	Classroom	Usual school hours	Classroom	Teacher	Yes	1.4	1.66	Yes
^b Jurbergs 2010 ¹⁶⁵	School (tg1); school and home (tg2)	Classroom (tg1 and tg2)	Usual school hours (tg1 and tg2)	Individual (tg1 and tg2)	Teacher (tg1 and tg2)	Yes (tg1 and tg2)	5 (tg1 and tg2)	NR (tg1 and tg2)	Yes (tg1 and tg2)

continued

TABLE 11 Intervention delivery characteristics for the RCTs (continued)

First study author and year	Multicontext?	School location	Time	Format	Provider	Training provided?	Duration (weeks)	Intensity (hours)	Fidelity assessed?
^b Khilnani 2003 ¹⁶⁶	School	Other school room	Usual school hours	Individual	Other practitioner	NR	4	2.66	No/NR
^b Langberg 2012 ¹⁶⁷	School and home	NR	Usual school hours	Individual	SMH	Yes	13.8	5.18	Yes
^b Langberg 2008 ¹⁶⁸	School and home	NR	Before and after usual school hours	Individual; group	Student/researcher	Yes	8	20	Yes
^b Lomas 2002 ¹⁶⁹	School	NR	Usual school hours	NR	NR	Yes	14	42	No/NR
^b Looyeh 2012 ¹⁷⁰	School	NR	Before and after usual school hours	Group	SMH	NR	6	12	No/NR
^b McGraw 2004 ¹⁷¹	School	NR	Usual school hours	Group	Student/researcher	NR	Variable	Variable	No/NR
^b Molina 2008 ¹⁷²	School and home	NR	Before and after usual school hours	Individual; group	Student/researcher	Yes	10	40	No/NR
^b Murray 2008 ¹⁷³	School and home	Classroom	Usual school hours	Individual	Teacher	Yes	13.6	NR	Yes
^b Omizo 1980 ¹⁷⁴	School	Other school room	NR	Individual	SMH	NR	9	0.85	No/NR
^b Omizo 1980 ¹⁷⁵	School	Other school room	Usual school hours	Individual	NR	NR	NR	NR	No/NR
^b Omizo 1982 ¹⁷⁶	School	Other school room	Usual school hours	Individual	SMH	NR	8	1.66	No/NR
^b Ostberg 2012 ¹⁷⁷	School and home	Classroom	Before and after usual school hours	Classroom	Teacher	Yes	10	NR	No/NR
^b Poley 1996 ¹⁷⁸	School	Classroom	Usual school hours	Classroom	Student/researcher; teacher	Yes	4	6	No/NR
^b Rabiner 2010 ¹⁴²	School (tg1 and tg2)	NR (tg1 and tg2)	Before and after usual school hours (tg1 and tg2)	Group (tg1 and tg2)	Student/researcher; school staff (unspecified) (tg1 and tg2)	Yes (tg1 and tg2)	14 (tg1 and tg2)	35 (tg1 and tg2)	Yes (tg1 and tg2)
^b Reid 1987 ¹⁷⁹	School	Other school room	Usual school hours	NR	Other practitioner	Yes	NR	NR	No/NR

First study author and year	Multicontext?	School location	Time	Format	Provider	Training provided?	Duration (weeks)	Intensity (hours)	Fidelity assessed?
^c Rickson 2003 ¹⁸⁰	School (tg1 and tg2)	NR (tg1 and tg2)	NR (tg1 and tg2)	Group (tg1 and tg2)	Other practitioner (tg1 and tg2)	NR (tg1 and tg2)	8 (tg1 and tg2)	10 (tg1 and tg2)	No/NR (tg1 and tg2)
^b Rivera 1980 ¹⁸¹	School	Other school room	Usual school hours	Individual	NR	NR	1.2	0.4	No/NR
^b Seeley 2009 ¹⁸²	School and home	Classroom	Usual school hours	Classroom	Teacher; other practitioner	Yes	12	Variable	Yes
^b Steiner 2011 ¹⁸³	School (tg1 and tg2)	NR (tg1 and tg2)	Usual school hours (tg1 and tg2)	Group (tg1 and tg2)	Student/researcher (tg1 and tg2)	Yes (tg1 and tg2)	16 (tg1 and tg2)	24 (tg1 and tg2)	Yes (tg1 and tg2)
^b Storer 1994 ¹⁸⁴	School (tg1 and tg2)	Other school room (tg1 and tg2)	Usual school hours (tg1 and tg2)	Group (tg1 and tg2)	Student/researcher (tg1 and tg2)	NR (tg1 and tg2)	4 (tg1 and tg2)	6 (tg1 and tg2)	No/NR
^c Van der Westhuizen 2007 ¹⁸⁶	School	NR	NR	Individual	Other practitioner	Yes	11	NR	No/NR
^a Van Lier 2004 ¹⁸⁵	School	Classroom	Usual school hours	Group/classroom	Teacher	Yes	72	NR	Yes
^b Zaghlawan 2007 ¹⁸⁷	School	Classroom	Usual school hours	Classroom	Teacher	Yes	6	Variable	Yes
^b Zentall 2012 ¹⁸⁸	School	Other school room	Usual school hours	Individual	NR	NR	NR	NR	No/NR

NR, not reported; SMH, school mental health provider; tg1, treatment group 1; tg2, treatment group 2; tg3, treatment group 3.

a Data meta-analysed where possible, otherwise data synthesised narratively.

b All data meta-analysed.

c Data synthesised narratively.

TABLE 12 Intervention delivery characteristics for the non-RCTs

First study author and year	Multicontext?	School location	Time	Format	Provider	Training provided?	Duration (weeks)	Intensity (hours)	Fidelity assessed?
^a Abikoff 1983 ¹⁸⁹	School	Other school room	Unusual school hours	Individual	NR	NR	10	NR	No/NR
^a Bornas 1992 ¹⁹⁰	School (tg1 and tg2)	Classroom and other school room (tg1 and tg2)	Unusual school hours (tg1 and tg2)	NR (tg1 and tg2)	NR (tg1 and tg2)	Yes (tg1 and tg2)	NR (tg1 and tg2)	22	No/NR (tg1 and tg2)
^b Eastman 1981 ¹⁹¹	School	Classroom and other school room	Unusual school hours	Individual	Teacher	NR	16	NR	No/NR
^b Evans 2005 ¹⁴¹	School and home	NR	Before and after unusual school hours	Individual; group	NR	NR	36	243	No/NR
^b Harper 1996 ¹⁹²	School (tg1 and tg2)	Classroom (tg1 and tg2)	Unusual school hours (tg1 and tg2)	Classroom (tg1 and tg2)	Student/researcher (tg1 and tg2)	Yes (tg1 and tg2)	8 (tg1 and tg2)	16 (tg1 and tg2)	No/NR (tg1 and tg2)
^a Kapalka 2005 ¹⁹³	School	Classroom	Unusual school hours	Individual	Teacher	Yes	NR	NR	No/NR
^a Kendrick 1995 ¹⁹⁴	School	Classroom	Unusual school hours	Individual	Teacher	NR	6	NR	No/NR
^a Miranda 2006 ¹⁹⁵	School	Classroom	Unusual school hours	Classroom	Teacher	Yes	16	NR	No/NR
^a Miranda 2002 ¹⁹⁶	School	Classroom	Unusual school hours	Classroom	Teacher	Yes	NR	NR	No/NR
^a Owens 2005 ¹⁹⁷	School and home	Classroom	Unusual school hours	Individual; classroom; group	Teacher and other practitioner	Yes	36	NR	Yes
^b Poillion 1993 ¹⁹⁸	School	NR	Unusual school hours	NR	Teacher	Yes	NR	NR	No/NR
^a Re 2007 ¹⁹⁹	School	Classroom	Unusual school hours	Classroom/group	Teacher and other practitioner	NR	9	18	No/NR
^a Semrud 1999 ²⁰⁰	School	NR	Before and after unusual school hours	Group	Student/researcher	NR	18	36	No/NR
^a Verret 2012 ²⁰¹	School	Other school room	Unusual school hours	Group	Other practitioner	NR	10	22.5	No/NR
^a Webber 2012 ²⁰²	School	Other school room	Unusual school hours	Group	Student/researcher	NR	NR	NR	No/NR

NR, not reported.

a All data meta-analysed.

b Data synthesised narratively.

Interventions took place primarily during normal school hours ($n = 51$: 36 RCTs;^{104,143,153–158,160,161,163–167,169,171,173,175–179,181–185,187,188} 15 non-RCTs^{189–199,201,202}). Some, however, were conducted before or after usual school hours ($n = 8$: 6 RCTs;^{142,159,168,170,172} 2 non-RCTs^{141,200}). Information on intervention timing was not reported for the remaining interventions ($n = 5$: 5 RCTs^{162,174,180,186}).

Intervention provider(s)

Interventions were delivered by a range of providers including teachers ($n = 21$: 15 RCT;^{104,143,155,156,161,163–165,173,177,185,187} 6 non-RCTs^{191,193–196,198}); university students/researchers ($n = 15$: 11 RCTs;^{154,157,159,168,171,172,183,184} 4 non-RCTs^{192,200,202}); school mental health providers ($n = 6$: 6 RCTs^{158,162,167,170,174,176}); other practitioners ($n = 6$: 5 RCTs;^{166,179,180,186} 1 non-RCT²⁰¹); a combination of student/researchers and teachers ($n = 1$: 1 RCT¹⁷⁸); a combination of student/researchers and other school staff ($n = 2$: 2 RCTs¹⁴²); a combination of teachers and other practitioners ($n = 3$: 1 RCT;¹⁸² 2 non-RCTs^{197,199}) and a combination of school mental health providers, teachers and student/researchers ($n = 1$: 1 RCT¹⁵³). Provider information for eight interventions was not reported ($n = 9$: five RCTs;^{169,175,181,188} 4 non-RCTs^{141,189,190}).

Training

Training for intervention providers was reported in 38 treatment groups ($n = 38$: 29 RCTs;^{104,142,143,153,156,159–161,163–165,167–169,172,173,177–179,182,183,185–187} 9 non-RCTs^{190,192,193,195–198}). The remaining 26 treatment groups did not mention any training requirements or recommendations ($n = 26$: 18 RCTs;^{154,155,157,158,162,166,170,171,174–176,180,181,184,188} 8 non-RCTs^{141,189,191,194,199–202}), although providers in nine of these interventions included school mental health providers and/or independent clinicians who were presumably skilled in relation to the therapeutic intervention ($n = 9$: 7 RCTs;^{158,162,166,170,174,176,180} 2 non-RCTs^{199,201}).

Intervention length and dosage

The average length of interventions among RCTs was reported for 42 out of 47 interventions^{104,142,143,153–155,157–174,176–178,180–187} and ranged from 1.2 to 156 weeks (mean = 15.5; SD = 25.4 weeks), whereas 11 out of 17 non-RCTs^{141,189,191,192,196,195,197,199–201} reported intervention length that ranged from 6 to 36 weeks (mean = 16.7; SD = 10.5 weeks). The total dosage of interventions was reported in 28 out of 47 of the RCTs^{142,153–155,157–159,163,164,166–172,174,176,178,180–184,187} and 7 out of 17 of the non-RCTs.^{141,190,192,199–201} For RCTs, reported duration ranged from 0.4 to 86 hours (mean = 15.8; SD = 18.6 hours) and for non-RCTs, from 22 to 243 hours (mean = 59.6; SD = 90.1 hours).

Intervention fidelity

Twenty-one of 47 treatment groups^{104,142,143,153,159–161,164,165,167,168,173,182,183,185,187} among the RCTs and 1 of 17 treatment groups¹⁹⁷ among the non-RCTs assessed intervention fidelity.

Quality of trials

Table 13 reports on the quality of trials for the RCTs and non-RCTs.

Unit of randomisation and description of randomisation process

Nine of the 39 RCTs were randomised at the cluster level (seven at the class level,^{143,156,162,164,178,182,185} two at the school level^{153,160}); the remaining 30 studies were randomised at the level of the individual. Twelve studies^{104,154,157,158,167,172,174–177,181,188} randomised at the individual level used matched or stratified allocation. Ten of the 39 RCTs^{155,158,169,171,174–176,181,183,184} provided a description of the randomisation process. Only one trial¹⁵⁵ was identified as having made a good attempt at allocation concealment and the prevention of inadvertent disclosure of assignment. The remaining 38 studies stated that they had used random allocation without providing adequate description of the randomisation procedures.

Intention to treat

Intention to treat was assumed when there were no reported changes to protocol. Based on this criterion, 19 of the 39 RCTs^{142,154–156,158,162,166–168,170,173–176,178,185–188} could be assumed to employ an ITT procedure, with only one study¹⁰⁴ stating use of ITT explicitly. The remaining studies did not meet our criteria for ITT.

TABLE 13 Quality appraisal of the RCTs and non-RCTs

First study author and year	Unit of randomisation	Method used to generate randomisation specified?	Allocation concealment?	ITT?	Blinding of outcome assessor?	Response rate at longest follow-up	Included follow-up(s)?	Longest follow-up 6 months or longer?	RCT or non-RCT?	Included in meta-analysis?
Abikoff 1983 ¹⁸⁹	N/A	N/A	N/A	N/A	X	85–100%	X	X	Non-RCT	Meta-analysed
Bornas 1992 ¹⁹⁰	N/A	N/A	N/A	N/A	X	85–100%	✓	✓	Non-RCT	Meta-analysed
Barkley 2000 ¹⁰⁴	Individual (stratification within gender)	X	X	X	✓	85–100%	✓	✓	RCT	Meta-analysed
Bloomquist 1991 ¹⁵³	Group: school	X	X	X	✓	< 70%	✓	X	RCT	Meta-analysed
Cassar 2010 ¹⁵⁴	Individual (matched)	X	X	✓	X	85–100%	X	X	RCT	Meta-analysed
Chacona 2008 ¹⁵⁵	Individual	✓	✓	✓	X	85–100%	X	X	RCT	Meta-analysed
Cloward 2003 ¹⁵⁶	Group: class	X	X	✓	X	85–100%	X	X	RCT	Meta-analysed
Denkowski 1984 ¹⁵⁷	Individual (matched)	X	X	X	✓	85–100%	X	X	RCT	Meta-analysed
Denkowski 1983 ¹⁵⁸	Individual (matched)	✓	X	✓	X	85–100%	X	X	RCT	Meta-analysed
Dunson 1994 ¹⁴³	Group: class	X	X	X	✓	85–100%	X	X	RCT	Meta-analysed and narrative
Eastman 1981 ¹⁹¹	N/A	N/A	N/A	N/A	X	85–100%	X	X	Non-RCT	Narrative
Evans 2005 ¹⁴¹	N/A	N/A	N/A	N/A	X	85–100%	X	X	Non-RCT	Meta-analysed
Evans 2011 ¹⁵⁹	Individual	X	X	X	X	NR	X	X	RCT	Meta-analysed
Evans 2007 ¹⁶⁰	Group: school	X	X	X	X	< 70%	X	X	RCT	Meta-analysed
Fabiano 2010 ¹⁶¹	Individual	X	X	X	✓	85–100%	X	X	RCT	Meta-analysed
Frame 2003 ¹⁶²	Individual	X	X	✓	X	85–100%	X	X	RCT	Narrative
Harper 1996 ¹⁹²	N/A	N/A	N/A	N/A	X	85–100%	X	X	Non-RCT	Narrative
Hoover 1986 ¹⁶³	Group: class	X	X	X	✓	85–100%	X	X	RCT	Meta-analysed
Iseman 2011 ¹⁶⁴	Group: class	X	X	X	X	< 70%	✓	✓	RCT	Meta-analysed
Jurbergs 2010 ¹⁶⁵	Individual	X	X	X	X	85–100%	X	X	RCT	Meta-analysed
Kapalka 2005 ¹⁹³	N/A	N/A	N/A	N/A	X	85–100%	X	X	Non-RCT	Meta-analysed

First study author and year	Unit of randomisation	Method used to generate randomisation specified?	Allocation concealment?	ITT?	Blinding of outcome assessor?	Response rate at longest follow-up	Included follow-up(s)?	Longest follow-up 6 months or longer?	RCT or non-RCT?	Included in meta-analysis?
Kendrick 1995 ¹⁶⁴	N/A	N/A	N/A	N/A	X	85–100%	✓	X	Non-RCT	Meta-analysed
Khilnani 2003 ¹⁶⁶	Individual	X	X	✓	X	85–100%	X	X	RCT	Meta-analysed
Langberg 2012 ¹⁶⁷	Individual (matched)	X	X	✓	X	NR	✓	X	RCT	Meta-analysed
Langberg 2008 ¹⁶⁸	Individual	X	X	✓	X	85–100%	✓	X	RCT	Meta-analysed
Lomas 2002 ¹⁶⁹	Individual	✓	X	X	X	85–100%	X	X	RCT	Meta-analysed
Looyeh 2012 ¹⁷⁰	Individual	X	X	✓	✓	85–100%	✓	X	RCT	Meta-analysed
McGraw 2004 ¹⁷¹	Individual	✓	X	X	X	85–100%	X	X	RCT	Meta-analysed
Miranda 2006 ¹⁹⁵	N/A	N/A	N/A	N/A	X	85–100%	X	X	Non-RCT	Meta-analysed
Miranda 2002 ¹⁹⁶	N/A	N/A	N/A	N/A	✓	85–100%	X	X	Non-RCT	Meta-analysed
Molina 2008 ¹⁷²	Individual (stratified by gender and grade level)	X	X	X	X	85–100%	X	X	RCT	Meta-analysed
Murray 2008 ¹⁷³	Individual	X	X	✓	X	85–100%	X	X	RCT	Meta-analysed
Omizo 1980 ¹⁷⁴	Individual (matched)	✓	X	✓	X	85–100%	X	X	RCT	Meta-analysed
Omizo 1980 ¹⁷⁵	Individual (matched)	✓	X	✓	X	85–100%	X	X	RCT	Meta-analysed
Omizo 1982 ¹⁷⁶	Individual (matched)	✓	X	✓	X	85–100%	X	X	RCT	Meta-analysed
Ostberg 2012 ¹⁷⁷	Individual (matched)	X	X	X	X	85–100%	✓	X	RCT	Meta-analysed
Owens 2005 ¹⁹⁷	N/A	N/A	N/A	N/A	X	85–100%	X	X	Non-RCT	Meta-analysed
Poillion 1993 ¹⁹⁸	N/A	N/A	N/A	N/A	X	<70%	✓	X	Non-RCT	Meta-analysed
Poley 1996 ¹⁷⁸	Group: class	X	X	✓	X	85–100%	X	X	RCT	Meta-analysed
Rabiner 2010 ¹⁴²	Individual	X	X	✓	✓	85–100%	✓	✓	RCT	Meta-analysed
Re 2007 ¹⁹⁹	N/A	N/A	N/A	N/A	X	85–100%	X	X	Non-RCT	Meta-analysed
Reid 1987 ¹⁷⁹	Individual	X	X	X	✓	85–100%	✓	✓	RCT	Meta-analysed

continued

TABLE 13 Quality appraisal of the RCTs and non-RCTs (continued)

First study author and year	Unit of randomisation	Method used to generate randomisation specified?	Allocation concealment?	ITT?	Blinding of outcome assessor?	Response rate at longest follow-up	Included follow-up(s)?	Longest follow-up 6 months or longer?	RCT or non-RCT?	Included in meta-analysis?
Rickson 2003 ¹⁸⁰	Individual	X	X	X	X	85–100%	✓	X	RCT	Narrative
Rivera 1980 ¹⁸¹	Individual (matched)	✓	X	X	X	85–100%	X	X	RCT	Meta-analysed
Seeley 2009 ¹⁸²	Group: class	X	X	X	X	85–100%	X	X	RCT	Meta-analysed
Semrud 1999 ²⁰⁰	N/A	N/A	N/A	N/A	X	85–100%	X	X	Non-RCT	Meta-analysed
Steiner 2011 ¹⁸³	Individual	✓	X	X	X	85–100%	X	X	RCT	Meta-analysed
Storer 1994 ¹⁸⁴	Individual	✓	X	X	X	85–100%	X	X	RCT	Meta-analysed
Van der Westhuizen 2007 ¹⁸⁶	Individual	X	X	✓	X	85–100%	X	X	RCT	Narrative
van Lier 2004 ¹⁸⁵	Group: class	X	X	✓	X	70–84%	X	X	RCT	Meta-analysed and narrative
Verret 2012 ²⁰¹	N/A	N/A	N/A	N/A	X	85–100%	X	X	Non-RCT	Meta-analysed
Webber 2012 ²⁰²	N/A	N/A	N/A	N/A	X	NR	X	X	Non-RCT	Meta-analysed
Zaghlawan 2007 ¹⁸⁷	Individual	X	X	✓	X	85–100%	✓	X	RCT	Meta-analysed
Zentall 2012 ¹⁸⁸	Individual (stratified by gender and population)	X	X	✓	X	85–100%	X	X	RCT	Meta-analysed
Total frequencies across studies (n = 54)	Individual: 30 Group: 9	✓: 10 X: 29	✓: 1 X: 38	✓: 19 X: 20	✓: 10 X: 44	< 70%: 4 70–84%: 1	✓: 14 X: 40	✓: 5 X: 49		
	N/A: 15	N/A: 15	N/A: 15	N/A: 15		85–100%: 46				
										NR: 3

X, no; ✓, yes; N/A, not applicable; narrative, synthesised narratively; NR, not reported.

Blinding of outcome assessors

Nine RCTs^{104,142,143,153,157,161,163,170,179} reported blinding for at least one of the study measures, whereas the majority of RCTs ($n = 30$) did not implement or report on the blinding of outcome assessors. Only 1 of the 15 non-RCTs¹⁹⁶ reported blinding of outcome assessors; the rest either did not report on or did not implement blinding of outcome assessors. Although completion rates were not always explicitly reported, they could be estimated based on the reported number of participants that consented to take part and the number of participants for whom there were data. Thirty-three of the 39 RCTs^{104,142,143,154–158,161–163,165,166,168–184,186–188} had a completion rate between 85% and 100% at final follow-up; one study between 70% and 84% and three studies $< 70\%$;^{153,160,164} for two RCTs the completion rate was unclear.^{159,167} Of the 15 non-RCTs, 13 had a completion rate of 85–100%;^{141,189–197,199–201} one study $< 70\%$;¹⁹⁸ and in one study the completion rate was unclear.²⁰² Across all 54 studies, only 10 reported blinding of assessor for at least one of the study measures and 46 had a completion rate between 85% and 100%.

Follow-ups

Eleven of the 39 RCTs^{104,142,153,164,166,167,170,177,179,180,187} reported included a follow-up after post-test. Follow-ups ranged from 2 weeks to 2 years post-randomisation (mean = 7.6 months, SD = 7.48) in the 10 studies that reported length of follow-up.^{104,142,153,164,167,168,170,177,179,187} Three studies^{159,160,185} assessed outcomes at several time points throughout the duration of the intervention (in some instances over a relatively long intervention period) but did not continue to apply repeated measures once the intervention had ceased. Of the non-RCTs, three included one follow-up (at 2, 4 and 24 weeks),^{190,194,198} and one study¹⁹⁷ assessed outcomes at several time points throughout the duration of the intervention, but did not continue to apply repeated measures once the intervention had ceased. Across all 54 studies, 14 studies employed follow-ups after post-test.

Analysis

Data description for the meta-analysed randomised controlled trials: constructs and informants

Data for 22 construct/informant combinations were reported and analyses were based on 2–16 independent studies. Ten of the 36 studies^{104,155,161,173,178,179,181,182,184,185} reported mean differences adjusted for baseline or data that could be used to derive these, with unadjusted mean differences reported (or data that could be used to derived these) in the remaining studies. Seven studies^{155,163,169,176,178,179,181} reported the use of neurocognitive assessments for child 'inattention' and eight reported neurocognitive assessments for child 'hyperactivity/impulsivity'.^{155,163,169,176,178,179,181} With the exception of assessments of 'curriculum achievement' (five studies^{154,164,165,172,179}), 'standardised achievement' (10 studies^{104,142,154,157,158,161,163,164,171,188}) and observer rated 'inattention' (four studies^{104,153,156,165}), the remaining assessments comprised perception-based measures rated by key stakeholders. Of these, parent and teacher data were reported for all seven relevant constructs ('inattention'; 'hyperactivity/impulsivity'; 'ADHD combined'; 'externalising' symptoms; 'internalising' symptoms; 'social skills' and 'perceptions of school adjustment') and for child informants three constructs only: 'internalising' symptoms, 'social skills' and 'perceptions of school adjustment' (data for child-informed 'ADHD combined' and 'externalising' symptoms were not identified in the literature and child-informed 'inattention' and 'hyperactivity/impulsivity' were based on neurocognitive assessments).

Data for perception-based measures were most frequently reported for teacher-assessed outcomes: 'inattention' ($n = 12$ ^{104,142,153,156,159,166,169,170,173,177,183,187}); 'hyperactivity/impulsivity' ($n = 16$ ^{104,143,153,159,163,166,167,169,170,173,177–179,182–184}); ADHD combined ($n = 6$ ^{156,161,169,170,177,183}); 'externalising' symptoms ($n = 9$ ^{104,153,157,161,166,169,177,182,185}), 'internalising' symptoms ($n = 4$ ^{104,166,169,177}); 'social skills' ($n = 6$ ^{104,153,159,166,169,182}) and 'perceptions of school adjustment' ($n = 9$ ^{104,142,153,159,161,167,168,173,182}). Parent-informed outcomes were the next most frequently reported among the information: 'inattention' ($n = 7$ ^{104,159,160,167,169,177,183}); 'hyperactivity/impulsivity' ($n = 7$ ^{159,160,167,169,177,178}); 'ADHD combined' ($n = 3$ ^{169,177,183}); 'externalising' symptoms ($n = 4$ ^{104,172,177,182}); 'internalising' symptoms ($n = 3$ ^{104,172,177}); 'social skills' ($n = 4$ ^{104,159,160,182}); and 'perceptions of school adjustment' ($n = 3$ ^{104,159,182}). Child self-perception-based measures were identified least frequently: 'internalising' symptoms ($n = 3$ ^{153,174,175}); 'social skills' ($n = 2$ ^{153,184}); and 'perceptions of school adjustment' ($n = 5$ ^{153,172,174,175,184}).

Meta-analyses of the randomised controlled trials

Table 14 presents the meta-analysis results for the RCTs. Results are presented for each construct/informant combination where data permitted analysis and includes details of the number of independent studies on which each pooled effect size is based and the total sample size across included studies. For each construct, we report the pooled effect size using Cohen's d (d_+) with Hedges' correction and corresponding 95% CIs, p -value, I^2 , and the p -value for Cochran's Q test for between-study heterogeneity. Positive effect sizes indicate that, on average, the treatment group had a better outcome than the control group.

TABLE 14 Effectiveness in RCTs that assess non-pharmacological interventions for children with or at risk of ADHD in school settings

Measure	Informant	Number of studies	Sample size (total)	^a Cohen's d_+	95% CI	p -value	I^2 (%) ^b	p -value for Q test of heterogeneity ^c
Core ADHD symptoms								
Inattention	Parent	7	384	0.13	-0.14 to 0.40	0.33	36	0.15
	Teacher	12	548	0.60	0.14 to 1.06	0.01	83	<0.001
	Child	7	292	0.44	0.18 to 0.70	0.001	14	0.32
	Observer	4	203	1.30	-0.17 to 2.77	0.08	93	<0.001
Hyperactivity/impulsivity	Parent	7	285	0.16	-0.07 to 0.39	0.17	0	0.63
	Teacher	16	700	0.23	-0.03 to 0.49	0.08	63	0.001
	Child	8	411	0.33	0.13 to 0.53	0.001	0	0.70
ADHD combined	Parent	3	110	0.14	-0.46 to 0.75	0.65	57	0.10
	Teacher	6	218	0.16	-0.22 to 0.54	0.42	40	0.14
ADHD-related symptoms								
Externalising symptoms	Parent	4	232	0.21	-0.04 to 0.45	0.10	0	0.55
	Teacher	9	548	0.28	0.04 to 0.53	0.03	49	0.03
Internalising symptoms	Parent	3	193	0.02	-0.27 to 0.31	0.88	0	0.41
	Teacher	4	252	0.14	-0.46 to 0.73	0.65	83	0.001
	Child	3	167	-1.16	-1.15 to 3.47	0.32	97	<0.001
Social skills	Parent	4	260	-0.04	-0.28 to 0.21	0.78	0	0.42
	Teacher	6	304	0.32	-0.09 to 0.73	0.13	63	0.02
	Child	2	59	-0.27	-0.81 to 0.27	0.33	0	0.43
Scholastic behaviours and outcomes								
Perceptions of school adjustment	Parent	3	133	0.46	-0.17 to 1.09	0.15	70	0.04
	Teacher	9	497	0.26	0.05 to 0.47	0.02	23	0.23
	Child	5	190	0.05	-0.24 to 0.34	0.72	4	0.38
Curriculum achievement	Child	5	154	0.50	-0.06 to 1.05	0.08	59	0.04
Standardised achievement	Child	10	502	0.19	0.04 to 0.35	0.02	0	0.65

a Hedges' corrected; positive score = better outcome from treatment group.

b Higgins *et al.*'s measure of heterogeneity.¹⁴⁸

c Cochran's test of heterogeneity.¹⁴⁷

Core attention-deficit/hyperactivity disorder symptoms

There was strong evidence of an average beneficial effect on 'inattention' assessed by neurocognitive assessment ($d_+ = 0.44$, 95% CI 0.18 to 0.70; $p = 0.001$). Beneficial effects on 'hyperactivity/impulsivity' assessed by neurocognitive assessment ($d_+ = 0.33$, 95% CI 0.13 to 0.53; $p = 0.001$) and teacher-rated 'inattention' ($d_+ = 0.60$, 95% CI 0.14 to 1.06; $p = 0.01$) were also observed. Applying Cohen's (1992) guidelines⁶⁵ (Box 1), the corresponding CIs indicate the impact could range between a very small effect (i.e. < 0.20) and 'medium' for neurocognitive assessments of child-informed 'inattention' and 'hyperactivity/impulsivity' and anywhere between very small (i.e. < 0.20) and 'large' for teacher-rated 'inattention'. There was weak evidence of an effect for 'inattention' reported by independent observers ($p = 0.08$) and 'hyperactivity/impulsivity' rated by teachers ($p = 0.08$); the corresponding wide CIs indicate insufficient data to be certain that these are true effects and, if it were a true effect, about the likely effect size. There was little evidence of effects for the remaining construct/informant combinations for core ADHD symptoms.

Attention-deficit/hyperactivity disorder-related symptoms

There was evidence of a beneficial effect on 'externalising' symptoms reported by teachers ($d_+ = 0.28$, 95% CI 0.04 to 0.53; $p = 0.03$). Applying Cohen's guidelines⁶⁵ (see Box 1), the corresponding CIs indicate that the effect could range from very small (i.e. < 0.20) to 'medium'. There was little evidence of any effects for the remaining construct/informant combinations for ADHD-related symptoms.

Scholastic behaviours and outcomes

There was evidence of a beneficial effect on 'perceptions of scholastic adjustment' as assessed by teachers ($d_+ = 0.26$, 95% CI 0.05 to 0.47; $p = 0.02$) and 'standardised achievement' ($d_+ = 0.19$, 95% CI 0.04 to 0.35; $p = 0.02$). Applying Cohen's guidelines,⁶⁵ the corresponding CIs indicate that the effects could be anywhere between very small (i.e. < 0.20) and 'small'. There was only weak evidence for any effect on 'curriculum achievement' ($p = 0.08$); the corresponding wide CIs indicate insufficient data to be certain about the presence of an effect or, if present, the likely effect size. There was little evidence of effects for parent- and child-rated perception-based measures of 'scholastic adjustment'.

Data description for the meta-analysed non-randomised controlled trials: constructs and informants

Data for 17 construct/informant combinations were reported and only 1 of 12 studies reported mean differences adjusted for baseline score or data that could be used to derive these;²⁰¹ unadjusted mean differences were calculated for the rest of the studies. Four of the 12 studies included a neurocognitive assessment of 'inattention'.^{190,196,200,201} Three studies assessed 'curriculum achievement'^{197,198,202} and two studies assessed 'standardised achievement'.^{189,190} The remaining assessments comprised perception-based measures. With the exception of parent-rated 'ADHD combined', data were reported for teachers and parents across all seven relevant constructs ('inattention'; 'hyperactivity/impulsivity'; 'ADHD combined'; 'externalising' symptoms; 'internalising' symptoms; 'social skills'; and 'perceptions of school adjustment'). There were no data for child-informed perception-based measures. All analyses were based on between two and four independent studies. Table 15 reports the results of meta-analyses for the non-RCTs.

BOX 1 Cohen's guidelines for interpreting effect sizes

'Small' $d_+ = 0.20$.

'Medium' $d_+ = 0.50$.

'Large' $d_+ = 0.80$.

TABLE 15 Effectiveness of non-RCTs that assess non-pharmacological interventions for children with or at risk of ADHD

Measure	Informant	Number of studies	Sample size (total)	^a Cohen's d_+	95% CI	p -value	I^2 (%) ^b	p -value for Q test of heterogeneity ^c
ADHD-related symptoms								
Inattention	119	Parent	4	0.74	-0.36 to 1.80	0.19	86	<0.001
	123	Teacher	3	0.36	0.00 to 0.72	0.05	0	0.56
	125	Child	4	0.75	0.09 to 1.40	0.03	73	0.01
Hyperactivity/impulsivity	101	Parent	3	0.57	-0.18 to 1.32	0.13	65	0.06
	123	Teacher	3	0.16	-0.93 to 1.22	0.78	87	<0.001
	71	Child	2	0.06	-0.87 to 0.99	0.90	67	0.82
ADHD combined	133	Teacher	4	0.37	0.02 to 0.72	0.04	0	0.63
ADHD-related symptoms								
Externalising symptoms	36	Parent	2	0.20	-0.50 to 0.90	0.22	34	0.22
	213	Teacher	4	0.37	-0.24 to 0.98	0.23	67	0.05
Internalising symptoms	86	Parent	3	0.06	-0.36 to 0.48	0.78	0	0.98
	123	Teacher	3	-0.29	-0.66 to 0.09	0.13	17	0.30
Social skills	68	Parent	2	-0.15	-0.64 to 0.35	0.57	69	0.69
	94	Teacher	2	-0.06	-0.80 to 0.69	0.88	77	0.04
Scholastic behaviours and outcomes								
Perceptions of school adjustment	68	Parent	2	0.29	-0.60 to 1.17	0.53	67	0.08
	105	Teacher	3	0.24	-0.15 to 0.64	0.23	0	0.39
Curriculum achievement	114	Child	3	0.28	-0.46 to 1.03	0.46	77	0.14
Standardised achievement	41	Child	2	1.15	-0.25 to 2.55	0.11	81	0.19
a Hedges' corrected; positive score = better outcome from treatment group. b Higgins <i>et al.</i> 's measure of heterogeneity. ¹⁴⁸ c Cochran's (1954) test of heterogeneity. ¹⁴⁷								

Core attention-deficit/hyperactivity disorder symptoms

There was some evidence of a beneficial effect on 'inattention' ($d_+ = 0.75$, 95% CI 0.09 to 1.40; $p = 0.03$) assessed by neurocognitive assessment and 'ADHD combined' assessed by teachers ($d_+ = 0.37$, 95% CI 0.02 to 0.72; $p = 0.04$). Applying Cohen's guidelines,⁶⁵ the corresponding CIs indicate the effect on 'inattention' could be anywhere between very small (i.e. < 0.20) and 'large' (see *Box 1*), and on 'ADHD combined' anywhere between very small (i.e. < 0.20) and 'medium'. There was weak evidence of an effect for 'inattention' reported by teachers ($p = 0.05$); the corresponding wide CIs indicate insufficient data to be certain that these are true effects and about the likely effect size. There was little evidence of effects for the remaining construct/informant combinations for core ADHD symptoms.

Attention-deficit/hyperactivity disorder-related outcomes

There was little evidence of beneficial effects of interventions on ADHD-related outcomes among non-RCTs.

Scholastic behaviours and outcomes

There was little evidence of beneficial effects of intervention on scholastic behaviours and outcomes among the non-RCTs.

Comparison of meta-analysed randomised controlled trials and non-randomised controlled trials

With the exception of 'inattention' assessed by neurocognitive assessment and teachers, there was no overlap in the constructs that demonstrated a beneficial effect of non-pharmacological interventions between the meta-analysed RCTs and non-RCTs. Nonetheless, there were too few meta-analysed non-RCTs to enable a reliable comparison with the meta-analysed RCTs.

Publication bias

We were unable to assess funnel plots properly or use more advanced regression-based assessments to assess publication bias owing to the inadequate numbers of included trials and the substantial heterogeneity identified across studies.¹⁵⁰

Heterogeneity

Heterogeneity was explored and meta-regression models run for the meta-analyses RCTs only as there were too few non-RCTs to support this kind of analysis for these studies. *Table 16* reports the level of

TABLE 16 High, moderate and low levels of heterogeneity among meta-analysed RCTs

High heterogeneity (I^2 values $\geq 50\%$)	Moderate heterogeneity (I^2 values 25–50%)	Low heterogeneity ($I^2 < 25\%$)
<ul style="list-style-type: none"> • Inattention (teacher) • Inattention (observer) • Hyperactivity/impulsivity (teacher) • ADHD combined (parent) • Internalising symptoms (teacher) • Internalising symptoms (child) • Social skills (teacher) • Perceptions of school adjustment (parent) • Curriculum achievement 	<ul style="list-style-type: none"> • Inattention (parent) • ADHD combined (teacher) • Externalising symptoms (teacher) 	<ul style="list-style-type: none"> • Inattention (child) • Hyperactivity/impulsivity (child) • Hyperactivity/impulsivity (parent) • Externalising symptoms (parent) • Internalising symptoms (parent) • Social skills (parent) • Social skills (child) • Perceptions of school adjustment (teacher) • Perceptions of school adjustment (child) • Standardised achievement

heterogeneity by outcome as 'high', 'moderate' or 'low' based on the I^2 values reported in *Table 14*. Among the RCTs, 9 of the 22 construct/informant combinations had I^2 values $\geq 50\%$, which indicates a large amount of heterogeneity. With the exception of parent-informed 'ADHD combined' corresponding Q statistics were significant at the 5% level, providing further evidence of heterogeneity. Three construct/informant combinations had I^2 values between 25% and 50%, which indicates moderate heterogeneity (parent-informed 'inattention'; teacher-informed 'ADHD combined'; teacher-informed 'externalising' symptoms), although the corresponding Q statistics were only significant for 'externalising' symptoms. The remaining 10 informant/construct combinations had non-significant Q statistics and I^2 values $< 25\%$, which indicated lower levels of heterogeneity. Of the nine construct/information combinations showing some beneficial evidence of effectiveness (reported in *Table 14*), with the exception of neurocognitive assessment of 'inattention' and 'hyperactivity/impulsivity', teacher 'perceptions of school adjustment' and 'standardised achievement' identified as having low heterogeneity all were shown to have high levels of heterogeneity across studies.

Moderator analyses among the randomised controlled trials

We used meta-regression, where data permitted, to examine whether or not the programme features described in *Table 17* modified intervention effectiveness using the potential modifying variables in separate models (i.e. one predictor variable only).

Moderator analyses were conducted for four construct/information combinations with eight or more studies including, teacher-informed 'inattention', 'hyperactivity/impulsivity', 'externalising' symptoms and 'perceptions of school adjustment'. 'Standardised achievement' was not included as the corresponding I^2 statistic was zero. There were too few studies to explore moderators for the remaining construct/informant combinations. *Table 17* illustrates how each moderator was operationalised and for which potential moderators data were available. The distribution of moderator scores was assessed for each outcome. Potential moderators measured on a continuous scale were sometimes categorised into two groups to form a dichotomous variable. Cut-off values for categorisation were chosen on a case-by-case basis, informed by the distribution of scores.

The results of the meta-regression are reported in four tables. None of the heterogeneity in effect sizes for teacher-rated 'inattention' (*Table 18*), 'hyperactivity/impulsivity' (*Table 19*) and 'externalising' symptoms (*Table 20*) was explained by participant characteristics (medication status), intervention packages (contingency management; DRC, cognitive-behavioural self-regulation; cognitive skills retraining; academic study skills; and emotional skills training) and intervention delivery characteristics (context, provider, time, setting, duration and intensity). These results suggest that none of the characteristics assessed had an impact on intervention effectiveness for 'inattention', 'hyperactivity/impulsivity' and 'externalising' symptoms. For the 'perceptions of school adjustment' outcome (*Table 21*), there was weak evidence ($p = 0.06$) of a negative effect for the social skills intervention package, suggesting that inclusion of social skills training may have a negative impact on effectiveness. For the same outcome, there was also weak evidence for the negative effect of intervention length ($p = 0.04$) assessed on a continuous scale, suggesting that shorter interventions are more effective.

TABLE 17 Categorisation of moderators by outcome assessed

Moderator	Outcome(s) assessed	Operationalisation of moderator variable
Study characteristics		
<ul style="list-style-type: none"> Treatment as usual vs. experimental control that match for time/contact 	<ul style="list-style-type: none"> Insufficient data 	N/A
Participant characteristics		
<ul style="list-style-type: none"> % on medication for ADHD 	<ul style="list-style-type: none"> Inattention Hyperactivity/impulsivity 	Dichotomous: high vs. low
<ul style="list-style-type: none"> % female 	<ul style="list-style-type: none"> Insufficient variance between studies 	N/A
<ul style="list-style-type: none"> Elementary/primary vs. other school levels 	<ul style="list-style-type: none"> Insufficient variance between studies 	N/A
Intervention packages		
<ul style="list-style-type: none"> Number of packages 	<ul style="list-style-type: none"> Inattention Hyperactivity/impulsivity External 	Dichotomous: single vs. multiple
	<ul style="list-style-type: none"> Perceptions of school adjustment 	Dichotomous: two vs. three or more
<ul style="list-style-type: none"> Contingency management 	<ul style="list-style-type: none"> Inattention Hyperactivity/impulsivity 	Dichotomous: present vs. absent
<ul style="list-style-type: none"> DRC 	<ul style="list-style-type: none"> Hyperactivity/impulsivity Perceptions of school adjustment 	Dichotomous: present vs. absent
<ul style="list-style-type: none"> Cognitive-behavioural self-regulation 	<ul style="list-style-type: none"> Inattention Hyperactivity/impulsivity School adjustment 	Dichotomous: present vs. absent
<ul style="list-style-type: none"> Academic study skills 	<ul style="list-style-type: none"> Perceptions of school adjustment 	Dichotomous: present vs. absent
<ul style="list-style-type: none"> Social skills 	<ul style="list-style-type: none"> Perceptions of school adjustment 	Dichotomous: present vs. absent
<ul style="list-style-type: none"> Emotional skills training 	<ul style="list-style-type: none"> External 	Dichotomous: present vs. absent
Delivery characteristics		
<ul style="list-style-type: none"> Context 	<ul style="list-style-type: none"> Inattention Hyperactivity/impulsivity External 	Dichotomous: school and home vs. school only
<ul style="list-style-type: none"> Provider 	<ul style="list-style-type: none"> Inattention Hyperactivity/impulsivity External 	Dichotomous: teacher vs. any other provider
<ul style="list-style-type: none"> Time 	<ul style="list-style-type: none"> Inattention 	Dichotomous: normal school hours vs. before/after school
<ul style="list-style-type: none"> Setting 	<ul style="list-style-type: none"> Inattention Hyperactivity/impulsivity 	Dichotomous: classroom vs. all other settings
<ul style="list-style-type: none"> Duration 	<ul style="list-style-type: none"> Inattention Hyperactivity/impulsivity External Perceptions of school adjustment 	Continuous weeks
<ul style="list-style-type: none"> Intensity 	<ul style="list-style-type: none"> Inattention Hyperactivity/impulsivity 	Continuous hours
N/A, not applicable.		

TABLE 18 Meta-regression results for teacher-informed inattention

Potential modifier	Number of studies (n)	Meta-regression results			Adjusted R ² (%) ^c	
		Coefficient ^a	95 CI%	p-value		
Study and participant characteristics						
Medication status: high vs. low (reference) ^d	10	-0.74	-2.10 to 0.63	0.25	85	6.0
Intervention package						
Frequency: multiple vs. single (reference) ^e	12	0.20	-1.11 to 1.52	0.74	84	0.0
Contingency management: present vs. absent (reference) ^f	12	0.09	-1.27 to 1.46	0.88	84	0.0
Cognitive-behavioural self-regulation: present vs. absent (reference) ^g	12	0.06	-1.52 to 1.64	0.94	84	0.0
Cognitive skills/retraining: present vs. absent (reference) ^h	14	-0.44	-1.71 to 0.84	0.47	82	0.0
Delivery characteristics						
Context: school and home vs. school only (reference) ⁱ	14	-0.65	-1.69 to 0.39	0.20	79	6.1
Provider: teacher vs. other (reference) ^j	11	0.42	-0.94 to 1.78	0.50	85	0.0
Time: normal school hours vs. before/after school (reference) ^k	12	0.09	-1.42 to 1.61	0.90	84	0.0
Setting: classroom vs. other (reference) ^l	11	0.42	-0.79 to 0.94	0.50	85	0.0
Duration: weeks	11	-0.01	-0.05 to 0.04	0.79	83	0.0
Intensity: hours	8	-0.02	-0.05 to 0.02	0.23	86	10.9

a How inattention changes with a unit increase in the potential modifier.

b The proportion of residual between-study variation attributable to heterogeneity.

c Proportion of variance accounted for by potential modifier.

d High = $\geq 60\%$ on medication for ADHD ($k = 5$); low = $< 40\%$ on medication for ADHD ($k = 5$).

e Single ($n = 6$); multiple ($n = 6$).

f Present ($n = 7$); absent ($n = 5$).

g Present ($n = 3$); absent ($n = 9$).

h Present ($n = 3$); absent ($n = 9$). Criteria varied by two treatment groups within two studies that had been combined for the meta-analysis; therefore, each treatment group entered the moderator analysis separately resulting in two data points each for two studies.

i School and home ($n = 9$); school only ($n = 5$). Criteria varied by two treatment groups within two studies that had been combined for the meta-analysis; therefore, each treatment group entered the moderator analysis separately resulting in two data points for two studies.

j Teacher ($n = 7$); other ($n = 4$).

k Normal school hours ($n = 9$); before/after school ($n = 3$).

l Classroom ($n = 5$); other ($n = 6$).

TABLE 19 Meta-regression results for teacher-informed hyperactivity/impulsivity

Potential modifier	Number of studies (n)	Meta-regression results			I ² (%) ^b	Adjusted R ² (%) ^c
		Coefficient ^a	95 CI%	p-value		
Study and participant characteristics						
Medication status: high vs. low (reference) ^d	11	-0.61	-1.35 to 0.13	0.09	66	21.30
Intervention package						
Frequency: multiple vs. single (reference) ^e	16	0.40	-0.17 to 0.96	0.15	60	9.63
Contingency management: present vs. absent (reference) ^f	16	0.37	-0.19 to 0.93	0.18	61	4.5
DRC: present vs. absent (reference) ^g	16	-0.04	-0.81 to 0.73	0.92	61	0.00
Cognitive-behavioural self-regulation: present vs. absent (reference) ^h	16	-0.19	-0.81 to 0.42	0.51	61	0.00
Cognitive skills/retraining: present vs. absent (reference) ⁱ	18	0.08	-0.68 to 0.52	0.78	67	0.00
Delivery characteristics						
Context: school and home vs. school only (reference) ^j	18	0.10	-0.45 to 0.65	0.71	59	0.00
Provider: teacher vs. other (reference) ^k	15	0.19	-0.40 to 0.77	0.50	60	0.00
Duration: weeks	15	-0.02	-0.05 to 0.01	0.21	58	8.00
Intensity: hours	10	-0.01	-0.02 to 0.01	0.41	59	0.00

a How hyperactivity/impulsivity changes with a unit increase in the potential modifier.

b The proportion of residual between-study variation attributable to heterogeneity.

c Proportion of variance accounted for by potential modifier.

d High = ≥ 60% on medication for ADHD (n = 5); low = < 10% on medication for ADHD (n = 6).

e Single (n = 9); multiple (n = 7).

f Present (n = 8); absent (n = 8).

g Present (n = 3); absent (n = 13).

h Present (n = 5); absent (n = 11).

i Present (n = 3); absent (n = 13). Criteria varied by two treatment groups within two studies that had been combined for the meta-analysis; therefore, each treatment group entered the moderator analysis separately resulting in two data points each for two studies.

j School and home (n = 6); school only (n = 12). Criteria varied by two treatment groups within two studies that had been combined for the meta-analysis; therefore, each treatment group entered the moderator analysis separately resulting in two data points for two studies.

k Teacher (n = 10); other (n = 5).

TABLE 20 Meta-regression results for teacher-informed external symptoms

Potential modifier	Number of studies (n)	Meta-regression results			I ² (%) ^b	Adjusted R ² (%) ^c
		Coefficient ^a	95 CI%	p-value		
Intervention package						
<i>Frequency</i> : multiple vs. single (reference) ^d	9	0.26	-0.42 to 0.95	0.40	53	0
<i>Emotional skills training</i> : present vs. absent (reference) ^e	10	0.10	-0.60 to 0.81	0.74	54	0
Delivery characteristics						
<i>Context</i> : school and home vs. school only (reference) ^f	11	0.10	-0.41 to 0.62	0.67	44	0
<i>Duration</i> : weeks	9	0.01	-0.01 to 0.02	0.47	51	0

a How external symptoms change with a unit increase in the potential modifier.
 b The proportion of residual between-study variation attributable to heterogeneity.
 c Proportion of variance accounted for by potential modifier.
 d Single (n = 4); multiple (n = 5).
 e Present (n = 3); absent (n = 7). Criteria varied by two treatment groups within one study that had been combined for the meta-analysis; therefore, each treatment group entered the moderator analysis separately resulting in two data points for one study.
 f School and home (n = 5); school only (n = 6). Criteria varied by two treatment groups within two studies that had been combined for the meta-analysis; therefore, each treatment group entered the moderator analysis separately resulting in two data points each for two studies.

TABLE 21 Meta-regression results for teacher informed perceptions of school adjustment

Potential modifier	Number of studies (n)	Meta-regression results			I ² (%) ^b	Adjusted R ² (%) ^c
		Coefficient ^a	95 CI%	p-value		
Intervention package						
<i>Frequency</i> : more than two vs. single (reference) ^d	9	0.36	-0.12 to 0.84	0.12	0	62.4
<i>DRC</i> : present vs. absent (reference) ^e	9	-0.26	-0.78 to 0.26	0.28	11	32.7
<i>Academic study skills</i> : present vs. absent (reference) ^f	10	-0.24	-0.71 to 0.23	0.27	9	20.9
<i>Social skills</i> : present vs. absent (reference) ^g	9	-0.42	-0.86 to 0.02	0.06	0	100.0
Delivery characteristics						
<i>Duration</i> : weeks	9	-0.02	-0.04 to 0.00	0.04	0	100.0

a How school adjustment changes with a unit increase in the potential modifier.
 b The proportion of residual between-study variation attributable to heterogeneity.
 c Proportion of variance accounted for by potential modifier.
 d Two (n = 4); more than two (n = 5).
 e Present (n = 3); absent (n = 6).
 f Present (n = 5); absent (n = 5). Criteria varied by two treatment groups within one study that had been combined for the meta-analysis; therefore, each treatment group entered the moderator analysis separately resulting in two data points for one study.
 g Present (n = 3); absent (n = 6).

Narrative synthesis

Findings for outcomes reported in 10 papers^{104,141,143,162,180,185,186,191,192,198} (13 treatment groups) are summarised narratively in this section as data suitable for inclusion in the meta-analyses were neither reported nor obtainable from the study authors.

Data description for the outcomes synthesised narratively: constructs and informants

Data were available for 13 construct/informant combinations. Assessments of 'curriculum achievement' were identified in five studies,^{141,185,186,191,198} assessments of observer-rated 'inattention',^{143,191} teacher-rated 'hyperactivity/impulsivity',^{143,192} teacher-informed 'externalising' symptoms,^{180,185} child-informed 'internalising' symptoms^{162,192} and 'perceptions of school adjustment'^{162,198} were identified in two studies each; the remaining combinations were reported in one study only including neurocognitive assessments of 'inattention',¹⁸⁶ neurocognitive¹⁸⁶ and observer¹⁰⁴ assessments of 'hyperactivity/impulsivity',¹⁸⁰ parent-¹⁸⁰ and observer-rated¹⁴³ 'externalising' symptoms, teacher-rated 'ADHD combined'¹⁸⁵ and observer-rated 'social skills'.¹⁴³ With the exception of neurocognitive and observer assessments of 'inattention', 'hyperactivity/impulsivity', observer assessments of 'externalising' symptoms and 'social skills', and assessments of curriculum achievement, all outcomes were teacher, parent or children perception-based measures. *Table 22* reports the results of the findings synthesised narratively. The majority of effects reported showed no statistically significant improvement for treatment group participants compared with controls on the nine commonly assessed outcomes. Among the RCTs, Dunson *et al.*¹⁴³ reported a statistically significant effect for teacher-rated 'hyperactivity/impulsivity' ($p = 0.005$) but not for observer ratings of 'inattention', 'externalising' symptoms and 'social skills' (p -values ranged from 0.08 to 0.67). Frame *et al.*¹⁶² reported statistically significant effects for child-rated 'internalising' symptoms (p -values range from $p < 0.001$ to $p = 0.025$). Van der Westhuizen¹⁸⁶ reported a positive effect of neurofeedback on one of seven assessments of 'curriculum achievement' ('addition in maths') relative to the control group ($p = 0.04$). Finally, among the non-RCTs, Harper¹⁹² reported evidence for the beneficial effects of social skills training on teacher-rated 'hyperactivity/impulsivity' among treatment group 2 but not for treatment group 1. Treatment group 1 received their training alongside non-ADHD peers, whereas those in treatment group 2 received their training separate to non-ADHD peers. In the absence of effect sizes, it is difficult to compare these findings with those from the meta-analyses especially in light of the small sample sizes in all but two of the studies.^{104,198}

Effectiveness findings for the data synthesised narratively

Results of the narrative synthesis are summarised in *Table 22*.

TABLE 22 Summary of the effectiveness findings synthesised narratively

First study author and year	Study design	Core			Related			School		
		Inattention	Hyperactivity/impulsivity	ADHD combined type	Externalising symptoms	Internalising symptoms	Social Skills	School adjustment	Standardised achievement	Curriculum achievement
Barkley 2000 ¹⁰⁴ (tg2)	RCT		→ observer (6)							
Barkley 2000 ¹⁰⁴ (tg3)	RCT		→ observer (6)							
Dunson 1994 ¹⁴³	RCT	→ observer (1)	↑ teacher (1)		→ observer (1)					
Eastman 1981 ¹⁹¹	Non-RCT	→ observer (1)								→ child (1)
Evans 2005 ¹⁴¹	Non-RCT									→ child (1)
Frame 2003 ¹⁶²	RCT					↑ child (4); → child (1)				→ child (1)
Harper 1996 ¹⁹² (tg1)	Non-RCT		→ teacher (1)			→ child (1)				
Harper 1996 ¹⁹² (tg2)	RCT		↑ teacher (1)			→ child (1)				
Poillion 1993 ¹⁹⁸ (tg2)	Non-RCT									→ child (2)
Rickson 2003 ¹⁸⁰ (tg1)	RCT									
Rickson 2003 ¹⁸⁰ (tg2)	RCT					→ parent (2); → teacher (2)				
Van der Westhuizen 2007 ¹⁸⁶	RCT	→ child (3)	→ child (1)			→ parent (2); → teacher (2)				↑ child (1); → child (6)
van Lier 2004 ¹⁸⁵	RCT				→ teacher (1)					

↑, a statistically significant difference was reported for outcome(s) in this category, the direction of effect was beneficial; ↓, a statistically significant difference was reported for outcome(s) in this category, the direction of effect was not beneficial; →, outcome(s) were reported in this category, no statistically significant differences were reported; tg1, treatment group 1; tg2, treatment group 2; tg3, treatment group 3. Number (#) of outcomes given in brackets.

Discussion

This review synthesised studies that spanned 32 years of research about the effectiveness of non-pharmacological interventions that target children with, or at risk of, ADHD in school settings. Fifty-four evaluations that reported on one or more of nine commonly measured child-related constructs assessing aspects of the condition were synthesised. Informant types (i.e. parent, teacher, child and observer) were also distinguished. In addition to the investigation of whether or not non-pharmacological interventions are effective (research question 1), the review identified and tested a wide range of programme features that could impact on effectiveness, including the study design, participant characteristics, intervention package(s) and delivery elements of non-pharmacological interventions that target children with, or at risk of, ADHD in school settings (research question 2). The cost-effectiveness of non-pharmacological interventions could not be assessed as no studies were identified (research question 3).

Overall, the results provide support for the beneficial effects of non-pharmacological interventions on outcomes related to ADHD. Positive effects were observed for relatively objective assessments (including neurocognitive assessments and tests with objective performance criteria) and for some teacher perception-based measures but not for parental and child perception-based measures. The results indicate that interventions in this field are complex; they are typically composed of multiple features and few interventions consist of common sets of intervention elements. The heterogeneity of the interventions studied was compounded by the generally low methodological quality of included studies and the absence of an agreed set of outcome measures for assessing aspects related to ADHD. Applying Cohen's guidelines for interpreting effect sizes, mean weighted effect sizes across outcomes ranged from very small ($d_+ < 0.20$) to large ($d_+ \geq 0.80$), but 95% CIs were wide and substantial heterogeneity in effect size estimates across studies was reported. Moderator analyses did not clarify which of the particular programme features are linked with effectiveness (research question 2). The meta-analysed RCTs ($n = 36$) offer the highest level of evidence and therefore provide the most methodologically robust basis for the following discussion. We will, therefore, (1) review the magnitude of effect sizes across constructs and informants; (2) review the meta-regression results and the effect of various programme features on the success of interventions; (3) compare our findings with those of previous reviews; (4) identify limitations of this review; (5) reflect on the design and evaluation of interventions to optimise outcomes for children with, or at risk of, ADHD; and (6) highlight key conclusions for research and possible implications for practice.

Pooled effect sizes across constructs

Beneficial effects were observed for constructs within all three broad domains of 'core ADHD' symptoms, 'ADHD-related' symptoms and 'scholastic behaviours and outcomes'. These included relatively objective measures of neurocognitive assessments, academic achievement ('curriculum achievement' and 'standardised achievement') and outcomes rated by independent observers. Evidence of effectiveness was also reported for five perception-rated outcomes reported by teachers, which provides support for the beneficial effect of non-pharmacological interventions that target children with or at risk of ADHD in school settings.

Specifically, statistically significant effects were reported for six construct/informant combinations including: neurocognitive assessments of 'inattention' ($p = 0.001$) and 'hyperactivity' ($p = 0.001$), teacher-rated 'inattention' ($p = 0.01$), teacher-rated 'externalising' symptoms ($p = 0.03$), as well as teacher-rated 'scholastic adjustment' ($p = 0.02$) and 'standardised achievement' ($p = 0.02$). Nonetheless, corresponding CIs were wide, which indicates considerable uncertainty about the true value of the pooled effect. There was weak evidence for the effect of interventions on observer-rated 'inattention' ($p = 0.08$), teacher-rated 'hyperactivity/impulsivity' ($p = 0.08$) and 'curriculum achievement' ($p = 0.08$). Small effects and statistically non-significant findings should not, however, necessarily be overlooked as the meta-analyses were not large enough to estimate the true effect size with precision and the 95% CIs were often so wide as to include both null and substantial effects.¹⁴⁵ This is especially relevant here as there is heterogeneity in the characteristics of the interventions evaluated.

There was no evidence of effectiveness on the child and parent perception-based measures. The lack of evidence for parent-rated outcomes could be due to few studies that included both home and school elements. Interventions that target children primarily in school settings do not necessarily ensure that behavioural changes transfer to the settings outside of the school such as the home, on which most parental ratings would be based. Parents are not usually present in classrooms and therefore would be dependent on reports from teachers and children on whether or not interventions influenced their child's function at school. The lack of evidence for child perception-based measures is also unsurprising given that the majority of included studies targeted fairly young children at elementary/primary school who, understandably, may not be particularly skilled or experienced in evaluating their own behaviours. Empirical studies suggest that self-report measures about mental health are rarely reliable among children under the age of 9 years,²⁰³ and frequently demonstrated surprisingly low levels of agreement across informants.²⁰⁴

Moderator analyses

Analyses were restricted to four perception-based outcomes rated by teachers ('inattention', 'hyperactivity/impulsivity', 'external' symptoms, 'perceptions of school achievement') for which sufficient data were available. The potential moderators tested spanned a range of programme features including information on participant characteristics, intervention package(s) and intervention delivery characteristics. There was weak evidence ($p = 0.06$) for possible harmful effect of social skills training and longer (vs. shorter) interventions ($p = 0.04$) on teachers' 'perceptions of school adjustment'. Nonetheless, these analyses were based on nine studies only;^{104,142,153,159,161,167,168,173,182} with only three studies^{104,159,182} identified as including social skills training. The potential moderators tested do not explain the large proportion of unaccounted variance in effect size heterogeneity. It is possible that combinations of programme features may interact to account for this heterogeneity. However, the number of studies in the available literature does not allow us to reliably explore these potential interaction effects.

Comparison with previous reviews

Our classification of interventions led to the identification of 15 packages of techniques. Comparisons with previous classifications suggest moderate overlap. For example, our packages of 'cognitive-behavioural self-regulation' and 'contingency management' overlap with the 'self-regulation' interventions reviewed by Reid *et al.*⁷⁵ and with the 'behavioural modification' interventions reviewed by Fabiano *et al.*⁶³ In their review, DuPaul *et al.*⁷² evaluated 'contingency management', 'cognitive-behavioural' and 'academic' interventions which overlap with our 'contingency management', 'cognitive-behavioural self-regulation' and 'study skills' packages. Three of our packages also overlap with Trout *et al.*'s⁷⁴ classification in a previous review, that is our packages of 'adaptations to environment', 'contingency management' and 'cognitive-behavioural self-regulation' correspond with their 'antecedents-based interventions', 'consequence-based interventions' and 'self-regulation-based interventions'. Two of their remaining categorisations reflect modes of delivery, that is peer- and parent-mediated interventions rather than change techniques and the final one is a catch-all group comprising all other interventions.

The results of our review replicate and build on the conclusions of previous reviews^{72,74,75} and benefit from the inclusion of a larger set of controlled trials. For example, the results confirm DuPaul *et al.*'s⁷² conclusions that non-pharmacological interventions delivered in school settings lead to improvement in both core ADHD symptoms and academic outcomes. Building on DuPaul *et al.*,⁷² the results indicate that the effects of non-drug intervention in school settings vary by rater type. We assessed a more refined range of outcomes for children with or at risk of ADHD, classifying 'symptoms' and 'scholastic behaviours and outcomes' into relatively discrete constructs that have distinct theoretical bases and potentially differential implications for key stakeholders. For example, teachers and parents may be more concerned about academic outcomes than children, who in turn may be more concerned about making good friends (see *Chapters 5 and 6* for a fuller discussion of this issue). In line with previous reviews, there was substantial heterogeneity in effect sizes across studies and, consistent with Trout *et al.*,⁷⁴ our results indicate that interventions in this field are composed of multiple features and few interventions consist of common sets of intervention elements.

The design and evaluation of interventions to optimise outcomes for children with or at risk of attention-deficit/hyperactivity disorder

The results offer support for the effectiveness of non-drug interventions that target children with or at risk of ADHD. The range of pooled effects across studies suggest that the success of non-pharmacological interventions in school settings are comparable to those in other contexts that target children with ADHD (e.g. in clinic settings) and interventions that target child mental health more generally.^{205,206} Nonetheless, study quality of the included trials was generally low (see below) and, therefore, a key conclusion of this review is for the development and testing of better conducted RCTs in the future. Few interventions consist of common sets of intervention elements. For example, of the 43 intervention groups among the meta-analysed RCTs, 26 unique intervention packages or combinations thereof were identified, even before the consideration of other potentially active ingredients such as delivery characteristics. The current literature does not allow us to assess accurately which intervention elements are linked to effectiveness. To develop more effective interventions it is necessary to investigate the combinations of components that are most effective in changing a particular behaviour. There is evidence to suggest that having a theoretical basis to an intervention enhances its effectiveness.⁹⁴ Therefore, in the design of interventions that target children with ADHD, the methods used to change behaviour should be matched explicitly to the relevant theoretical constructs. Theoretical specification would facilitate the accumulation of knowledge and evidence synthesis. There is a growing evidence base about which techniques are useful in changing particular theoretical constructs that can enhance the design of interventions.²⁰⁷ The adoption of these methods would not only help isolate the active ingredients of the interventions but would also help researchers and practitioners to replicate, implement and synthesise evidence on interventions that target children with ADHD.²⁰⁸ Change targets should be considered not only at the child level but at professional (e.g. teacher) and organisational (e.g. school) levels too. Key stakeholders should be involved in the design of interventions at an early stage to ensure acceptability and relevance to local context²⁰⁹ (see *Chapter 7* for a fuller discussion of this issue). Intervention mapping, a formal systematic method for the design and implementation of interventions, could usefully be applied.²⁰⁹

Limitations

We set a broad net through our inclusion criteria, which was necessary to bring together different literatures, to provide an overview of the research to date and to outline the future research agenda in this field. However, the breadth of the range of both intervention and outcomes presents a challenge for analysis and interpretation. The absence of standardised tools to synthesise across measures and interventions meant that we had to develop our own systems. Several separate measures have been developed to assess the same constructs (see *Table 3*), with only a few derived from a rigorous psychometric development process. Overall, the current range of assessments reported in this review reflects the proliferation of measures that represent a limited number of underlying mechanistic constructs. This lack of standardised methods and measures makes theoretical integration difficult. Although we were satisfied with the level of categorisation of most constructs (e.g. the core ADHD symptoms were consistent with DSM-IV criteria for ADHD subtypes), in some cases decisions made were based on practical decisions such as the availability of data rather than being grounded in theory. For example, assessments of scholastic attainment could have been refined further into literacy and numerical skills, which, although correlated, may lead to differential outcomes and implications for key stakeholders. Other outcomes not included here may also be of interest but were too few to synthesise across the included controlled trials. These include assessments of executive functions, self-esteem, attributions and goal outcomes (see *Table 65*). Goal outcomes may be particularly useful given the recent trend in the use of idiographic assessments. This preliminary work provides a sound prototype of measures and ADHD-related constructs but further development is essential.

The range of interventions was similarly challenging to synthesise across descriptions that often implied the same content using different labels. For example, 'contingency management' may be labelled as 'behaviour modification' and 'reinforcement'; 'cognitive-behavioural self-regulation' as 'self-monitoring' and 'self-control'; and 'attention training' as 'cognitive training'. These differences are reflected in the classification systems of the reviews that have looked at interventions that target ADHD.^{72,74,75}

For example, 'consequence-based interventions'⁷⁴ and 'behavioural modification'⁶³ reflect methods related to conditioning processes.¹³⁸ Similarly, 'cognitive-behavioural' and 'self-regulation' include a range of methods that tap self-regulatory processes.²¹⁰ In the absence of a shared, reliable tool for characterising intervention content, it is difficult to establish the precise contents of interventions, isolate the potentially active ingredients and compare results reliably across reviews. This is reflected in the poor descriptions of interventions, for example in journals that can make the retrospective decoding of intervention content especially challenging.

Although the system that we developed was more refined than those that precede it, coding decisions necessarily involved some inference, owing to both poor descriptions of interventions and the absence of a reliable, consensually agreed coding framework for ADHD interventions. The 15 intervention packages identified in this current review were relatively broad and could be refined further to characterise more discrete theoretically-based change techniques. For example, specific techniques such as 'punishment', 'reward', 'behaviour cost' and 'token economy' were grouped within the package of 'contingency management'. Each technique may be more or less effective for children with ADHD. Moreover, our classification system was restricted to child-based interventions, yet, many interventions that target children with or at risk of ADHD are complex and include teacher and parental targets in addition to children. Classification of teacher training interventions is therefore also warranted.

Abraham and Michie¹³⁶ developed a reliable method for the characterisation of intervention descriptions in terms of commonly used behaviour change techniques (BCTs).¹³⁶ Since then, this work has been extended²¹¹ and researchers have developed various domain-specific taxonomies of BCTs (e.g. for smoking), but such a classification remains to be undertaken for BCTs applied to children with ADHD. Methods for the characterisation of other potentially active ingredients such as change targets (e.g. behaviours and populations), delivery format (e.g. one to one or group based), the duration of intervention and the delivery context (e.g. in school/home/clinic) are also beginning to emerge in health psychology;²⁰⁸ the development and testing of similar tools to allow the specification of ADHD-related constructs and interventions is essential. This method can guide the design and implementation of interventions by clarifying what works for whom in what circumstance and would facilitate the efficient use of scarce resources. Although our classification systems were carefully developed, we anticipate development and empirical validation before they can be offered as reliable tools for other researchers.

In addition to the categorisations of interventions and measures, several other issues need to be considered in order to interpret the findings of the current review. Most of the synthesised studies included multiple and potentially interacting factors. Therefore, the pooled effects in meta-analysis only yield associative findings without controlling for potential confounders or moderators. Although foreign-language papers were specified in our inclusion criteria, we were unable to obtain 24 potentially relevant texts, and those that we were able to retrieve and translate ($n = 7$) did not meet our inclusion criteria. Thus, by default, we excluded non-English-language articles, which may limit the generalisation of the study findings beyond the geographical locations in which the studies were conducted, mainly in North America (44/54 studies). We were not able to locate 15% (88) of all potentially relevant articles (both foreign-language and English-language papers combined) at the stage of full-text screening. Of those we could access, 11% were identified as relevant. Applying this same proportion to those that we were not able to obtain, perhaps nine additional papers would have met the inclusion criteria had we been able to locate them. Although such exclusion is unlikely to alter our conclusions substantially, our inability to access these papers highlights that improved methods for retrieving papers for reviews are needed. This is a common problem across most topic areas and therefore warrants attention. Finally, although steps were taken to reduce the possibility of publication bias (e.g. hand-searching of relevant websites) we cannot be certain if and to what extent publication bias is a problem for these data, and were unable to conduct an analysis to look for evidence for this.

The remaining limitations are attributable to the shortcomings of the available evidence.

Although the inclusion of more controlled trials indicates that the methodological quality of reviewed studies in the current meta-analysis was superior to those that precede it,^{72,74,75} many included studies were judged to have a high potential for bias in one or more of the critical domains of allocation concealment and blinding of outcome assessors. Of the 39 RCTs, only one¹⁵⁵ was identified as having made a good attempt at concealment of random allocation and only 10 of all 54 studies^{104,142,143,153,157,161,163,170,179,196} included at least one assessor blinded outcome assessment. No studies included both. Only two of the four RCTs assessing observer-rated 'inattention'^{104,153} reported blinding of the outcomes assessor(s) leading to some uncertainty of the current finding of positive effects for the beneficial effects of non-drug interventions on observer-rated 'inattention'. These quality appraisals were not conducted in the previous three reviews on non-drug interventions in school settings and therefore cannot be compared. Surprisingly, only 17 of 54 studies (31%)^{104,142,143,153,159-161,164,165,167,168,173,182,183,185,187,197} assessed some element of intervention fidelity. This is lower than the 55% (denominator = 60) reported by DuPaul *et al.*⁷² and comparable to the 34% reported by Trout *et al.*⁷⁴ (denominator = 41). Fourteen of 54 studies (26%)^{104,142,153,164,166,167,170,177,179,180,187,190,194,198} included a follow-up. This is comparable with the 20% reported by DuPaul *et al.*⁷² Although some of these shortcomings may be due to issues of reporting rather than actual methodological performance, the conclusions of our review must necessarily be tentative given the number of potentially biased studies on which it is based.

In general, it seems that greatly increased methodological rigour is required in this area. The practical and methodological challenges involved in the implementation of RCTs that target children with or at risk of ADHD in the school setting are undoubtedly a key factor in the poor quality of the current evidence base. Increased collaboration between schools, teachers, mental health practitioners and academics should enhance the successful design and implementation of interventions that target children with or at risk of ADHD in school settings.

In light of the small sample sizes in the included studies, it is difficult to establish if biased randomisation occurred, as imbalance is quite possible in a small sample with a perfectly executed randomised design. Few studies adjusted for baseline imbalance using appropriate methods and even fewer reported the corresponding adjusted mean differences and standard errors (or the statistics needed to reproduce these) for inclusion in the meta-analyses. Nonetheless, the adoption of a randomised design is very different qualitatively to non-RCTs which have not used randomisation. Concurrent pharmacological treatments need to be measured and adjusted in order to disentangle the effects of non-pharmacological interventions from drug treatments.

No studies included economic outcomes, thus the cost-effectiveness of non-drug interventions targeting children with or at risk of ADHD cannot be established and compared with other available treatments. Moreover, the value of information in relation to such interventions remains unclear in the absence of any indication of potential cost-effectiveness and associated uncertainty. However, such research would be ambitious at the current time – it is surprising that there have been no descriptions of even the cost associated with delivering interventions. Given the wide public health impact of ADHD, better understanding of the value of interventions and the way it might be realised across different sectors (e.g. health and education) is important.

Recommendations for research

In light of the potential health and economic benefits, we make the following four recommendations for future research:

1. Standardised tools should be used to describe intervention programme features to assess aspects of ADHD. These need to be developed so that the design, reporting, replication, implementation and synthesis of interventions that target children with or at risk of ADHD can be enhanced. Such work would facilitate examination of which particular behavioural change techniques or combinations thereof are most effective for ADHD.

2. There needs to be a better agreed set of outcomes in this area to facilitate understanding across studies and interventions. Given the wide range of outcome measures reported, identification of gold-standard outcome measures assessing aspects related to ADHD is essential.
3. Non-drug interventions that target children with or at risk of ADHD should be supported and rigorously evaluated using randomised controlled designs that conceal allocation, blind outcome assessors, use objective measures, control for baseline scores, have long-term follow-up, include economic evaluation and ensure tests intervention fidelity. Concurrent pharmacological interventions need to be measured and controlled for. Interventions in the UK and for older students at primary and secondary levels are under-represented and therefore should be especially supported.
4. Examination of what works and for whom should be the focus of intervention research and, therefore, interventions should be theory-based with BCTs explicitly matched to the relevant theoretical change targets in addition to the examination of theory-based potential moderators including intervention delivery (e.g. provider, context and length) and participant (e.g. sex, age and medication status) characteristics (see *Chapter 7, Findings, Deductive synthesis: sources of heterogeneity – potential moderators identified in review 1*, for a more detailed discussion of potential moderators identified in the overarching synthesis of reviews 1–4).

Implications for practice

Implications for research and practice are expanded on in subsequent chapters (see *Chapter 7, Discussion, Implications*, and *Chapter 8, Implications for policy and practice*, for a summary). Studies have employed a range of strategies that are available for school staff to test and evaluate. Given the tentative nature of the findings of this review, the impact of any interventions on the outcomes selected as targets should be evaluated carefully by the practitioners applying it.

Chapter 3 Review 2: a systematic review of quantitative research investigating attitudes towards non-pharmacological interventions for attention-deficit/hyperactivity disorder used in school settings

This chapter describes a systematic review of quantitative studies about the attitudes towards school-based non-pharmacological interventions for pupils with ADHD. This is the second of four reviews reported in this monograph. This review represents additional work not described in the study protocol. Our searches for quantitative effectiveness literature for review 1 (see *Chapter 2*) revealed a small but significant quantitative literature on attitudes towards ADHD interventions that to this point has not been considered within the research project as a whole. The attitudes of those involved in school-based interventions and the education more generally of children displaying ADHD symptoms is shown to be a key factor in the experience of ADHD in schools across numerous studies in reviews 3 and 4 (see *Chapters 5 and 6*). The methods used to identify and select evidence for this review followed the methodological approach published by the Centre for Reviews and Dissemination (University of York).²¹²

Aims

The aim of the overall research project is to evaluate non-pharmacological interventions delivered in school settings for children with, or at risk of, ADHD and, crucially, to explore the factors that may enhance, or limit, the delivery of such interventions.

This systematic review aims to include literature that is relevant to the following research questions:

- What attitudes do educators, children with, or at risk, of ADHD, their peers and their parents hold towards non-pharmacological interventions for ADHD used in school settings?
- Which school-based non-pharmacological interventions for ADHD are preferred and how do attitudes towards these interventions compare to non-school interventions, including pharmacological ones?
- What factors affect attitudes held towards these non-pharmacological interventions (including children's ADHD subtype and teacher experience)?

Identification of evidence

Inclusion/exclusion criteria

Population

Those with experience of non-pharmacological interventions in school settings, including educators, schoolchildren with, or at risk of, ADHD, aged between 4 and 18 years, their parents and their peers. Educators could include student teachers and psychologists where they are likely to have school-based experience.

Methods

Any study design (not necessarily comparative) that reported quantitative data and analysis typically using scale- or questionnaire-type measures to report participant attitudes.

Interventions

The interventions included were non-pharmacological interventions specific to, or most often used in, an educational setting. Participants indicated their attitude towards the intervention being used with children with, or at risk of, ADHD. Studies were included that measured attitudes to medication where there was also a comparison with attitudes towards at least one non-pharmacological intervention that is typically school-based. Given the breadth of research and the limitations of acceptability measures relating to interventions experienced by participants during primary research,^{2,13} attitudes towards specific interventions experienced during primary research are excluded.

Outcomes

Perceptions (including attitudes, perceived effectiveness and acceptability) of interventions measured using existing questionnaires and scales or measures designed for the purpose of the study.

Location and language

Given the importance of context for the formation and influence of attitudes, studies from societies and educational systems markedly different from the UK will be less informative. We therefore included only studies from Organisation for Economic Co-operation and Development (OECD) countries (see *Appendix 6*) in the review and carefully considered the applicability of findings to the UK setting during synthesis. Foreign-language papers were excluded.

Date

Only studies published or conducted (where unpublished) from 1980 onwards were included, reflecting significant changes to the diagnosis of ADHD that year.³

The inclusion and exclusion criteria are summarised in *Table 23*.

Search strategy

The search strategy involved the following elements:

- search of electronic databases
- relevant papers screened for review 1
- forward and backward citation chasing
- hand-searching of journals
- expert recommendations.

A database search strategy was developed which consisted of four elements: terms related to ADHD; terms related to non-pharmacological interventions; terms related to quantitative research or attitude scales; and attitude terms. The database search strategies used a mixture of subject headings (controlled vocabulary) and free-text terms. Searches were restricted to 1980 onwards. Twenty electronic databases were searched: ASSIA/ProQuest, MEDLINE/OvidSP, EMBASE/OvidSP, PsycINFO/OvidSP, British Education Index/ProQuest, Australian Education Index/ProQuest, Education Research Complete/EBSCOhost, ERIC/ProQuest, The Cochrane Library (CDSR, DARE, CENTRAL, CMR, HTA, NHS EED), The Campbell Library, HMIC/OvidSP, Social Sciences Citation Index, Conference Proceedings Citation Index, Conference Proceedings Citation Index – Social Science & Humanities (via ISI Web of Science). These searches were undertaken in August 2013. An example search strategy used for the MEDLINE/OvidSP database is shown in *Appendix 4*. Forward citation chasing of included papers, backward chasing of included papers' reference lists, asking expert advisors from the project team for relevant research and hand-searching of papers published in key journals (*Journal of Child Psychology and Psychiatry*, *British Educational Research Journal*, *Journal of School Psychology*, *Journal of Attention Disorders*, *Attention Deficit and Hyperactivity Disorders*) from January 2008 to September 2013 were completed to identify additional relevant work. EndNote v.X5 reference management software was used to organise the search results, screening and full-text retrieval processes.

TABLE 23 Inclusion and exclusion criteria

Criteria	Specification
Population	<p>Include:</p> <ul style="list-style-type: none"> Schoolchildren aged between 4 and 18 years, with or at risk of ADHD, their parents, peers and/or those who work with these children in school settings Populations where the majority of the sample has ADHD and/or experience of ADHD in educational settings (parents of children with ADHD to be included) Children with, or at risk of, ADHD with comorbid disorders (e.g. reading disorders, dyslexia, anxiety, depression, speech difficulties, tic disorders, fine and gross motor difficulties, conduct disorder, ODD, behaviour problems, disruptive behaviours/disorders, high risk of self-destructive behaviour, non-compliant children, emotional and behavioural disorders, antisocial behaviour, aggression problems, LDs) <p>Exclude:</p> <ul style="list-style-type: none"> Populations described as having intellectual disabilities (i.e. IQ of <70) or brain damage Populations of young people characterised by symptoms not core to ADHD (e.g. aggression) where ADHD symptoms have not also been measured
Methods	<p>Include:</p> <ul style="list-style-type: none"> Quantitative data and analysis typically using scale- or questionnaire-type measures to report participant attitudes <p>Methods may include:</p> <ul style="list-style-type: none"> Scales Questionnaire/survey More experimental measures (e.g. Implicit Association Test) <p>Exclude:</p> <ul style="list-style-type: none"> Qualitative measures of attitudes or acceptability
Intervention	<p>Include:</p> <ul style="list-style-type: none"> Attitudes regarding non-pharmacological interventions for ADHD that could be used in educational settings Attitudes towards pharmacological interventions only when this is compared with non-pharmacological interventions that could be used in educational settings <p>Exclude:</p> <ul style="list-style-type: none"> Acceptability evaluation measures of specific interventions that participants have experienced as part of primary research Attitudes towards pharmacological interventions alone Attitudes towards a specific non-pharmacological intervention that is not used in educational settings (e.g. attitudes towards behavioural therapy or counselling when setting is not specified, attitudes towards parent training that has not been received at school)
Outcome	<p>Include:</p> <ul style="list-style-type: none"> Perceptions (including attitudes, stigma, acceptability) regarding interventions measured and analysed quantitatively Included research may use named scales or measures designed for the purpose of the study in question Outcome may be in terms of attitudes towards a child with ADHD receiving an intervention, where this indicates perception regarding the intervention Focus may be on barriers to treatment, if outcomes indicate attitudes towards the interventions <p>Exclude:</p> <ul style="list-style-type: none"> Measures of knowledge only Evaluations of interventions actually experienced

IQ, intelligence quotient; LD, learning disability; ODD, oppositional defiant disorder.

Study selection

Relevant studies were identified in two stages based on the inclusion/exclusion criteria given above. First, two reviewers conducted title/abstract screening independently for each record (six researchers shared this screening: DM, JR, TND, DR, RA, MRo) and disagreements were resolved through discussion (DM, TND, RA) according to the inclusion criteria reported above. Full texts of records that might potentially meet the inclusion criteria were then obtained wherever possible. Full texts were screened independently by two reviewers (five researchers shared this screening: DM, JR, TND, DR, RK) for inclusion and exclusion. Disagreements were resolved through discussion (DM, JR). A list of reasons for the exclusion of each paper screened at full text is located in *Appendix 5*.

Methods of analysis/synthesis

Data extraction

A data extraction form was adapted from that used for review 1 and piloted. Data on the study design, participants, attitude measure, interventions, outcomes and risk of bias were extracted by DM, JR or RK and checked by another reviewer (DM or JR). Data were extracted into Microsoft Office Excel v.2007 (Microsoft Corporation, Redmond, WA). Where data were missing that would allow reviewers to convert reported attitude statistics into percentages for each intervention studied, or there was a lack of detail regarding measures used, authors were contacted.²¹⁴⁻²¹⁷ Only Kos replied with a copy of the scale used in that study.²¹⁶

Quality assessment

Quality assessment was conducted simultaneously with data extraction. Risk of bias and study quality appraisal was assessed using a checklist partially based on guidelines from the Centre for Reviews and Dissemination.²¹² Quality assessment in systematic reviews is often focused on issues of randomisation, blinding and attrition. However, given the nature of this review, more appropriate checklist items were developed in response to the type of papers reviewed (*Box 2*). Questions were typically assigned a

BOX 2 Quality appraisal questions

Quality appraisal question

Were demographic details about participants reported?

Have the intervention/s been defined by the author?

Have the interventions been defined for participants?

Details of group allocation and/or randomisation.

Is the relevant sample size small (< 20), medium (20–99), or large (100 +)?

Detail of dropouts, response rate and/or missing data provided?

Are vignettes piloted and/or assessed?

Psychometric detail reported regarding attitude measure.

Piloting of attitude measure reported if developed by author?

response of 'yes', 'no', 'partial' or not applicable ('N/A') as appropriate for each paper. Quality appraisal decisions were made by one of three reviewers (DM, JR or RK) and checked by another reviewer (DM or JR). Any discrepancies were discussed and resolved. The appraisals were not used to exclude papers.

Data analysis and synthesis

As the majority of studies were anticipated to include attitude measures taken at one point in time and the review was not concerned with changes in attitude, meta-analysis would be inappropriate as a method of synthesis. A narrative synthesis was employed, following existing systematic reviews of attitudinal research.^{218–221} In order to compare across studies that used different scales, mean scores on attitude scales, which may incorporate different numbers of points or different semantic points, were converted into percentages wherever possible so that the whole potential attitude score ranged from 0% to 100%, with 100% indicating the most positive attitude as measured by the scale. Given that 6-point Likert scales were the most frequently used approach (nine included studies^{214,222–229}), attitude percentages were categorised as 'positive' when percentages were $\geq 60\%$, 'negative' when percentages were $< 40\%$ and 'neutral' when percentages were between 40% and 59%. These arbitrary cut-offs of 60% and 40% would equate to a mean score of the first positive attitude and first negative attitude point on a 6-point Likert scale. This categorisation was also used by Liu *et al.*²¹⁸ Despite this justification it is accepted that this categorisation is arbitrary and ignores the dispersion of attitude scores within samples. One must be tentative when comparing converted percentage attitude scores from different measures and research contexts.

Findings

The studies

Figure 2 shows how research was selected from the initial pool of studies located through searches of the literature. Searches identified a total of 4114 records which were screened at the title and abstract level. Of these, 3917 records were excluded because they did not meet inclusion criteria, and the full text of 197 potentially eligible papers was retrieved. After scanning the full text, 169 of these papers were not considered eligible or were unavailable after further efforts to locate full-text records. A list of reasons for exclusion of each paper screened at full text can be seen in *Appendix 5*. The most frequent reasons for exclusion after perusal of full text were studies that either focused on a specific intervention experienced by participants or did not consider any school-based interventions. Three papers^{230–232} were additional reports of research already included, which would not have added any additional relevant findings above the included paper. The final synthesis involved the remaining 28 papers that met the inclusion criteria outlined above.

Summary details of the 28 included study reports, which were published between 1993 and 2013, are provided in *Table 24*. The included studies represented the attitudes of a variety of educators, namely teachers, school psychologists, school social workers, school counsellors and student teachers. Only Dryer *et al.*'s paper²³⁸ included relevant non-educator participants (parents of children with ADHD diagnoses) and, as such, only educators' attitudes were analysed. Twelve^{216,223,226,227,229,233,234,236,240,241,244,246} of the included papers were dissertations, whereas the remainder were journal articles in peer-reviewed publications. The aims of the studies were often broader than a focus on attitudes towards school-based interventions for children with ADHD, although *Table 24* only provides the design relevant to attitudes towards interventions. Additional study content not extracted for this review included attitudes towards interventions for other disorders, measures of ADHD knowledge and measures of educators' experience of interventions. Nineteen^{214–217,222,223,225–229,233,236,239,240,242,243,246} of the studies used vignettes, meaning that participants read a case description of a child displaying ADHD symptoms and then indicated their beliefs regarding intervention(s) to be used for that case.

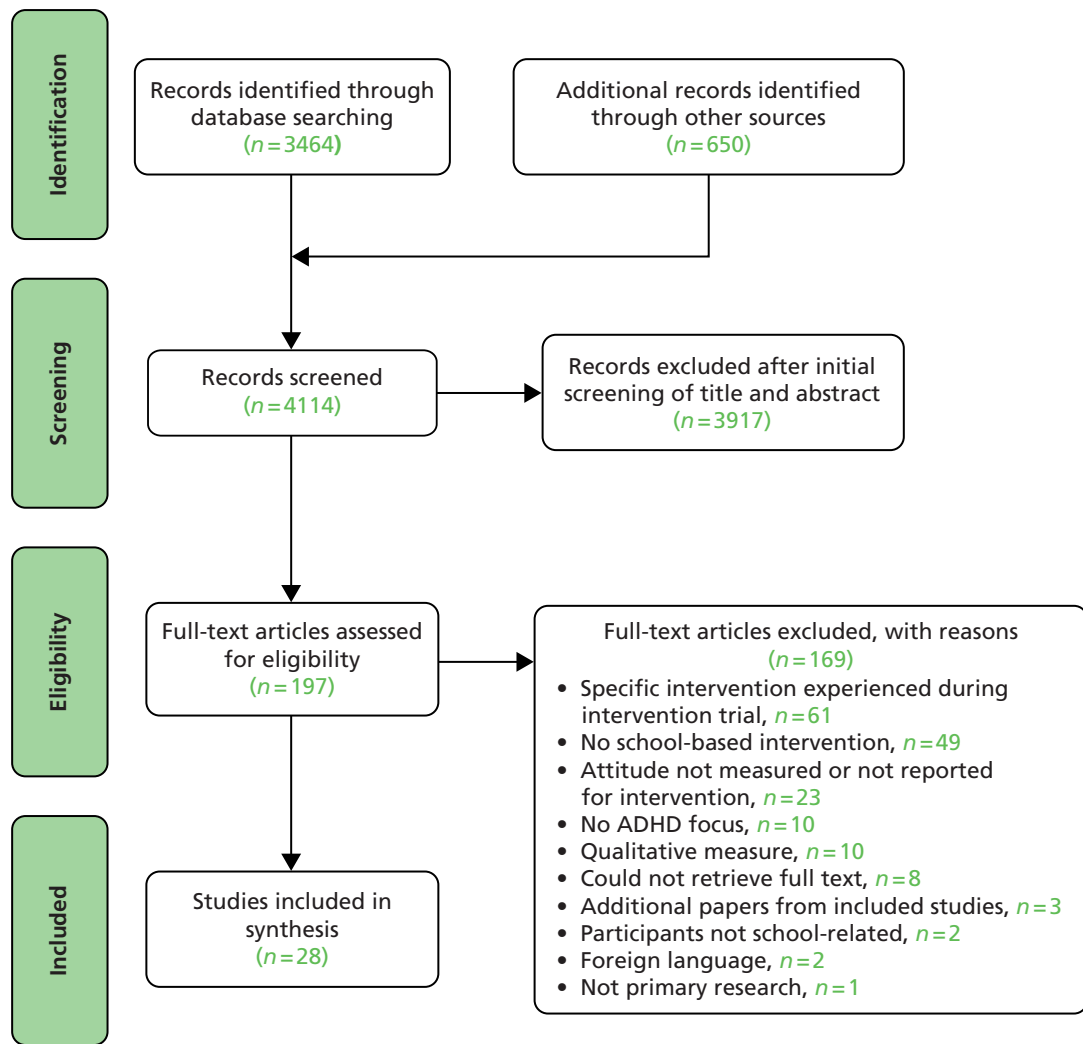


FIGURE 2 Preferred Reporting Items for Systematic Reviews and Meta-Analyses diagram¹⁵² showing search process and study selection for review 2.

TABLE 24 Study characteristics

First study author and year	Country	Publication status	Design relevant to attitudes	Vignette study?	Participants	Sample size	Percentage female	Detail about participants' school and grades
Alongi 2005 ²³³	USA	Thesis/dissertation	School psychologists rated the effectiveness of social skills training for ADHD, autistic and learning disabled vignettes	Yes	School psychologists	212	85.4	57 preschool, 149 elementary, 89 middle school, 81 high school, 9 clinic, 1 outpatient unit (101 participants practised in more than one setting)
Askew 1993 ²³⁴	USA	Thesis/dissertation	Special educators rated the effectiveness of antecedent interventions, contingency management, cognitive-behavioural management and social skills interventions	No	Special education teachers	183	NR	NR
Bain 2009 ²³⁵	USA	Journal article	Upper-level educational psychology students and teaching interns rated the effectiveness of guided imagery, Feingold diet, sugar, metacognitive, biofeedback and play therapy interventions	No	Upper-level educational psychology students, teaching interns	99	89.9	NR
Coles 2012 ²¹⁵	USA	Journal article	Teachers' treatment preferences for behaviour modification, tutoring, learning assistance and other non-school interventions according to gender and ADHD subtype (including ODD comorbidity)	Yes	Teachers	50	90.0	Elementary and middle schools, kindergarten to fifth grade
Conforti 2012 ²³⁶	USA	Thesis/dissertation	Teachers' perceived efficacy of three categories of intervention (antecedent, consequent, academic) for four vignettes (each vignette displays one ADHD symptom: inattentiveness, wandering, poor peer interaction, speaking out of turn)	Yes	Teachers	97	74.2	Elementary and middle school

continued

TABLE 24 Study characteristics (continued)

First study author and year	Country	Publication status	Design relevant to attitudes	Vignette study?	Participants	Sample size	Percentage female	Detail about participants' school and grades
Cornell-Swanson 2005 ²³⁷	USA	Journal article	School social workers rated the effectiveness of medication, psychotherapy, family therapy, parenting classes, special education services and applied behavioural intervention in the classroom	No	School social workers	189	85.9	14.5% worked with birth–3 years; 40.3% worked with preschool students; 76.9% worked with elementary school students; 57% worked with middle/junior high school students; 43% worked with high school students
Curtis 2006 ²²²	USA and New Zealand	Journal article	Teachers rated acceptability of DRC, response cost technique, Ritalin and classroom lottery according to gender, ADHD subtype and teachers' nationalities (USA and New Zealand)	Yes	Teachers	420	86.9	Mix of urban and suburban schools: 12 USA, 17 New Zealand. Mix of regular and special education teachers
Dryer 2012 ²³⁸	Australia	Journal article	Teachers and parents of children with ADHD rated the effectiveness of non-traditional interventions; parent interventions; school-based interventions (changing the education system; providing additional teacher input; training for teachers; developing individualised school programmes); and medical and allied health interventions	No	Teachers and parents of children with ADHD	224	NR	Primary schools. Mix of general and special education teachers
Eng 2008 ²²³	USA	Thesis/dissertation	Teachers rated acceptability of response cost intervention according to their ADHD intervention knowledge	Yes	Teachers	47	85.0	Elementary school teachers, grades pre-kindergarten to sixth grade
Fairbanks 1997 ²¹⁴	USA	Journal article	Teachers, school psychologists and school social workers rated acceptability of positive contingency management intervention (verbal praise and token economy) and negative contingency management interventions (timeout from the positive intervention)	Yes	Teachers, school psychologists, school social workers	97	NR	Teachers from three schools. School social workers were selected from the Illinois Association of School Social Workers state directory

First study author and year	Country	Publication status	Design relevant to attitudes	Vignette study?	Participants	Sample size	Percentage female	Detail about participants' school and grades
Girio 2009 ²²⁴	USA	Journal article	Teachers rated the acceptability of three evidence-based ADHD interventions (medication, DRC, timeout) and three 'promising' interventions (self-reinforcement, social skills, peer tutoring)	Yes	Teachers	156	94.2	11 elementary schools
Graczyk 2005 ²¹⁷	USA	Journal article	PPS professionals and classroom teachers rated effectiveness of classroom interventions; mental health services; medication; ineffective interventions according to subtype of ADHD and gender	Yes	PPS professionals (school psychologists, social workers, and counsellors); classroom teachers	428	85.0	Elementary schools
Greenewald 2009 ²³⁹	UK	Journal article	Teachers' treatment preference of medication, learning support, working with parents and behaviour therapy for female students with ADHD according to ADHD subtype (combined subtype ADHD and inattentive subtype ADHD)	Yes	Teachers	212	89.0	40 primary schools
Higgins 1999 ²⁴⁰	USA	Thesis/dissertation	Teachers rated the acceptability of school-home notes, students self-monitoring and contingency contracting interventions according to the inattentive and combined subtypes of ADHD	Yes	Teachers	101	69.0	High schools and middle schools. Grades 6–12
Kos 2004 ²¹⁶	Australia	Thesis/dissertation	Teachers rated effectiveness and benefits of classroom management interventions according to gender and ADHD subtype (ADHD combined type; ADHD predominantly hyperactive/impulsive type; predominantly inattentive type; no diagnosis)	Yes	Teachers	120	75.8	10 Catholic and six private primary schools. Prep-grade 6 teachers

continued

TABLE 24 Study characteristics (continued)

First study author and year	Country	Publication status	Design relevant to attitudes	Vignette study?	Participants	Sample size	Percentage female	Detail about participants' school and grades
Krowski 2009 ²⁴¹	USA	Thesis/dissertation	Teachers rated effectiveness of instructional accommodations; behavioural interventions; environmental accommodations; mental health services; support services for teachers; and medication treatment according to their factual and perceived knowledge of ADHD, and the support available to them in their school	No	Teachers	119	92.4	Three large elementary schools
Nietfield 2005 ²⁴²	USA	Journal article	Teachers and pre-service teachers rated appropriateness and effectiveness of behavioural and clinical interventions	Yes	Teachers, pre-service teachers	171	87.1	Three elementary schools. All regular education. Kindergarten to fifth grade
Ohan 2008 ²⁴³	Australia	Journal article	Teachers rated perceived effectiveness of medication; learning assistance/ educational support; changes within classroom; and changes at home according to pre-tested ADHD knowledge	Yes	Teachers	140	85.0	Elementary schools. Kindergarten through to sixth grade
Pisecco 2001 ²²⁵	USA	Journal article	Teachers rated acceptability of DRC; response cost; classroom lottery; and medication according to gender and ADHD subtype	Yes	Teachers	159	92.0	Elementary schools
Rowan 2000 ²²⁶	USA	Thesis/dissertation	Teachers rated acceptability of positive reinforcement, timeout and medication interventions according to child mental health diagnosis: ADHD, ODD, depression and no diagnosis	Yes	Teachers	190	88.0	Elementary schools. Grades 1 to 6 and kindergarten
Saddler 2007 ²⁴⁴	USA	Thesis/dissertation	Teachers ranked perceived effectiveness of token reinforcement; response cost; behaviour contract; home-school communication; home-school contingencies; modelling; self-management	No	Teachers	141	NR	Elementary school. Grades kindergarten to fifth grade

First study author and year	Country	Publication status	Design relevant to attitudes	Vignette study?	Participants	Sample size	Percentage female	Detail about participants' school and grades
Schmalzer 2006 ²²⁹	USA	Thesis/dissertation	Teachers rated acceptability, effectiveness and timeliness of self-management interventions for ADHD according to years of teaching experience and self-perceived experience working with children with ADHD	Yes	Teachers	25	NR	Elementary and middle schools
Stinnett 2001 ²²⁸	USA	Journal article	Students on undergraduate teacher education course rated acceptability of Ritalin and special education according to the diagnostic label (no label vs. ADHD) and urban vs. rural settings	Yes	Teacher education students (undergraduate teacher education courses)	144	81.0	Most were elementary education majors ($n = 64$, 44.4%)
Stinson 2009 ²²⁹	USA	Thesis/dissertation	Teachers rated acceptability of stimulant medication, work completion and combined intervention according to the diagnostic label (no label vs. ADHD) and age of child (6 years vs. 11 years)	Yes	Teachers	213	NR	Elementary schools
Stormont 2001 ²⁴⁵	USA	Journal article	Preschool teachers rated comfort level and importance of implementing behavioural management, instructional management and outside support intervention	No	Teachers (preschool)	138	95.0	30 preschools
Subramony 2006 ²⁴⁶	USA	Thesis/dissertation	Teachers rated acceptability of nine school-based ADHD interventions	Yes	Teachers	109	94.0	Elementary schools. Teachers of kindergarten (44%), third (36%) and fifth grade (20%)
Vereb 2004 ²⁴⁷	USA	Journal article	Teachers' acceptability ratings of medication and behaviour management and its relationship with knowledge of ADHD, knowledge of treatment, experience of ADHD and training	No	Teachers	48	94.0	Elementary schools. Teachers in grades kindergarten through to sixth grade
Whitworth 1998 ²⁴⁸	USA	Journal article	Teachers ranked the effectiveness of a list of school-based interventions for students with ADD	No	Teachers	100	NR	10 elementary schools. Teachers in first grade through to sixth grade

ADD, attention deficit disorder; NR, not reported; ODD, oppositional defiant disorder; PPS, pupil personnel services.

Sample sizes ranged from 25 to 428, with the majority of samples (23 out of 28) deemed large (≥ 100 participants). Where reported, the majority of participants were female in all studies. The majority of educators were teaching younger (5–12 years-of-age) children in kindergarten and elementary/primary schools. The majority of studies were located in the USA ($n = 24$ ^{214,217,222–229,233–237,240–242,244–248}). Australia is the only other country represented by more than one study ($n = 3$ ^{216,238,243}). Although one study was located in the UK,²³⁹ this study did not use a Likert scale, and, therefore, no UK studies impacted on the synthesis of attitude scores. This limits the potential applicability of the findings to the UK educational context. Data relating to teachers' ethnicity, age and teaching experience, and details of the children with ADHD they taught, were rarely reported.

Interventions studied

During data extraction, interventions were initially categorised according to the 15 categories used in review 1. However, only five of these categories were represented by more than one study. Special education was not one of these categories, but appeared in seven studies in this review.^{215,228,237,239,242,243,246} Special education refers to additional learning support or alternative class settings and/or curriculum where children with ADHD may be taught. Definitions for other school-based interventions may be found in *Chapter 2* (see *Table 4*). As this review was also interested in comparisons with non-school interventions, a category for medication and other non-school interventions was included. Sometimes studies asked participants about a large number of interventions that were then categorised into intervention types (e.g. Kos²¹⁶ asks participants about 33 interventions categorised into the following five groups: reinforcement; negative consequences; planned ignoring; organising the classroom and curriculum; emotional support). Where this categorisation maps onto the categories used in this review, we have reported at this level, rather than for numerous individual interventions. *Table 25* illustrates the frequencies of the types of intervention about which attitudes were measured for each paper. The most frequently appearing specific school-based categories were contingency management (18 studies^{214–217,224–226,229,234,236,239,240,242,244,246,248}), adaptations to the learning environment (eight studies^{216,217,234,241–243,246,248}) and DRCs (eight studies^{217,222,224,225,240,242,244,246}).

Measures

Details about the questionnaires and scales used to measure attitudes in the 28 included studies are provided in *Table 26*. The majority of the studies ($n = 17$ ^{215–217,233–237,239,241–248}) used bespoke attitude measures that had been designed for the study in question. Most studies ($n = 21$ ^{214,216,217,222–229,234–241,247}) also provided some detail about the psychometric properties of the scale used and/or piloting of the scale developed. Scales ranged in the constructs that they measured, and were most often categorised as either both acceptability and perceived effectiveness ($n = 8$ ^{222–227,240,242}) or acceptability ($n = 4$ ^{214,228,229,247}) and perceived effectiveness ($n = 12$ ^{217,233–239,241,243,244,248}) separately. The Likert scales used ranged from 4-point scales to 9-point scales. Most often Likert scales used 6 points. Eight studies^{215,216,234,235,239,242,244,248} did not use Likert scales and, instead, either asked participants to make a dichotomous yes/no type measure or to rank interventions. Scores from these ranking and forced choice measures were not converted to percentage scores.

Two established reliable and valid scales were used by more than one study. Four studies^{222,223,225,227} used Elliot and von Brock Treuting's Behavioural intervention Rating Scale (BIRS)²⁴⁹ and three studies^{214,228,229} used Martens *et al.*'s Intervention Rating Profile-15 (IRP-15).²⁵¹

TABLE 25 Intervention frequencies

First study author and year	Contingency management	DRC	Cognitive-behavioural self-regulation	Social skills training	Adaptations to learning environment or materials	Special education	Other school-based	Medication	Other non-school	Total
Alongi 2005 ²³³				1						1
Askew 1993 ²³⁴	1 ^a	1			3					5
Bain 2009 ²³⁵							3		3	6
Coles 2012 ²¹⁵	1		1		1	1		1	2	7
Conforti 2012 ²³⁶	1					2				3
Cornell-Swanson 2005 ²³⁷						1	1	1	3	6
Curtis 2006 ²²²	2	1				1		1		4
Dryer 2012 ²³⁸							1		3	4
Eng 2008 ²²³	1									1
Fairbanks 1997 ²¹⁴	2									2
Girotto 2009 ²²⁴	1	1	1	1			1	1		6
Graczyk 2005 ²¹⁷	3	1			5		1	1	5	16
Groenewald 2009 ²³⁹	1					1		1		4
Higgins 1999 ²⁴⁰	1	1	1							3
Kos 2004 ²¹⁶	2				1		2			5
Krowski 2009 ²⁴¹					1		3	1		5
Nietfield 2005 ²⁴²	1	1			1	1	2	1	1	8
Ohan 2008 ²⁴³					1	1		1	1	4
Pisecco 2001 ²²⁵	2	1					1	1		4

continued

TABLE 25 Intervention frequencies (continued)

First study author and year	Contingency management	DRC	Cognitive-behavioural self-regulation	Social skills training	Adaptations to learning environment or materials	Special education	Other school-based	Medication	Other non-school	Total
Rowan 2000 ²²⁶	2							1		3
Saddler 2007 ²⁴⁴	3	1	1				2			7
Schmalzer 2006 ²²⁷			1							1
Stinnett 2001 ²²⁸					1			1		2
Stinson 2009 ²²⁹	1							1	1	3
Stormont 2001 ²⁴⁵							3			3
Subramony 2006 ²⁴⁶	3	1			1	1	2		1	9
Vereb 2004 ²⁴⁷							1	1		2
Whitworth 1998 ²⁴⁸	1				1		15			17

a Includes DRC.

TABLE 26 Measures used in included studies

First study author and year	Name of scale	Scale author	Psychometric detail and piloting	Construct/s	Measure detail	Any issues with questionnaire items
Alongi 2005 ²³³	Attention-Deficit/Hyperactivity Disorder Vignette	Current study	NR	Perceived effectiveness	Measures effectiveness of social skills training in facilitating the acquisition and performance of social skills: two 4-point Likert scales (acquisition and performance), 1 (not at all effective); 2 (mildly effective); 3 (moderately effective); 4 (very effective)	Only answered if participants believe vignette shows social skill deficits. No definition of social skills training
Askew 1993 ²³⁴	Questionnaire	Current study	Piloted	Perceived effectiveness	26 (relevant questions), ticked if a preferred method/intervention	Ticking an intervention may not necessarily indicate preference
Bain 2009 ²³⁵	ISS	Current study assumed	Internal consistency was measured using Cronbach's alpha for 18 intervention items ($\alpha = 0.76$)	Perceived effectiveness	Six questions (one per intervention) related to ADHD. Four points: 1, have heard, will work; 2, have not heard, will work; 3, have heard, will not work; 4, have not heard, will not work	Only whether will/will not work
Coles 2012 ²¹⁵	Treatment preferences	Current study	NR	Preference (likelihood of referral)	Ranked how likely they were to refer the child to each of nine intervention conditions on a 10-point Likert scale, 1 = least likely, 10 = most likely	
Conforti 2012 ²³⁶	Teacher Interventions for ADHD Students	Current study	Low Cronbach's alpha reliability coefficients were found for all three scales: academic ($\alpha = 0.30$), antecedent ($\alpha = 0.18$) and consequent ($\alpha = -0.42$)	Perceived effectiveness	24 items, six questions per vignette, 5-point scale (1 = very poor, 2 = poor, 3 = unsure, 4 = good, 5 = very good)	
Cornell-Swanson 2005 ²³⁷	Questionnaire	Current study	Piloted	Perceived effectiveness	49 questions overall, six 5-point Likert questions asking about perceived effectiveness of treatments (1 = strongly disagree, 3 = neutral, do not know, 5 = strongly agree)	

continued

TABLE 26 Measures used in included studies (continued)

First study author and year	Name of scale	Scale author	Psychometric detail and piloting	Construct/s	Measure detail	Any issues with questionnaire items
Curtis 2006 ²²²	BIRS	Elliot 1991 ²⁴⁹	Coefficient alphas for each construct demonstrated high reliability: acceptability ($\alpha = 0.97$), effectiveness ($\alpha = 0.92$) and timeliness ($\alpha = 0.87$). Internal consistency was measured in this study using Cronbach's alpha for BIRS for New Zealand teachers: acceptability ($\alpha = 0.90$), effectiveness ($\alpha = 0.88$) and timeliness of effect ($\alpha = 0.59$)	Acceptability, perceived effectiveness and timeliness of effect	24 items using a 6-point Likert scale, ranging from strongly agree to strongly disagree. Acceptability scale consists of 15 questions, seven effectiveness questions, and two timeliness questions. Lower scores indicate greater acceptability	
Dryer 2012 ²³⁸	Questionnaire – Beliefs About ADHD	Dryer 2006 ²⁵⁰	Internal consistency was measured using Cronbach's alpha for each intervention factor: non-traditional ($\alpha = 0.88$), parent intervention ($\alpha = 0.77$), school based ($\alpha = 0.78$) and medical/allied health ($\alpha = 0.57$). Piloted	Perceived effectiveness	23 items relevant 5-point rating scale (0 = not at all effective, 4 = extremely effective; intervening rating categories were not labelled)	
Eng 2008 ²²³	BIRS	Elliot 1991 ²⁴⁹	Coefficient alphas for each construct demonstrated high reliability estimation: acceptability ($\alpha = 0.97$), effectiveness ($\alpha = 0.92$) and timeliness ($\alpha = 0.87$). The BIRS has been reported to correlate significantly with other measures of treatment acceptability ($\alpha = 0.97$) ²⁴⁹	Acceptability, perceived effectiveness and timeliness of effect	24 items using a 6-point Likert scale, ranging from strongly agree to strongly disagree. Acceptability scale consists of 15 questions, including seven effectiveness questions and two timeliness questions. Lower scores indicate greater acceptability	
Fairbanks 1997 ²¹⁴	IRP-15	Martens 1985 ²⁵¹	The internal consistency of the IRP-15 has been assessed by Martens 1985 ²⁵¹ ($\alpha = 0.98$). The IRP-15 has been shown to be highly correlated with the evaluative component of the semantic differential ²⁵²	Acceptability	15 items, 6-point Likert format (1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, and 6 = strongly agree). Scores range from 15 to 90	

First study author and year	Name of scale	Scale author	Psychometric detail and piloting	Construct/s	Measure detail	Any issues with questionnaire items
Girio 2009 ²²⁴	IRP-10	Power 1995 ²⁵³	The internal consistency of IRP-10 has been demonstrated to be adequate ²⁵³ (ranging from $\alpha = 0.95$ to $\alpha = 0.97$)	Acceptability (includes perceived effectiveness)	10 items are rated on a 6-point scale that ranges from 1 ('strongly disagree') to 6 ('strongly agree')	
Graczyk 2005 ²¹⁷	Intervention Effectiveness Scale	Current study assumed	Internal consistency was measured using Cronbach's alpha for CI, mental health services and ineffective intervention categories in PPS professionals and teachers. (PPS professionals: $\alpha = 0.83$, $\alpha = 0.73$ and $\alpha = 0.53$, respectively; teachers: $\alpha = 0.79$, $\alpha = 0.86$ and $\alpha = 0.72$, respectively)	Perceived effectiveness	16 items. Participants rated the effectiveness of a list of frequently recommended interventions for students with ADHD using the following 5-point scale: 0 = cannot rate, unfamiliar strategy; 1 = never effective; 2 = sometimes effective; 3 = usually effective; and 4 = always effective	0 point not included in study's analysis
Groenewald 2009 ²³⁹	Questionnaire	Current study	Piloted	Perceived effectiveness	Participants views (yes/no) on whether or not the child might benefit from interventions	Dichotomous yes/no
Higgins 1999 ²⁴⁰	Modified TEI-SF	Kelley 1989 ²⁵⁴	Internal consistency was measured using Cronbach's alpha > 0.9, except item 8 which was excluded from composite scores	Acceptability (includes perceived effectiveness)	Nine items (eight Likert), 5-point Likert scale (1 = strongly disagree, 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree)	Question 8 does not seem to fit the others in terms of agree = positive acceptability
Kos 2004 ²¹⁶	ADHD Questionnaire	Current study	Piloted	Willingness to use intervention	Respondents were asked to place a tick beside the strategies they would use in their classroom to manage the child depicted in the vignette they had just read. Responses to these items were coded as either yes ('1') or no ('2')	Dichotomous yes/no measure
Krowski 2009 ²⁴¹	Interventions and teacher support services	Current study	Internal consistency was measured using Cronbach's alpha for all 12 categories ($\alpha > 0.5$). Piloted	Perceived effectiveness	Participants rate effectiveness (U = unfamiliar, cannot rate; 1 = never; 2 = sometimes; 3 = often; 4 = always)	Items rated as U = unfamiliar were coded as 'missing data'

continued

TABLE 26 Measures used in included studies (continued)

First study author and year	Name of scale	Scale author	Psychometric detail and piloting	Construct/s	Measure detail	Any issues with questionnaire items
Nietfield 2005 ²⁴²	Survey (attitude measure)	Current study	NR	Teachers: acceptance; pre-service teachers: perceived effectiveness	Participants asked to rank eight interventions for either acceptance or perceived effectiveness	Rankings only
Ohan 2008 ²⁴³	Treatment ratings	Current study	NR	Perceived effectiveness	Four questions related to treatments, 9-point Likert scales. No benefit–definite benefit	One question asks about two interventions (behavioural therapy and changes at home)
Pisecco 2001 ²²⁵	BIRS	Elliot 1991 ²⁴⁹	Coefficient alphas for each construct demonstrated high reliability estimation: acceptability ($\alpha = 0.97$), effectiveness ($\alpha = 0.92$) and timeliness ($\alpha = 0.87$) The BIRS has been reported to correlate significantly with other measures of treatment acceptability ²⁴⁹	Acceptability, perceived effectiveness and timeliness of effect	24 items using a 6-point Likert scale, ranging from strongly agree to strongly disagree. Acceptability scale consists of 15 questions, including seven effectiveness questions, and two timeliness questions. Lower scores indicate greater acceptability	
Rowan 2000 ²²⁶	AARP	Tarnowski 1992 ²⁵⁵	All items loaded on a single factor (acceptability) that accounted for 84.9% of the variance. Internal consistency yielded split-half and Cronbach's alpha coefficients of 0.95 and 0.97, respectively	Acceptability (includes perceived effectiveness)	Eight-item questionnaire rated on a 6-point Likert scale (1 = strongly disagree, 6 = strongly agree). Scores range from 8 to 48	
Saddler 2007 ²⁴⁴	Teacher Knowledge and Use of Classroom Interventions for Students with ADHD	Current study	None for effectiveness questions	Perceived effectiveness	Rank seven interventions from 1 to 7, with 1 being most effective and 7 being least effective	Rankings only

First study author and year	Name of scale	Scale author	Psychometric detail and piloting	Construct/s	Measure detail	Any issues with questionnaire items
Schmalzer 2006 ²²⁷	BIRS	Elliot 1991 ²⁴⁹	Coefficient alphas for each construct demonstrated high reliability estimation: acceptability ($\alpha = 0.97$), effectiveness ($\alpha = 0.92$) and timeliness ($\alpha = 0.87$). The acceptability factor of the BIRS had a correlation of 0.78 with the semantic differential, a measure previously used in acceptability studies ²⁴⁹	Acceptability, perceived effectiveness and timeliness of effect	24 items using a 6-point Likert scale, ranging from strongly agree to strongly disagree. Acceptability scale consists of 15 questions, including seven effectiveness questions, and two timeliness questions. Lower scores indicate greater acceptability	
Stinnett 2001 ²²⁸	IRP-15	Martens 1985 ²⁵¹	The internal consistency of IRP-15 has been assessed by Martens 1985 ²⁵¹ with high reliability ($\alpha = 0.98$) and validity; the scale has been shown to be highly correlated with the evaluative component of the semantic differential (Osgood 1957 ²⁵³)	Acceptability	15 items, 6-point Likert format (1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, and 6 = strongly agree). Scores range from 15 to 90	
Stinson 2009 ²²⁹	IRP-15	Martens 1985 ²⁵¹	Internal consistency was measured using Cronbach's alpha. Alpha coefficient $\alpha = 0.98$ ²⁵¹	Acceptability	15 items, 6-point Likert format (1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, and 6 = strongly agree). Scores range from 15 to 90	
Stormont 2001 ²⁴⁵	Intervention Preferences Questionnaire	Modified from the SMAC, (Zentall 1995 ²⁵⁶)	NR	Importance and comfort using interventions	43 interventions, 7-point Likert scale. Interventions were rated on a 1–7 scale, where 1 = not at all important, 7 = extremely important. 1 = not at all comfortable, 7 = totally comfortable	

continued

TABLE 26 Measures used in included studies (*continued*)

First study author and year	Name of scale	Scale author	Psychometric detail and piloting	Construct/s	Measure detail	Any issues with questionnaire items
Subramony 2006 ²⁴⁶	Treatment Preference Questionnaire	Current study	Internal consistency was measured using Cronbach's alpha for each questions (range from $\alpha = 0.76$ to $\alpha = 0.99$)	Acceptability and decision to use	Nine interventions listed, six statements concerning each strategy were listed, accompanied by a 5-point scale: strongly agree, agree, undecided, disagree, strongly disagree	Asking whether or not strategy is appropriate for students may be biased by age teaching: kindergarten, third grade or fifth grade. More kindergarten teachers
Vereb 2004 ²⁴⁷	KARE	Current study	Internal consistency was measured using Cronbach's alpha for KARE, ranged from $\alpha = 0.58$ (knowledge of treatments scale) to $\alpha = 0.81$ (behavioural management acceptability). Test-retest stability ($n = 24$, 4-week interval) ranged from 0.76 (behaviour management acceptability scale) to 0.80 (medication acceptability)	Acceptability	10 questions (five on medication, five on behaviour management), 4-point Likert format (1 = not at all likely to 4 = very likely)	
Whitworth 1998 ²⁴⁸	Effectiveness Survey	Current study	NR	Perceived effectiveness	List of interventions to be ranked according to top five, number of items and further scale details N/R	No detail on scale or items. Ranking only

AARP, Abbreviated Acceptability Rating Profile; IRP-10, Intervention Rating Profile-10; ISS, Interventions and Sources Survey; KARE, Knowledge of ADHD Rating Evaluation; NR, not reported; PPS, pupil personnel services; SMAC, School Modifications Assessment Checklist; TEI-SF, Treatment Evaluation Inventory-Short Form.

The BIRS is a measure that consists of three distinct factors: intervention acceptability; perceived effectiveness; and perceived timeliness of effect. The measure consists of 24 items, follows a 6-point Likert-type format, and is divided into two general categories of acceptability and effectiveness. The acceptability scale consists of 15 items and is actually a revision of the IRP-15. Seven items measure perceived effectiveness and two items measure perceived timeliness. A lower overall score indicates more positive attitudes. The BIRS is designed to be used to measure attitudes towards any intervention. Coefficient alpha for the overall scale is high ($\alpha = 0.97$), whereas each construct also demonstrates high reliability, with estimates of $\alpha = 0.97$ (acceptability), $\alpha = 0.92$ (effectiveness) and $\alpha = 0.87$ (timeliness) provided by the scale developers.²⁴⁹ The acceptability factor of the BIRS had a correlation of 0.78 with the semantic differential, a measure previously used in acceptability studies.²⁴⁹

The IRP-15 is an instrument that can be used to evaluate the acceptability of behavioural interventions. The 15 items reflect one empirically derived general acceptability factor and the scale has excellent internal consistency ($\alpha = 0.98$).²⁵¹ Martens *et al.*²⁵¹ also demonstrated validity for the IRP-15; the scale has been shown to be highly correlated with the evaluative component of the semantic differential, a scale that measures people's reactions to stimulus concepts on bipolar scales with contrasting adjectives at each end.²⁵² Items on the IRP-15 are answered on a 6-point Likert format. Raw scores for each item are summed to yield an overall acceptability score. The IRP-15 has been used to evaluate school-based interventions in a number of studies.²⁵⁷ At least two questions of the IRP-15 appear to measure perceived effectiveness: 'Q3: This intervention should prove effective in changing the child's behaviour' and 'Q14: This intervention is a good way to handle this child's behaviour'. Therefore, in this review the IRP-15 is considered to measure both acceptability and perceived effectiveness.

Quality appraisal

A summary of results of the quality appraisal of included papers is displayed in *Table 27*. Quality appraisal was used as a means to raise awareness about a range of relevant factors for each paper, rather than as a basis for exclusion. Positive, negative and neutral appraisal scores are collated for each question and each paper. Most often responses were of the yes/no/partial kind; for group allocation and randomisation, details of whether or not groups were randomised are given. For sample size, large is considered positive, medium considered neutral and small considered negative. For the question regarding whether or not vignettes had been piloted, a neutral appraisal score was made when researchers had not piloted their vignettes but had detailed their use of DSM-III criteria within the vignettes. Using diagnostic criteria as part of vignettes was considered more robust than no piloting or associated detail of the rigour of vignette contents.

Only two studies^{222,240} recorded no negative appraisal scores. Six studies^{214,215,228,235,242,248} recorded more negative than positive scores, in particular Whitworth²⁴⁸ had a large sample size (a positive response) but received a negative response for all other relevant questions. As a whole the papers were of low quality and prone to bias. Particular issues indicated by more frequent negative appraisal scores across a number of the studies were a lack of definitions of interventions, both within the papers and the measures used; and failure to pilot vignettes and attitude measures developed by authors. Psychometric detail about attitude measurement was often missing and this was more likely for scales developed specifically for an individual study.

TABLE 27 Quality of included studies (n = 28)

First study author and year	Demographic details regarding participants reported?	Have the intervention/s been defined by the author?	Have the intervention/s been defined for participants?	Details of group allocation and/or randomisation?	Is the relevant sample size small (< 20), medium (20–99), or large (100+)?	Detail of dropouts, response rate and/or missing data?	Are vignettes piloted and/or assessed?	Psychometric detail reported regarding attitude measure?	Piloting of attitude measure reported if developed by author?	Totals (yes/positive, no/negative, partial/neutral)
Alongi 2005 ²³³	Yes	No	No	Random allocation	Large	Yes	DSM-IV	No	No	4, 4, 1
Askew 1993 ²³⁴	Yes	Partial	No	No group allocation	Large	Yes	N/A	No	Yes	4, 2, 1
Bain 2009 ²³⁵	Yes	No	No	No group allocation	Large	No	N/A	Yes	No	3, 4, 0
Coles 2012 ²¹⁵	Yes	No	No	No group allocation	Medium	Yes	Yes	No	No	3, 4, 1
Conforti 2012 ²³⁶	Yes	Partial	Partial	No group allocation	Medium	Yes	DSM-IV	Yes	Yes	4, 0, 4
Cornell-Swanson 2005 ²³⁷	Yes	No	No	No group allocation	Large	Yes	N/A	No	Yes	4, 3, 0
Curtis 2006 ²²²	Yes	Yes	Yes	Random allocation	Large	Yes	DSM-IV	Yes	N/A	7, 0, 1
Dryer 2012 ²³⁸	No	No	No	No group allocation	Large	Yes	N/A	Yes	Yes	4, 3, 0
Eng 2008 ²²³	Yes	No	Partial	Teachers self-selected	Medium	Yes	Yes	Yes	N/A	4, 2, 2
Fairbanks 1997 ²¹⁴	No	Yes	Yes	No	Medium	No	No	Yes	N/A	3, 4, 1
Girio 2009 ²²⁴	Yes	Yes	Yes	No group allocation	Large	Yes	Partial	Yes	N/A	6, 0, 1
Graczyk 2005 ²¹⁷	Yes	No	No	Random allocation	Large	Yes	DSM-IV	Yes	No	5, 3, 1
Groenewald 2009 ²³⁹	Yes	No	No	Not random	Large	Yes	Yes	No	Yes	5, 4, 0
Higgins 1999 ²⁴⁰	Yes	Yes	Yes	No group allocation	Large	Yes	Yes	Yes	N/A	7, 0, 2
Kos 2004 ²¹⁶	Yes	No	No	No	Large	Yes	Yes	No	Yes	5, 4, 0
Krowski 2009 ²⁴¹	Yes	No	No	No group allocation	Large	Yes	N/A	Yes	Yes	5, 2, 2
Nietfield 2005 ²⁴²	Yes	No	No	No group allocation	Large	Yes	DSM-IV-TR	No	No	3, 4, 1
Ohan 2008 ²⁴³	Yes	No	No	No group allocation	Large	Yes	Yes	No	No	4, 4, 0
Pisecco 2001 ²²⁵	Yes	Yes	Yes	Random allocation	Large	No	DSM-IV	Yes	N/A	6, 1, 1

First study author and year	Demographic details regarding participants reported?	Have the intervention/s been defined by the author?	Have the intervention/s been defined for participants?	Details of group allocation and/or randomisation?	Is the relevant sample size small (<20), medium (20–99), or large (100+)?	Detail of dropouts, response rate and/or missing data?	Are vignettes piloted and/or assessed?	Psychometric detail reported regarding attitude measure?	Piloting of attitude measure reported if developed by author?	Totals (yes/positive, no/negative, partial/neutral)
Rowan 2000 ²²⁶	Yes	Yes	Yes	Random allocation	Large	Yes	No	Yes	N/A	7, 1, 0
Saddler 2007 ²⁴⁴	No	Yes	Yes	No group allocation	Large	Yes	N/A	No	No	4, 3, 0
Schmalzer 2006 ²²⁷	Yes	Yes	Yes	No group allocation	Medium	Yes	No	Yes	N/A	5, 1, 1
Stinnett 2001 ²²⁸	Yes	No	No	No	Large	No	No	Yes	N/A	3, 5, 0
Stinson 2009 ²²⁹	Yes	Yes	Yes	Random allocation	Large	No	No	Yes	N/A	6, 2, 0
Stormont 2001 ²⁴⁵	Yes	Yes	Partial	No group allocation	Large	Yes	N/A	No	N/A	4, 1, 1
Subramony 2006 ²⁴⁶	Yes	Yes	Yes	No group allocation	Large	Yes	Yes	Yes	No	7, 1, 0
Vereb 2004 ²⁴⁷	Yes	No	No	No group allocation	Medium	Yes	N/A	Yes	Yes	4, 2, 1
Whitworth 1998 ²⁴⁸	No	No	No	No group allocation	Large	No	N/A	No	No	1, 6, 0
Totals (yes/positive, no/negative, partial/neutral)	24, 4, 0	11, 15, 2	10, 15, 3	6, 5, 0	23, 5, 0	22, 6, 0	7, 7, 5	17, 11, 0	8, 9, 0	

DSM-IV-TR, *Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition-Text Revision*; N/A, not applicable.

Synthesis of attitudes findings

Nineteen papers were included in a quantitative synthesis of attitude findings. The remaining nine papers^{215,216,234,235,239,242,244,247,248} were not included because either they did not use Likert scales to measure attitudes (see *Table 26*) or, as in the case of Vereb and DiPerna,²⁴⁷ there was no detail regarding how the mean scores reported were calculated. Although the forced choice measures could have been used to calculate percentages, the range of percentages would have typically been higher than the Likert scale findings because of the difference between the construction of the scores, hence these were also omitted. The findings of these nine studies will be described briefly before moving onto a synthesis of the remaining studies.

Narrative synthesis

Whitworth²⁴⁸ and Nietfield and Hunt²⁴² asked teachers to rank interventions according to their perceived effectiveness (Whitworth²⁴⁸) and both acceptability and effectiveness (Nietfield and Hunt²⁴²). Teachers ranked contingency management or adaptations to learning environment interventions as more effective than other school-based interventions in Whitworth's paper.²⁴⁸ Nietfield and Hunt²⁴² found that teachers ranked contingency management and DRCs as the most acceptable and effective interventions; medication and special education received the lowest ranks. Teachers rated behaviour management as slightly more acceptable than medication in Vereb and DiPerna's paper.²⁴⁷

Askew²³⁴ reported that teachers most often indicated that special education, contingency management and self-monitoring were effective interventions for use with children with ADHD. Participants in Bain *et al.*'s study²³⁵ most often believed that meta-cognitive skills training, guided imagery and play therapy would work for children with ADHD. UK-based teachers in Groenewald *et al.*'s study²³⁹ nearly always believed a child with ADHD would benefit from learning support and school-based behaviour therapy, but rarely considered that medication would benefit such children. Kos²¹⁶ found that teachers would choose to use positive reinforcement, emotional support or adaptations to learning environment or materials with children described in vignettes more often than negative reinforcement and punishment techniques. Teachers considered modelling, token reinforcement and home-school communication the most effective interventions in Saddler's study.²⁴⁴ Finally, results regarding treatment preferences for behaviour modification and medication reported by Coles *et al.*²¹⁵ are unclear.

Quantitative synthesis

For the remaining 19 papers that used Likert scales, percentages were calculated wherever possible to indicate the positivity of attitude towards each intervention measured. As mentioned above, an arbitrary cut off was set, which classified percentages of $\geq 60\%$ as indicating a 'positive attitude' towards the interventions in question, 40–59% indicating a 'neutral attitude' and $< 40\%$ as a 'negative attitude'. This allowed for a quantitative synthesis of these 19 studies. *Table 28* provides the findings for all the school-based interventions across studies. Positive attitudes towards DRC-type interventions (includes school-home note/book) were found in all five studies for which a percentage was calculable for this intervention.^{222,224,225,240,246} Two studies compare praise and punishment,^{226,246} and both reported positive attitudes towards praise as a strategy, whereas 'lose points' and 'time out' held percentages below 60%. Often attitudes towards particular interventions are mixed. Many interventions, including contingency management, self-monitoring, special education, social skills training and a range of classroom accommodations appear in both the positive column as well as the neutral/negative columns depending on the study. Finally, there appears to be variability in educators' attitude scores across studies. For instance, all percentages are very low in Krowski's paper,²⁴¹ but very high in Stormont and Stebbins' paper.²⁴⁵ This may indicate differences in study context or the measures used.

TABLE 28 Educators' attitudes (positive vs. neutral/negative)

First study author and year	Name of scale	Positive attitude ($\geq 60\%$)	Neutral attitude (40–59%)	Negative attitude ($< 40\%$)
Alongi 2005 ²³³	Attention-Deficit/Hyperactivity Disorder Vignette		Social skills training (49.7%)	
Conforti 2012 ²³⁶	Teacher Interventions for ADHD Students		Contingency (51.2%) Antecedent (58.3%) Academic (55.06%)	
Cornell-Swanson 2005 ²³⁷	Questionnaire	Applied behavioural intervention (75.3%)	Special education services (54.8%)	
Curtis 2006 ²²²	BIRS	DRC (70.0%)	Response cost technique (57.0%) Classroom lottery (46.6%)	
Dryer 2012 ²³⁸	Questionnaire – Beliefs About ADHD	School-based interventions (72.5%)		
Eng 2008 ²²³	BIRS		Response cost technique (56.5%)	
Fairbanks 1997 ²¹⁴	IRP-15		Contingency management (58.4%)	
Girio 2009 ²²⁴	IRP-10	DRC (71.4%) Self-reinforcement (69.1%) Social skills (67.1%)	Peer tutoring (58.2%) Time out (50.1%)	
Graczyk 2005 ²¹⁷	Intervention Effectiveness Scale		Classroom Interventions (57.5%)	
Higgins 1999 ²⁴⁰	Modified TEI-SF	Contingency contracting (61.3%) School-home notes (63.0%)	Self-monitoring (55.9%)	
Krowski 2009 ²⁴¹	Interventions and teacher support services		Instructional accommodations (47.1%)	Behavioural interventions (33.7%) Environmental accommodations (35.0%) Support services for teachers (24.4%)
Ohan 2008 ²⁴³	Treatment ratings	Learning assistance/educational support (62.7%) Changes within classroom (80.0%)		

continued

TABLE 28 Educators' attitudes (positive vs. neutral/negative) (*continued*)

First study author and year	Name of scale	Positive attitude ($\geq 60\%$)	Neutral attitude (40–59%)	Negative attitude (< 40%)
Pisecco 2001 ²²⁵	BIRS	DRC (62.1–83.6%)	Classroom lottery (40.8–53.1%)	
		Response cost technique acceptability and timeliness for female vignette (60.9–73.7%)	Response cost technique perceived effectiveness and timeliness for male vignette (48.5–59.7%)	
Rowan 2000 ²²⁶	AARP	Praise (72.3%)	Time out (46.7%)	
Schmalzer 2006 ²²⁷	BIRS	Self-management intervention (68.6%)		
Stinnett 2001 ²²⁸	IRP-15		Special education for rural teachers (46.7%)	Special education for urban teachers (31.7%)
Stinson 2009 ²²⁹	IRP-15	Work completion (includes contingency management) (64.2%)		
Stormont 2001 ²⁴⁵	Intervention Preferences Questionnaire	Behavioural management (84.8%)		
		Instructional management (81.7%)		
		Outside support (84.9%)		
Subramony 2006 ²⁴⁶	Treatment Preference Questionnaire	Home-school notebook (80.1%)	Earn points (59.3%)	
		Visual schedule (66.3%)	Timer (55.3%)	
		Praise (88.1%)	Lose points (57.9%)	
		Resource room (74.0%)	Extended time (57.9%)	

AARP, Abbreviated Acceptability Rating Profile; IRP-10, Intervention Rating Profile-10; TEI-SF, Treatment Evaluation Inventory-Short Form.

Table 29 displays the attitude percentages by study and intervention category and includes medication and other non-school interventions as measured. Again, DRC is the only intervention with a consistently positive attitude across studies. Although this preference for DRCs may be an artefact of the five studies that report attitudes towards them,^{222,224,225,240,246} each of these studies do include neutral attitudes towards other interventions, therefore we can assume that participants rating DRCs were not necessarily positive regardless of the intervention(s) that they were asked to rate. Attitudes towards medication span a very wide range of percentages from 16.2% reported by Ohan *et al.*²⁴³ to 74.2% in Pisecco *et al.*'s paper.²²⁵ This does not appear to be impacted by the other interventions that teachers are rating. Where individual studies compare various school-based interventions to medication and/or other non-school interventions, there do not appear to be any trends in terms of whether school or medication and/or other non-school interventions receive more positive attitude ratings.

Table 29 also indicates the studies in which vignettes were used and the attitude construct measured. It does not appear that the use of vignettes makes a clear difference to attitudes, given that the few studies that did not use vignettes include some of the highest (Stormont and Stebbins²⁴⁵) and lowest (Krowski²⁴¹) attitude ratings. Likewise, there do not appear to be any clear trends regarding attitudes on account of

TABLE 29 Attitudes of educators by intervention category

First study author and year	Vignette?	Construct/s	Contingency management	DRC with behaviour modification	Cognitive-behavioural self-regulation	Social skills training	Adaptations to learning environment or materials	Special education	Other school based	Medication	Other non-school
Alongi 2005 ²³³	Yes	Perceived effectiveness				O (49.7%)					
Conforti 2012 ²³⁶	Yes	Perceived effectiveness	O (51.2%)					O (58.3%, 55.06%)			
Cornell-Swanson 2005 ²³⁷	No	Perceived effectiveness						O (54.8%)	+ (75.3%)	+ (73.5%)	(57.5–72.5%)
Curtis 2006 ²²²	Yes	Both ^{BIRS}	O (57.0%, 46.6%)	+ (70.0%)						O (48.0%)	
Dyer 2012 ²³⁸	No	Perceived effectiveness							+ (72.5%)		(47.5–70.0%)
Eng 2008 ²²³	Yes	Both ^{BIRS}	O (56.5%)								
Fairbanks 1997 ²¹⁴	Yes	Acceptability ^{RP}	O (58.4%)								
Giurio 2009 ²²⁴	Yes	Both	O (50.1%)	+ (71.4%)	+ (69.1%)	+ (67.1%)				O (59.6%)	O (55.9%)
Graczyk 2005 ²¹⁷	Yes	Perceived effectiveness									
Higgins 1999 ²⁴⁰	Yes	Both	+ (61.3%)	+ (63.0%)	O (55.9%)						
Krowski 2009 ²⁴¹	No	Perceived effectiveness					– (35.0%)		(24.4–47.1%)	+ (63.8%)	
Ohan 2008 ²⁴³	Yes	Perceived effectiveness					+ (78.0%)			– (16.2%)	+ (77.4%)
Pisecco 2001 ²²⁵	Yes	Both ^{BIRS}	(40.8–73.7%)	+ (62.1–83.6%)						(53.4–74.2%)	
Rowan 2000 ²²⁶	Yes	Both	(46.7–72.3%)							+ (65.4%)	
Schmalzer 2006 ²²⁷	Yes	Both ^{BIRS}			+ (68.6%)						
Stinnett 2001 ²²⁸	Yes	Acceptability ^{RP}						(31.6–46.7%)		O (40.5–47.9%)	
Stinson 2009 ²²⁹	Yes	Acceptability ^{RP}	+ (64.2%)							+ (60.6%)	+ (62.5%)
Stormont 2001 ²⁴⁵	No	Both							+ (81.7–84.9%)		
Subramony 2006 ²⁴⁶	Yes	Both	(57.9–88.1%)	+ (80.1%)			+ (66.3%)	+ (74.0%)	O (55.3–57.9%)		+ (82.4%)

–, all attitudes negative (<40%); O, all attitudes neutral (40–59%); +, all attitudes positive attitude (60%+); ^{BIRS}, used BIRS (Elliot 1991²⁴⁹); ^{RP}, used IRP-15 (Martens 1985²⁵¹).

whether acceptability, perceived effectiveness, or both are measured. Where different studies used the same measures and intervention categories, there does not appear to be close agreement for scores on either the IRP-15 or BIRS, although there is some consistency between findings reported by Curtis *et al.*²²² and Pisecco *et al.*²²⁵ who used identical instruments including the BIRS. Overall, though, educators' attitudes do not appear to be consistent across studies regardless of the similarity of measures used.

Variables related to attitudes to interventions

Table 30 summarises the findings from included studies related to variables regarding the educators who participated and the children with ADHD potentially receiving the interventions. Findings were included where papers reported a test of significance relating to attitude outcomes. Few of these variables were considered by more than one study and when they were, different interventions were often considered. We can tentatively suggest that teachers' level of education may not affect intervention attitudes. However, teaching experience was significantly related to intervention attitudes in three studies.^{224,236,246} There were conflicting findings regarding ADHD subtype of vignettes. Two of four studies found significant effects,^{239,240} but Higgins²⁴⁰ found greater treatment acceptance for inattentive subtypes, whereas Groenewald *et al.*²³⁹ found medication less endorsed for inattention. Vignette studies suggested no difference in attitudes to intervention according to gender of vignette.

TABLE 30 Variables related to attitudes towards interventions for ADHD

Category	Variable	Significant difference/correlation	Non-significant difference/correlation	Total studies
Teacher demographics	General vs. special education teachers	General teachers more accepting of DRCs – Higgins 1999 ²⁴⁰		1
	Teacher level of education		Conforti 2012 ²³⁶ Stormont 2001 ²⁴⁵	2
	Teacher ADHD knowledge	High knowledge more favourable perception of special education, classroom modification and changes at home – Ohan 2008 ²⁴³ Higher ADHD knowledge associated with higher medication acceptability – Vereb 2004 ²⁴⁷	Krowski 2009 ²⁴¹	3
	Teacher treatment knowledge	More treatment knowledge associated with higher behaviour management acceptability and lower medication acceptability – Vereb 2004 ²⁴⁷		1
	Teacher ADHD training	More ADHD training associated with higher medication and behaviour management acceptability – Vereb 2004 ²⁴⁷		1
	ADHD books read	Significant correlations between the number of books teachers read about ADHD and the effectiveness of instructional interventions and seating a child alone – Krowski 2009 ²⁴¹		1
	Teacher experience	Teachers with more experience less likely to use two consequence interventions – Conforti 2012 ²³⁶ More experienced teachers are predictive of a greater preference for time-out over peer tutoring – Gario 2009 ²²⁴ Teachers with more years teaching more willing to use losing points strategy – Subramony 2006 ²⁴⁶	Nietfield 2005 ²⁴²	4
	USA vs. New Zealand	New Zealand teachers rate medication as more effective and acceptable – Curtis 2006 ²²²		1
	Teacher age		Gario 2009 ²²⁴	1

TABLE 30 Variables related to attitudes towards interventions for ADHD (continued)

Category	Variable	Significant difference/correlation	Non-significant difference/correlation	Total studies
	Experience teaching children with ADHD	More experience associated with higher medication acceptability – Vereb 2004 ²⁴⁷	Girio 2009 ²²⁴ Stormont 2001 ²⁴⁵	3
	Familiarity with ADHD	Number of friends and family members with ADHD significantly related to the effectiveness ratings of feedback from physicians, seating a child alone and instructional interventions – Krowski 2009 ²⁴¹		1
	Confidence teaching ADHD	Teachers with more confidence in their ability to teach a student with ADHD provided greater effectiveness ratings for Instructional Interventions – Krowski 2009 ²⁴¹		1
	Teacher self-efficacy		Girio 2009 ²²⁴	1
	Grade taught	Positive correlation with teachers' acceptability rating of DRC and losing points contingency management – Subramony 2006 ²⁴⁶	Girio 2009 ²²⁴	2
	Use of teacher support services	Positive correlation with effectiveness of behavioural interventions, environmental accommodations – Krowski 2009 ²⁴¹		1
	Perceived effectiveness of teacher support services	Positive relationships with effectiveness of behavioural interventions, environmental accommodations, instructional accommodations and mental health services – Krowski 2009 ²⁴¹		1
	Intelligence	More intelligent teachers rate acceptability of clinical intervention lower and behavioural higher – Nietfield 2005 ²⁴²		1
Teacher role	Teachers vs. school psychologists vs. school social workers		Fairbanks 1997 ²¹⁴	1
	Teachers vs. school support roles		Graczyk 2005 ²¹⁷	1
Disorder	ADHD vs. autism vs. LDs		Alongi 2005 ²³³	1
	ADHD vs. LDs vs. behaviour disorder		Fairbanks 1997 ²¹⁴	1
	ADHD vs. ODD vs. depression		Rowan 2000 ²²⁶	1
Vignette	Vignette ADHD subtype	Treatments as a whole rated more acceptable for inattentive – Higgins 1999, ²⁴⁰ Medication endorsed more for combined subtype than inattentive – Groenewald 2009 ²³⁹	Coles 2012 ²¹⁵ Kos 2004 ²¹⁶	4
	Vignette gender		Coles 2012 ²¹⁵ Curtis 2006 ²²²	2
School level	Urban/rural high schools	Participants who reported that they had attended high school in an urban setting found the treatments significantly less acceptable than did participants from rural high schools – Stinnett 2001 ²²⁸		1

LD, learning disability; ODD, oppositional defiant disorder.

Discussion

This review of quantitative attitude research relating to school-based interventions for ADHD found 28 relevant studies that measured educators' attitudes in terms of their beliefs regarding perceived effectiveness and/or acceptability of a range of school-based interventions for ADHD as well as comparison to some non-school interventions, particularly medication. There was a paucity of quantitative research considering children's or parents' views towards non-pharmacological interventions for ADHD in school settings. Therefore, this review focused only on educator attitudes.

Across these studies, educators held a variety of attitudes ranging from negative to positive. The most striking finding is the lack of consistency about attitudes towards particular interventions or types of interventions, with most rated positively or neutrally/negatively across different studies. The only intervention that consistently recorded positive attitudes from educators was DRCs, an intervention where behaviour is monitored and recorded at school on a card or in a book that the pupil then takes home to share with their parent or carer. Often the pupil will receive behavioural reinforcement at home and school on account of the report card contents. No variables were consistently identified across reviewed studies that affected attitudes towards interventions.

The majority of studies used vignettes to provide ADHD case descriptions to participants. Vignettes potentially offer a level of consistency as they aim to elicit beliefs in response to a consistent target with age, gender and symptoms often clearly specified. However, often these vignettes were not adequately piloted, so consistency across the vignettes used within studies may be questioned.

It is perhaps surprising that the majority of the studies developed attitude measures for the purpose of their research, rather than using an established reliable and valid scale for measuring attitudes towards interventions. Seven included studies used either the BIRS or IRP-15, which have both been shown to reliably and validly measure attitudes towards interventions. The BIRS holds the advantage that it explicitly measures both acceptability and effectiveness, whereas many of the studies only measured one of these aspects of intervention attitude. Indeed, there may be an intervention that teachers believe is effective but that they do not think is acceptable to use, and vice versa. Therefore, future research would benefit from taking advantage of existing measures and measure both acceptability and perceived effectiveness. For systematic reviews of attitude research, agreed standardised measures would avoid the need to convert varying Likert scores to a comparable format and arbitrarily decide what constitutes a positive attitude.

There was wide variation in the number of interventions that each study captured attitudes towards. Although these interventions could often be categorised in the manner that we applied in review 1 (see *Chapter 2*), few studies measured attitudes towards the same interventions and, therefore, direct comparison was rarely possible. Nevertheless, it appears that educators hold wide-ranging attitudes towards interventions for ADHD. Future research might attempt to investigate the reasons for the diversity in attitudes towards interventions for ADHD in school settings both within and between studies.

The reviewed studies varied in their quality appraisals. Some studies appeared to show little risk of bias, whereas others scored very low on the quality appraisal criteria developed for this study. If research wishes to measure attitudes to interventions more accurately then it is critical that the interventions are clearly defined and that the measures used are both piloted and assessed for reliability and validity. Too often this was not the case in studies reviewed.

Understanding the attitudes of those responsible for accepting and potentially delivering interventions, as is the case with educators and interventions for ADHD in school settings, is critical given that the attitudes of educators can operate as barriers or facilitators to the implementation and effectiveness of these interventions (see reviews 3 and 4). The lack of consistency across the studies reviewed may point to the different methods used, which could be addressed in future research. It is also likely to be indicative of the complexity regarding attitudes and beliefs that educators may hold. Future research that attempts to untangle this web should be welcomed.

Chapter 4 Methods for qualitative reviews 3 and 4

This chapter describes the methods used to undertake the qualitative reviews whose findings are described in *Chapters 5* and *6*. The methods used to identify and select evidence followed the methodological approach published by the Centre for Reviews and Dissemination (University of York).²¹² A meta-ethnographic approach⁸⁸ was used to synthesise findings across included studies in both reviews.

Aims

The aim of the overall research project is to evaluate non-pharmacological interventions delivered in school settings for children with, or at risk of, ADHD and to explore the factors that may enhance, or limit, the delivery of such interventions.

The foci of the qualitative reviews are:

- review 3: the experiences of and attitudes held by parents, children, peers, teachers and others involved in ADHD interventions in schools
- review 4: the school-related experiences and perceptions of pupils diagnosed with, or at risk of, ADHD, their teachers, parents and peers.

Identification of evidence

Inclusion/exclusion criteria

Population and setting

Studies whose populations of interest were schoolchildren with, or at risk of, ADHD, aged between 4 and 18 years, their parents, peers and/or those who work with these children in school settings were included. School settings could include mainstream schools, special schools, residential schools, preschools and pupil referral units. Types of school considered ranged from preschool to high school. Although experience at university level was excluded, retrospective accounts from adults with ADHD, including higher education college students who reported about their attitudes to and prior experiences of ADHD in school, were included. Populations described as having intellectual disabilities [i.e. intelligence quotient (IQ) of < 70] or brain injuries were excluded, whereas comorbidities and populations where only some of the sample had ADHD and/or experience of ADHD were included. Papers were excluded if the settings described were outside of ordinary school experience, such as summer-school settings, residential treatment centres, laboratory schools (schools that operate in association with researchers in order to facilitate educational research), clinics, hospitals and homes.

Location and language

Given the importance of context for the formation and influence of attitudes, studies from societies and educational systems markedly different from the UK will be less informative for this research. We therefore included only studies from countries belonging to the OECD (see *Appendix 6*) in the review and carefully considered the applicability of findings to the UK setting during synthesis. Only papers written in English were included given the focus on experiences and attitudes, which might be lost or distorted by translation from studies written in another language.

Study design

Papers were included when they reported primary research using methods for qualitative data collection and analysis. Therefore, research was excluded if qualitative data were presented but methods of analysis were not described or evident, and where there was quantitative analysis of qualitative data or quantitative measures of attitudes. The latter was explored as a separate focus of analysis and is reported in *Chapter 3*.

Intervention

Review 3 included non-pharmacological interventions with at least some unique elements delivered in an educational setting. Interventions could target children directly (such as study skills training) or indirectly (e.g. teacher training). Research was also included that focused on the teaching strategies used with pupils with ADHD, given that such practice includes components of interventions seen elsewhere (e.g. behaviour modification and special education classes). Interventions and experiences in settings that could not be generalised to mainstream school settings were excluded, for instance summer treatment programmes or laboratory schools.

Review 4, which focused on experiences of ADHD in schools, did not require inclusion criteria related to interventions.

Date

Only studies published or conducted (where unpublished) from 1980 onwards were included, reflecting significant changes to the diagnosis of ADHD that year³ that would mean earlier studies may sample different, albeit overlapping, populations of children.

The inclusion and exclusion criteria for reviews 3 and 4 are summarised in *Table 31*. Papers could be included in both reviews 3 and 4, given that some studies considered both relevant interventions and the wider experience of people with ADHD in school settings.

TABLE 31 Inclusion and exclusion criteria for reviews 3 and 4

Review(s)	Criteria	Specification
3 and 4	Population	<p>Include:</p> <ul style="list-style-type: none"> Schoolchildren aged between 4 and 18 years, with, or at risk of, ADHD, their parents, peers and/or those who work with these children in school settings. [Note: school includes preschool or school (elementary/infant/junior/primary; middle/high/secondary; further education college)] Retrospective accounts from adults with ADHD about their attitudes to and experiences of ADHD in school. (Note: include retrospective accounts only when these involve school experiences that occurred after 1980) Populations where only some of the sample had ADHD and/or experience of ADHD, as long as experience (of interventions or ADHD) may be explicitly explored Children diagnosed or at risk of ADHD as measured by a scale (e.g. CRS, CBCL, SDQ, SNAP, ADHD total, DuPaul ADHD rating scale and the Rutter A scale). The mention of core symptoms of ADHD (hyperactivity, impulsivity and/or inattention) may indicate at risk populations Children with, or at risk of, ADHD with comorbid disorders (e.g. reading disorders; dyslexia, anxiety; depression, speech difficulties; tic disorders; fine and gross motor difficulties; conduct disorder; ODD; behaviour problems; disruptive behaviours/disorders; high risk of self-destructive behaviour; non-compliant children; emotional and behavioural disorders; antisocial behaviour; aggression problems; LDs) <p>Exclude:</p> <ul style="list-style-type: none"> Populations described as having intellectual disabilities (i.e. IQ of < 70) or brain injuries Retrospective accounts that involve school experiences that occurred before 1980

TABLE 31 Inclusion and exclusion criteria for reviews 3 and 4 (continued)

Review(s)	Criteria	Specification
3 and 4	Methods	<p>Include:</p> <ul style="list-style-type: none"> ● Papers published from 1980 onwards ● Qualitative data and analysis included in primary research ● Papers written in English ● Studies set in OECD countries ● Methods may include: <ul style="list-style-type: none"> ○ Interviews/focus groups (where analysis is qualitative) ○ Observations (where data collection and analysis is qualitative) ○ Questionnaires (where open-ended questions are reported and analysed qualitatively) ○ Written accounts (e.g. diaries; data from online forums) analysed qualitatively ○ Reviews (systematic or non-systematic) of qualitative research of relevance to either focus <p>Exclude:</p> <ul style="list-style-type: none"> ● Papers published before 1980 and those published after 1980 with data collected prior to 1980 ● Qualitative data not analysed qualitatively ● Quantitative analysis of qualitative data ● Quantitative measures of attitudes, perceptions, etc.
3	Intervention	<p>Include:</p> <ul style="list-style-type: none"> ● Non-pharmacological interventions delivered primarily in an educational setting ● Aimed at children directly or indirectly (e.g. teacher training) ● Aimed at changing child outcomes relevant to ADHD symptoms, including functioning, socioemotional and academic competence ● Schools including general schools, special schools, residential schools, preschool and pupil referral units ● Interventions delivered during term time in school settings but outside of the classroom (e.g. after school clubs, physical activity out of class) <p>Exclude:</p> <ul style="list-style-type: none"> ● Interventions and experiences in settings that cannot be generalised to mainstream school settings (e.g. summer treatment programmes, laboratory schools, virtual reality classrooms)
4	Experience	<p>Include:</p> <ul style="list-style-type: none"> ● Qualitative studies that explore school-related experience of ADHD ● Qualitative research that explores school-related attitudes, beliefs and/or understandings of ADHD <p>Exclude:</p> <ul style="list-style-type: none"> ● Research focused on experiences of and attitudes towards pharmacological treatment or family life only

CBCL, Child Behaviour Checklist; LD, learning disability; ODD, oppositional defiant disorder; SDQ, Strengths and Difficulties Questionnaire; SNAP, Swanson, Nolan and Pelham Questionnaire.

Search strategy

The search strategy involved the following elements:

- search of electronic databases
- relevant papers located during searches for review 1
- forward and backward citation chasing
- web searches
- hand-searching of key journals
- contact with experts in the field.

A database search strategy was developed which combined three elements: terms related to ADHD; terms related to a school context; and a bespoke qualitative research filter. The database search strategies used a mixture of subject headings (controlled vocabulary) and free-text terms. Searches were restricted to years from 1980 onwards. Twenty electronic databases were searched [ASSIA/ProQuest, MEDLINE/OvidSP, EMBASE/OvidSP, PsycINFO/OvidSP, British Education Index/ProQuest, Australian Education Index/ProQuest, Education Research Complete/EBSCOhost, ERIC/ProQuest, The Cochrane Library (CDSR, DARE, CENTRAL, CMR, HTA, NHS EED), The Campbell Library, HMIC/OvidSP, Social Sciences Citation Index, Conference Proceedings Citation Index, Conference Proceedings Citation Index – Social Science & Humanities (via ISI Web of Science)], during July 2012. Searches were updated in March 2013. An example search strategy used for the PsycINFO/OvidSP database is shown in *Appendix 7*. Forward citation chasing of included papers, backward chasing of included papers' reference lists, asking expert advisors from the project team for relevant papers, hand-searching of key journals and web searches were completed to identify additional relevant work (see *Chapter 2* for list of hand-searched journals and websites examined for additional research). EndNote v.X5 management software was used to organise the search results, screening and full-text retrieval processes.

Study selection

Relevant studies were identified in two stages based on the inclusion/exclusion criteria given above (see *Figure 4* for a study selection flow diagram for review 3, and *Figure 6* for a study selection flow diagram for review 4). First, two reviewers conducted title/abstract screening independently for each record (six researchers shared this screening: DM, RGJ, TND, RW, RA, MR) and disagreements were resolved through discussion (DM, RGJ). A predefined checklist (see *Appendix 8*) was used to assess adherence to the inclusion criteria. Full texts of records that might potentially meet the inclusion criteria were then obtained. Full texts were screened independently by two reviewers (DM, RGJ) for inclusion and exclusion, with each included text allocated to a review (papers could be included in review 3, review 4, or both reviews). Disagreements were resolved through discussion (DM, RGJ).

Methods of analysis/synthesis

Data extraction

For both reviews 3 and 4, a data extraction form was adapted from a previous Cochrane mixed-methods systematic review.²⁵⁸ The form was piloted by two reviewers (RGJ and DM) who extracted data from four studies initially, developing the form in response to identified gaps (please see *Appendix 9* for an example of a completed data extraction form for review 4). For review 3 (about experience of interventions), in addition to the categories of data extracted for review 4, descriptive details about interventions were extracted using the relevant portions of the data extraction form used in review 1 (the quantitative review about intervention efficacy) (please see *Appendix 10* for an example of a completed data extraction form for review 3). Data were extracted into the qualitative software package NVivo v.9.2 (QSR International, Warrington, UK) or extracted to Microsoft Office Word v.2007 (Microsoft Corporation, Redmond, WA, USA) and imported to NVivo when searchable portable document format (PDF) versions of included papers were not available. Data for reviews 3 and 4 were extracted by one reviewer and checked by another reviewer (shared between RGJ and DM). Where papers acknowledged qualitative analysis but did not provide sufficient detail, and contact details were available, authors were emailed to request further information.^{28,259–265} Five authors replied with further details.

259–261,263,266

Quality assessment

During screening two questions were asked:

1. Does the paper report on findings from research that involved both qualitative methods of data collection and analysis?
2. Is the research relevant to the synthesis topic?

If one of the answers to these questions was 'no', the paper was excluded. The first question effectively excluded those papers that could be regarded as 'fatally flawed'; if both answers were 'yes', the paper could be included and appraisal could proceed.

Study appraisal was conducted simultaneously with data extraction using criteria adapted from the Wallace Checklist.²⁶⁷ This included 15 questions meant to act as sensitising 'prompts'²⁶⁸ as follows: probing research questions; underpinning theory; study design; context; the sample; data collection and analysis; relationships between data and findings; limitations; generalisability; ethics; and reflexivity (*Box 3*). One question, 'are the interventions of interest clearly described?' was relevant to review 3 only. Questions

BOX 3 Quality appraisal questions

Quality appraisal question

Is the research question clear?

Is the theoretical or ideological perspective of the author explicit?

Has the theoretical or ideological perspective influenced the study design, methods or research findings?

Is the study design appropriate to answer the question?

Is the context or setting adequately described?

Is the sample adequate to explore the range of subjects and settings and has it been drawn from an appropriate population?

Was the data collection adequately described?

Was data collection rigorously conducted to ensure confidence in the findings?

Was there evidence that the data analysis was rigorously conducted to ensure confidence in the findings?

Are the findings substantiated by the data?

Has consideration been given to any limitations of the methods or data that may have affected the results?

Do any claims to generalisability follow logically and theoretically from the data?

Have ethical issues been addressed and confidentiality respected?

Is the author reflexive?

Are the interventions of interest clearly described? [Review 3 only.]

were assigned a response of 'yes', 'no' or 'cannot tell' for each paper. Quality appraisal decisions were made independently by two reviewers (DM and RGJ), and disagreements were resolved through discussion by these reviewers.

The appraisals were not used to exclude papers. Experience in previous qualitative reviews suggests that higher quality papers often contribute more to a synthesis,⁸⁸ creating an integral, organic process of weighting the findings of better quality studies.²⁶⁹ In addition, 'poorer' quality papers may support concepts and theories developed in the stronger papers²⁷⁰ and, therefore, make useful contributions to the review. Quality appraisal may relate to quality of reporting as much as to quality of the study.^{271,272} Finally, there is a lack of consensus among qualitative researchers about how to measure quality in qualitative research.²⁷³ These factors support the use of quality appraisal as a means to raise awareness about a range of relevant factors for each paper, rather than using it as a basis for exclusion.

The transferability of reviews 3 and 4 was explored in two workshops that took place during the time period in which data analysis occurred. One workshop was with behavioural advisory support teachers and one was with a support group for parents of children with ASDs and/or ADHD. Transferability in qualitative research refers to the judgements made by stakeholders about how relevant research findings are to their own experience, and has similarities to external validity in quantitative research. Stakeholders stated during both workshops that many of the themes discussed in reviews 3 and 4 were familiar to them, demonstrating that findings from the reviews were considered to be transferable to these populations (for more details see *Appendix 11*).

Data analysis and synthesis

Data analysis and synthesis broadly followed the principles of meta-ethnography, as developed by Noblit and Hare⁸⁸ in order to synthesise qualitative studies. This approach has proved to be a useful method to interpret findings across multiple studies in health research.²⁷¹ Meta-ethnography aims to create new interpretations through a process of translation and refutation between studies. Translation involves 'analogy between and/or amongst the studies' (p. 10),⁸⁸ and refutation involves the explanation of contradictory findings. Where possible, a 'line-of-argument' is created that synthesises translational and refutational relationships into a coherent whole. Noblit and Hare⁸⁸ suggest that 'meta-ethnography is best thought of as a series of phases that overlap and repeat as the synthesis proceeds' (p. 26).⁸⁸ We found this to be the case; although we have described the analysis process in a primarily linear fashion below, syntheses for reviews 3 and 4 proceeded in a cyclical and iterative manner (*Figure 3*).

A useful distinction in the description of a synthesis of qualitative studies is the separation of first-, second- and third-order concepts, as first described by Schutz.²⁷⁴ First-order concepts represent the perspectives of study participants, often communicated in studies by quoting transcript excerpts. Second-order concepts represent the theorisation of researchers about first-order concepts within their study, for example through the identification of themes and/or by applying social science theory to first-order concepts. Third-order concepts represent the theorisation of reviewers across the studies being reviewed, for example the development of themes synthesised across papers in the review. However, it is also worth noting that the distinctions between concept levels are not completely discrete; for example, researchers choose which parts of participant information to include and exclude, thus which first-order concepts are reported originate in decisions made by researchers.

In meta-ethnography, 'the focus needs to be on the concepts, themes, organizers, and/or metaphors that the authors employ to explain what is taking place. These are the things to translate across studies' (p. 39);⁸⁸ so, according to Noblit and Hare, translation relies on second-order concepts. This complicates the application of meta-ethnography because many qualitative studies, including some of those reviewed in reviews 3 and 4, describe first-order concepts without developing them thematically and/or theoretically, therefore offering little in the way of second-order concepts to translate. We responded to this difficulty in two ways identified from other qualitative syntheses: (1) by the selection of an index paper to act as an organising thematic reference against which other studies can be compared;²⁷² and (2) by thematic analysis of second-order concepts, which were then used to translate first-order concepts.²⁷⁰

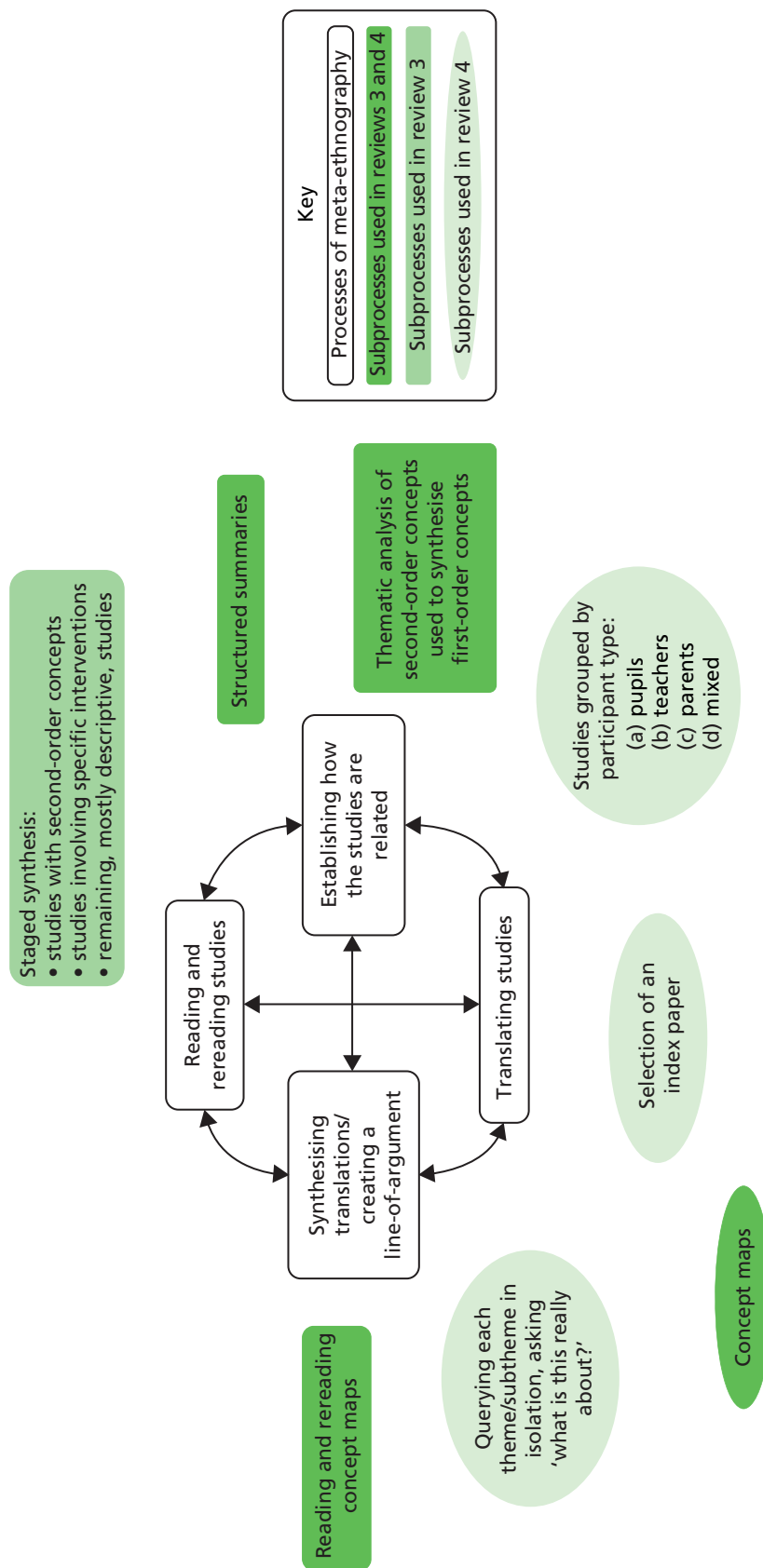


FIGURE 3 Process of meta-ethnography for reviews 3 and 4. Subprocesses differed between reviews in response to differences in the content of studies.

An additional challenge faced was the large quantity and breadth/diversity of content of papers. This was dealt with by grouping papers on the basis of similarities to create a staged process of synthesis, with smaller syntheses preceding the combination of these into an overall synthesis. For example, in review 3, papers containing interpretive analysis and second-order concepts were synthesised before more descriptive papers that reported mostly first-order concepts. In review 4, where content across studies was very broad, papers were synthesised in groups by participant type (pupils, teachers, parents, mixed) before combining these into a final overarching synthesis. Thus, details of analytical processes differed between reviews, not only according to differences in review aims, but also because of differences between the characteristics of the papers being synthesised. Processes common to both reviews are outlined below, followed by discussion of processes particular to each review.

Reading and rereading the included studies

This initial stage involved the careful reading of the included papers in order for reviewers to familiarise themselves with the studies and their findings. This process began in the screening phase and continued through data extraction and analysis.

Determining how the studies are related

Following data extraction, structured summaries²⁷⁵ were created in order to juxtapose the same type of information across papers for consideration of similarities and differences. Information tabulated included samples, methods, themes, first- and second-order concepts, metaphors, implications and/or developing third-order concepts created for each interpretive paper (see *Appendix 12* for an example). The similarities and differences demonstrated through this process acted as a foundation for decisions about the structure and process of each synthesis. In the process of comparing the studies against each other, we looked for explicit differences between the studies in relation to a range of factors, including their participant group perspective, the age of relevant children with ADHD, intervention focus (review 3) and geographical location.

Reciprocal translation of studies

This stage involved the development of concept maps showing concepts and related subthemes, and narratives to explain how each concept was evidenced by the included studies and developing synthesis (for an example, see the concept maps for review 4's synthesis of pupil views in *Appendix 13*).

Review 3

Although the previous stage had identified some similarities across studies, their diverse foci and the relatively descriptive themes meant that additional work was needed ahead of translating studies. Thematic analysis was used to inductively develop concepts from papers with second-order themes.⁸ The resulting six themes were then compared with findings from more descriptive studies that considered specific interventions to assess their fit; two themes were adapted in light of this. Finally, the findings of the remaining, more descriptive, studies were compared with the themes. As a result of this an additional theme that had appeared to a lesser extent in the other papers was added, giving seven themes in total.

Next, concepts and themes in one article were compared with the concepts and themes in others. This translation involved the comparison of themes across papers and an attempt to 'match' themes from one paper with themes from another. We began with the themes identified in the thematic analysis process described above, considering how paper A's findings related to these themes and then comparing paper B's findings to this and so on using concept maps. It became clear that the studies were not refutations of one another, even though tensions amid categories were identified.

Review 4

Once subgroups of papers were established by participant type [(1) pupil, (2) teacher, (3) parent, (4) mixed views], the four subgroups were synthesised separately. For pupil and parent syntheses, an index paper, as defined above, was chosen.^{261,276} Thus, for the pupil and parent syntheses the relationships of themes between studies were analysed deductively from the index paper themes. In addition, inductive thematic analysis was carried out for both first- and second-order concepts not represented by index paper themes.

For the teacher and mixed views syntheses, there was not a paper that both included second-order concepts and broadly represented the other papers. Therefore, translation was conducted using inductive thematic analysis of first- and second-order concepts across papers. As can happen in meta-ethnography,²⁷⁷ seven papers were excluded during the data analysis stage for the following reasons: three papers included in both reviews 3 and 4 were found to have insufficient amounts of non-intervention related experience of ADHD;²⁷⁸⁻²⁸⁰ two studies did not contain sufficient school-related experience;^{281,282} and two papers did not contribute to the synthesis.^{283,284}

Synthesising translations/creating a line-of-argument

Review 3

To develop a line of argument⁸⁸ (a third-order interpretation of the included studies as a whole), the concept maps for each theme developed during the reciprocal translation process were organised, read and reread. By reading the concepts and interpretations within the synthesis, a line of argument was developed from the reciprocally translated themes. This line of argument consisted of a model that captured how the themes related to one another and captured the experience of using non-pharmacological interventions for ADHD in school settings.

Review 4

The line of argument,⁸⁸ as defined above, for each of the included studies in review 4 was a culmination of:

- the processes described above
- conceptual development gained through discussion with the wider research team in the process of critical review and comment (RG, DM, TF); and
- a process of querying themes from each concept map.

The process of querying each concept map involved printing out the map for one of the four syntheses (see *Appendix 13*) and cutting out each box representing a theme or subtheme, which included descriptive text. Text from each theme was then read in isolation and the query, 'what is this really about?' was asked, with answers written as categories on the back. Themes were developed from these categories and then combined in a table showing relationships between first- and second-order concepts and third-order themes (see *Chapter 6, Table 48* for review 4a, *Table 52* for review 4b, *Table 55* for review 4c and *Table 59* for review 4d). This process established the structure of third-order lines of argument for the four subreviews, reviews 4a–d. For the overarching synthesis of review 4, third-order themes from reviews 4a–d were combined and refined into overarching third-order themes (see *Chapter 6, Table 63*).

It is commonly accepted within interpretive research that themes are developed through interpretations by researchers and that they may be developed in more than one way.²⁸⁵ We grouped themes following decisions about how to highlight clearly important issues identified in included studies and their relative importance to the implementation of interventions for ADHD within schools. For example, in synthesis 4a (pupil views) we discuss stigma within 'sociological aspects of ADHD symptoms' rather than with spoiled identity under 'psychological aspects of ADHD symptoms', although the issues are evidently closely linked. This decision was made because the mechanisms of stigma work to make sociological aspects implicit and individual aspects explicit (for a further discussion of stigma see *Chapter 6, Review 4a: the school experiences and perceptions of pupils diagnosed with attention-deficit/hyperactivity disorder, Overarching theme for review 4a: attention-deficit/hyperactivity disorder symptoms as an interaction between biological, sociological and psychological factors, Sociological factors, Stigma* and *Box 33*). In addition, the sociological aspects are important to understanding the school context with reference to implementation of non-pharmacological interventions (for further discussion see *Chapter 6, Review 4a: the school experiences and perceptions of pupils diagnosed with attention-deficit/hyperactivity disorder, Overarching theme for review 4a: attention-deficit/hyperactivity disorder symptoms as an interaction between biological, sociological and psychological factors, Sociological factors*).

The findings of both qualitative reviews are presented and discussed in the subsequent two chapters, along with methodological issues that relate to each individual review. Review 3 in *Chapter 5* examines 'the experiences of and attitudes held by parents, children, peers, teachers and others involved in ADHD interventions in schools', whereas review 4 in *Chapter 6* reports 'the school-related experiences and perceptions of pupils diagnosed with or at risk of ADHD, their teachers, parents and peers'.

Chapter 5 Review 3: a synthesis of qualitative studies about the use of non-pharmacological interventions and strategies for attention-deficit/hyperactivity disorder in school settings

Introduction

This chapter presents the findings of the systematic review of qualitative research addressing the research question 'what are the experiences of and attitudes towards ADHD interventions in school settings?' The method for this review was outlined in the previous chapter. This chapter describes the included studies and then presents the findings of the review. Although data analysis and synthesis followed the principles of meta-ethnography (see *Chapter 4, Methods of analysis/synthesis, Data analysis and synthesis*), the synthesis is presented thematically. A 'line of argument' was produced during the analysis of the included papers, which captures how the themes relate to one another and provides a model of the experience of using non-pharmacological interventions for ADHD in school settings. The chapter ends with conclusions, including implications for the education of pupils who display symptoms of ADHD and the development of interventions.

Included studies

Figure 4 gives the PRISMA flow chart showing study selection.¹⁵² A total of 10,753 records were screened at the title and abstract level, excluding 10,361 papers. The full text of 392 potentially eligible papers was retrieved. After scanning the full text, 359 of these articles were either not considered eligible ($n = 309$) or unavailable after further efforts to locate full-text records ($n = 50$). A list of reasons for the exclusion of each paper screened at full text can be seen in *Appendix 14*. The most frequent reasons for exclusion after perusal of full text were studies lacking qualitative data and/or analysis ($n = 94$) or research that was not focused on the school setting ($n = 83$). The remaining 33 papers met the inclusion criteria outlined in the previous chapter.

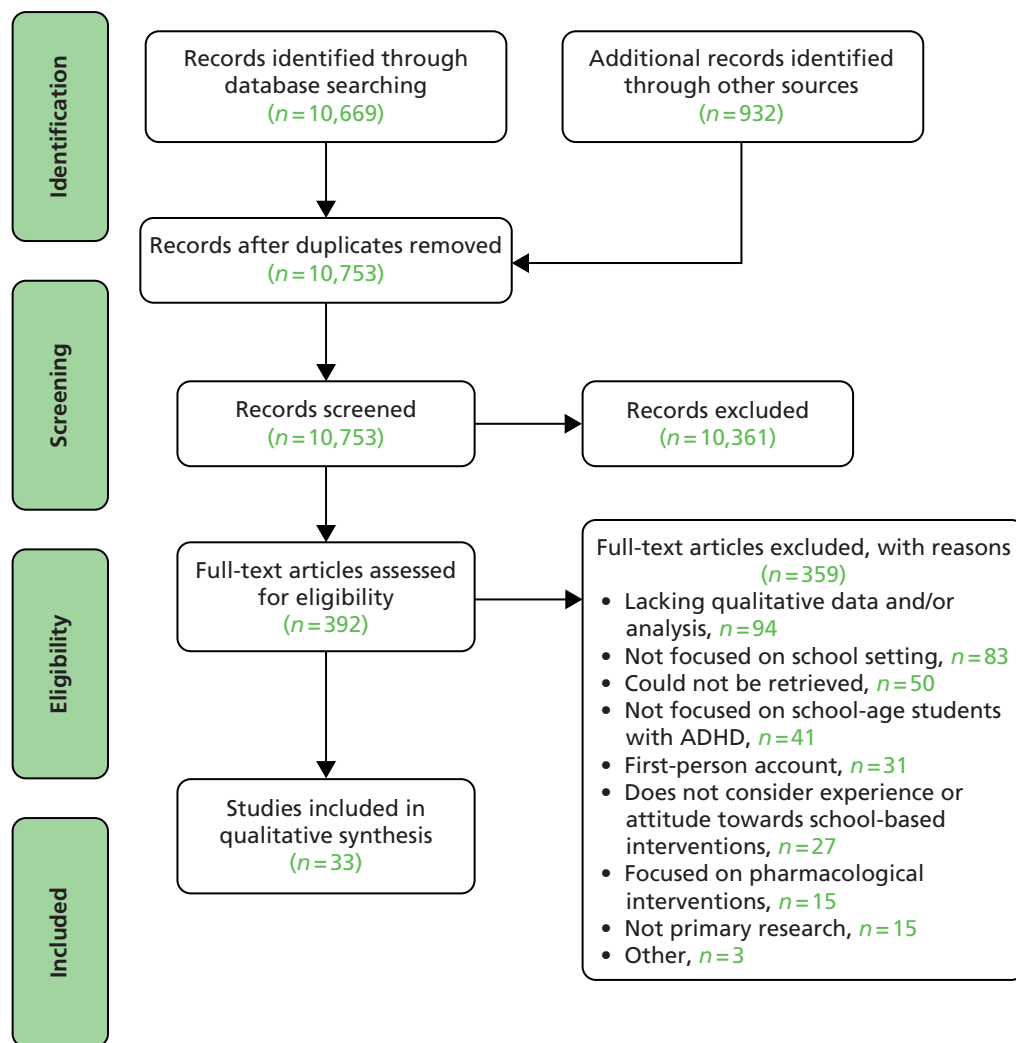


FIGURE 4 Preferred Reporting Items for Systematic Reviews and Meta-Analyses diagram showing search process and study selection for review 3.

Study characteristics

Summary details of the 33 included study reports which were published between 1996 and 2011 are provided in *Table 32*. There were no studies that contributed more than one paper to the review; all included papers referred to distinct research and samples. However, one journal article³⁰⁷ used data and analysis that the author had previously published in a book.³¹⁴ Only the journal article was included as it focused on pedagogical practices experienced by secondary school pupils diagnosed with ADHD, whereas the book covered this plus broader content more relevant to review 4. The included studies represented the perspectives of a variety of relevant participant groups, namely education practitioners (most often teachers), children with ADHD or related symptoms, their parents, their mainstream peers without a diagnosis of ADHD and their peers attending the same interventions, who often held other SEN.

The most frequent participant groups were educators ($n = 13$ ^{264,265,286,288,291,294,296,298,301,304,305,308,309}), children and young people with ADHD ($n = 10$ ^{278-280,297,299,300,302,303,307,312}) or multiple perspectives ($n = 8$ ^{290,292,293,295,306,310,311,313}). This meant that over half of the studies included the perspectives of educators of children with ADHD ($n = 21$ ^{264,265,286,288,290-296,298,301,304-306,308-311,313}) or the perspectives of children and young people with ADHD ($n = 17$ ^{278-280,290,292,293,295,297,299,300,302,303,307,310-313}).

TABLE 32 Study characteristics

First study author and year	Country of participants	Aim	Sample perspective	Age ^a	Particular intervention
Arcia 2000 ²⁸⁶	USA	Describe teacher understanding of, attitudes about, and strategies towards disruptive behaviours	Teachers (n = 21)	5–12	No
Bartlett 2010 ²⁸⁷	USA	Explore persons and strategies that college-enrolled young adults with a history of ADHD perceived were most and least helpful to their management of ADHD during childhood	College students (n = 16)	18–25. Participants reflected on childhood	No
Bos 1997 ²⁸⁸	USA	Explore the use of a workshop course on educating students with ADHD that incorporated features of interactive professional development. Describing the effects of such workshops not only on educators' knowledge attitudes and perceived competence, but also on what aspects they deemed as valuable for their professional growth	Educators (n = 89)	5–22	ADHD Teacher Training Workshop
Ducharme 1996 ²⁸⁹	USA	Focus on parents' perceptions about four aspects of raising a child with ADHD: (1) parents' feelings regarding their children and the school experience; (2) parents' perceptions about their interactions with medical practitioners; (3) parents' views regarding family and social issues; and (4) parents' perceptions about their own experiences	Parents of children with ADHD (n = 7)	12–19	No
Edwards 2008 ²⁹⁰	New Zealand	Identify some effective educational strategies that help the children in this study learn. To identify ineffective strategies and consider how social experiences with other children impacts learning	Mixed: children with gifted/ADHD (n = 6), their parents (n = 7) and one teacher who had worked with gifted children with ADHD	6–10	No
Einarsdottir 2008 ²⁹¹	Iceland	Investigate the experiences that the teachers have in working with children who have behavioural problems and ADHD-associated behaviour and the support and conditions they feel these children need given changes in the Icelandic context	Teachers (n = 16)	2–7	No
Furtick 2010 ²⁹²	USA	Determine whether or not the use of constructivist practices are more appropriate/successful than traditional practices when used with elementary-aged students diagnosed with ADHD	Mixed: children with ADHD (n = 6); teachers (n = 6); parents (n = 6)	9–11	Constructivist teaching

continued

TABLE 32 Study characteristics (continued)

First study author and year	Country of participants	Aim	Sample perspective	Age ^a	Particular intervention
Hands 2009 ²⁹³	USA	Give voice to an underachieving gifted student with ADHD and a mild non-verbal LD about how his educational experience could better address his individual needs	Mixed: ADHD teenager (<i>n</i> = 1), his English and Science teachers (<i>n</i> = 2) and his mother	16	No
Hillman 2011 ²⁹⁴	USA, UK, Canada	Examine teachers' ability to identify ADHD and the qualitative content of their referral recommendations. This is intended to help determine if identification and recommendations for parents differ based on ethnicity and/or gender of the child	Teachers (<i>n</i> = 30)	5–14	No
Hjörne 2006 ²⁹⁵	Sweden	Explore the pedagogical practices developed in a Swedish school in response to the diagnosis ADHD/DAMP. Focus on what educational strategies practitioners consider relevant when organising teaching and learning activities for children diagnosed with ADHD/DAMP	Mixed: ADHD boys (<i>n</i> = 6) and school staff (<i>n</i> = 5)	7–12	ADHD classroom (a special education classroom for pupils with ADHD)
Hong 2008 ⁶⁵	Korea	Understand and present the perspectives of teachers who struggled with and strived to perform their duties as teachers as they taught children with ADHD	Teachers (<i>n</i> = 23)	Up to 12	No
Houghton 2006 ²⁹⁶	Australia	Investigate how teachers deal with students diagnosed with ADHD	Teachers (<i>n</i> = 36)	NR	No
Isaksson 2010 ²⁹⁷	Sweden	Examine how pupils with SEN and their parents experience the special support measures they receive from school	Children with ADHD among larger SEN sample (<i>n</i> = 8)	13–15	No
Jones 2008 ²⁹⁸	USA	Explore how 20 currently practising pre-kindergarten teachers handle children identified with conduct disorder, ODD and ADHD in order to illuminate, from the perspective of teachers, the strategies that are working	Pre-kindergarten teachers (<i>n</i> = 20)	2–5	No
Kendall 2003 ²⁹⁹	USA	Listen to the voices of children and adolescents diagnosed with ADHD, from diverse ethnic and socioeconomic backgrounds, and ask them what they felt was true for them and how they viewed ADHD and its treatments	Children with ADHD (<i>n</i> = 39)	6–17	No

First study author and year	Country of participants	Aim	Sample perspective	Age ^a	Particular intervention
Kreiss 2003 ³⁰⁰	USA	Case studies documenting the varied experiences of adolescents attending an alternate high school; to identify factors in this school's programme that appear to promote positive growth in students and to identify ways in which the programme might be improved	Adolescents attending alternate high school (<i>n</i> = 4)	NR	Alternative high school for emotionally and/or behaviourally disturbed adolescents
Langberg 2011 ³⁰¹	USA	Adapt and refine the HOPS intervention protocol to create a product that is highly acceptable to parents and schools and is feasible for schools to implement during the school day	School mental health providers – counsellors and psychologists (<i>n</i> = 10); teachers (<i>n</i> = 8)	11–14	Organisation and study skills training
Ljusberg 2011 ²⁶⁵	Sweden	Highlight the physical and mental environment in the remedial classroom. Investigation through teacher interviews of how the classrooms are organised and structured and how do teachers report that the teaching is organised and structured	Remedial teachers (<i>n</i> = 10)	9–12	Remedial classroom
Ljusberg 2011 ³⁰²	Sweden	Examine how pupils describe why they attend a remedial class and what it means to be a pupil in that setting	ADHD and concentration difficulties students (<i>n</i> = 10)	10–12	Remedial classroom
McNeil 2005 ³⁰³	USA	Explore what the experience of growing up with ADHD means. To consider the extent to which ADHD interacts with schooling and the quality of education received	Female students with ADHD and emotional and behavioural problems (<i>n</i> = 3)	15–16	Self-contained Just Achieving Greatness programme
Mulligan 2001 ³⁰⁴	USA	Identify which of the potentially useful classroom strategies for students with ADHD are being implemented by general education teachers and which strategies they perceive as being the most effective	General education teachers (<i>n</i> = 151)	5–18	No
Nowacek 2007 ³⁰⁵	USA	Investigate what teachers understood about the characteristics associated with ADHD and what modifications and interventions they used with these students	Teachers (<i>n</i> = 8)	6–14	No
Ozdemir 2006 ³⁰⁶	Turkey	Explore the perceptions of Turkish teachers and parents in regard to the First Steps to Success programme they experienced	Mixed: teachers (<i>n</i> = 4) and parents (<i>n</i> = 8) of children with ADHD	6–7	First Step to Success programme (school and home intervention)
Partridge 2009 ²⁷⁹	Australia	Explore how adolescent boys diagnosed with ADHD respond to the efforts of their teachers to moderate their actions	Adolescents diagnosed with ADHD (<i>n</i> = 5)	12–14	No

continued

TABLE 32 Study characteristics (continued)

First study author and year	Country of participants	Aim	Sample perspective	Age ^a	Particular intervention
Prosser 2008 ³⁰⁷	Australia and USA	Investigate what student perspectives tell us about the relationship between ADHD and pedagogy	Adolescents diagnosed with ADHD (n = 12)	14–16	No
Rafalovich 2004 ³⁰⁸	USA and Canada	Focus on the pedagogical responses that teachers employ in dealing with ADHD, describe the steps by which they modify assignment structure and the academic and social expectations of children with ADHD	Teachers (n = 25)	2–16	No
Santamaria 2009 ³⁰⁹	USA	Study school counsellors' perceptions of English-language learning students with ADHD in second grade and the strategies used to manage their behaviour	School counsellors (n = 10)	7–8	No
Smagorinsky 2007 ²⁷⁸	USA	Given open-ended exploration and interpretation of literature investigates the factors appearing to contribute to Rita's (adolescent with ADHD) efforts to attend to the text and task assigned by her teacher	Adolescents diagnosed with ADHD (n = 2)	17–18	Creative learning in English
Taylor Wilcoxson 2005 ³¹⁰	USA	Investigate the creative potential of children diagnosed with ADHD	Mixed: children with or at risk of ADHD (one diagnosed) (n = 4), their mothers (n = 4) and teachers (n = 5)	9–10	No
Wiebe 2007 ³¹¹	Canada	Explore the experience of listening to music during individual seat work in the classroom and during homework, experienced by an adolescent boy	Mixed: adolescent diagnosed with ADHD (n = 1), his teachers (n = 2) and parents (n = 2)	14	Listening to music through headphones while working
Wong 2004 ²⁸⁰	Canada	Investigate, describe and enhance the metacognitive processes of high school students with ADHD/LDs who were studying for and taking an examination	Teenagers with ADHD (n = 5)	15–16	Metacognitive skills training
Young 2009 ³¹²	UK	Explore what developmental experience is important among young offenders with ADHD	Young offenders with ADHD symptoms (n = 6)	14–16	No
Zimmerman 1998 ³¹³	USA	Investigate the perception of students about the influence of teachers and school counsellors on their academic success. Consider common characteristics among staff identified by the students as being supportive	Mixed: students with ADHD in high school or college (n = 6), their parents, high school teachers (n = 6) and counsellors	16–21	No

DAMP, deficits in attention, motor control and perception; HOPS, Homework, Organization, and Planning Skills; LD, learning disability; NR, not reported; ODD, oppositional defiant disorder.
 a Age in years of relevant pupils with ADHD.

The aims of the studies were typically broader than a focus on attitudes and experiences of school-based interventions for children with ADHD on which this qualitative review focuses. Often only a small section of a study's analysis was relevant, with the remaining analysis considering wider experiences of learning and teaching related to children with ADHD, growing up with an ADHD diagnosis or teaching SEN pupils (these other issues are considered by review 4, see *Chapter 6*).

The majority of studies were located in the USA ($n = 19^{278,287-289,292-294,298-301,303-305,307-311,313}$). Sweden is the only other country represented by more than three studies ($n = 4^{265,295,297,302}$). Only two studies were located in the UK,^{294,312} but one study²⁹⁴ also included participants from the USA and Canada. The age of relevant schoolchildren with ADHD was more often within adolescence or a range of ages across childhood than younger children. Ethnicity, deprivation, teaching experience and comorbid issues for participants with ADHD diagnoses were rarely reported by the included studies.

Interventions studied

Only 12 of the studies were focused on a particular intervention (*Table 33*),^{265,278,280,288,292,295,300-303,306,311} with the majority of included studies instead considering the range of interventions or strategies used in participants' school settings (i.e. the practice routinely used by teachers working with pupils who display ADHD symptoms). Of the 12 studies focused on a particular intervention, the majority ($n = 8^{265,278,292,295,300,302,303,311}$) could be classified according to the category 'adaptations to learning environment' used in the review of effectiveness reported in *Chapter 2*. The remaining interventions fit the categories academic and study skills training ($n = 2^{280,301}$) or contingency management.³⁰⁶ Bos *et al.*'s study²⁸⁸ focused on a teacher training intervention, a category outside the scope of the review of effectiveness reported in *Chapter 2*. Only four studies reported interventions that were considered specific enough and contained enough procedural detail within the paper to allow for replication.^{288,301,306,311} However, these four studies range from a manualised intervention evaluated by Langberg *et al.*³⁰¹ to the limited procedural detail given by Wiebe³¹¹ where the use of the intervention was left to teacher discretion.

TABLE 33 Intervention details for relevant studies

First study author and year	Intervention	Intervention category ^a	Focus ^b
Bos 1997 ²⁸⁸	ADHD teacher training workshop	Information (teacher training)	Specific
Furtick 2010 ²⁹²	Constructivist teaching	Adaptations to learning environment	Broad
Hjörne 2006 ²⁹⁵	ADHD classroom	Adaptations to learning environment	Broad
Kreiss 2003 ³⁰⁰	Alternative high school for emotionally and/or behaviourally disturbed adolescents	Adaptations to learning environment	Broad
Langberg 2011 ³⁰¹	Organisation and study skills training	Academic and study skills training	Specific
Ljusberg 2011 ²⁶⁵	Remedial classroom	Adaptations to learning environment	Broad
Ljusberg 2011 ³⁰²	Remedial classroom	Adaptations to learning environment	Broad
McNeil 2005 ³⁰³	Self-contained Just Achieving Greatness programme	Adaptations to learning environment	Broad
Ozdemir 2006 ³⁰⁶	First Step to Success programme (school and home intervention)	Contingency management	Specific
Smagorinsky 2007 ²⁷⁸	Creative learning in English	Adaptations to learning environment	Broad
Wiebe 2007 ³¹¹	Listening to music through headphones while working	Adaptations to learning environment	Specific
Wong 2004 ²⁸⁰	Metacognitive skills training	Academic and study skills training	Broad

^a Categories used in review 1, see *Chapter 2*.

^b Reviewer assessment of whether interventions had specific content or were broad; specific descriptions of interventions were considered replicable.

The broad, non-replicable interventions in the remaining eight studies often comprised attendance in special education classrooms and, as such, their content was varied as a result of the influence of local curriculum needs and the needs of the particular pupils in the classroom.

Methods and analysis

Further details about the methods and analyses employed by the 33 included studies are given in *Table 34*. Sample sizes tended to be larger when the participant group were educators. Educators represented a range of teaching age groups, whereas samples of pupils with ADHD were more often adolescents.^{278–280,293,297,303,307,312,313} Participants displaying ADHD symptoms were often clinically diagnosed and, where reported, the majority were taking medication for their ADHD. However, sample characteristics for teacher and parent participants were often not reported.

Five studies used mixed-method designs that also included quantitative data.^{286,288,294,301,304} Langberg *et al.*'s study³⁰¹ focused on the evaluation of an intervention for which effectiveness results have been reported in a separate paper¹⁶⁷ that was included in the review of effectiveness presented in *Chapter 2*. However, the paper included in the current review was focused on educators' evaluations of the Homework, Organization, and Planning Skills (HOPS) intervention only. The majority of studies used purposive sampling ($n = 17$ ^{264,279,280,286,292,296,298–300,305–307,309–313}). These studies typically made use of key informants who could provide access to the target population, for instance teachers who could identify their pupils with ADHD³¹⁰ or headteachers who could recommend certain teachers and pupils.³⁰⁵

Twenty-eight studies involved the use of interviews for data collection.^{264,265,279,280,286–293,296–300,302,303,305–313} Most often the interviews were semistructured. Six studies included more than one interview with participants^{279,286,289,290,311,313} and 13 studies included more than one method of data collection.^{264,278–280,288,292,293,295,298,301,303,305,311} Where reported, the school setting was most often primary or elementary settings and mainstream schools. The data analysis methods reported varied across the studies with some elements of thematic analysis ($n = 11$ ^{265,278,288–290,292,294,300,302,307,311}) and grounded theory or constant comparative method ($n = 9$ ^{279,280,288,293,296,297,299,305,308}) being the most frequently cited analytical frameworks employed. In several studies the analytical process was either unclear or unreported, although for the study to be included some qualitative analysis was clearly evident. Despite many studies claiming to use interpretive analytic frameworks, the majority of studies were judged as containing mainly descriptive analysis ($n = 22$ ^{286–290,292–295,297–301,303,304,306,307,309–312}).

Quality appraisal

A summary of results of the quality appraisal of included papers is displayed in *Table 35*. As discussed in the previous chapter (see *Chapter 4, Methods of analysis/synthesis, Quality assessment*), and as is typical for systematic reviews of qualitative research,^{269,270,319} quality appraisal was used as a means to raise awareness about a range of relevant factors for each paper, rather than as a basis for exclusion. Two studies^{298,309} did not record a 'no' response against any of the questions. Both were PhD theses so it is arguable that these authors had more space to satisfactorily address issues of study quality and would be more likely to consider theoretical perspectives and reflexivity than authors of short journal articles. That said, the 'lowest' quality study as appraised here was also a PhD thesis,²⁹² which scored eight 'yes' and seven 'no' responses, thus indicating that all studies received more positive than negative quality appraisals. Where previous qualitative reviews have excluded papers on the basis of quality appraisal, this has been attributable to negative answers to the majority of questions.³¹⁹

The majority of studies recorded a 'yes' in response to questions about the clarity of the research question, appropriate study design, data collection description and findings substantiated by data. Most studies were lacking in the reporting of study limitations and the author showing reflexivity. Thirteen responses to the question about whether or not the theoretical perspective influenced the study were 'cannot tell', simply because the theoretical perspective was often not reported. Few studies reported the context or setting, evidence that the data analysis was rigorously conducted or the author's theoretical perspective. Finally, although data collection was often adequately described, reviewers frequently could not tell whether the data collection had been rigorously conducted.

TABLE 34 Methodological and analytical details of included studies

First study author and year	Sample size, <i>n</i>	Sample characteristics	Data collection method	Sampling	School setting	Data analysis	Analysis ^a
Arcia 2000 ²⁸⁶	21	21 kindergarten to sixth grade teachers (one SEN), 81% female	Telephone interview (two per participant; second after initial analysis)	Purposive	Elementary	Qualitative analysis after Miles and Huberman 1994 ³¹⁵	Mainly descriptive
Bartlett 2010 ²⁸⁷	16	16 college students diagnosed with ADHD, aged 18–25 years, 81% female, 94% taking medication	Semistructured interviews	Opportunity sample	University (retrospective)	Content analysis	Mainly descriptive
Bos 1997 ²⁸⁸	89	89 kindergarten to post-secondary educators, 96% female	Open-ended evaluation questionnaire questions, journal and semistructured interviews	Self-selecting	NR	Category and theme analysis; constant comparative used to aggregate themes	Mainly descriptive
Ducharme 1996 ²⁸⁹	7	Seven parents of children with ADHD, 71% female, aged 38–52 years	Life history and in-depth interviewing (three per participant)	NR	High school assumed (children aged 12–19 years)	Thematic perspective	Mainly descriptive
Edwards 2008 ²⁹⁰	14 (6 children, 1 teacher, 4 mothers, 3 fathers)	Six children with diagnosed ADHD and classified gifted (6–10 years old, 33% female), their parents and one teacher who had worked with gifted/children with ADHD	Semistructured interviews (two per child, second interview based on first interview findings)	Reputational	School for gifted children and mainstream schools	Narrative and thematic	Mainly descriptive
Einarsdottir 2008 ²⁹¹	16	16 female preschool or grade 1 teachers	Interviews (semistructured assumed, 40–90 minutes)	NR	Preschool or primary	Phenomenological approach	Some interpretive analysis
Furtick 2010 ²⁹²	18	Six boys aged 9–11 years with diagnosed ADHD, all on medication; six female teachers; six parents (unreported whether or not one parent per child)	Observations and interviews	Purposive	Elementary	Thematic, then categorised responses into positive/negative	Mainly descriptive

continued

TABLE 34 Methodological and analytical details of included studies (continued)

First study author and year	Sample size, <i>n</i>	Sample characteristics	Data collection method	Sampling	School setting	Data analysis	Analysis ^a
Hands 2009 ²⁹³	4	One male with ADHD (also gifted and mild non-verbal LD), diagnosed at 16 years old, on medication, his English and Science teachers and his mother	Classroom observation, semistructured interviews (approximately 90–120 minutes), analysis of school documents	Reputational	Public high school and math and science magnet school	Constant comparative method	Mainly descriptive
Hillman 2011 ²⁹⁴	30	30 kindergarten to eighth grade teachers (25–34 years of age, 80% female)	Internet survey including open-ended questions	Self-selecting	Primary and secondary	Thematic analysis	Mainly descriptive
Hjörne 2006 ²⁹⁵	11	Six ADHD/DAMP diagnosed boys aged 7–12 years and five school staff	Microethnography	NR	Primary	NR	Mainly descriptive
Hong 2008 ²⁶⁴	23	23 early years teachers	Open-ended questionnaire (23 participants), interview (seven participants, 30–60 minutes) and focus groups (six participants, 30–60 minutes)	Purposive	Day care, kindergarten and elementary	NR	Some interpretive analysis
Houghton 2006 ²⁹⁶	36	36 teachers	Semistructured interviews (approximately 1 hour)	Purposive	NR	Grounded theory	Some interpretive analysis
Isaksson 2010 ²⁹⁷	8	Eight special educational needs children (two boys diagnosed with ADHD; aged 13–15 years)	Interview (semistructured assumed, 45–90 minutes)	Opportunity sample	Primary	Grounded theory	Mainly descriptive
Jones 2008 ²⁹⁸	20	20 female pre-kindergarten teachers aged 23–49 years	Semistructured interviews (50–90 minutes) then telephone calls and e-mails	Purposive and opportunity	Elementary	Phenomenological processes	Mainly descriptive
Kendall 2003 ²⁹⁹	39	39 children diagnosed with ADHD (33% female, aged 6–17 years)	Semistructured interviews (15–45 minutes)	Purposive	NR	Constant comparative method	Mainly descriptive

First study author and year	Sample size, <i>n</i>	Sample characteristics	Data collection method	Sampling	School setting	Data analysis	Analysis ^a
Kreiss 2003 ³⁰⁰	4	Four adolescents attending alternative high school, 50% female, one boy and one girl with ADHD)	Semistructured interviews	Purposive	Special school for emotionally and behaviourally disturbed adolescents	Thematic	Mainly descriptive
Langberg 2011 ³⁰¹	18	10 female school mental health providers – counsellors and psychologists, mean age 35 years; eight teachers (for final hour of focus group)	Focus groups (2.5 hours) plus intervention transcripts	NR	Middle school	Open coding, frames of analysis	Mainly descriptive
Ljusberg 2011 ²⁶⁵	10	10 remedial class teachers	Semistructured interviews	Opportunity/purposive	Primary	Thematic	Some interpretive analysis
Ljusberg 2011 ³⁰²	10	10 ADHD and concentration difficulties students, aged 10–12 years, 20% female, five diagnosed, five concentration difficulties	Semistructured interviews	Random sample from 45 who met inclusion criteria	Primary	Thematic	Some interpretive analysis
McNeil 2005 ³⁰³	3	Three female ADHD-diagnosed students with emotional and behavioural problems, 15–16 years of age, 68% on medication	Heuristic enquiry and case study: 'long interview' (60 minutes approximately) and observation, cumulative and special education files, psychological evaluations and test results	Opportunity sample	Junior high school	Heuristic data analysis after Moustakas 1990 ³¹⁶	Mainly descriptive
Mulligan 2001 ³⁰⁴	151	151 general education teachers, 82% of 149 completing survey were female	Survey including two open-ended questions	Random sampling of all but two districts included	Kindergarten to high school	Content analysis	Mainly descriptive
Nowacek 2007 ³⁰⁵	8	Eight teachers of grades 2–8, 63% female	Open-ended question, semistructured interview, classroom observation	Purposive	Elementary and middle schools	Constant comparative method	Some interpretive analysis

continued

TABLE 34 Methodological and analytical details of included studies (continued)

First study author and year	Sample size, <i>n</i>	Sample characteristics	Data collection method	Sampling	School setting	Data analysis	Analysis ^a
Ozdemir 2006 ³⁰⁶	12	Four female grade 1 teachers (24–32 years of age) and eight parents of children with ADHD (50% female, 27–44 years old)	Semistructured interviews	Purposive	Elementary (kindergarten to grade 8)	Qualitative analysis (detail unspecified)	Mainly descriptive
Partridge 2009 ²⁷⁹	5	Five ADHD-diagnosed male adolescents aged 12–14 years, 80% on medication; 24 non-diagnosed adolescents also sampled but analysis focuses on ADHD experience	Focus groups and semistructured interviews (two per participant; 45–60 minutes)	Purposive	Junior and senior (years 4–12, Australia)	Grounded theory	Some interpretive analysis
Prosser 2008 ³⁰⁷	12	12 male adolescents diagnosed with ADHD	'Critical narrative' research strategies including interviews	Purposive	NR	Coded thematically and synthesised	Mainly descriptive
Rafalovich 2004 ³⁰⁸	25	25 teachers of preschool to 10th grade, 44% female, aged 28–64 years	Semistructured interviews (20–90 minutes)	Snowball	NR	Grounded theory	Some interpretive analysis
Santamaria 2009 ³⁰⁹	10	10 female school counsellors aged ≥41 years	Individual in-depth interviews	Purposive	Elementary	Within and across case analyses. Within general and ESOL counsellors and across the two types	Mainly descriptive
Smagorinsky 2007 ²⁷⁸	2	Two adolescents 17–18 years of age, one female diagnosed with ADHD and medicated, other male attention difficulties	Classroom observation, retrospective protocol	Opportunity sample	2 years at senior high school	Inductive and deductive thematic coding	Some interpretive analysis
Taylor Wilcoxson 2005 ³¹⁰	13	Four diagnosed ADHD boys, 9–10 years of age, 25% on medication, their mothers (aged 34–40 years) and five female teachers (aged 29–49 years)	Multiple case studies, qualitative component of semistructured interviews	Purposive	Elementary	Qualitative data analysis after Kvale 1996 ³¹⁷	Mainly descriptive

First study author and year	Sample size, <i>n</i>	Sample characteristics	Data collection method	Sampling	School setting	Data analysis	Analysis ^a
Wiebe 2007 ³¹¹	5	One male aged 14 years, diagnosed with ADHD and on medication, his two teachers and parents	Semistructured interviews (three per participant) and observations	Purposive	NR	Case study and some thematic analysis after Stake 1995 ³¹⁸	Mainly descriptive
Wong 2004 ²⁸⁰	5	Five male teenagers (aged 15–16 years) diagnosed with ADHD	Interviews (semistructured assumed) with students and teachers, 'think-aloud' with pupils, observation of tutorial sessions, field notes	Purposive	High school	Constant comparative method	Some interpretive analysis
Young 2009 ³¹²	6	Six male young offenders with ADHD symptoms, one diagnosed, aged 14–16 years old	Semistructured interviews (35–50 minutes)	Purposive	School at secure residential unit for adolescents aged 10–17 years who display difficult/challenging behaviours	Interpretive phenomenological analysis	Mainly descriptive
Zimmerman 1998 ³¹³	5 students, 5 teachers, 3 counsellors, parents unreported	Five students with ADHD in high school or college (40% female, aged 16–21 years, 60% on medication at time of study), their parents, high school teachers and counsellors	Semistructured interviews (one or two per participant)	Purposive	High school focus	Situational analysis	Some interpretive analysis

DAMP, deficits in attention, motor control and perception; ESOL, English for speakers of other languages; LD, learning disability; NR, not reported.
a Reviewer assessment.

TABLE 35 Quality of included studies (n = 33)

First study author and year	1. Is the research question clear?	2. Is the theoretical or ideological perspective of the author explicit?	3. Has the theoretical or ideological perspective influenced the study design, methods or research findings?	4. Is the study design appropriate to answer the question?	5. Is the context or setting adequately described?	6. Is the sample adequate to explore the range of subjects and settings, and has it been drawn from an appropriate population?	7. Was the data collection adequately described?
Arcia 2000 ²⁸⁶	Y	N	CT	Y	Y	Y	Y
Bartlett 2010 ²⁸⁷	Y	N	CT	Y	Y	Y	Y
Bos 1997 ²⁸⁸	Y	N	CT	Y	N	Y	Y
Ducharme 1996 ²⁸⁹	Y	Y	Y	Y	Y	Y	Y
Edwards 2008 ²⁹⁰	Y	N	CT	Y	N	Y	Y
Einarsdottir 2008 ²⁹¹	Y	Y	Y	Y	Y	CT	Y
Furtick 2010 ²⁹²	Y	N	N	N	Y	N	Y
Hands 2009 ²⁹³	Y	Y	Y	Y	Y	N	Y
Hillman 2011 ²⁹⁴	Y	Y	Y	Y	N	CT	Y
Hjörne 2006 ²⁹⁵	Y	N	CT	Y	Y	CT	Y
Hong 2008 ²⁶⁴	Y	N	CT	Y	Y	CT	Y
Houghton 2006 ²⁹⁶	Y	Y	Y	Y	N	Y	Y
Isaksson 2010 ²⁹⁷	Y	Y	Y	Y	Y	Y	N
Jones 2008 ²⁹⁸	Y	Y	Y	Y	Y	Y	Y
Kendall 2003 ²⁹⁹	Y	Y	Y	Y	Y	Y	Y
Kreiss 2003 ³⁰⁰	Y	N	CT	Y	Y	Y	Y
Langberg 2011 ³⁰¹	Y	N	CT	Y	Y	Y	Y
Ljusberg 2011 ²⁶⁵	Y	Y	Y	Y	Y	Y	Y
Ljusberg 2011 ³⁰²	Y	Y	Y	Y	Y	Y	Y
McNeil 2005 ³⁰³	Y	N	CT	Y	Y	Y	Y
Mulligan 2001 ³⁰⁴	Y	N	CT	N	Y	Y	Y
Nowacek 2007 ³⁰⁵	Y	Y	Y	Y	Y	Y	Y
Ozdemir 2006 ³⁰⁶	Y	N	CT	Y	Y	Y	Y
Partridge 2009 ²⁷⁹	Y	Y	Y	Y	Y	Y	Y
Prosser 2008 ³⁰⁷	Y	Y	Y	Y	N	Y	N
Rafalovich 2004 ³⁰⁸	N	Y	Y	Y	N	Y	N
Santamaria 2009 ³⁰⁹	Y	Y	Y	Y	Y	Y	Y
Smagorinsky 2007 ²⁷⁸	Y	Y	Y	Y	Y	CT	Y
Taylor Wilcoxon 2005 ³¹⁰	Y	Y	Y	Y	N	N	Y
Wiebe 2007 ³¹¹	Y	N	CT	Y	N	N	Y
Wong 2004 ²⁸⁰	Y	N	CT	Y	Y	Y	Y
Young 2009 ³¹²	N	Y	Y	Y	N	Y	Y
Zimmerman 1998 ³¹³	Y	N	CT	Y	N	Y	Y
Totals (Y, N, CT)	31, 2, 0	18, 15, 0	18, 1, 14	31, 2, 0	23, 10, 0	24, 4, 5	30, 3, 0

CT, cannot tell; N, no; N/A, not applicable; Y, yes.

8. Was data collection rigorously conducted to ensure confidence in the findings?	9. Was there evidence that the data analysis was rigorously conducted to ensure confidence in the findings?	10. Are the findings substantiated by the data?	11. Has consideration been given to any limitations of the methods or data that may have affected the results?	12. Do any claims to generalisability follow logically and theoretically from the data?	13. Have ethical issues been addressed and confidentiality respected?	14. Are the authors reflexive?	15. Are interventions of interest clearly described?	Totals (Y, N, CT)
Y	Y	CT	Y	Y	Y	N	N/A	10, 2, 2
CT	Y	Y	Y	N	Y	N	N/A	9, 3, 2
Y	Y	Y	N	Y	CT	N	Y	9, 4, 2
Y	Y	Y	N	N	Y	Y	N/A	12, 2, 0
Y	N	Y	Y	Y	Y	Y	N/A	10, 3, 1
CT	Y	Y	N	Y	CT	N	N/A	9, 2, 3
Y	N	Y	Y	N	Y	Y	N	8, 7, 0
Y	Y	Y	N	N	Y	Y	N/A	11, 3, 0
Y	Y	Y	Y	Y	Y	N	N/A	11, 2, 1
Y	N	Y	N	Y	Y	N	Y	9, 4, 2
Y	N	Y	N	CT	CT	Y	N/A	7, 3, 4
CT	Y	Y	N	Y	CT	N	N/A	9, 3, 2
CT	Y	Y	Y	Y	Y	N	N/A	11, 2, 1
Y	Y	Y	Y	CT	Y	Y	N/A	13, 0, 1
Y	Y	Y	N	CT	Y	Y	N/A	12, 1, 1
CT	N	Y	Y	Y	Y	Y	Y	11, 2, 2
Y	Y	Y	Y	Y	CT	N	Y	11, 2, 2
Y	Y	Y	N	Y	Y	N	Y	13, 2, 0
CT	Y	Y	N	Y	Y	N	N	11, 3, 1
Y	Y	Y	N	Y	Y	Y	Y	12, 2, 1
Y	Y	Y	Y	Y	CT	N	N/A	9, 3, 2
Y	Y	CT	Y	N	Y	N	N/A	11, 2, 1
CT	N	Y	Y	Y	CT	N	Y	9, 3, 3
Y	Y	Y	Y	Y	Y	N	N	13, 2, 0
CT	CT	Y	N	Y	CT	Y	N/A	8, 3, 3
CT	Y	Y	N	Y	Y	CT	N/A	8, 4, 2
Y	Y	Y	Y	Y	Y	Y	N/A	14, 0, 0
N	Y	Y	N	CT	CT	N	Y	9, 3, 3
CT	N	Y	Y	Y	CT	N	N/A	8, 4, 2
Y	Y	Y	Y	N	Y	N	N	8, 6, 1
Y	Y	Y	Y	CT	Y	N	Y	11, 2, 2
Y	Y	Y	N	Y	Y	N	N	10, 5, 0
N	N	Y	Y	Y	Y	N	N/A	8, 5, 1
21, 2, 10	24, 8, 1	31, 0, 2	18, 15, 0	22, 6, 5	23, 0, 10	11, 21, 1	9, 5, 0	

Studies that contributed greatly to the synthesis development such as Ljusberg,^{265,302} Partridge,²⁷⁹ Wong²⁸⁰ and Hands²⁹³ tended to score higher than studies that contributed little like Zimmerman³¹³ and Bartlett *et al.*²⁸⁷ This pattern is often found in quality appraisal for qualitative reviews.³²⁰

One other marker of study quality that we have attempted to remain cognisant of during the synthesis was the credibility of included papers. Some of the studies included data from multiple perspectives or used multiple methods of data collection in an attempt to provide a more holistic picture of the research focus (see *Table 34*). For instance, Partridge's study,²⁷⁹ which compared findings from interviews with adolescents diagnosed with ADHD with their school reports, teacher interviews and parent interviews, might be considered higher quality owing to the potentially increased credibility of considering different participant perspectives.²⁰³ Despite the lack of a related quality appraisal question, in the findings section we take care to indicate where the credibility of evidence reviewed may be stronger or weaker.

On a related note, several papers included quantitative measures that are not the focus of this review (see *Methods and analysis*). As such, although a study like Bos *et al.*'s²⁸⁸ may seem prone to bias given that teacher participants were interviewed about the training course they had recently completed, this study included quantitative measures that demonstrated gains in teacher ADHD knowledge, attitudes and perceived competence, which supports the positive interview data. This review did not attempt to weight the contribution of papers to the synthesis on the quality appraisal markers in *Table 35*, rather the relevance to the review and conceptual richness of findings determined the impact on the synthesis presented in this chapter.

Findings

Overview

As outlined in the previous chapter and above, the 33 included studies were diverse in their focus and often descriptive in their analysis, which indicates that no one paper appeared suitable as an index paper to guide the meta-ethnography. Thematic analysis focused initially on the 11 more interpretive papers (see *Table 34*),^{264,265,278–280,291,296,302,305,308,313} which provided seven main themes that were used to organise and guide the synthesis of all 33 papers. These themes are:

1. individualising interventions
2. structure
3. time
4. impact of interventions
5. problem situated within the child
6. relationships
7. expectations.

The process of reciprocal translation compared each paper's contribution to each theme. The included studies were not refutations of one another, hence the reciprocal translation, although tensions relating to themes were identified both between and within included papers. During this reciprocal translation a number of subthemes developed, which represent the key components of each of the main themes.

The seven themes that guided the reciprocal translation are also depicted in *Figure 5*, which outlines the line of argument that stemmed from the reciprocal translation of the studies reviewed. Part of the meta-ethnographic process, a line of argument aims to discover a whole among a set of parts, attempting to explain the elements of prior synthesis together in one model or tentative theory.⁸⁸ The line of argument incorporates the themes that organised the reciprocal translation and relationships between them. This line of argument offers an explanatory model of the experience of interventions and teaching strategies for ADHD in school settings according to the papers reviewed.

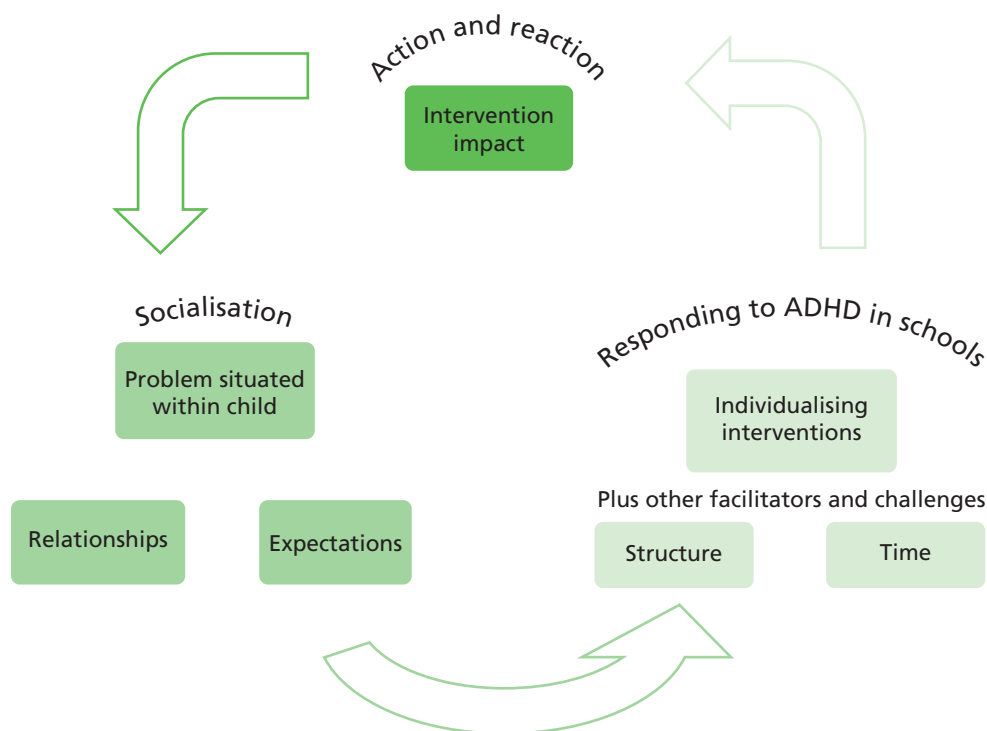


FIGURE 5 Model of line of argument.

Table 36 provides a recap of some of the key terms relating to the meta-ethnographic process used to synthesise the reviewed studies.

The line of argument shows three categories, which incorporated the seven themes. The model suggests a cyclical process, whereby issues relating to the intervention or strategy response to ADHD in schools influences the action and reaction to such interventions. The reaction to interventions used has the potential to impact on issues of socialisation that involve children with ADHD, their teachers, peers and parents. Finally, the process continues as the socialisation of those people involved in the school lives of children with ADHD effects future intervention responses to ADHD.

TABLE 36 Meta-ethnography key terms

Key term	Definition
Meta-ethnography	An interpretive approach originally developed by Noblit and Hare ⁸⁸ for synthesising findings of research to create higher-order interpretations of reviewed studies
Thematic analysis	Coding of themes and concepts across papers to develop a set of key themes to guide the synthesis
Reciprocal translation	The comparison of themes and concepts across papers and an attempt to 'match' themes from one paper with themes from another, ensuring that a key construct captures similar themes from different papers
Refutational translation	Where the comparison of themes and constructs across papers reveals conflict between accounts, examining the implied relationship between competing explanations
Line-of-argument synthesis	The development of a new model, theory or understanding by synthesising and interpreting the reciprocal translation into a coherent whole

Three themes on the right-hand side of the model relate to issues in responding to ADHD in schools. The amount of structure inherent in interventions is a key element that needs consideration when planning interventions. The extent to which an intervention will be tailored to the individuals receiving it is also an area for consideration. Time is a tension; interventions need time in order to make an impact, and teachers report time pressures in administering interventions. Other facilitators and challenges also influence the intervention response to ADHD taken. Three themes on the left-hand side of the model represent aspects of socialisation that act as a context within which interventions or teaching strategies for ADHD are implemented. Relationships, expectations and views on whether or not ADHD is a problem situated in the child as opposed to the school context will be held by all involved in attempting to use or introduce an intervention in school settings and, therefore, these important factors frame users' expectations of interventions.

At the top centre of the model is the final theme related to the impact of interventions, which fits the category action and reaction. In this review the impact considered will be the perceptions of users of interventions and teaching strategies for ADHD. Importantly, the model shows that this impact may not simply be in terms of how users viewed the success of the intervention, but that interventions can impact aspects of socialisation.

The line of argument will be used to structure the presentation of the synthesis. In the next sections of this chapter, each of the seven themes shown in the line of argument model is considered in turn. For each theme a number of subthemes are discussed. These subthemes arose during the reciprocal translation process.

Table 37 shows the themes and subthemes, along with the line-of-argument category under which they fit and the papers contributing to each subtheme. The themes related to responding to ADHD in schools are considered first.

Responding to attention-deficit/hyperactivity disorder in schools

Individualising interventions

The first theme under the category of responding to ADHD in schools concerns views from the full range of participants about whether or not interventions and teaching strategies used for schoolchildren with ADHD should be individualised, as well as the perceived impact of this. Teachers acknowledge an important tension between the need to individualise interventions for students with ADHD while fulfilling their responsibility to other learners. There are also issues in how pupils who display ADHD symptoms perceive their placement on various types of individualised interventions. *Table 38* provides definitions of key terms relevant to this theme.

Tailoring to the individual with attention-deficit/hyperactivity disorder

Participants representing a variety of perspectives in many studies shared the view that interventions need to be tailored to individuals with ADHD.^{287,291,293,304,308–310,313} Indeed, one teacher in Mulligan's study³⁰⁴ captured this view: 'Be sure the child fits the program . . . we need to service each child as an individual' (general education teacher, p. 37).³⁰⁴ Teachers report making individualised adjustments for children with ADHD including differentiating assignments,³⁰⁸ using individual education plans (IEPs),²⁹⁰ using visual information,^{290,293,306,309} using computers,²⁹⁰ working one-to-one with a special educator²⁹¹ and tailoring discussions with these children.²⁹³ Furthermore, some studies reported that such individualisation needed to be used on an ad hoc basis^{288,293,295,309} and that revising accommodations was considered to be critical.²⁸⁷ This is not to say that teachers across all studies were carefully planning tailored responses. Arcia *et al.*²⁸⁶ suggest that techniques referred to by teachers tended to be 'reactive rather than proactive and did not represent a comprehensive plan of action that can be characterized as a strategy' (author quote, p. 98).²⁸⁶

TABLE 37 Hierarchy of categories, themes and subthemes discussed during the synthesis and the papers that held evidence relating to each subtheme

Category	Theme	Subthemes	Contributing papers
Responding to ADHD in schools	Individualising interventions	Tailoring to the individual with ADHD	264,265,279,286,287,290–293,297,304,308–310,313
		Making interventions meaningful to pupils	278–280,290,292,293,300,301,308,311
		Child with ADHD vs. whole class orientation	264,279,291–293,296,298,300,305,308,309,311
		Withdrawal	264,265,280,286,289,291,295,297–299,303,305,308,309,312,313
	Structure	Just good teaching	264,279,288,295,308
		Prescribed learning vs. choice	265,278,286,288,290,291,293–296,300,301,304,305,308–312
		Routine vs. flexibility	265,278,279,287,290–292,295,301,304,310
		Control vs. responsibility	264,265,280,291,293,295,296,302,304,312
		Supervision	265,291,295,302,304,306,308,312
		Structural constraints	265,291,300,302,304,306,308
	Time	Needing more time	265,280,286,289,296,301,303,305,306,308,309
		Need for immediate reinforcement	279,286,300,301,310
Action and reaction	Impact of interventions	Perceptions of effectiveness depend on goals	265,278,280,288,292,294–296,298,300,303,310,311
		Mixed views of effectiveness	279,292–295,298,300,301,306–308,310
		Lack of application beyond interventions	265,280,300,306
		Need for study skills	280,287,289,293,300
Socialisation	Problem situated within the child	ADHD as a problem	265,279,288,295,296,302,307,308
		Compensatory perspective	265,290–292,295,302,307–309
		Self-concept	280,286,295,296,303,306,311
		Stigmatisation	287,293,295,297,300,302,303,308,309,313
	Relationships	Pupil–teacher relationships	264,265,279,280,287,288,290,292,293,295,296,300–303,306
		Relationships with peers	264,265,278,280,286,290–293,295,296,300,302,305,306,308,310,311
		School–home relationship	265,286,288,289,294,298,300,301,304,306,309,310,313
		Teachers' relationships with colleagues	288,291,294,298,304,305
	Expectations	Attitude to school and learning	279,280,287,290,300,302,303,306,308,311
		Attitude to ADHD	287,288,293,295,296,303,304,306,308,309,313
		Resistance and indifference	279,280,307,289,290,293,297,300,302,305,306,308,311
		Lack of guidance and knowledge	264,265,286,288,296,298,304,305,308–310,313

TABLE 38 Key terms relevant to individualising interventions

Key term	Definition
Individualised intervention	An intervention that is tailored to the individual(s) receiving it
Differentiation	A term referring to the adaptation of teaching and learning in order to allow access to different pupils
Constructivist classrooms	Intervention classrooms studied by Furtick 2001 ²⁹² selected when their teachers used constructivist teaching approaches, in which the active involvement of the learner in the generation of meaning and knowledge is seen as essential to the learning process
Withdrawal	An intervention that involves removing the pupil with ADHD from their regular class setting

Tailoring interventions to particular individuals is seemingly critical given that some studies note the heterogeneity between children with ADHD.³⁰⁸ Indeed, as Partridge²⁷⁹ notes '[a] diversity of complex dilemmas faces the teacher of ADHD students since they present in a number of different and demanding ways in the classroom' (p. 103).²⁷⁹ Unsurprisingly, several studies report views that using generic and mainstream strategies do not work.^{279,292,293} In the traditional classrooms described in Furtick's study,²⁹² all pupils were expected to complete the same assignments at the same pace, often resulting in observations of high levels of frustration among the pupils diagnosed with ADHD. Several studies mention strategies to tailor learning to the strengths of pupils with ADHD,^{291,313} although Ljusberg²⁶⁵ recognises that this cannot be at the expense of skills that need development.

There is also a tension reported between the needs of children with ADHD in terms of accessing learning and developing skills as opposed to following the school curriculum:^{291,308}

It's a question of do you force the student or do you adapt the curriculum, and I don't think we have that sorted out yet.

North American seventh grade teacher, p. 116³⁰⁸

Moreover, there is evidence suggesting that children with ADHD are oppositional towards (see *Resistance and indifference*) and easily ignored by an academic curriculum.^{291,308}

Despite some sound arguments for tailoring interventions to individuals with ADHD, views on the effects of this type of strategy were mixed.^{264,265,293,308} Although a teacher in Hands' study²⁹³ reported that tailoring teaching strategies for the adolescent with ADHD seemed to improve his behaviour in class, a criticism of differentiation of the curriculum was the possibility of separation of children with ADHD from their peers even when they remain in the classroom³⁰⁸ (see *Relationships with peers*, below). Another reported argument for not individualising interventions is the claim from some teachers that ADHD symptoms are experienced by all children³⁰⁸ (see *Problem situated within the child*, below).

Making interventions meaningful to pupils

Many studies reported that pupils with ADHD believed that it was particularly important that interventions are meaningful.^{278-280,290,292,300,301,311} Grouping children in terms of their interests was seen as successful by the pupils diagnosed with ADHD in Furtick's study.²⁹² Teachers echo the importance of meaningful interventions:^{293,308}

Teachers contend that the single most important professional response to ADHD children is to take whatever steps are necessary to make them feel a sense of connection with their academic pursuits, consequently making the classroom a less threatening environment.

Author quote, p. 109³⁰⁸

A lack of meaning and purpose were barriers to intervention success. This shaped the adolescents' reported views of what they are learning in Partridge's study:²⁷⁹

I just don't like things that I think are pointless, like some things that we learn . . . we learn some stuff that I kind of find really hard to believe and I just think I could be doing something better now, like, in a different class.

Australian young person diagnosed with ADHD, p. 189²⁷⁹

It seems that there is a need for teachers to know pupils and their interests, although other research would suggest that this applies to all young people, not just those diagnosed with ADHD (e.g. Hooper and Rieber³²¹).

Several studies noted a view from teachers and pupils who display ADHD symptoms themselves that allowing achievement while offering some challenge could make learning meaningful.^{265,279,293,308} Challenge was an integral aspect of the preferred activities reported by adolescents with ADHD in Partridge's study.²⁷⁹ However, in order to make challenge meaningful, teaching has to be carefully pitched. Indeed, Edwards²⁹⁰ and Hands²⁹³ report that their participants with ADHD 'like the challenge, but sometimes it's too much challenge' (aged 16 years, p. 145²⁹³). Some of these ideas are considered further in the synthesis of review 4 (see *Chapter 6, Review 4a: the school experiences and perceptions of pupils diagnosed with attention-deficit/hyperactivity disorder, Overarching theme for review 4a: attention-deficit/hyperactivity disorder symptoms as an interaction between biological, sociological and psychological factors, Sociological factors, The role of context in attention-deficit/hyperactivity disorder symptoms*).

Child with attention-deficit/hyperactivity disorder versus whole class orientation

Many studies highlight a tension for regular class teachers between the implementation of individualised strategies for children with ADHD and the management of a whole class of pupils.^{264,279,292,300,306,308,309} Indeed, an elementary teacher stated:

The teacher can't put the other children's education aside and only help the children with ADHD.

Korean teacher, p. 405²⁶⁴

Not all teachers referred to struggling with this tension; the elementary school teachers in Nowacek and Mamlin's study³⁰⁵ were observed as remaining oriented to the class as a whole, while wishing to make modifications for their pupils with ADHD that maintained the integrity of planned subjects and required little individualisation. Although Nowacek and Mamlin³⁰⁵ question the success of this viewpoint, it does relate to evidence from Ozdemir³⁰⁶ and Houghton *et al.*²⁹⁶ concerning teacher beliefs about how this tension can be overcome by involving the whole class in an intervention:

Rewarding my whole class was the part that I liked most about the FSS [First Steps to Success] program. This system fostered each of my student's care for the success of the target child and motivated meaningful group cooperation. I mean, not only the target child, but also my entire class became motivated to behave appropriately.

Turkish grade 1 teacher, p. 123³⁰⁶

Teachers in Houghton *et al.*'s study²⁹⁶ present their structuring strategies as if designed for the whole class. They say that they take care not to identify the pupils with ADHD to whom the strategy was targeted. Meanwhile, teachers in Wiebe's study³¹¹ question how beneficial an intervention primarily designed for a child with ADHD (here listening to music) may be for the whole class.

There is an allied tension relating to the perception of equity for pupils with and without ADHD.^{264,279,293,296,298,300,306,309} Teachers in Houghton *et al.*'s study²⁹⁶ noted this tension:

ADHD presents tremendous difficulties within the classroom as it not only affects the learning of the ADHD student but it also has a negative impact on all the other students in the class because the ADHD student demands more attention and needs more positive feedback than the other kids. This creates difficulties for the teacher and school to ensure that all students have a fair and equitable education.

Australian teacher, p. 122²⁹⁶

Korean teachers in Hong²⁶⁴ reported that treating the child like other normal children was considered critical. Furthermore, Partridge²⁷⁹ notes an injustice felt by all pupils when rewards and punishments vary according to the young person. So, individualising interventions may cause resentment from peers (see *Relationships with peers*). Although some teachers shared the view of a mainstream teacher in Hands' study,²⁹³ 'I just try to treat everybody equally . . . I don't care if he has a "D" average or whatever. I treat him just like I will the others' (high school teacher, p. 140²⁹³), such practice is considered ineffective elsewhere.^{291,304,308–310} Although this tension remains unresolved, Hong²⁶⁴ concludes that a successful, individualised, and therefore seemingly inequitable intervention, may be of benefit to all in the classroom if it improves classroom dynamics and reduces disruptive behaviour. This subtheme is considered further in the synthesis of review 4 [see *Chapter 6, Review 4b: the experiences and perspectives of teachers of pupils diagnosed with or at risk of attention-deficit/hyperactivity disorder, Findings for review 4b (teacher views), Orientation to the class as a whole and orientation to the individual child* and *Review 4d: the school experiences and perceptions of pupils diagnosed with, or at risk of, attention-deficit/hyperactivity disorder, their teachers, parents and peers, Findings for review 4d (mixed views), Orientation to the class versus the individual*].

Withdrawal

Educators across many studies believed that withdrawing children from their regular classroom to allow for specialised learning is beneficial.^{264,265,280,286,291,298,308,309} Reasons for this view, from a range of educators, include the needs of children with ADHD being better met in learning assistance centres,^{265,308} to benefit the child and their peers by offering a break from a tense classroom atmosphere^{264,291} and to help mainstream teachers who may not be able to handle children with ADHD.³⁰⁹ Sometimes withdrawal was seen as beneficial by pupils with ADHD.^{280,303,312} One young person said:

I like this class [. . .] I have three teachers and less than 15 kids, and I know that if I need help I know that I will get at least one of those teachers to help me if not more. I know that there are the other two teachers who are watching the other kids so that the teacher that is helping me is focused on me and on what they are helping me with.

American young person diagnosed with ADHD (aged 15 years), reviewer edit in parentheses, p. 155³⁰³

These comments about lower teacher–pupil ratios relate to concerns highlighted below in *Structural constraints* and *Time*.

Where interventions involve withdrawal from the classroom, the goal of such programmes is often a return to regular schooling.^{265,295} Still, mainstream and special education teachers often noted dilemmas about withdrawal from mainstream classrooms to special classrooms.^{264,291,295,305} Reasons for this included a belief that the separation of pupils from their mainstream peers was negative in terms of social relations and acceptance^{291,305} and a perception that teachers are responsible for all their pupils' learning.²⁶⁴ Parents and pupils studied also echoed these issues. Parents referred to concern about what their child with ADHD might miss in the regular classroom and how they would feel about withdrawal.^{289,297} Young people with ADHD also noted the tension:

I feel that it is good as well as bad. I miss so much [. . .] but it's also too hard within the ordinary class. I should be somewhere in between, so I don't know.

Swedish young person diagnosed with ADHD (aged 13–15 years), reviewer edits in parentheses, p. 8²⁹⁷

Some effects of withdrawal can, therefore, be experienced negatively by children. Ljusberg³⁰² reports that pupils wish that they were in the regular classroom. There is an effect of withdrawal on relationships suggested by participants across studies. On the basis of interviews with children, Ljusberg³⁰² concludes:

Most of the pupils felt lonely after attending the remedial class and some even had to change schools. One of the most important things when the pupils talked about difficulties was about missing friends.

Author quote, p. 443³⁰²

Other problems were recognised by participants in Isaksson *et al.*'s study.²⁹⁷ A SEN group still contains a diverse range of pupils and may not be pitched at the right level for children with ADHD, who often do not share the cognitive issues of other children with SEN.

Just good teaching

Some studies report a belief held by teacher participants that, rather than individualising interventions or strategies for pupils with ADHD, their reported practice does not differ from their general effective teaching.^{264,279,288,295,308} Teachers in Rafalovichis' study³⁰⁸ consider that the model of the ideal 'ADHD teacher' presented at professional development workshops does not really address the specifics of ADHD, but instead describes an overall pedagogical competence. Likewise, several teachers completing the training workshop intervention in Bos *et al.*'s study²⁸⁸ perceived that the strategies they learned as part of the workshop were 'just good teaching strategies that help all learners in my class' (American teacher, p. 141²⁸⁸).

Relying on regular teaching practice is not a considered choice for teachers, rather they report that it is a necessary resort given the lack of guidance available about teaching children with ADHD (see *Lack of guidance and knowledge*, below). The lack of specified school protocols for pupils with ADHD leaves many teachers the option of 'doing what they do best' (North American seventh grade teacher, p. 115³⁰⁸).

Implications relating to the theme of individualising interventions are given in *Box 4*.

Structure

The majority of the studies reviewed contributed to the theme of 'structure'. This focuses on a tension explicitly mentioned in several studies between the structure, routine and control associated with interventions and strategy use for children with ADHD on the one hand and choice, flexibility and responsibility on the other hand.^{265,278,293,308,311} However, several studies recognise that structure and choice are not mutually exclusive and therefore not necessarily in tension. The issues of structure to which the reviewed studies refer are typically decisions about the descriptive nature of teaching and interventions for children with ADHD. However, a range of terms relating to structure and choice are used across studies which often lack definition or consideration of participants' potentially differing viewpoints. *Table 39* provides

BOX 4 Implications relating to individualising interventions

Interventions need to be meaningful and flexible given the individual differences among children with ADHD.

Mainstream teachers who use interventions for children with ADHD face tensions about their responsibility to other learners and challenges in maintaining equity for learners.

Withdrawal programmes need to consider both the effects of withdrawal on children with ADHD, as well as provide applicable skills for their reintegration into mainstream settings where this is the goal.

Teachers need access to material that can increase their knowledge about ADHD and give practical recommendations for strategies that can be used.

TABLE 39 Key terms relevant to theme of structure

Key term	Definition
Structure	As used here, 'structure' typically captures the prescribed learning, routine, control and organisation often cited as used when teaching children with ADHD
Routine	Learning is clearly planned, timetables are articulated and followed
Control	Relates to the amount of control children with ADHD have over their learning or an intervention. Controlled learning suggesting the control is with the educator
Choice	Schoolchildren with ADHD are allowed to contribute to decisions about their learning or intervention use
Agency	The capacity of those involved in educating children with ADHD to act intentionally and make their own choices
Flexibility	The timetable or intervention procedure allows for change or deviation
Responsibility	Relates to the amount of responsibility children with ADHD have over their learning or intervention experience
ESOL counsellor	Counsellor focused on teaching ESOL
DAMP	Disorder of attention, motor control, and perception; predominantly co-existing ADHD and developmental co-ordination disorder
Structural constraint	The level of restriction placed on options, here referring to matters that constrain educators' choices about interventions and strategies for pupils displaying ADHD symptoms

DAMP, deficits in attention, motor control and perception; ESOL, English for speakers of other languages.

definitions of key terms relevant to this theme. There appear to be a range of differing viewpoints as to the extent to which successful interventions for ADHD should be structured. Subthemes considering these viewpoints are discussed below.

Prescribed learning versus choice

The majority of studies reviewed consider issues of prescribed learning and choice and their place in interventions for children with ADHD in school settings.^{265,278,307,286,288,290,291,293–297,300,301,304,305,308–312} Often the studies reviewed referred to the importance of 'structure', without adequately defining the term. In most papers it appears that this 'structure' relates to a prescriptive experience of learning or interventions for the pupil displaying ADHD symptoms, with little opportunity for the pupil to choose elements of their learning.

Many of the studies revealed that teachers and pupils claimed highly prescribed learning was necessary for children with ADHD.^{291,293–297,305,310–312} Teachers in Einarsdottir's study²⁹¹ were typical of those in other studies in suggesting that children with ADHD need a clear framework and rules to follow. Several of these studies referred to teachers' beliefs that such 'structure' is necessary given the symptoms displayed by children with ADHD.^{291,295,296,310} Other reasons for prescribing learning for pupils with ADHD were given by parents in Edwards' study,²⁹⁰ who suggested that boundaries for their children diagnosed with ADHD were important because clarity is essential and 'makes them feel safe' (father of 9-year-old, p. 105²⁹⁰). Adolescents in Young *et al.*'s study³¹² spoke positively about the closed unit that they attended in that it provided structure, clear expectations of behaviour, and rules and sanctions. However, it was far more often that teachers, rather than young people, spoke about the virtues of prescribed learning for pupils with ADHD. Although structure was used as a guiding metaphor for practice in several studies, Hjørne²⁹⁵ suggests it might be applied too rigidly in the ADHD classroom: 'The teachers consistently enforce the "structure" by limiting the possibilities for the pupils to choose' (author quote, p. 185²⁹⁵).

Some studies noted that consistency in intervention and teaching strategy delivery is particularly important for children with ADHD.^{291,304,305,309,311} For one school counsellor in Santamaria's study,³⁰⁹ consistency was seen as critical to intervention success:

I think they're effective [interventions] as long as you or the teacher, whoever is involved, is consistent. American English for speakers of other languages school counsellor, reviewer edits in parentheses, p. 59³⁰⁹

However, these counsellors referred to teachers lacking consistency:

It is difficult for a regular classroom teacher to be consistent with the strategies because of the sheer numbers, the body of students that they deal with. American general school counsellor, p. 106³⁰⁹

The idiosyncratic and non-systematic use of interventions for ADHD by teachers is another barrier to consistency of intervention delivery.³⁰⁵

Many studies did recognise the tension between prescribed learning and choice, with pupils and teachers feeling that both must play a part in pedagogy for children with ADHD.^{265,278,293,308,311} Special education teachers' narratives in Ljusberg's study²⁶⁵ are characterised by structure, clearness and limits when talking about the remedial classrooms that they teach in. However, the 'structured classroom' as is characterised by Ljusberg²⁶⁵ still is seen to retain flexibility and individualisation. Many participant reports concur with a teacher of biology in Hands' study²⁹³ that boundaries need to be in place, but this is not necessarily directed at the core symptoms of ADHD or to exert power over pupils, but rather to offer these children direction, support and a sense of safety.

Some studies considered that highly prescribed learning environments may not be appropriate for all pupils with ADHD.^{286,295} Special education teachers in Hjörne's study²⁹⁵ report that a highly structured approach does not work with every pupil and provide the example of a child with ADHD difficulties described as 'stressed by structure' (p. 193).²⁹⁵ Other studies suggest a lack of agency experienced by pupils who display ADHD symptoms during interventions and learning more generally.^{288,300,301,307} For example, young people in Prosser's study³⁰⁷ reported that they were not consulted about the strategies teachers used and it seemed to be assumed they would be passive receptors of interventions.

It is reported that teachers sometimes offer pupils what appears to be a choice in their learning, but, in the end, they expect the young people to conform to their expectations, even when those parameters were not made clear.²⁹³ Other teachers claim that pupils ought to have choice, but there is a concern that children with ADHD may not make suitable choices. For instance, a teacher in Wiebe's study³¹¹ using the music listening intervention was concerned that 'even the kids that it does help, I'm not always convinced that they are making the right choices to use the kind of music that would help them' (p. 66).³¹¹

Teachers who had attended a training workshop in Bos *et al.*'s study²⁸⁸ appeared to recognise the importance of giving their pupils with ADHD choice while learning:

Now I give students choices when they work on a given task. I used to think that was giving too much slack. It's new for me this year to realise the importance of just offering them a different color [pen or pencil]. . . I don't think I realised how for some kids that might be really helpful.

American special education teacher, p. 141²⁸⁸

Although offering a choice in pen or pencil use is not assumed to be an effective intervention, this teacher suggests the importance of allowing schoolchildren with ADHD some choice in their learning, as opposed to the highly prescribed learning seen elsewhere. As for the issue around the terminology of 'structure', the term 'choice' is used without critical consideration from the reviewed studies. When teachers, parents

and pupils who display ADHD symptoms refer to ‘choice’, it is not clear what level of choice they are referring to or if the perceptions of these different participant groups about ‘choice’ are shared.

Routine versus flexibility

Many studies also considered the tension between routine and flexibility.^{265,278,287,290–292,295,301,304,310} For both mainstream and special education teachers, routine and predictability were seen as important for pupils with ADHD:

[deficits in attention, motor control and perception (DAMP) pedagogy] is when everything looks the same all the time . . . in order, one thing following the next.

Swedish special education teacher, reviewer edits in parentheses, p. 192²⁹⁵

As for *Prescribed learning versus choice* above, teachers report that routine will help pupils feel secure and respond to issues of inattention.

Often teachers reported that their practice needed to include both routine and flexibility in order to successfully work with children with ADHD. For instance, although remedial class teachers’ narratives in Ljusberg’s study²⁶⁵ are characterised by structure, clearness and limits as noted above, they are also characterised by individuality and flexibility. These teachers appeared to feel it was ‘important to have variety so that the pupils can motivate themselves’ (Swedish remedial class teacher, p. 206).²⁶⁵

Other studies more clearly stress the need for variety and flexibility in interventions used with children with ADHD.^{279,287,291,292,301,310} Reasons for the perceived importance of flexibility for young people displaying ADHD symptoms included them getting bored easily²⁷⁹ and so teachers can spend time with pupils with ADHD in smaller groups.²⁹¹ Finally, the flexibility observed in the constructivist classrooms in Furtick’s study²⁹² afforded pupils multiple opportunities to search for appropriate methods when solving problems. Children with ADHD here could experiment with learning, rather than focus on outcomes, which was interpreted positively by a range of participants.

Control versus responsibility

Mirroring the discussions in the previous two sections, several studies also reveal a tension between control and responsibility, with teachers recognising a decision about the amount of control applied:

The most difficult task in the beginning of the semester was to decide what level of control would be appropriate for children with ADHD because excessive control might cause them to lose their interest in kindergarten or make them avoid the teacher, who they recognise as the person who always says ‘no’. Yet, I can’t approve or allow all the things they want.

Korean kindergarten teacher, p. 403²⁶⁴

Teachers generally reported that they exerted high levels of control when working with children with ADHD. Teachers in Houghton *et al.*’s study²⁹⁶ claimed to use disciplining strategies to maintain an authoritative control over the whole class. Teachers may feel that control is necessary given the widely reported difficulties in self-regulation faced by children with ADHD.^{280,290} As for structure and routine, remedial class teachers’ narratives in Ljusberg’s study²⁶⁵ suggest a need for control in their remedial classrooms. However, Ljusberg²⁶⁵ acknowledges that a pitfall of maintaining control is that pupils could attribute success to the teacher and not themselves. Teachers therefore feel that they must rule but in dialogue with their pupils, ‘it is important that the pupils feel that they are involved in controlling’ (p. 205).²⁶⁵ A range of teachers appear to believe that pupils who display ADHD symptoms need responsibility and agency, but in a structured and controlled setting. The teachers in Mulligan’s study³⁰⁴ expressed a need for a balance between the efforts they make to accommodate children with ADHD, while still holding the pupils accountable for their behaviour and the classroom demands placed on them.

Papers reviewed revealed barriers to pupils with ADHD taking responsibility. Only one of four 15- to 16-year-old pupils in a study by Wong²⁸⁰ acknowledged taking responsibility for his learning (or lack of it). Although the young person studied in Hands' case study²⁹³ stated 'I want to be held accountable' (aged 16 years, p. 143),²⁹³ he appeared to feel disempowered to do anything about the lack of responsibility he held and ineffective accommodations he perceived.

Supervision

A related issue surrounds the supervision of pupils with ADHD. Studies generally consider that these children need close supervision and greater teacher attention than that typically required for other children.^{265,291,302,304,306,308,312} For instance, teachers in a study by Einarsdottir²⁹¹ reported that children with ADHD function better in small groups and with adults close to them. Moreover, the consensus is that pupils who display ADHD symptoms need support when working with others, as this quote illustrates:

I find they especially need support in the group. Just to have someone by their side, keep them near you
Icelandic playschool teacher, p. 386²⁹¹

Teachers in Jones' study²⁹⁸ share the view that close observation helps to prevent or limit disruption. Smaller staff–pupil ratios were the reason that young people with ADHD in Young *et al.*'s study³¹² gave for receiving greater support and attention: 'You get more attention. It's a lot better [than mainstream school] 'cos its [sic] three of you, four of you in a class and one teacher' (aged 14–16 years, p. 60).³¹² Increased support and attention appeared to enhance both the ability and sense of achievement for the males with ADHD studied.

In some studies focused on the use of special education classes, pupils responded negatively to such high levels of supervision.^{295,302} Ljusberg³⁰² found differences in the views of children in remedial classes, with some pupils stating that they did not need that much help and that the teachers disturbed and interrupted them at times. Hjörne²⁹⁵ shows that individual support of the kind seen in the ADHD classroom can lead to clashes; the pupil observed was reported to reject the assistance of his teacher and attempted to assert control. It cannot be assumed that one-to-one support will necessarily mean a better relationship with school staff or will be preferred by pupils who display ADHD symptoms; indeed, issues about control (see *Control versus responsibility*, above) may impact this. Educators in studies by Hong²⁶⁴ and Einarsdottir²⁹¹ mentioned that giving their pupils with ADHD space to themselves when they needed it was effective.

Structural constraints

Finally, it is worth considering a related concern about perception of structural constraints imposed on those working in classrooms with pupils who display ADHD symptoms. The most frequently mentioned structural constraint was class size.^{291,304,306,308} For instance, grade 1 teachers in Ozdemir's³⁰⁶ research in Turkey report class sizes of over 40 pupils. Understandably then it is a challenge to provide the individualised intervention tested in this study in these circumstances. Indeed, the small class sizes seen in several of the interventions reported are considered to be advantageous, allowing pupils more one-to-one time.^{265,300,302} For instance, small class sizes were reported to allow more one-to-one time in the alternative high school evaluated in a study by Kreiss³⁰⁰ as indicated by one young person:

I also thought the small class size, I think it was like around six to eight in a class or something. That was great for me. I could get more attention and stuff.

American young person diagnosed with ADHD, p. 220³⁰⁰

However, as noted above, increased supervision and one-to-one time with teachers is not always well received by pupils. Other structural constraints mentioned included funding and school accommodation,²⁶⁵ as well as the curriculum demands that may not suit pupils who display ADHD symptoms as discussed above (see *Tailoring to the individual with attention-deficit/hyperactivity disorder*, above).

Implications relating to the theme structure are given in *Box 5*.

BOX 5 Implications related to structure

Decisions about the level of prescribed learning, routine and control on the one hand and choice, flexibility and responsibility on the other hand are not dichotomies. Interventions and strategies perceived to be effective often incorporate structure and choice for the pupil with ADHD.

Consistency rather than control may be important.

Pupils with ADHD may respond negatively to the high levels of supervision that teachers assume they need.

Researchers need to explore the use of terms such as 'structure' and 'choice', which may hold multiple meanings for educators.

Class size appears to be an important factor, with lower teacher-to-pupil ratios said to be appreciated by pupils with ADHD.

Time

The pressure on teachers who feel a tension between the time spent working with a child with ADHD versus working with the rest of a mainstream class (e.g. Hong²⁶⁴) has been considered above (see *Child with attention-deficit/hyperactivity disorder versus whole class orientation*, above). It became clear as this synthesis progressed that time was a critical issue concerning the use of interventions for children with ADHD, often for the teacher under pressure, but also for the pupils themselves. In this section time is considered further in relation to two subthemes. *Table 40* provides definitions of key terms relevant to this theme.

Needing more time

Many teachers emphasise the time pressure involved in accommodating children with ADHD, both in regular and special education classes.^{265,286,305,306,308} The studies focused on interventions often reported that teachers felt pressure to deliver the intervention to schedule.^{265,280,301,303,306} Teachers in a study by Ozdemir³⁰⁶ stated that they found it difficult to find the time necessary for each child in order to fully implement the programme:

I really wanted to be part of the FSS [First Steps to Success] program and your study. However, I am not sure whether other teachers would be willing to be a part of the program. I think that they would be sceptical about the heavy time commitment required in the program.

Turkish grade 1 teacher, p. 126³⁰⁶

Remedial class teachers in Ljusberg's study²⁶⁵ talk about the need to be highly prepared and know the stage at which every child is when planning lessons.

There is evidence that, to be successful, interventions often require more time than they are given.^{280,303,309} In Wong *et al.*'s study,²⁸⁰ the confidence of the children with ADHD and their use of the strategies learned during the intervention appeared to diminish over time. Duration is seen as a key moderator for the

TABLE 40 Key terms related to theme of time

Key term	Definition
Token economy	Reward system based on secondary reinforcement where tokens such as merit points are collected and later exchanged for a desirable reward

intervention studied by McNeil.³⁰³ The young people for whom this intervention programme was considered a success were on the programme for a year. It was reported that students who attended the programme on a regular basis experienced more significant emotional and behavioural changes than those who did not. Impatience on the part of teachers was also evident. Likewise, counsellors in a study by Santamaria³⁰⁹ commented that teachers 'do not follow protocol . . . they try for a week or two, adults get tired, they want a quick fix, and they tell us [counsellors] this is not working, and they stop, they quit' (American English for speakers of other languages counsellor, p. 67).³⁰⁹

However, it is not just the length of interventions that presents a challenge to educators. Regardless of the techniques used, teachers suggested a strong preference for interventions that do not demand a great deal of their time, frequently mentioning strategies such as preferential seating, writing children's names on the board and using peer tutors (e.g. Arcia *et al.*²⁸⁶). As noted above, individualisation was considered too time-consuming by some teachers, who therefore reported a preference for whole-class strategies.³⁰⁵

Pupils with ADHD also need time to embed what they are learning during an intervention.^{280,301} School mental health providers in Langberg *et al.*'s study³⁰¹ considered the pace of skills introduction to be too fast in the HOPS intervention. Pupils with ADHD may also need more time than their mainstream peers to complete tasks.³⁰³ Furthermore, children in primary and elementary schools are often with their teacher only for a year. This presents a challenge in terms of what can be achieved in this time and is perceived as affecting some teachers' willingness to invest effort in a pupil:

I believe ADHD kids are a bother to some teachers and they believe if they can get through that school year, they will not have to worry about that kid again.

American parent of a young person diagnosed with ADHD, p. 356²⁸⁹

Some teachers did state that they made extra time for children with ADHD.^{264,286,293} College students with ADHD in a study by Bartlett *et al.*,²⁸⁷ reflecting on what helped them at school, reported particularly appreciating teachers' willingness to spend extra time with them. Notwithstanding the time pressure on teachers considered above, pupils with SEN including ADHD in Isaksson *et al.*'s study,²⁹⁷ reported that support scheduled during their 'free time' meant they would have to sacrifice some time during their lunch when all the other pupils had a break. Other studies consider the opportunity for movement and socialising at break time as critical for pupils with ADHD.²⁸⁹

Need for immediate reinforcement

A range of studies with participants across all perspectives highlight that one of the reasons for indifference towards behaviour modification (see *Resistance and indifference*, below) may be that children with ADHD need more rapid reinforcement than other children.^{279,286,289,300,301,310} Equally, Arcia *et al.*²⁸⁶ and Langberg *et al.*³⁰¹ both found that educators considered that token economies, where tokens could later be exchanged for a tangible reward, were unsuccessful for pupils with ADHD. This led to an amendment to Langberg *et al.*'s³⁰¹ HOPS intervention to allow for a more flexible use of the incentive system.

Implications relating to the theme time are given in *Box 6*.

BOX 6 Implications relating to time

Mainstream teachers attempting to use interventions for children with ADHD in their classes report that they are often under significant time pressure.

When contingency management is used with children with ADHD, immediate reinforcement is important.

Action and reaction

Impact of interventions

One theme regarding the impact of interventions and strategies for children with ADHD is included under the category of action and reaction (see *Figure 5*). Although the impact of non-pharmacological interventions for ADHD in school settings was considered quantitatively in *Chapter 2*, the studies in this review of qualitative evidence often revealed what participants thought about the effectiveness of interventions and strategies used with pupils who display ADHD symptoms. Participants' views on the impact often revealed factors about their experiences that have not been captured quantitatively and may influence effectiveness in practice. *Table 41* shows the subthemes relating to 'impact of interventions' that resulted from the reciprocal translation of included papers.

Perceptions of effectiveness depend on goals

The majority of studies reported positive comments from users about the effectiveness of interventions.^{280,288,292,294,296,310,311} The workshop for teachers that appeared in Bos *et al.*²⁸⁸ was claimed to change teacher attitudes and increase their knowledge:

[[I]t's been a real eye opening experience. I can now deal with kids that I suspect have some attention deficit problems a lot more successfully than I had in the past.

American classroom teacher, p. 141²⁸⁸

Self-report information from the interviews conducted near the end of the following school year suggested that teachers believed that they had retained their knowledge and positive attitudes towards the education of pupils with ADHD.²⁸⁸ The young person with ADHD who experienced listening to music during work in Wiebe's study³¹¹ also reported improved mood, and attitude and motivation, which was endorsed by his parent's views. So in some studies, interventions were considered to have a positive impact on the attitudes and motivation of those involved.

However, some interventions were seen to be effective for specific targeted skills, yet did not appear to impact on achievement (e.g. Furtick²⁹²). Educators in Langberg *et al.*'s study³⁰¹ saw the HOPS intervention as effective given quantitative data which showed that it improved the organisational behaviour it targeted. However, teachers noted that 'better organizational skills did not necessarily translate into "getting more work done" and turned into [handed in to] the teacher' (author quote, reviewer edits in parentheses, p. 151).³⁰¹ In a study by McNeil,³⁰³ pupils also claimed that they measure intervention success in terms of achievement and, therefore, one participant did not think special education classes help her:

Like, I learn it in a day but then I can't remember it. Like I really don't understand special ed classes. How they're going to help me make it.

American young person diagnosed with ADHD, p. 162³⁰³

TABLE 41 Hierarchy of themes and subthemes discussed during the synthesis related to action and reaction and the papers that held evidence relating to each subtheme

Category	Theme	Subthemes	Contributing papers
Action and reaction	Impact of interventions	Perceptions of effectiveness depend on goals	265, 278, 280, 288, 292, 294–296, 298, 300, 303, 310, 311
		Mixed views of effectiveness	279, 292–295, 298, 300, 301, 306–308, 310
		Lack of application beyond interventions	265, 280, 300, 306
		Need for study skills	280, 287, 289, 293, 300

Hjörne²⁹⁵ questions whether or not the procedures applied in the ADHD classroom and the practising of social and pedagogic skills will give the child the necessary skills to function in the regular classroom. Little progress was seen in observations of the ADHD classroom. This and other withdrawal programmes (e.g. Ljusberg;²⁶⁵ Kreiss³⁰⁰) seem to indicate that such programmes are unsuccessful in supporting pupils to adapt to the regular classroom; instead, children are considered to be on a 'road to nowhere' (author quote, p. 195).²⁹⁵ It seems, then, that participants perceive less intervention success when the goals are general, like achievement and return to mainstream education, rather than focused on the specific behaviours of children with ADHD.

Mixed views of effectiveness

Several studies clearly noted individual differences in how effective the interventions considered were perceived to be for different pupils with ADHD. School mental health providers in a study by Langberg *et al.*³⁰¹ noted that some young people seemed to get more out of the intervention than others. These practitioners suggested that this might be due to some pupils understanding the purpose of the intervention and wanting to improve. This suggestion relates to *Making interventions meaningful to pupils*. There was a suggestion from Kreiss³⁰⁰ that the alternative high school studied could work as a stepping stone, preparing young people to make better use of programmes in the future. This suggests both the importance of preparation for using any particular intervention for ADHD and that an intervention may produce longer term gains without necessarily demonstrating any tangible outcomes at the time.³⁰⁰

Negative comments about interventions could often be traced to the challenges considered elsewhere in this chapter, for example mainstream class sizes,²⁶⁵ time pressure,³⁰⁵ inflexibility of interventions³⁰⁴ and pupils understanding the purpose of interventions.³⁰¹ Participant explanations for the ineffectiveness of interventions and strategies included pupil's lack of motivation, passivity towards learning, anxiety,²⁹⁵ classroom management issues interfering with learning,²⁹⁸ a lack of consistency from teachers²⁹³ and a belief that some interventions work against the pupil; for instance, in Hands' study²⁹³ both the young person with ADHD and his teacher believed that giving him extra time to complete work was ineffective as he tended to procrastinate further.

Although it was discussed above (see *Just good teaching*) that teachers reported relying on effective practice to teach children with ADHD, several studies reported that regular teaching strategies were ineffective when applied to children with ADHD.^{279,292,293,307,308} Interviews with young people with ADHD reported by Prosser³⁰⁷ considered that mainstream strategies including traditional pedagogies, negative behavioural sanctions, verbal instruction and note-taking were deemed unsuccessful. Partridge²⁷⁹ generated a substantive theory about how adolescent boys diagnosed with ADHD respond to the efforts of their mainstream teachers to modify their actions. The teachers' efforts were concluded to be largely ineffectual. Partridge²⁷⁹ finds that the adolescent boys diagnosed with ADHD claimed that they would prefer teachers to explain concepts well so they can work better, rather than focus on reward systems.

Lack of application beyond interventions

A lack of application of content beyond the specific intervention period is criticised by various participants.^{265,280,306} Parents in a study by Ozdemir³⁰⁶ worried about what would happen post intervention, reporting a belief that once the intervention ended so would the improvement some of them had seen. Key for Wong²⁸⁰ are issues of applicability. Pupils were considered to understand when to implement their metacognitive skills they learned, but not how. Analysis also noted that motivation and anxiety would operate as barriers to children with ADHD applying intervention concepts in relevant learning situations.²⁸⁰ The implication raised in these studies is the need for support beyond a period of intervention to ensure what is learned is applied.

Sometimes what is learned in an intervention is not necessarily applicable to other concepts, as discussed earlier (see *Making interventions meaningful to pupils*). For instance, special education teachers in Ljusberg's study believe that 'what pupils in remedial classes learn primarily is to be pupils in remedial classes' (p. 208).²⁶⁵ Although the teachers report that the children are meant to be adapted for return to

regular schooling, the context is referred to as very different and the accommodations used may not be made or even be feasible in the regular classroom.

Need for study skills

Several studies noted that pupils with ADHD need support with study skills and that these skills are perceived to have a marked effect on the learning of these children.^{280,287,289,293,300} Wong's analysis²⁸⁰ across methods shows that without skills for study, adolescents with ADHD remain dependent on their teacher. Parents report that their children with ADHD need particular assistance with homework and organisational skills.^{289,293} In a study by Bartlett *et al.*,²⁸⁷ college students with ADHD reflecting on what helped them at school noted that working on study skills for one session a week was beneficial. Given the issues with withdrawal programmes to support pupils who display ADHD symptoms (see *Withdrawal*) and compensatory perspectives (see *Compensatory perspective*, below) considered elsewhere in this chapter, there is a need to include more study skills and processes of learning as a basis for ADHD pedagogy. However, Wong²⁸⁰ notes that teaching that is entirely focused on content or skills is insufficient, which implies that skills ought to be taught in relation to the curriculum content followed.

Implications relating to the theme impact of interventions are given in *Box 7*.

Socialisation

Problem situated within the child

Three themes fit the category 'socialisation' (see *Figure 5*). These themes will be discussed in turn, starting with views regarding ADHD as a 'problem'. Many participants across studies and perspectives considered ADHD to be a problem located within the child, but out of the child's control.^{265,288,295,296,302,308} This seemed to impact on how the problem was seen to be addressed in the school setting, where the focus was typically on the child, rather than the school context. The view of ADHD held by those involved with these children's education appears at times to lead to labelling and stigmatisation, particularly where it is clear the pupil is receiving an intervention for their 'problem'. *Table 42* shows the subthemes relating to the socialisation themes that resulted from the reciprocal translation of included papers.

Table 43 provides definitions of key terms relevant to this theme.

Attention-deficit/hyperactivity disorder as a problem

The attitudes reflected by participants across several of the studies cast ADHD as a problem.^{265,288,295,296,302,308} Remedial class teachers in a study by Ljusberg²⁶⁵ consider the problem to relate to both the school and the pupils: 'the pupils have the problem and the school cannot handle it' (author quote, p. 200).²⁶⁵ Pupils in Ljusberg's study³⁰² appear to recognise that they are regarded as difficult, with problematic behaviour, and that they are seen to be deviating from other pupils. Perceived reasons for attending a remedial class were all related to difficulties originating in themselves. Partridge's²⁷⁹ participants reported that they were embarrassed about being diagnosed with ADHD, and did not want to disclose it for fear of it being used against them by peers.

BOX 7 Implications about impact of interventions

Interventions appear to hold different perceived levels of effectiveness for different individuals.

Interventions ought to teach skills that are applicable across contexts. There is a need for support beyond a period of intervention to ensure what is learned is applied.

Children with ADHD often need support with study skills as well as their symptoms of ADHD.

TABLE 42 Hierarchy of themes and subthemes discussed during the synthesis of the category socialisation and the papers that held evidence relating to each subtheme

Category	Theme	Subthemes	Contributing papers
Socialisation	Problem situated within the child	ADHD as a problem	265,279,288,295,296,302,307,308
		Compensatory perspective	265,290–292,295,302,307–309
		Self-concept	280,286,295,296,303,306,311
		Stigmatisation	287,293,295,297,300,302,303,308,309,313
	Relationships	Pupil–teacher relationships	264,265,279,280,287,288,290,292,293,295,296,300–303,306
		Relationships with peers	264,265,278,280,286,290–293,295,296,300,302,305,306,308,310,311
		School–home relationship	265,286,288,289,294,298,300,301,304,306,309,310,313
		Teachers’ relationships with colleagues	288,291,294,298,304,305
	Expectations	Attitude to school and learning	279,280,287,290,300,302,303,306,308,311
		Attitude to ADHD	287,288,293,295,296,303,304,306,308,309,313
		Resistance and indifference	279,280,289,290,293,297,300,302,305–308,311
		Lack of guidance and knowledge	264,265,286,288,296,298,304,305,308–310,313

TABLE 43 Key terms relevant to theme problem situated within the child

Key term	Definition
Compensatory perspective	From Ljusberg, ²⁶⁵ this term indicates the view that ADHD difficulties are seen as situated within the child and therefore action is taken to compensate for these difficulties. It ignores the impact of context on said difficulties
Self-efficacy	Belief in one’s capabilities to achieve particular goals
Self-esteem	Refers to how much we value ourselves
Labelling	The process by which a label like ‘ADHD’ or ‘stupid’ is applied to a person rather than the problem. This label may then lead to stigmatisation from others and changes in behaviour regardless of the accuracy of the label
Stigma	Negative beliefs regarding those who are categorised with attributes outside what is considered to be ordinary and natural

Some studies reported that teachers held a biological understanding of ADHD, believing ADHD behaviours to be outside the child’s control.^{288,308} This assumption was reported to lead to curricular adaptations; teachers in Bos *et al.*’s study²⁸⁸ said that they redesigned classrooms, daily schedules and methods of instruction. However, this was not always the case, as teachers in a study by Houghton *et al.*²⁹⁶ believed that ADHD behaviour was under the child’s control. They saw ADHD behaviour as attention-seeking, with inattention and disruption considered to be a response from pupils to finding tasks difficult, therefore masking their inability, a more psychological perspective. Such diverse attitudes affect the types of interventions that teachers may be willing to adopt.

Where interventions involve withdrawal from the classroom, the reported goal of such programmes is often to learn how to better fit the regular school classrooms²⁹⁵ (see *Withdrawal*, above). This relates to issues around ADHD being seen as a problem situated within the child, who therefore has to adapt to the classroom. Special education teachers in Ljusberg’s study²⁶⁵ note an expectation that their remedial classroom interventions prepare children with concentration difficulties for their return to their regular

classrooms. Special education teachers in Hjörne's study²⁹⁵ reinforce that the high level of structure in the ADHD classroom exists with the goal of joining the regular classroom in mind:

Pontus has to finish his story first . . . you tell it one at a time, that's how you do it in school [the regular classroom].

Swedish special education teacher, reviewer edits in parentheses, p. 187²⁹⁵

Hjörne²⁹⁵ questions whether or not practising social and pedagogic skills will give the child the necessary skills to function in the regular classroom and suggests that the children with ADHD 'are learning how to be handicapped in the normal setting' (special education teacher, p. 195).²⁹⁵

Compensatory perspective

Interventions and teaching strategies evident across a range of the studies reviewed indicate what Ljusberg describes as a 'compensatory perspective' (p. 441),³⁰² meaning that action is taken to compensate for the problem, which is seen to be within the child, rather than seeing the context as potentially creating the problem. This is revealed in practice described by the studies. The social and material design of remedial classrooms in Ljusberg's study²⁶⁵ is seen to indicate low expectations for the pupils in light of their difficulties. The pupils appear to see themselves as not fully adapted to school, something that is unlikely to change with the practice in the remedial classroom (see *Mixed views of effectiveness*, above). Ljusberg³⁰² believes that this focus brings a restriction of options and hence a lack of agency for both the children and the remedial class teachers, while the school's responsibility is rendered invisible.³⁰² Ljusberg²⁶⁵ concludes that there ought to be more focus on situated learning and acknowledges the role of context in the difficulties experienced by children displaying ADHD symptoms.

Hjörne²⁹⁵ reports that teachers in the ADHD classroom compensate for the symptoms of ADHD in the activities that they choose, including motor activities to give an outlet for hyperactivity and choosing subject matter that is likely to gain attention, 'otherwise we won't grab their attention' (special education teacher, p. 188).²⁹⁵ Likewise, several other papers mention giving motion and movement as beneficial for pupils displaying ADHD symptoms.^{290,304,305,308} However, some studies report that non-mainstream educators believe too much movement between tasks²⁹⁰ and frequent activity changes³⁰⁹ are challenges for pupils with ADHD.

Teachers in a study by Einarsdottir²⁹¹ report strategies that they used and found successful for teaching children with ADHD. However, these strategies are always focused on the child rather than the classroom; for instance, avoiding seating the child where they are easily disturbed. The compensatory perspective was not just held by teachers, but was also recognised in the experiences of young people in Prosser's study³⁰⁷ and those pupils attending traditional classrooms in Furtick's study.²⁹²

Self-concept

Low self-esteem is seen as a barrier for children with ADHD.^{280,286,295,296,311} For instance, teachers in a study by Houghton *et al.*²⁹⁶ note the propensity for poor self-esteem in pupils with ADHD, which they attribute to triggers such as stigma, large classes, difficult subject matter, bullying and peer rejection. Often children with ADHD appeared to be embarrassed about their difficulties.^{293,303,308} For example, one participant 'felt humiliated when teachers treated him differently because of his ADD' (author quote, p. 114):²⁹³ 'No, no, no. I don't expect any more time. I want to be treated like the other students' (16-year-old diagnosed with ADHD, p.114).²⁹³

Wong²⁸⁰ reported that pupils with ADHD held low self-efficacy, attributing learning outcomes to circumstances beyond their control. Despite such barriers in terms of self-concept seen across a range of studies, several papers reported that pupils felt their confidence increased as a result of interventions used (e.g. Wiebe³¹¹). Young people in McNeil's study³⁰³ seemed to improve their view of themselves after attending the programme. Teachers and parents in Ozdemir's study³⁰⁶ reported improved self-confidence related to social skills in the children with ADHD attending the intervention.

Stigmatisation

This view of ADHD as a problem situated within the diagnosed child leads to frequent stigmatisation, as evidenced across studies. In particular, attendance of an overt intervention appears to encourage this. Indeed, Ljusberg³⁰² reported that attendance at an intervention can reinforce a deficit label: 'Many think that we have got DAMP [deficits in attention, motor control and perception] or some other deficits just because we are attending the class' (aged 10–12 years, p. 443).³⁰² Attendance at the remedial class is seen to have 'a stigmatizing effect with the individual identified as one who cannot be in an ordinary class' (author quote, p. 443).³⁰² Teachers in Zimmerman's³¹³ study believed that the separation of issues with learning from the individual in question was an important quality when working with children with ADHD.

A participant with ADHD in a study by Bartlett *et al.*²⁸⁷ had this advice for teachers:

All in all – teach, but don't make them [children] feel bad about it. Because it's so easy for ADHD children to feel bad about themselves and who they are.

American college student, p. 229²⁸⁷

It appeared important to child participants that they were not negatively labelled and that their ADHD-type behaviours were not interpreted as character flaws. Sometimes pupils in Isaksson *et al.*'s study²⁹⁷ said that they refused to leave the regular class because attendance at the resource room was stigmatising. The stigmatisation experienced is not necessarily perceived as being in relation to ADHD; in a study by McNeil³⁰³ the adolescents with ADHD initially felt like they were put on the programme because they were stupid and felt like others were judging them. One young person felt they were treated 'Like an idiot . . . who would not be good at anything. I didn't understand anything and everyone else thought I was stupid' (aged 17 years, p. 172).³⁰³

Interestingly, it seems that the children with ADHD themselves can participate in the labelling of their disorder. The children with ADHD in Hjörne's study²⁹⁵ were observed to stigmatise their condition by calling their peers names like 'DAMP kid' (aged 8 years, p. 189). Theory suggests that individuals who carry stigmatised markers may 'internalise' the negative representations of their status as may be the case here.³²² This may impact self-esteem, reducing the likelihood that children with ADHD will challenge their devalued status. Indeed, there is no evidence from the included papers that children with ADHD reclaim and empower their label.³²³

Labelling is not necessarily seen as a negative thing in all of the studies, with teachers and parents apparently considering the merits of labelling children with ADHD. Rafalovich³⁰⁸ shows that teachers are consciously aware of issues of labelling children diagnosed with ADHD and, indeed, that they have varied opinions on the effectiveness of labelling, ranging from damaging to the child's self-esteem to a necessary precursor for effective school-based treatment. However, a parent in Zimmerman's study³¹³ stated 'Schools are good at labelling but not so good at follow-through. At the high school level the counsellors are too busy to offer any real help to the child or parent' (p. 186).³¹³ In these studies, formal labelling (or acquiring a diagnosis) is presumably considered necessary in order to acquire resources for ADHD.³²⁴

The importance of being able to overcome stigma was seen in Kreiss' study.³⁰⁰ Part of the success for some pupils was considered to be due to young people having a new start and the chance to forge a new reputation. Yet, elsewhere, interventions are often reported to be experienced by children with ADHD as reinforcing difference. Rafalovich³⁰⁸ points out that curriculum modification may create further separation of children with ADHD from their peers even when they remain in the classroom, although this is seen by

the teachers as an acceptable trade-off. A young person in McNeil's³⁰³ intervention programme described the compromise between self-concept and need:

[I] felt like I [was] put in this program because I am stupid. But then I realised that I am being put in this program so I can help grasp what I am supposed to do in all my subjects [. . .] Occasionally I hate being in special ed because it makes me feel so stupid . . . like I am stupid and everyone is judging me. But in other times I know that it is just helping.

*American young person diagnosed with ADHD (aged 17),
reviewer edits in parentheses, p. 175³⁰³*

As well as the 'fresh start' it offered, teenagers in Kreiss's study³⁰⁰ liked the familiarity of the alternative high school. Even though it catered for emotionally and/or behaviourally disturbed adolescents, it did not reinforce their difference as it aimed to be run like high school, so not all interventions are liable to reinforce that children with ADHD are different. Stigmatisation is considered in further detail in the synthesis of review 4 [see Chapter 6, Discussion, Findings from the synthesis of reviews 4a–d, School expectations and structures establish boundaries for the identification of attention-deficit/hyperactivity disorder symptoms and can aggravate attention-deficit/hyperactivity disorder symptoms, Constituting deviance and invoking stigma and Implications of stigma for non-pharmacological interventions for attention-deficit/hyperactivity disorder in schools].

Implications relating to the theme of problem situated within the child are given in Box 8.

Relationships

The second theme under the category of socialisation refers to the relationships of those involved in interventions for children with ADHD in school settings. The relationships of pupils who display ADHD symptoms are a contextual factor that frames how certain interventions might be perceived by those pupils. Studies in this review also show that using interventions has an impact on these same relationships. This theme is considered further in the synthesis of review 4 [see Chapter 6, Review 4c: the experiences and perspectives of parents of pupils diagnosed with attention-deficit/hyperactivity disorder, Findings for review 4c (parent views), Relationships, Parent–teacher conflict is the norm, Fit between pupils diagnosed with attention-deficit/hyperactivity disorder and school and Relationships: attention-deficit/hyperactivity disorder symptoms as a threat to educational and parental identities].

Pupil–teacher relationships

All types of participants reported the importance of positive relationships between teachers and their pupils with ADHD. For instance, good pupil–teacher relationships are at the heart of the strategy that teachers report as most effective in Houghton *et al.*'s study:²⁹⁶

I try to approach it in the calmest manner I can . . . I try to make them feel that I'm there to look after them and that I'm their friend.

Australian teacher, p. 126²⁹⁶

BOX 8 Implications related to problem situated within the child

The role of context in the difficulties experienced by children with ADHD needs to be considered when designing interventions.

Children with ADHD's low self-concept may be a barrier to engaging in interventions and needs to be considered in decisions about interventions.

Children with ADHD may be the victims of stigmatisation from others, particularly peers, as a result of both their diagnosis and the interventions they experience. This may impact effectiveness.

Both teachers and parents in a study by Hands²⁹³ claimed that the relationship between teacher and pupil was pivotal to the children's ability to achieve. Multiple studies recognise a relationship between pupil-teacher rapport and the performance shown by pupils who display ADHD symptoms in the classroom.^{279,280,287,292,293,300,303} It is therefore of little surprise that these relationships are perceived to predict intervention success. Studies mention the need for teachers to be caring, approachable and engaging when working with pupils displaying ADHD symptoms.^{287,302,313}

Conversely, poor relationships with teachers had a negative effect on intervention experience. Ljusberg³⁰² found that some pupils believed that they were in remedial classrooms because their teacher in the ordinary class disliked them; pupils' negative perception of this intervention is considered elsewhere (see *Withdrawal*, above). One young person's view in Kreiss' study³⁰⁰ demonstrated how the relationship could impact an intervention:

I had a bad attitude. I didn't think I had a problem. I thought everyone else was the problem. I saw teachers and stuff as stupid and I didn't listen to what they had to say. I wasn't looking for anyone to help me because I didn't think I needed help.

Young person diagnosed with ADHD, p. 228³⁰⁰

One other concern about the relationship between teachers and pupils with ADHD is the potential for pupils to over-rely on their teacher. This was reported in a study by Wong,²⁸⁰ where pupils appeared to depend on teacher instruction: 'The teacher tells me what to study. Like what chapter and in which course, and they even make us underline sometimes' (Canadian young person diagnosed with ADHD, aged 15–16 years, p. 151).²⁸⁰ This was linked to pupils' abdication of responsibility for their own learning (see *Control versus responsibility*, above).

Understanding appears to be critical to the relationship between teacher and pupil with ADHD:

Knowing one's pupils, having contact with their parents, knowing how the pupils get on with their friends and how they get on outside the school are seen as important by the interviewed teachers.

Author quote, p. 206²⁶⁵

Several other studies suggest that teachers need to learn about their individual pupil's needs^{279,290,303} (see *Making interventions meaningful to pupils*, above). However, a young person in McNeil³⁰³ stressed the importance of teachers being understood:

Yeah I got some help but I just didn't understand what the teachers were saying. Every time I didn't understand what they were trying to explain they tried to explain it in a different way. But every time they tried to explain it differently, I didn't understand it.

American young person diagnosed with ADHD (aged 17 years), p. 171³⁰³

Understanding here is related to communication, although it was shown to impact the pupil-teacher relationship.³⁰³

Sometimes specific interventions show teachers the importance of good relationships as a foundation for working with children with ADHD. Teachers claimed to recognise the importance of understanding ADHD from the pupil's perspective and working collaboratively with them in Bos *et al.*'s study,²⁸⁸ reporting that a deeper understanding of ADHD led to better working relationships and increased empathy. Likewise, teachers in a study by Ozdemir³⁰⁶ described prior negative relationships with their pupil with ADHD. The switch to focusing on positive behaviour was deemed by one teacher to be the major impact of the programme.

Several studies highlight the importance of the teacher as an intervention in themselves.^{279,280,292} Both pupils and teachers report that the teacher can have a dramatic effect on the success of pupils who display ADHD symptoms in the classroom. Teachers need to be aware of the attitude that they are projecting as

this informs the relationship they may hold with their pupils. For instance, Partridge²⁷⁹ suggests that the ambivalence that adolescents with ADHD show towards rewards used by teachers (see *Resistance and ambivalence*) reflects their belief that teachers' motives are self-centred: 'they want kids to listen to them', 'to get control of kids', 'to get kids to like them', 'students [to] behave better so it's easier to teach them' (young people diagnosed with ADHD, aged 12–14 years, p. 112).²⁷⁹

Relationships with peers

Children with ADHD often have poor relationships with their peers. Peers may react to the different treatment that children with ADHD receive,^{264,265,296,302,308,311} regardless of the intervention in place. Teachers in a study by Rafalovich³⁰⁸ note that peers may form an exclusionary group as they notice children with ADHD receiving different treatment, such as attending learning assistance centres. Teachers in Houghton *et al.*'s study²⁹⁶ expressed little sympathy for pupils with ADHD's experience of peer rejection. They seem to consider the young people to be largely to blame for the rifts. Therefore, it fits that remedial class teachers in Ljusberg's study²⁶⁵ consider the children with concentration difficulties in their classes as rejected; 'the ones no one else likes or wants to have to do with in any way' (remedial class teacher, p. 202).²⁶⁵ Perhaps pupils' views expressed in the other Ljusberg paper,³⁰² that they attended remedial classes because their regular class teachers do not like them (see *Pupil-teacher relationships*, above), may hold some veracity.

In spite of the lack of friendships and reported experience of stigmatisation and sometimes bullying (e.g. Wiebe³¹¹), teachers often consider that it is important for children with ADHD to work with their peers to develop their interpersonal skills.^{278,286,289–293,296,305,308,310} There were varying experiences of this in practice. Furtick²⁹² notes that in traditional classrooms, children with ADHD are often not engaged when they are supposed to be working with their peers, whereas the intervention observed (constructivist classroom) was perceived to encourage productive group work, where pupils with ADHD valued the experience and contribution of peers and reported that they made friends more easily. Children with ADHD in a study by Edwards²⁹⁰ had contrasting preferences about working alone versus working in a group. However, they generally like working with friends. Having this friendship with a peer appeared to assist children with ADHD and enabled them to enjoy working with others.

The importance of social skills is recognised across a number of studies where such skills are actively incorporated into interventions and teaching strategies with perceived effectiveness. Special education teachers in a study by Ljusberg²⁶⁵ state that one of their primary goals in their work with children in remedial classrooms is to improve social skills. The intervention used in Ozdemir's study³⁰⁶ was considered to improve social skills in some of the children. Special education teachers in Hjörne's study²⁹⁵ had pupils 'practice' social skills. However, Hjörne²⁹⁵ notes that there was no evidence children used this social practice of their own volition as they were not given the opportunity to negotiate more complex social situations or be without supervision. Two studies^{264,296} reported that teachers perceived that they had limited ability to help children with ADHD get along with other children in the general classroom.

Peer pressure influences the actions of young people with ADHD and was evidenced in two studies. A potential reason for the lack of application of skills gained in the intervention studied by Wong²⁸⁰ was peer pressure to finish an exam quickly so a pupil would not be left by his friends:

I saw Ryan leaving and everybody was leaving and I didn't want to stay so I just packed it in. Yeah because we were supposed to be going somewhere right after the test, so I had to go.

Canadian young person with ADHD diagnosis, p. 158²⁸⁰

When pupils' friends were 'discharged' from the alternative high school studied by Kreiss³⁰⁰ they were less likely to attend. Such issues of the influence of peer pressure on engagement are not peculiar to ADHD.³²⁵

Finally, several studies provided evidence that interventions can impact relationships with peers. Hong's²⁶⁴ teacher participants reported that pairing children with ADHD with other children, however mature and understanding, was not successful as peers were reluctant to continue being paired with children who demonstrate hyperactivity, carelessness and dangerous or disruptive behaviours. In addition, as previously mentioned, withdrawal from the classroom is perceived to have a negative effect on relationships with peers, including loneliness and broken friendships³⁰² (see *Withdrawal*, above).

School-home relationship

Educators across multiple studies voice the importance of effective relationships with parents and their impact on the success of interventions.^{286,288,298,301,304,306,309,310,313} For instance, teachers in a study by Ozdemir³⁰⁶ report the necessity of active parent involvement in children's education. The parent education module of the intervention was reportedly liked most by teachers as it facilitated active parent involvement. The involvement of parents seemed to be a key facilitator in quantitatively measured academic and social skill outcomes on the programme:

When you try to help a student and the parents refuse all sources of help, it's frustrating, demanding and exhausting. But if you know that parents also invest their time and energy to help their child, then it becomes worth the effort, the worry, the frustration, and the stress to be here.

Turkish grade 1 teacher: pp. 124–5³⁰⁶

Teachers in Ozdemir's study³⁰⁶ stated that they learned from a greater appreciation of the home life of children with ADHD. The intervention meant that teachers became aware of the impact of issues at home and appreciated that children struggle to learn while dealing with problems at home. However, teachers in a study by Jones²⁹⁸ recognised a lack of support from home; teachers in this study felt parental involvement was the key to success, but the teachers said they were frequently unsuccessful at making contact with parents.

Parents also reported benefits from working more closely with the school as part of the intervention used in Ozdemir's study.³⁰⁶ Parents recognised that the programme helped them support their child with school work. It also increased their understanding of school:

Before the program, I strongly believed that my son's teacher failed to make an effort to help my son be successful at school. But now with the help of the FSS [First Steps to Success] program, we understand our part in our son's problem behaviours.

Turkish parent of child diagnosed with ADHD, p. 133³⁰⁶

Parents stated that they appreciated being kept informed of issues by teachers in a study by Taylor Wilcoxson.³¹⁰ However, parent involvement is not always positive. One child's teacher in Ozdemir's study³⁰⁶ reported that parents can be overinvolved, with the result that children lacked self-sufficiency. There was also pressure from parents reported by young people for them to attend the alternative high school reported in Kreiss's study.³⁰⁰

Teachers and parents sometimes recognise that much of the communication occurring between school and home about children with ADHD is negative.^{265,288,294} For instance, remedial class teachers in Ljusberg²⁶⁵ report that mainstream school teachers often contact parents only when their children have done something wrong. Parents also referred to experiencing mainly negative communication with teachers.²⁸⁹ There was some reluctance to get in touch with parents expressed by teachers in a study by Hillman;²⁹⁴ instead they wanted to help children on their own before involving parents or other professionals. The implication is that both teachers and parents need to increase communication and deliberately focus on positive collaboration.

Teachers' relationships with colleagues

Teachers have preconceptions about working with colleagues and other practitioners. Hong²⁶⁴ suggests that collaborations with professionals in special education are important for the successful education of children with ADHD, especially in the light of the comorbidities that are frequently held by pupils who

display ADHD symptoms.³² Teachers in Einarsdottir's²⁹¹ study reported that relationships with colleagues varied according to the age group they taught. Preschool teachers find additional staff very important, whereas primary school teachers see assistants as a burden and would prefer children with ADHD to be removed from the classroom, rather than have the additional responsibility of the assistant. As Jones²⁹⁸ suggests, support staff need an understanding of classroom issues if they are going to assist in educating children with ADHD in the mainstream classroom.

Teachers in a study by Bos *et al.*²⁸⁸ said that they shared their intervention knowledge with colleagues, with their increased confidence seen as being a catalyst for this. This type of collaboration where teachers assist or seek assistance from colleagues was seen in other studies.^{294,298,304,305} Teachers in Jones' study²⁹⁸ said they sought out other teachers with experience of working with children with ADHD, yet there was a recognition that time was not always available for this important matter. Peer support (colleagues) was seen as more consistently helpful than outside experts, with teachers creating their own informal learning communities.

Implications relating to the theme of relationships are given in *Box 9*.

Expectations

This is a very broad theme, basically capturing the prior experiences and attitudes that individuals involved in the use of interventions for pupils with ADHD might hold. In particular attitudes towards education, ADHD and interventions are shown to be important in providing a context in which any future intervention must operate. The analysis implies that interventions for ADHD do not occur in a vacuum, while the experience of interventions can also affect these expectations going forward.

Attitude to school and learning

There are negative attitudes towards school and learning seen from children with ADHD.^{279,280,290,293,306} Often this is equated to a lack of motivation, as indicated by this pupil with ADHD:

What do I do if I don't understand something in class? I don't know. I won't ask the teacher. Oh, no I won't ask questions because I am lazy.

Young person with ADHD diagnosis (aged 15–16 years), p. 133²⁸⁰

This lack of motivation was perceived to be due to lack of interest, difficulties learning and lack of perceived relevance (see *Making interventions meaningful to pupils*). Young people in a study by Edwards²⁹⁰ were described as having goal-oriented performance, wanting to appear competent, but not choosing challenging tasks. Sometimes children with ADHD did report positive attitudes towards their schooling, which would understandably impact their preconception about any different interventions put in place.^{300,302} This finding is not peculiar to children with ADHD (e.g. see Hardré *et al.*³²⁶ regarding rural high school pupils).

BOX 9 Implications about relationships

Pupil–teacher relationships appear critical to the success of classroom-based interventions.

Social skills are considered an important deficit for children with ADHD that interventions ought to consider.

Although positive school–home relationships are considered to be important, teachers and parents recognise that much of the communication about children with ADHD is frequently negative. This needs to be considered when interventions involve a home component.

Seeking advice from colleagues is reported to be invaluable for some teachers, but can be threatened by time pressures.

Some interventions and strategies did appear to positively affect attitudes to school and learning held by pupils with ADHD.^{287,303,306,308,311} One young person diagnosed with ADHD in McNeil's study³⁰³ who had reported motivational issues before special education placement said that she started liking school a little more because they started to understand what was being taught. 'It was so good I thought I have never understood any of this stuff before and now I am getting it' (aged 17 years, p. 175).³⁰³ So interventions can affect attitudes held towards school.

Attitude to attention-deficit/hyperactivity disorder

One attitude towards ADHD held by teachers is that ADHD is not qualitatively different from other difficulties and that the behaviours are normal for all pupils.^{308,313} Teachers in a study by Rafalovich³⁰⁸ claimed to believe that the distinction between when it is appropriate to use a normal strategy for a troubled pupil versus using strategies for a disordered pupil is hard to make. Some disbelief about the existence of ADHD or the severity of the disorder was seen from mainstream teachers and this was recognised by pupils.^{296,303,304,308,309} One teacher stated:

[T]he condition has been used as an excuse by some students, who, although clearly capable of high quality work, see their disorder as an excuse for not putting in the effort.

Australian teacher, p. 120²⁹⁶

There was also some resistance to working with children with ADHD reported by teachers^{288,296,309} (see *Resistance and indifference*, below).

Children with ADHD referred to embarrassment about their diagnosis (see *Stigmatisation*, above).^{293,303,308} However, the college-aged students in Bartlett *et al.*'s study²⁸⁷ recognised that their childhood behaviours were challenging. They reported that they knew that they were taxing for others and that they valued the teachers who had persevered with them.

Interventions that targeted attitude towards ADHD were generally received positively by teachers and were perceived to improve attitudes.^{288,296,306} After the workshop intervention, teachers in Bos *et al.*'s²⁸⁸ study claimed to hold more positive attitudes towards children with ADHD, as well as greater tolerance and empathy:

Before class [workshop], having students with ADHD meant trouble, but the class has increased my understanding, changed my attitude, and improved my tolerance and patience.

American teacher, p. 141²⁸⁸

Knowledge gained seemed to improve attitudes for teachers in this study, and there appeared to be an interactive relationship among attitudes, perceived competence, and practice for these teachers. Teachers also said that they saw positive change in themselves as a result of the programme in Ozdemir's study.³⁰⁶ 'My approach is changed forever' (p. 129)³⁰⁶ stated a Turkish grade 1 teacher.

Resistance and indifference

Many studies noted that pupils are often resistant or indifferent towards the interventions and strategies put in place to support them at school. They are often indifferent towards rewards that they do not see as attainable and towards punishments whose severity is discounted.^{279,280,290,297,300} For instance, teenagers attending the alternative high school in Kreiss' study³⁰⁰ were ambivalent to rewards:

I think there could have been more positive stuff and privileges for students . . . Yeah, they give out these merits, but that was it. They would say you got a merit. I would think, great now what are you going to give me? But we never got anything. I think if you want to encourage students to behave, you gotta give them a reward or something for it.

American young person with ADHD diagnosis, p. 224³⁰⁰

This fits with the need among children with ADHD for immediate reinforcement discussed earlier (see *Need for immediate reinforcement*).

Pupils may resist the interventions put in place,^{280,302,306,307} which can be related to their attitude towards school and learning in general or focused on the particular intervention that they reject. For instance, a teacher in a study by Ozdemir³⁰⁶ described a child with ADHD: 'He spends most of his energy avoiding anything and everything that may pose a challenge' (Turkish grade 1 teacher, p. 122).³⁰⁶ Wong²⁸² reported that resistance varied across the components of the intervention in question. Young people in Prosser's study³⁰⁷ appeared to resent conventional class-based interventions, seeing them as condescending:

Me and four other students are being made to sit down the front so the teacher can keep a watch on us . . . and we had to earn these little blocks for being good so we can go out for recess and lunch, and I just thought 'this is bullshit'

Young person with ADHD diagnosis, p. 88³⁰⁷

Given the age of participants in this study (14–16 years), part of the resentment may be due to a feeling that the participants had outgrown interventions used for younger pupils.

Teachers themselves may be resistant to unfamiliar or unproven interventions. For instance, there was some reported resistance to the music listening intervention from teachers in a study by Wiebe.³¹¹ Teachers said that MP3 players could be a nuisance. Parents in DuCharme's study²⁸⁹ also indicated resistance about withdrawal to a resource room: 'I was sort of resistive to it at first, kind of tentative about if it was a good idea' (mother, p. 309).²⁸⁹ This related to fears that her son might miss regular classroom activities and how he would feel about withdrawal, issues considered previously (see *Withdrawal*, above).

Given the resistance to mainstream interventions reported above, children with ADHD may be less resistant to interventions that they do not think they have previously encountered. For instance, teenagers with ADHD referred to their new start at an alternative high school (Kreiss³⁰⁰). Sometimes the context that determines the intervention(s) applied appears to influence the attitude towards them, as is clearly seen in this adolescent's reaction to an IEP meeting:

The first time I went to that meeting for my 504 plan in school, it was horrible. I sat down and everybody was talking about me and how these aren't working, the accommodations are bad for me and we've got to start over, and they asked my opinion maybe twice before I left. And I didn't want any of the accommodations anymore because I didn't want to go back in that room anymore. I didn't want to have to talk to any of those people who were sitting down and saying, 'Oh well, he can't do this so let's make it easier.' And I always hated that.

Young person with ADHD diagnosis (aged 16 years), p. 143²⁹³

Lack of guidance and knowledge

Teachers' lack of guidance and knowledge is perceived as a barrier by them across a large number of studies reviewed.^{264,265,286,288,298,304,308–310,313} Teachers from many countries report that they are working in schools that do not have ADHD-specific guidance. There is a lack of knowledge at the individual level, coupled with a lack of guidance from schools or educational boards.²⁶⁴ This lack of guidance and knowledge appears to be well known. A parent in Zimmerman's³¹³ study reported that a principal at her child's high school had told her 'we don't have a clue what to do with or for these kids' (parent, p. 173).³¹³ This lack of knowledge of course impacts the interventions received by pupils with ADHD. One special educational teacher declared that a lot of pupils have had a 'rotten schooling' (p. 202)²⁶⁵ because the teachers in the regular school do not have the right expertise.

Improved knowledge seemed to make a stark difference for teachers in their confidence and practice. A teacher in Bos *et al.*'s study²⁸⁸ stated:

Just knowing about ADD and knowing that this child can't necessarily control his behavior made all the difference in the way I see and interact with him in class.

American teacher, p. 140²⁸⁸

However, although teachers in Bos *et al.*'s study²⁸⁸ perceived that their practice improved, it was highlighted earlier that there may be issues with the assumption that children with ADHD cannot control their behaviour (see *Compensatory perspective*, above). Yet this knowledge was claimed to improve attitudes and confidence: 'the workshop changed my attitude towards kids with ADHD and gave me confidence to help my colleagues' (American resource teacher, p. 141).²⁸⁸ Likewise, the negative perceptions of pupils with ADHD reported by teachers in a study by Houghton *et al.*²⁹⁶ altered only when the teachers were provided with substantive research information, professional training and in-house support.

Several studies noted the importance of reflection for teachers' development.^{288,296,298} Indeed, teachers in Houghton *et al.*'s study²⁹⁶ asserted that they came to an acceptance of ADHD only after a period of personal reflection. This reflection was seen to be a positive step that helps them to re-evaluate and change their teaching styles. Even when teachers attend workshops this may not necessarily affect practice. For instance, teachers in a study by Nowacek and Mamlin³⁰⁵ often attended workshops, but still reported barriers to the implementation of what they had learned. Sometimes these barriers were considered to be insufficient information gained during training, but also a lack of support in school settings to implement changes and refine practice.

A key implication from McNeil³⁰³ was that, the more knowledge teachers have about ADHD, the more successful interventions will be, but this held for the pupils too: 'Knowledge of the disorder also allows the individual to advocate for herself because she has the knowledge to inform others' (author quote, p. 183).³⁰³ Likewise, Zimmerman³¹³ reported that pupils were often unaware of the frequency or intensity of their own behaviour and its effects: 'I never knew I was doing that kind of stuff' (American young person with ADHD diagnosis, p. 197).³¹³ Making pupils aware of the frequency and, particularly, the impact of their negative behaviour was considered to be important. Finally, teachers in a study by Hong²⁶⁴ stated that it was important to explain ADHD to children's peers to attempt to increase their understanding and acceptance.

Implications relating to the theme of expectations are given in *Box 10*.

BOX 10 Implications relating to expectations

Interventions may need to address any negative attitudes held about school or ADHD which operate as a barrier to success.

Interventions need to be implemented with consideration to previous treatment as children with ADHD may be resistant or indifferent to interventions that are similar to those previously experienced negatively.

Although children may be more accepting of novel interventions, teachers may be resistant to unfamiliar or unproven interventions.

Interventions ought to address the lack of knowledge about ADHD both for teachers and children with ADHD themselves.

Facilitators, challenges and moderators

Many facilitators and challenges to effective intervention and strategies for pupils with ADHD have been revealed in the synthesis above. Facilitators include positive relationships;³⁰⁶ teacher consistency;²⁶⁴ teaching necessary study and social skills;³⁰⁰ relevant and purposeful interventions;²⁷⁹ appropriate levels of supervision;³⁰² application beyond intervention period;²⁸⁰ working with peers;³⁰⁸ and low teacher–pupil ratios.³¹³ Challenges include mainstream class sizes;²⁶⁵ attitudes towards and stigmatisation about ADHD and interventions;²⁸⁷ time pressure;³⁰⁵ inflexibility of interventions;³⁰⁴ resistance to some interventions;³⁰⁷ knowledge regarding ADHD and appropriate teaching strategies;²⁸⁸ low self-concept;²⁸⁰ and pupils understanding the purpose of interventions.³⁰¹

Several moderators were mentioned by studies reviewed as influences on the effects of interventions used. For instance, the effect of the Just Achieving Greatness programme researched by McNeil³⁰³ was seen to be influenced by the success of medication for participants. The age of pupils with ADHD was frequently mentioned as something that may moderate the effect of interventions.^{291,298,305,306,308,309} For example, middle grade teachers in a study by Nowacek and Mamlin³⁰⁵ were less likely to be observed using academic modifications; they believed interventions were used in earlier grades and part of their goal was to prepare pupils with ADHD for high school where they believed fewer modifications would be made, given the focus on academics rather than behaviour. Einarsdottir²⁹¹ reports differences between the intervention practices of preschool and primary aged teachers in response to children with ADHD symptoms. This is considered indicative of the differences in the structure and expectations between these settings. On a related note, there were differences seen in the type of interventions used and viewed as successful according to the age of schoolchildren with ADHD. For instance, behaviour modification seemed to be resisted by older pupils,²⁷⁹ whereas social skills were used across a number of studies only with younger pupils.^{265,295,306} Older pupils were more often positive about the study skills that they developed to support their school work.^{280,301}

Discussion

We identified 33 studies that included qualitative research related to interventions or strategies used with children with ADHD in school settings. The analysis identified seven themes, which were represented to some degree in all included studies. The relationship between the seven themes was demonstrated by a line of argument (see *Figure 5*), which shows the experience of intervention use captured by this synthesis.

Summary of findings

The synthesis revealed three main tensions related to responding to ADHD in schools. The first is whether interventions ought to be structured and controlled or whether they should offer choice and flexibility, although several studies recognise that structure and choice are not mutually exclusive. A second tension relates to the extent to which interventions ought to be individualised. The third concerns considerable time pressure reported by teachers in reviewed studies. Implementing an intervention can be time-consuming, and there is evidence that interventions are not always given sufficient time to take effect.

There are mixed views about the impact of interventions, although where participants feel that interventions are not effective, this can be traced to barriers recognised within the synthesis. There are some concerns that interventions may be effective for specific targeted skills and behaviours, but may not impact the academic achievement of children with ADHD, which is considered an important outcome by young people, parents and teachers. There are also issues concerning how well skills and knowledge learned during interventions are applied beyond the intervention period. Given that ADHD is often conceived as a deficit of self-regulation,³²⁷ barriers to the application of skills once learned ought to receive as much attention as initially learning the skills. It is clear that the interventions impact relationships, attitudes and participants' conceptions of ADHD, but the reported positivity of this impact was mixed both across and within the different interventions. Of course, the heterogeneity of pupils diagnosed with ADHD may explain differences in perceived intervention effectiveness.

Finally, the importance of issues of socialisation and their impact on interventions was considered. The review indicates that those developing interventions used in a school setting ought to consider the relationships that the pupil displaying ADHD symptoms holds with teachers and peers, as well as home–school collaboration. Intervention implementation may also be challenged by the conception of ADHD as a ‘problem’ held by those involved in the intervention and children’s reported experience of stigmatisation as a result of having a diagnosis of ADHD or attending interventions. Attitudes regarding school, ADHD and interventions, as well as knowledge of ADHD, also appear to impact the use of interventions.²²³ Issues related to the themes of *relationships* and *expectations* often complemented the discussion about *individualising interventions*. In particular, the degree to which interventions are tailored to individuals appears to affect the relationships pupils who display symptoms of ADHD have with their peers. Also some resistance was seen towards certain tailored interventions.

Strengths and limitations

Strengths of the review include the comprehensive search strategies employed and efforts to locate unpublished research where they were found. This review represents the first systematic review of qualitative research of which we are aware on the experience of school-based interventions for ADHD. The review took a broad focus on the strategies used in school settings with pupils displaying ADHD symptoms. This relatively wide scope allowed for a synthesis that captured the experience of school-based interventions, rather than only perceptions of effectiveness of specific intervention packages.

Few studies focused solely on the attitudes and experiences of those using specific intervention packages in school settings, and only one paper considered an intervention whose effectiveness has been quantitatively measured and reviewed in *Chapter 2*.³⁰¹ As discussed below, very few studies were conducted in the UK, thus the applicability of findings to UK education must be considered. Although included studies were of reasonable to very good quality according to quality appraisal criteria, the majority of studies contained mostly descriptive qualitative analysis, despite claims to use interpretive analytical tools. Review 4 included more papers with interpretive analysis and therefore some issues considered in this chapter, for example stigma and relationships, are considered in more explanatory detail in the next chapter.

Quality appraisal

Quality appraisal of qualitative research is widely debated (see Barbour³²⁸). Some researchers have argued that the value of each study should be judged through its contribution to the synthesis,⁸⁸ as well as by scores on quality appraisal criteria. Given the ongoing debate regarding quality appraisal in qualitative synthesis,²⁷³ it made little sense to weight or exclude papers on the basis of a contested endeavour. There were certain questions from the checklist that was used to appraise the quality of research in this review that we considered less useful. Answering two questions about author theoretical perspective could be considered unnecessary when many studies did not report a clear theoretical perspective. The question regarding adequacy of the sample was considered to be subjective (see *Table 35*), particularly as qualitative research attempts to illuminate phenomena rather than represent populations.³²⁹ Several case studies focused on only one participant with ADHD and this was often deemed an inadequate sample according to the quality appraisal question, in spite of these case studies considering child, teacher and parent perspectives (e.g. Wiebe³¹¹).

We found, as others undertaking qualitative evidence synthesis have, that the basic details of how participants were identified and recruited, and how study data were collected and analysed, were often sparsely reported.²⁷³ Where we could not say that studies collected and analysed data with rigour, it did not make sense to exclude these papers, as often this was a result of poor or constrained reporting, rather than necessarily being indicative of poor research.²⁷¹ We considered that claims to generalisability followed logically from the data when authors were careful to not generalise from their small samples and made the lack of generalisability explicit. Therefore, many of the ‘yes’ quality appraisal ratings were for a considered lack of generalising.

Applicability

Only two of the 33 studies reviewed included participants from the UK; these were teachers in Hillman's paper²⁹⁴ and adolescents in Young *et al.*'s paper.³¹² Neither study focused on a specific intervention or included highly interpretive findings and, therefore, did not contribute greatly to the development of the synthesis. However, the findings from these studies were congruent with other studies reviewed. Hillman's²⁹⁴ study also included American and Canadian teachers, thus allowing the potential for comparison between different nationalities, although this is not considered in the paper. Young *et al.*'s³¹² participants attended a young offenders' secure unit, thus potentially limiting the applicability of these young people's experiences to other pupils with ADHD in mainstream settings.

Two studies^{290,293} focused their case studies on young people with diagnoses of ADHD who were also recognised as gifted. There is a growing literature focused on the dual diagnosis of giftedness and ADHD (see Hartnett *et al.*³³⁰). The educational content studied by such pupils may differ from their non-gifted peers with ADHD diagnoses; however, the issues faced by these young people echoed those seen for participants without the giftedness label in other studies.

Where participant groups were only educators the age of relevant children with ADHD tended to be younger than samples including pupils who display ADHD symptoms. This may affect the comparability of teachers' and children's perspectives. However, seven studies included both child and teacher participants and, thus, provide perspectives on the same experience.^{290,292,293,295,310,311,313} Four studies only sampled educators who were not mainstream teachers.^{265,290,295,309} These educators were either special education teachers or school counsellors. Often these educator's views were particular to their role or the intervention used, yet sometimes these participants made more general comments that could be compared with other studies in mainstream settings.

As is true generally for qualitative studies, this qualitative review does not claim to represent the experiences and perceptions of all participants or assume the analysis can be generalised to individual experiences of ADHD and intervention use in schools. We claim credibility on the basis of clear review methodology and process of synthesis drawing on meta-ethnography. We also consulted with the project steering group to check our synthesis against specialist knowledge and experience; we can claim the potential for transferability based on consultation with parents and educators during stakeholder involvement activity, who endorsed the themes as resonating with their own experiences (see *Appendix 11*).

Implications for practice and recommendations for research

There appears to be a difference between the conception of 'intervention' held by researchers and teachers. In the studies reviewed teachers often referred to the ad hoc strategies that they implemented with their pupils with ADHD as 'interventions'.^{264,291,293,298,305,310} This differs from the view of intervention apparent in some papers where researchers were interested in experiences of particular intervention packages.^{280,301,306,311} An exploration of this difference in understanding appears to be a gap in the wider research literature. This is potentially important if teachers hold the view that effective intervention for children with ADHD would constitute selecting from a range of strategies whose use may be flexible and contextual, while researchers continue to design and test intervention packages aiming for effectiveness across children with ADHD measured by specific outcomes.

Implications of this synthesis include the need to take into account contextual factors, prior experiences and attitudes of teachers, young people and parents during the design, evaluation and implementation of interventions for ADHD in school settings. Interventions that target specific ADHD behaviour must take into account the socialisation issues raised in the synthesis, as well as the consideration of how the intervention will itself impact such contextual factors. As some of the studies reviewed suggest, interventions that focus on relationships, attitudes, self-concept and understanding can have an impact on these aspects of the ADHD experience.^{288,303,306} Thus, holistic interventions that consider the context, as well as focus on the individual child's difficulties, ought to be considered. Still, such intervention design needs to remain aware of potential opposition to interventions, which may include children's resistance to learning and educators' resistance to working with children with ADHD, and which may have to be tackled in advance.

Some of the studies reviewed acknowledged the extended trajectories through school experienced by pupils displaying ADHD symptoms. Teachers, particularly those teaching younger year groups, may only work with a child who displays ADHD symptoms for a year and therefore it is questionable whether a short-term intervention implemented in one classroom in a single school year would be sufficient to improve pupils' odds of long-term success.⁷² Therefore schools need a co-ordinated approach to intervention, so that strategies learned are internalised and positive intervention outcomes are built on.²⁸⁰

Many of the studies reviewed present a rigid view that ADHD in the school setting is a problem that resides in the child and that any issues relating to the classroom and curriculum are ignored.^{265,302} The findings suggest that this attribution may compound the stigmatisation experienced by children with ADHD and affect their self-concept negatively. Several interventions aim to train pupils with ADHD to fit the regular classroom as if this is the preferred goal. What is missing from the studies reviewed is an explicit consideration of how the school setting contributes to the issues facing an individual with ADHD, even though the role of the school is considered critical to the construction, diagnosis and treatment of ADHD.³⁰⁷ An implication then is for those designing interventions to consider the setting both in terms of implementing the intervention, but also as a moderating factor in the expression of symptoms of ADHD, particularly given the individual differences and changes with age highlighted by the research reviewed.³⁰⁶

This synthesis emphasises that regular class teachers have a very challenging task in teaching and implementing interventions for their pupils with ADHD while maintaining their orientation to the class as a whole.³⁰⁵ The synthesis suggests the importance of teachers' relationships with their pupils with ADHD, as well as their families'. There are tensions for the teacher to resolve in relation to the structure of teaching and intervention use. Often it seems that these decisions are made with a lack of knowledge and insight about ADHD. Time pressure and structural constraints are reported to limit what can be achieved in regular class settings.

Given the above, it would seem that the withdrawal of children with ADHD from the classroom to tailored interventions ought to be preferable. However, the synthesis revealed that there are often issues with such special education. The problems reported by those involved primarily concern the impact of withdrawal on social relationships, stigmatisation and the lack of progress made in special education classes if the goal is to return to regular class. For those children who display ADHD symptoms and attend withdrawal programmes for part of their school day, the lack of co-ordination between special classes and their regular classes is an issue. Therefore, withdrawal programmes that are more co-ordinated with the regular classroom and actively combat issues of stigmatisation ought to hold potential.

A clear implication about the expectations held by those involved in interventions for children who have ADHD is to tackle the lack of knowledge about ADHD at an individual level and the lack of guidance regarding practice at a school and policy level. Greater knowledge of ADHD might assist with some of the apparent tensions concerning the structure and individualisation of interventions for pupils displaying ADHD symptoms, as some of the studies reviewed reveal that these tensions can be based on misconceptions or a particular attitude about ADHD. Teachers in the studies reviewed typically considered that discussion with more experienced colleagues was the most helpful method to provide guidance and increase confidence. However, any efforts to educate those involved in the implementation of interventions need to stay cognisant of the findings from this synthesis about the varying presentation of ADHD, as well as the similarities seen between these children and their non-diagnosed peers in several regards, including motivation, meaningfulness of teaching and the importance of relationships.

Finally, the heterogeneity of both pupils with ADHD themselves and their responses to interventions seen across the studies reviewed suggests that prescriptive interventions implemented in the same manner for all pupils with ADHD are unlikely to remain effective across different children. Findings from this synthesis of qualitative research suggest that a multitude of factors relate to the experience of non-pharmacological interventions for ADHD used in school settings, and suggest that interventions ought to be tailored to the individual and the wider context in which they experience their education.

Chapter 6 Review 4: a synthesis of qualitative studies about the school-related experiences and perceptions of pupils diagnosed with, or at risk of, attention-deficit/hyperactivity disorder, their teachers, parents and peers

Aims

The aim of review 4 was to explore the school-related experiences and perceptions of pupils diagnosed with, or at risk of, ADHD, their teachers, parents and peers.

Included studies

The process of study identification is shown in *Figure 6*.¹⁵² A table giving papers excluded at full text with reasons may be found in *Appendix 15*.

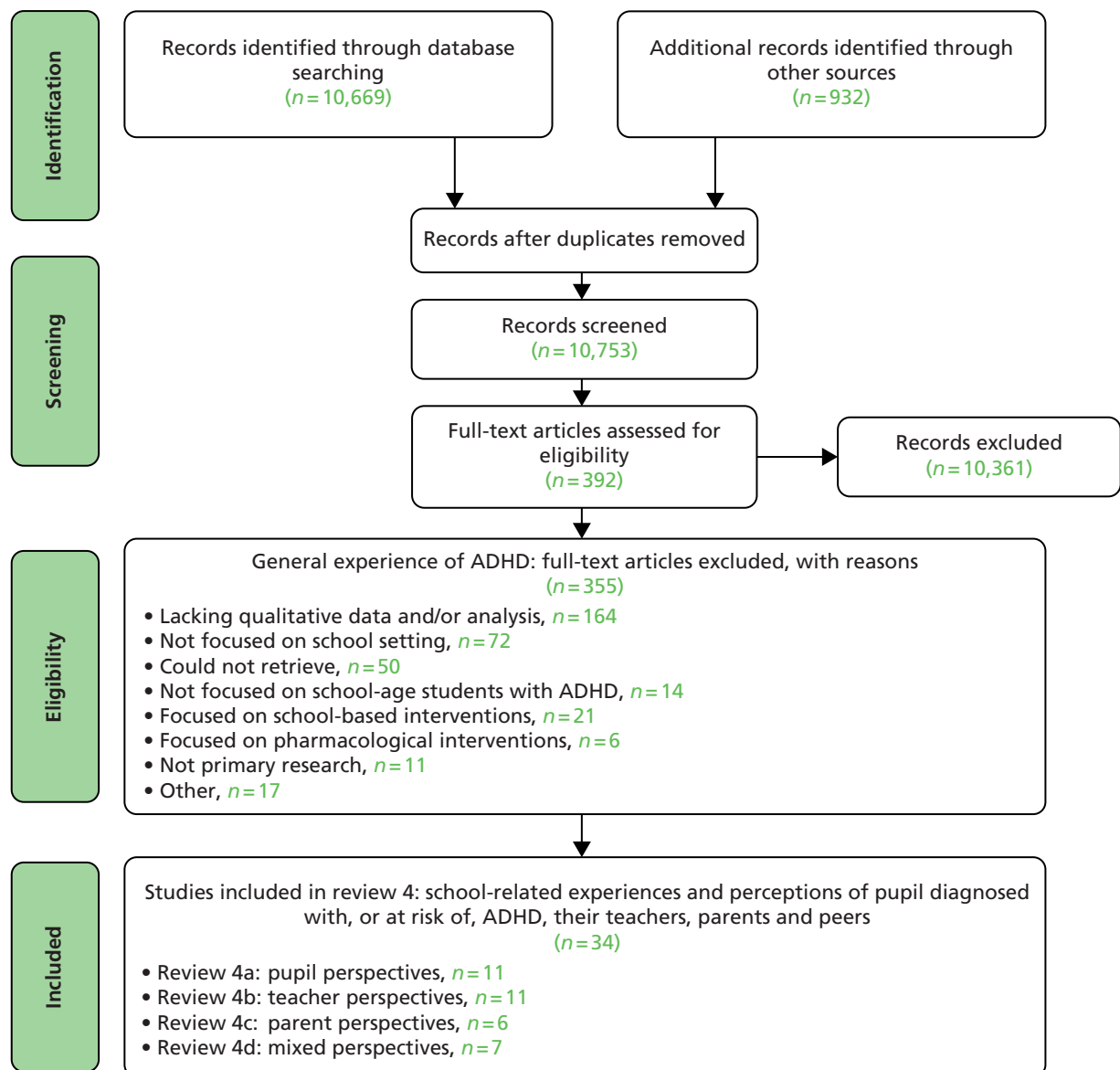


FIGURE 6 The PRISMA diagram showing search process and study selection for review 4. One study contributed to both syntheses 4a and 4b. Thirty-seven papers were included. One study in review 4a was reported in three papers; one study in review 4c was reported in two papers.

Structure of review 4

As described in *Chapter 4* (see *Methods of analysis/synthesis, Data analysis and synthesis, Synthesising translations/creating a line-of-argument*), review 4 was divided into four initial syntheses by participant type: (4a) pupils, (4b) teachers, (4c) parents and (4d) mixed views. *Table 44* shows the number of studies included in reviews 4a–d. Once completed these were synthesised in a further final step to create a synthesis of reviews 4a–d (see *Findings from the synthesis of reviews 4a–d*). Study characteristics and findings of included papers will be described separately for reviews 4a–d. As the nature of qualitative research is inherently interpretive and the structure of the findings is organised around third-order (reviewer) interpretations (see *Chapter 4, Methods of analysis and synthesis, Data analysis and synthesis*), findings will be discussed as they are reported to prevent the false distinction that could be created by their separation. Quality appraisal and applicability of studies will be discussed across papers in the discussion section with the synthesis of reviews 4a–d (see *Discussion*), followed by implications for policy and practice and recommendations for future research.

TABLE 44 Number of included studies in each part of review 4

Syntheses in review 4	Number of included studies
4a. The school experiences and perceptions of pupils diagnosed with ADHD (pupil views)	11 ^a
4b. The school experiences and perceptions of teachers of pupils diagnosed with, or at risk of, ADHD (teacher views)	11 ^a
4c. The school experience and perceptions of parents of pupils diagnosed with, or at risk of, ADHD (parent views)	6
4d. The school experiences and perceptions of pupils diagnosed with, or at risk of, ADHD, their teachers, parents and peers (mixed views)	7
Total	34 ^a

a One study²⁹⁶ contributed to two reviews (4a and 4b).

Review 4a: the school experiences and perceptions of pupils diagnosed with attention-deficit/hyperactivity disorder

Study characteristics for review 4a

A total of 11 studies reported in 13 papers were included in review 4a (pupil views). Summaries of included papers for review 4a are shown in *Table 45*. One study by Exley^{332,337,338} was reported in a journal article, a conference paper and a practitioner article; when citing this study only the journal article³³² will be referenced to signify the singular nature of the study. Five studies involved participants from the USA,^{27,299,331,334,336} four studies involved participants from Australia,^{296,314,332,335} two studies involved participants from the UK^{27,261} and one study involved participants from Canada.³³³ The UK study by Singh²⁷ included participants from the UK and the USA. All the studies explored the experiences and perceptions of children and young people diagnosed with ADHD; however, it is possible to group the papers by their foci:

- four studies explored experiences of pupils framed by the concept of ADHD, including their experience of symptoms, diagnosis, treatment and beliefs about the cause of ADHD (attributional beliefs)^{261,299,314,333}
- five studies explored social aspects of the experience of ADHD, including peer cultures and the role of anger and impulsivity in relationships,^{27,296,332,335,336} and
- two studies focused on the experience of ADHD and learning/school.^{331,334}

TABLE 45 Summary of included papers for review 4a: the school experiences and perceptions of pupils diagnosed with ADHD

First study author and year (<i>n</i> = 11)	Country of participants	Aim	Number	Age (years)	Gender (% female)	ADHD status (diagnosed or at risk)
Brice 1998 ³³¹	USA	To understand the perspectives of young people diagnosed with ADHD regarding what allowed them to and prevented them from learning successfully	10	13–18	10	Diagnosed with ADHD
Cooper 1998 ²⁶¹	UK	To explore perceptions of pupils diagnosed with ADHD about the effects of ADHD symptoms, the diagnostic label and treatment for ADHD on their lives	16	11–16	37	Diagnosed with ADHD

continued

TABLE 45 Summary of included papers for review 4a: the school experiences and perceptions of pupils diagnosed with ADHD (*continued*)

First study author and year (<i>n</i> = 11)	Country of participants	Aim	Number	Age (years)	Gender (% female)	ADHD status (diagnosed or at risk)
Exley 2008 ³³²	Australia	To understand the lived experience of children diagnosed with ADHD of social relations in informal play environments	2	8–9	0	Diagnosed with ADHD
Friio 1999 ³³³	Canada	To explore the personal experiences of young people diagnosed with ADHD	5	14–18	0	Diagnosed with ADHD
Houghton 2006 ²⁹⁶	Australia	To explore how students deal with the anger arising from the stress of living with ADHD	20	6–17	30	Diagnosed with ADHD
Kendall 2003 ²⁹⁹	USA	To explore perceptions of children and adolescents with ADHD regarding their perceptions, meanings and experiences of living with this disorder in a context of controversy about the nature of ADHD	39	6–17	33	Diagnosed with ADHD
McDannel 2005 ³³⁴	USA	To investigate student occupations within the classroom for young people diagnosed with ADHD	3	17	0	Diagnosed with ADHD
Prosser 2006 ³¹⁴	Australia and USA	To explore critically the impact of understanding ADHD as an individual biological deficit on the perceptions of young people diagnosed with ADHD	11	14–16	0	Diagnosed with ADHD
Singh 2011 ²⁷	UK and USA	To uncover the social and moral dimensions of ADHD diagnosis as manifested in the interplay of self-control, stigma and agency	150	9–14	NR	Comprised by three groups (numbers in each NR): those diagnosed with ADHD who are medicated; those diagnosed with ADHD who are not medicated; those without ADHD diagnosis or symptoms
Taylor 2008 ³³⁵	Australia	To explore the perspectives of students diagnosed with ADHD about how they deal with the issue of initiating and sustaining peer friendships	15	9–17	13	Diagnosed with ADHD
Wolfberg 1999 ³³⁶	USA	To explore how children with disabilities experience peer culture in inclusive preschool programmes	10 ^a	4–5	0	One diagnosed with ADHD (male aged 5 years) ^a

NR, not reported.

^a The 10 participants had a range of disabilities, only one of which was ADHD. Data were extracted where it was shown to be relevant to the one child with ADHD in the study.

Pupils attended a range of private, mainstream and special preschools, primary (or elementary) and secondary (or middle/high) schools. Pupils in the participant samples ranged in age from 4 to 18 years (Table 46). However, the large majority (82% of those for whom these data are available) were aged 11–18 years, so the synthesis represents older pupils' perspectives more than those of younger children. The gender ratio of children and young people in the samples was approximately 3 to 1 (76% boys: 24% girls of those for whom these data are available); this ratio is broadly in line with current information about gender prevalence.¹⁹ Although review selection criteria included studies that explore the experiences of pupils diagnosed with, or at risk of, ADHD, in fact, the selected studies explore the experiences of pupils, all of whom had been clinically diagnosed with ADHD.

TABLE 46 Numbers and ages of participants in included papers for review 4a: the school experiences and perceptions of pupils diagnosed with ADHD

Type of participant	Paper	Number and gender of pupils diagnosed with ADHD			Preschool–primary	Secondary–college
		Number	Male	Female		
Papers with participants in either primary or secondary school levels	Brice 1998 ³³¹	10	9	1		10 (aged 13–18 years)
	USA					
	Cooper 1998 ²⁶¹	16	10	6		16 (aged 11–16 years)
	UK					
	Exley 2008 ³³²	2	2		2 (aged 8–9 years)	
	Australia					
	Friio 1999 ³³³	5	5			5 (aged 14–18 years)
	Canada					
	McDannel 2005 ³³⁴	3	3			3 (aged 17 years)
	USA					
	Prosser 2006 ³¹⁴	11	11			11 (aged 14–16 years)
	Australia					
	Wolfberg 1999 ³³⁶	1	1		1 (aged 4–5 years)	
	USA					
Houghton 2006 ²⁹⁶	20	14	6	9 (aged 6–11 years)	11 (aged 11–17 years)	
Australia						
Taylor 2008 ³³⁵	15	13	2	5 (mean age 9 years)	10 (mean age 14 years)	
Australia						
Totals		83	68	15	17	66
Paper with participants across primary and secondary levels reporting gender	Kendall 2003 ²⁹⁹	39	26	13	39 (aged 6–17 years; mean 11.2 years) (numbers by school year NR)	
	USA					
Totals		122	94	28		
Paper with participants across primary and secondary levels not reporting gender	Singh 2011 ²⁷	150 ^a	NR		150 (aged 9–14 years) (numbers by school year NR)	
	UK and USA					

NR, not reported.

a Comprised three groups: (1) those diagnosed with ADHD who are medicated; (2) those diagnosed with ADHD who are not medicated; and (3) those without ADHD diagnosis or symptoms.

Two studies^{296,299} are included in both review 3 and review 4a (pupil views), because they contain analysis of perceptions of school strategies and/or interventions as well as experience of ADHD more generally. Therefore, only part of the findings from these studies is reported here. Review 4a reports the findings about the school-related experiences and perceptions of pupils diagnosed with ADHD generally; for findings about the experiences of strategies and/or interventions from these studies, please see review 3 (see *Chapter 5*).

Study methodology for review 4a (pupil views)

Details of the study methodology are given in *Table 47*. Ten of the 11 studies collected data through semistructured interviews.^{27,261,296,299,314,331–335} In addition to interviews, two used observation (classroom, playground),^{332,334} one used focus groups and the creation of group narratives,³¹⁴ and one used a range of activities and a questionnaire.²⁷ The remaining study collected data through participant observation.³³⁶

Most authors were not explicit about their chosen research methodologies. Those discussed involved ethnography,^{332,334,336–338} critical discourse analysis,^{332,337,338} grounded theory^{296,335} and phenomenology.^{331,333} Most authors explicitly discussed conceptual frameworks used to structure studies and/or analysis, including theories of learning style³³¹ symbolic interactionism,^{296,335} postmodern illnesses,²⁹⁹ synactive theory,³³⁴ narrative research approaches,³¹⁴ empirical bioethics²⁷ and ecological systems.^{27,296,335,336} Some studies were explicitly framed to explore attributional beliefs about ADHD^{261,314} and many others addressed and/or came to conclusions about the contribution of psychological and/or sociological and/or biological factors to ADHD symptoms.^{27,299,332–334,337,338}

Findings for review 4a (pupil views)

For review 4a (pupil views) Cooper and Shea's study²⁶¹ was chosen as an index paper²⁷² because of its breadth of themes which represented the content of other papers well. It is also appropriate as an index paper because it was one of the first studies to be conducted from the perspective of pupils diagnosed with ADHD, and its authors are known for expertise in the field of ADHD. That the study was conducted in the UK also adds to its pertinence. Data analysis followed the process described in *Chapter 4* (see *Methods of analysis/synthesis, Data analysis and synthesis*).

Overarching theme for review 4a: attention-deficit/hyperactivity disorder symptoms as an interaction between biological, sociological and psychological factors

The overarching theme identified was that ADHD symptoms are an interaction between biological, sociological and psychological factors. In the following sections, findings from papers that studied pupils diagnosed with ADHD are synthesised following the structure of the overarching theme by discussion of the experience of ADHD symptoms, sociological and psychological factors, and the impact of attributional beliefs about ADHD on the expression of symptoms. We chose to categorise sociological factors as the experience of relationships, stigma and classroom context and their relationship to symptoms of ADHD. There are arbitrary elements in both the reasons for ADHD stigma (see *Stigma*) and the context of classrooms [see *Findings for review 4b (teacher views), Overarching theme for review 4b: factors that influence a teacher's willingness to adapt their response to attention-deficit/hyperactivity disorder symptoms, Classroom structure as a contributor to attention-deficit/hyperactivity disorder symptoms* and *Findings for review 4d (mixed views), Fit between pupils diagnosed with attention-deficit/hyperactivity disorder and school*], that can be implicitly perceived as normal and right owing to sociological tradition. Therefore, stigma and the classroom context have been categorised as sociological factors, although stigma is also closely related to psychological aspects of ADHD (see *Psychological factors*) and the classroom context could be categorised as ecological. This has been done in order to highlight the sociological aspects, because these are important in understanding changes that could be made to support the implementation of non-pharmacological interventions for ADHD in schools. Psychological factors were more straightforwardly identified as experiences related to agency, identity and the desire for approval. We acknowledge the contribution of biological factors to ADHD symptoms, but as there are no clear boundaries for discerning biological aspects in pupil experience, we only mention them here (see *Chapter 1, What is attention-deficit/hyperactivity disorder?*). We acknowledge that grouping factors in this way

TABLE 47 Methodological details of included papers for review 4a: the school experiences and perceptions of pupils diagnosed with ADHD

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Brice 1998 ³³¹ USA	10	Nine males and one female aged 13–18 years	Ten interviews	Convenience, purposive	Transcendental phenomenological analysis; concern over learning style Though not explicitly stated, the author demonstrates biopsychosocial beliefs about ADHD	Line-by-line categorisation of transcript data according to research questions; separate descriptive accounts and a structural analysis were created for each participant; these were integrated to create an overall analysis
Cooper 1998 ²⁶¹ UK	16	10 males and six females aged 11–16 years	Thirty-two semistructured interviews	Convenience, purposive	The authors explored the impact of biopsychosocial vs. individual/medical views of ADHD	An inductive, iterative process of content analysis involved: <ul style="list-style-type: none"> • skim reading all transcripts • memoing emergent themes following research questions • organising and reducing memo themes • applying themes to transcripts to test accuracy • adapting memo themes to create coding system • applying codes to transcripts, adapting and reapplying as necessary
Exley 2008 ³³² Australia	2	Two males aged 8–9 years	Two semistructured interviews; playground observation	NR	Critical ethnography; use of Fairclough's critical discourse analysis ³³⁹ and exploration of the social construction of identity. Analysis is conducted from a sociological standpoint, but the author does not completely discount the potential for contribution of biological factors to ADHD symptoms	NR
Friio 1999 ³³³ Canada	5	Five males aged 14–18 years	Fifteen semistructured interviews	Convenience, purposive	Hermeneutic phenomenology; the author defines ADHD according to biological deficit, but in the conclusion he problematises medical/individual assumptions because of his findings that personal and contextual factors are also implicated in ADHD symptoms	Listening to and reading/rereading transcripts, initial coding following research questions, extracting significant statements; developing these into first-order thematic abstractions, second-order thematic clusters, then a between-person analysis. Member checks were conducted

continued

TABLE 47 Methodological details of included papers for review 4a: the school experiences and perceptions of pupils diagnosed with ADHD (continued)

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Houghton 2006 ²⁹⁶ Australia	20	14 males and six females aged 6–17 years	Twenty semistructured interviews	Purposive	Ecological validity; symbolic interactionism and grounded theory. These are sub-studies from a larger mixed-methods project, where a central aim was to explore not only biological aspects of ADHD, but the way these interact with psychological and sociological factors in natural settings	Constant comparative method; coding for patterns and salient features; codes constantly compared and interrogated by asking such questions as 'What is this piece of data an example of? What property does this piece of data represent?' until saturation. This process developed codes into categories and relationships between them were established. A second researcher independently coded 10% of transcripts to establish reliability
Kendall 2003 ²⁹⁹ USA	39	26 males; and 13 females aged 6–17 years	Thirty-nine semistructured interviews	Purposive	Discuss ADHD as a postmodern illness because of its controversial nature; authors are seeking to establish whether or not ADHD is 'truly a bonafide biological disease' (p. 115) rather than exploring interactions between biological and social factors. They conclude with discussion of biological, social and psychological factors, but suggest ADHD 'exists' on the basis that there are biological contributors to symptoms; thus foregrounding the biological	Constant comparative method; open coding; phenomena were labelled and described in terms of properties, characteristics, attributes and dimensions until saturation. Codes were clustered to create categories; integration and inter-relationships of the categories formed the basis of the theoretical understanding of the data. NUDIST qualitative software (QSR International, Burlington, MA) was used; credibility supported through peer debriefing
McDannel 2005 ³⁰⁴ USA	3	Three males aged 17 years	24 hours semistructured interviews; 64 hours classroom observation	Convenience, self-selecting, purposive	Ethnography; theories from occupational therapy, including Gallimore's syntactic theory	Constant comparative method; a recursive process in which the thick descriptions of classroom occupations, interview narratives and member checking narratives were coded in broad categories, then subsequently reprocessed several times into core themes. The open coding process included initially identifying unrestricted free nodes, blocking into coded categories, collapsing, revising and distilling these categories into the final analysis and study's findings

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Prosser 2006 ³¹⁴ Australia	11	11 males aged 14–16 years	Semistructured interviews and focus groups	Purposive; self-selecting	Narrative research following Clandinin 1994; ³⁴⁰ the author follows Wakefield 1992; ³⁴¹ in understanding ADHD as equally biological and social	Critical cover narratives were created. These involve the way private narratives and 'official' narratives are negotiated. The author developed relationships with young people during group meetings and semistructured interviews, then the group together wrote a narrative about a fictional character with ADHD. The author also constructed his own narratives that explored the dominant discourses about ADHD that he heard from the young people, and their effect on them. The author also carried out analysis of the macro-contexts of the participants and used these to make sense of the use of discourses by young people
Singh 2011 ²⁷ UK and USA	Over 150 ^a	Males and females aged 9–14 years	Semistructured interviews plus a range of activities and a questionnaire	Self-selecting; purposive	Use of Haimes' 2002 ³⁴² empirical bioethics to explore social and ethical impacts of biomedical styles of thought and biomedical technologies in context; Bronfenbrenner's 1979 ³⁴³ model of the ecological niche. Singh explores the 'ongoing and mutual process of shaping' between individuals and their social and physical spaces and argues against sociological models that 'locate disorder either in the child or in the environment' and suggests diagnosis is part of the interplay between the two	Transcripts were read/reread then coded thematically by the primary investigator. Themes were further broken down into categories, and the relationships among categories were specified. Both a ground-up coding frame and a deductive 'organising framework' were developed. A coding frame had been drawn up earlier, and discussed in a team of three other coders to establish agreement and transparency
Taylor 2008 ³³⁵ Australia	15	Nine males and one female aged 11–18 years; four males and one female aged 6–11 years	20 semistructured telephone interviews	Self-selecting; snowball	Symbolic Interactionism	Grounded theory was followed including simultaneous data collection, coding and analysis until saturation was achieved; the constant comparative method was used to analyse data. Reliability of coding was established using an independent rater

continued

TABLE 47 Methodological details of included papers for review 4a: the school experiences and perceptions of pupils diagnosed with ADHD (continued)

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Wolfberg 1999 ³³⁶ USA	10 ^b	One male aged 5 years	Participant observation	Purposive	Bronfenbrenner's 1979 ³⁴³ theory of ecological systems. The authors focus on social aspects of ADHD	Constant comparative method was employed involving quantitative and qualitative data; following coding, conceptual categories were classified and compared, then an educational ethnographer was consulted and the concept of peer culture was chosen as a focus for the further development of themes. Triangulation through multiple data forms and member checks contributed to credibility

NR, not reported.
 a Comprised three groups: (1) those diagnosed with ADHD who are medicated; (2) those diagnosed with ADHD who are not medicated; and (3) those without ADHD diagnosis or symptoms.
 b The 10 participants had a range of disabilities, only one of which was ADHD. Data were extracted where it was shown to be relevant to the one child with ADHD in the study.

may create false distinctions; however, the intent is to discuss the role of particular factors related to ADHD symptoms where possible, while understanding that origins and expression of behaviour result from interactions between them. It is impossible to specify or adequately represent the relationships between biological, psychological and sociological factors, as potential combinations are multiple, reciprocal and complex; instead we will depict relationships broadly based on the findings from included papers in review 4a (for a schema of these see *Figure 7*).

Table 48 shows the relationships between first- (participant) and second-order (author) concepts from included papers, and third-order (reviewer) concepts. In review 4a (pupil views), the overarching theme identified was the 'Expression of ADHD symptoms as an interaction between biological, sociological and psychological factors'. Four subthemes were identified:

1. the experience of ADHD symptoms
2. sociological factors that impact the expression of ADHD symptoms
3. psychological factors that impact the expression of ADHD symptoms
4. impacts of different attributional beliefs on ADHD symptoms.

Each will be discussed in turn below.

Confusion about ADHD was also demonstrated to be an important issue in review 4 in understanding barriers to the implementation of non-pharmacological interventions. Research suggests that ADHD symptoms are related to a difference in pupils' genes and/or cognitive processing (for more discussion see *Chapter 1*). However, similar symptoms may also result from other phenomena such as trauma,⁴⁵ lack of sleep³⁴⁴ and/or giftedness.^{345,346} The behaviours that comprise the syndrome of ADHD are normally distributed in the general population and, thus, are present at times in most children to some degree. The lack of a direct link to biological explanatory factors contributes to the controversy surrounding ADHD. Although NICE clinical guidelines⁴⁶ suggest the interaction of biological/sociological/psychological factors in relation to ADHD symptoms through their recommendation for multimodal treatment, the medicalisation of Western cultures can mean that lay people understand diagnosed conditions in particular ideological terms (*Box 11*). Pupils diagnosed with ADHD in review 4a made predominantly medicalised attributions about ADHD despite describing their experiences of ADHD symptoms in relation to sociological and psychological factors. For example, pupils describe the increased expression of ADHD symptoms as following stress brought about by relationships with others (see discussion below), including parents, teachers and peers (sociological factors); the specific demands of paying attention in the classroom (sociological factors); and disappointment in themselves for not meeting expectations (psychological factors).

Experience of attention-deficit/hyperactivity disorder

Experience of ADHD symptoms described by pupils diagnosed with ADHD centre round the symptoms specified in clinical diagnostic guidelines: hyperactivity/impulsivity and inattention. Although all pupils might be expected to have had similar experiences to those described below at some point, it is the pervasiveness and intensity of these experiences that differentiates those diagnosed with ADHD, and suggests a biological difference. For example, Kendall *et al.*²⁹⁹ found it common for pupils to experience a loss of emotional self-control daily, and a young person in Brice's study said the following about difficulty in maintaining emotional control:

It's not a one-time thing. It's a constant struggle.

American young person diagnosed with ADHD (aged 13–18 years), p. 74³³¹

Thus, despite shared experience of hyperactivity/impulsivity and inattention for all pupils, pupils with ADHD describe experiences that are qualitatively different from their peers because the severity and/or persistence of these symptoms interfere with their relationships and attainment at school.

TABLE 48 Relationships between first- (participant) and/or second-order (researcher) concepts coded from included papers for review 4a (pupil views), and third-order (reviewer) concepts

Subtheme	Third-order concepts (overarching theme: Expression of ADHD symptoms as an interaction between biological, sociological and psychological factors), themes and subthemes		Psychological factors that impact the expression of ADHD symptoms					Impact of different attributions about ADHD	
	First- and second-order concepts (index paper Cooper 1998 ³⁶¹)	Third-order concepts (overarching theme: Expression of ADHD symptoms as an interaction between biological, sociological and psychological factors), themes and subthemes	Experience of ADHD symptoms	Relationships	Classroom context	Stigma	Identity		Agency
Behaviours: being disruptive, impulsive oppositionality, dangerousness:									
Sense of lack of control	X		X				X		X
Spoiled identity							X		X
Role of context in determining problematic behaviour			X		X		X		
Concentration problems	X				X				
Academic issues			X		X			X	X
Diagnosis: acceptability and stigma			X		X		X	X	X
Attitudes to treatment	X		X		X		X	X	X
Contributing papers	27,261,296,299,314,331,333,334	27,296,299,314,332-336	27,261,299,314,331-334	261,296,299,314,332-334	261,296,299,314,332,333	27,261,296,314,332-334	27,261,296,314,332,333,335	261,299,314,333,334	27,261,299,314,332

BOX 11 Definition of medicalisation

Rafalovich³⁴⁷ defines medicalisation as the process by which deviant acts

- (a) become understood to originate from a medical cause and are therefore perceived to be beyond an individual's control; and
- (b) are believed to be treatable through medical knowledge and the application of techniques by medical experts.

Pupils diagnosed with ADHD talked primarily about aspects of impulsivity related to a lack of emotional self-control and problems of inattention. There was relatively little description of the experience of hyperactivity; only one researcher identified a theme that focused on experiences of hyperactivity ('I gotta move';³³³ for further discussion see *Hyperactivity*). This may be related to the age of most of the participants in these studies; Prosser found that by secondary school the hyperactive behaviour of most pupils had declined since leaving primary school.³¹⁴

Impulsivity/lack of emotional self-control

Although pupils sometimes refer to impulsive dangerous behaviour, for example jumping onto railway tracks,²⁶¹ most describe impulsive behaviour in terms of a lack of emotional self-control. Young people in Brice's study attributed many of their behaviours to the influence of mood, with good mood influencing positive behaviour as much as bad mood fostering negative behaviour.³³¹ The young people in Brice's study were mostly unaware of the origins of good and bad moods.³³¹ Pupils in Houghton *et al.*'s study referred to the origins of bad mood as 'stress'.²⁹⁶ Stressors described by pupils in the studies include:

- home events such as arguments with siblings and parents^{296,299,331}
- distractions in the classroom²⁹⁶
- the need to sit in the classroom without being able to move about or go outside^{333,334}
- frustration with the difficulties of schoolwork^{261,296,299,331}
- irritation with peers^{27,296}
- being 'picked on' by teachers^{296,331}
- remorse at their own behaviour^{296,331}
- poor night's sleep^{331,334}
- confused, swiftly moving thoughts that make it difficult to communicate with others.²⁶¹

Pupils describe a loss of control that can occur suddenly and unexpectedly or result from a slow buildup of many small stressors over time.^{296,299} They sometimes describe experiences of these intense emotions, especially anger, through physical sensations:^{27,261,296}

Red balls of fire that come up my chest and into my head.

Australian pupil diagnosed with ADHD (aged 6–17 years), p. 137²⁹⁶

Many of the pupils in these studies understood themselves to be unable to control these emotions:^{261,296,299,314}

Things build up in you until you can't take it anymore. It is then that you start yelling, screaming and carrying on. You just can't stop yourself.

Australian pupil diagnosed with ADHD (aged 6–17 years), p. 131²⁹⁶

The intensity of emotion, inability to control it and the consequent negative impact on relationships that pupils describe is striking because of its prominence across studies.^{27,261,296,299,314,331,334} This suggests that emotional self-regulation deserves further attention, whether with reference to its role as part of the constellation of symptoms of ADHD or as a discrete issue (see *Chapter 1, What is attention-deficit/hyperactivity disorder?*).

Inattention

A number of pupils described stimuli in the classroom as a barrier to learning.^{261,299,331,333,334} Sounds and sights were difficult for them to filter out:

One minute I'm working and the next I'm in the middle of somebody's conversation.

American young person diagnosed with ADHD (aged 13–18 years), p. 50³³¹

The way some pupils described the intrusion of sound was unusual, so much so that Friio³³³ identified the theme, 'what am I hearing?' For some children and young people, sounds mix together and become something unrecognisable:

If my friend starts talking I'll turn around and talk to him and try to divide my attention between what the teacher is saying and what the friend is saying and of course it ends up a jumble, and I get two voices talking at once . . . and they kinda blend into one and I can't separate one from the other.

Canadian young person diagnosed with ADHD (aged 14–18 years), p. 119³³³

Other sources of distraction mentioned were being touched,³³¹ being interrupted by teachers or teaching assistants who, in an attempt to support, actually broke the pupils' ability to concentrate;³³¹ being unable to prioritise and/or make sense of large amounts of verbal or written information, including expectations for work:^{296,299,331}

When I ask them for help . . . they go through the stuff I already understood, and I'll pay attention to that and by the time they've gone through that stuff, I'm not paying attention to what I'm supposed to learn and it goes right over my head.

American young person diagnosed with ADHD (aged 13–18 years), p. 80³³¹

Pupils also described becoming distracted by their own numerous, simultaneous thoughts:^{261,333,334}

At school I'll be asked something and I'll be thinking about it and I'll totally lose track of it. It will get lost in an ocean of other thoughts. It's just I really have to concentrate to keep that one thing in my head [. . .] so you just lose your place in what you're thinking.

Canadian young person diagnosed with ADHD (aged 14–18 years) [reviewer's edits], p. 78³³³

Hyperactivity

Young people express a need to move, through activities like fidgeting, drawing or gross body movement.^{333,334}

I'll like start going like this [rubbing his hands] and twiddling my thumbs. I move my feet a lot and look at other stuff and move my head a lot . . . if I stop . . . I feel really funny so I keep on going.

If I stop, well like I just start again. I don't know why . . . I feel more comfortable when I start fidgeting again

Canadian young person diagnosed with ADHD (aged 14–18 years) [reviewer's edits], p. 111³³³

McDannel³³⁴ found that young people in her study responded emotionally to context and that these emotions trigger ADHD symptoms; she concluded that such behaviour is unconsciously self-regulatory and an attempt to manage internal emotional states. She found that young people with ADHD in the classroom are often involved in a dynamic balancing act in response to stress as a result of classroom structures and expectations. They unconsciously self-regulate in an attempt to achieve stability of neurobehavioural states brought about by needs for alertness, arousal, selectivity or sustained attention. Examples of unconscious self-regulatory behaviour include posture; kinetic energy displays such as fidgeting, drawing, shaking a leg; pressured speech; irritability; increased arousal including loss of temper and changes in alertness (e.g. hyperfocusing or daydreaming). Unconscious self-regulation can help or hinder the schoolwork done by pupils; for example, by supporting sustained focus or, on becoming

overwhelmed, the pupil may be unable to work (and go to sleep, or become disruptive enough to be expelled from the classroom). Young people in Friio's³³³ study shared numerous stories of being overly active, in terms of physical activity, talking and repetitive motion in class such as drawing and fidgeting. As was true for participants in McDannel's³³⁴ study above, they described a sense of relief that they experienced in response to movement.

Implications of young people's experiences of ADHD for non-pharmacological interventions are given in *Box 12*.

Sociological factors

Cultural attitudes towards the origins of ADHD symptoms in pupils often involve the perception that they are a result of sociological factors, particularly relating to family dynamics,^{286,291,294,296} including poor parenting. However, sociological factors described by pupils diagnosed with ADHD in included studies involved relationships and the context of the classroom. An additional factor implicated in relationships was the dynamics of stigma. These themes are described in more detail below.

Relationships

A main finding from Prosser³¹⁴ was that, unlike teachers and parents, the symptoms and label of ADHD were not a focus of concern for young people diagnosed with ADHD. Rather, the pupils' focus for concern was on their relationships with peers, parents and teachers, and the ways in which ADHD symptoms made these relationships difficult. In particular, difficulties pupils report experiencing with emotional self-control seem to impact relationships negatively.

Young people in some studies^{314,333,334} commented that, in their experience, the most important means to academic success was an understanding, approachable teacher. Unfortunately, pupils also commonly described punitive teachers^{27,296,314,333,335} who left them feeling hurt, angry and/or disappointed. Pupils described teachers who put them 'under the spotlight', being excessively punitive while ignoring similar behaviour from other pupils,^{296,299,333} and teachers who could not spend more time explaining work to and supporting ADHD pupils

BOX 12 Implications for non-pharmacological interventions related to children's and young people's experiences of ADHD symptoms

Pupils diagnosed with ADHD describe impulsive emotional outbursts to be triggered by stress in relationships, by negative self-concepts and by their physical surroundings. This suggests non-pharmacological interventions designed to improve social and emotional well-being for pupils with ADHD are likely to decrease ADHD symptoms. In addition, the inclusion of adaptation to the physical environment (relevant to the individual pupil's needs) holds the potential to decrease ADHD symptoms.

Pupils diagnosed with ADHD are likely to benefit from strategies for maintaining emotional self-control. Raising awareness in pupils of links between experiences and resulting mood might be necessary for them to understand when to apply these strategies.

Although they cause difficulty to teachers and parents, ADHD behaviours may not be 'naughty' but rather an unconscious attempt by pupils to regulate their emotions. Thus, punitive strategies may be inappropriate; a more constructive response would be to view excessive movement as a signal giving information to teachers and/or parents about a pupil's emotional state.

because of large class sizes.³³³ By contrast, pupils also described a few teachers whose approach supported them personally to learn,^{314,333} linking this to school years where they did all right:

I started school off well, like I had a good teacher, but then in year two I had a teacher who didn't like me so I took a real dislike to her and so that didn't work well at all.

Australian young person diagnosed with ADHD (aged 14–16 years), p. 102³¹⁴

Pupils admitted to challenging purposely teachers who they thought treated them unfairly,^{296,314,333} suggesting that difficult behaviour may be ameliorated or exacerbated according to the quality of pupil–teacher relationships.

Young people in Friio's³³³ study expressed the feeling that they were not listened to by most adults in their lives (parents, teachers, counsellors, doctors), describing a lack of communication about ADHD and medication, where they felt that they were not consulted about the ADHD issues that mattered to them. This was particularly poignantly expressed in relation to the counsellors or psychiatrists because of the expectation that they were meant to help them;

[the psychiatrist] wouldn't really listen to what I had to say . . . she didn't really see me as a person who had a problem . . . she just saw me as the problem . . . just diagnosing the problem, giving you medication, and letting you go away . . . She didn't listen to me . . . that would have been a lot better for me because I think I did need that sort of thing.

*Canadian young person diagnosed with ADHD (aged 14–18 years)
[reviewer's edits], p. 150³³³*

Pupils in Kendall *et al.*'s²⁹⁹ study also reported confusion over the meaning of ADHD, suggesting a lack of communication from adults. However, in contrast to Friio's³³³ study where young people felt unsupported by their parents, pupils in Kendall *et al.*'s²⁹⁹ study cited their mothers as the person who helped and supported them the most with their ADHD-related problems.

Pupils commonly expressed concern over the difficulties that they experienced in peer relationships,^{296,314,332,335} including emotional distress at feeling 'left out'³³⁵ and/or bullied.³³² Taylor and Houghton³³⁵ found differences in perceptions about peer relationships by subtype of ADHD diagnosis. Pupils diagnosed with the inattentive type of ADHD believed that they were able to decide consciously whether or not to engage with peers. Pupils with hyperactive/impulsive type believed their ability to engage with peers were dependent on the actions of others, for example by blaming difficulty in relationships with peers on where they are seated by teachers in the classroom. In Wolfberg *et al.*'s³³⁶ study of preschool peer interactions, young pupils with disabilities (one with ADHD, aged 5 years) experienced exclusion from peer culture because they misinterpreted and overlooked social cues, with peers eventually showing apathy and indifference to them. Children with disabilities were included in play when they established common ground with their peers (e.g. by finding other peers who were loners). They were also included when peers normalised their unconventional behaviour, for example when peers agreed to be involved in fantasy character rituals.

The role of context in attention-deficit/hyperactivity disorder symptoms

Most studies included in review 4a (pupil views) discussed ways that the expression of ADHD symptoms differed according to context. Cooper and Shea²⁶¹ discuss the role that the attitudes of parents and teachers play in framing pupil's interpretation of their behaviour as problematic; Kendall *et al.*²⁹⁹ describe the dissonance pupils experience because they understand the expectation for them to 'be good' but that they are not meeting it. Thus, in both studies, the problems of ADHD are defined by the expectations of the adults in the contexts pupils find themselves in.

Singh²⁷ identified differences in expression of ADHD symptoms according to ecological niche (*Box 13*) and cultural values. Her study explored a number of different settings in the USA and UK, and in the ecological niche of UK state schools in small, working-class communities with low social mobility, ADHD was

BOX 13 Description of Bronfenbrenner's ecological theory³⁴³

Two studies (by Singh²⁷ and Wolfberg *et al.*³³⁶) in review 4a (pupil views) framed the design and analysis of their studies using Bronfenbrenner's ecological theory.³⁴³ This theory emphasises the fundamental importance of exploring reciprocal transactions between an individual, their social relationships and physical spaces in understanding child development.

understood by pupils to be an inability to control ones' emotions, rather than a difficulty with hyperactivity and/or attention. The extent of punishment levied by teachers on pupils diagnosed with ADHD for poor behaviour led them to understand behaviour to be more important than learning. In other communities (in the USA and the UK) where attainment was more highly valued, impact on attainment caused by hyperactivity/inattention was given higher priority, although lack of control over anger and aggression was still perceived to be an important aspect of ADHD symptoms. Singh²⁷ argues that the value placed on self-control in UK culture also contributed to an understanding of ADHD as lack of emotional control in this particular ecological niche.

Implications of young people's experience of relationships for non-pharmacological interventions are given in *Box 14*.

Other authors speak more specifically about the role of schools and classrooms in the expression of ADHD symptoms. Prosser³¹⁴ discusses the way ADHD symptoms are expressed differently according to the different contexts of primary and secondary school. Young people in his study described a decrease in the effectiveness of medication as they aged (despite increased doses with growth). Prosser attributes this

BOX 14 Implications for non-pharmacological interventions related to aspects of relationships that contribute to ADHD symptoms

Unlike parents and teachers, pupils diagnosed with ADHD may not be particularly concerned with symptoms of ADHD; rather, they may hold as a central concern the negative impact ADHD symptoms can have on their relationships with others. Therefore, non-pharmacological interventions that focus on supporting relationships between pupils diagnosed with ADHD and their parents, teachers and peers may be particularly welcomed and relevant to these pupils.

Pupils diagnosed with ADHD with poor friendships found this greatly troubling. Non-pharmacological interventions that teach social skills may improve these children's well-being, as well as reducing expression of ADHD symptoms.

Many pupils diagnosed with ADHD in these studies describe the quality of their relationship with their teacher to be fundamentally important to their academic success, with good relationships ameliorating ADHD symptoms and poor relationships exacerbating them. The power of this relationship to act as a barrier or facilitator to improved behaviour and learning is an important topic for inclusion in teacher education about ADHD.

Some pupils diagnosed with ADHD in these studies expressed the feeling that their ADHD-related concerns were not listened to; many were confused about the meaning of ADHD. Non-pharmacological interventions that involve reciprocal interactions between those who administer them and the targeted pupils – where the views of ADHD pupils are sought and taken into account and/or that explain ADHD (*see Explaining attention-deficit/hyperactivity disorder as an interaction between biological, sociological and psychological factors*, below, for discussion of the benefits of describing ADHD as an interaction between biological, sociological and psychological factors) – may support these pupils' well-being and decrease the expression of ADHD symptoms.

to lower levels of social difficulties in primary school years, with ADHD symptoms becoming more evident in response to the greater academic and social demands of high school.

Exley³³² focuses on the way social groups in school create and/or perpetuate ADHD behaviour. School rules normalise what is good and bad, with ADHD behaviour identified as bad. Children respond to this by excluding children in the 'bad' category. This can exacerbate ADHD symptoms:

[when at home] he starts getting hyper and starts breaking things, [because] he imagines that someone is teasing him.

Child describing what a puppet diagnosed with ADHD might do [reviewer's edits], p. 76³³²

Exley³³² argues that, through a process of policing social boundaries, once a child is labelled bad, even when other children display similarly bad behaviour, the ADHD child is perceived as bad and the other children are perceived as good. This can lock pupils diagnosed with ADHD out of social groups.

McDannel³³⁴ identified two classroom genres that influence pupil behaviour. Pupils demonstrated greater ability to remain on task and to complete assigned schoolwork in 'formal order classrooms', whereas unconscious self-regulatory occupations (see *Hyperactivity* for a list of examples) were more pronounced in 'Dada' classrooms (see *Box 15* for a description of formal order and Dada classrooms). However, pupils diagnosed with ADHD learned in both genres of classrooms, although in Dada classrooms the learning tended to be more social than academic. In the Dada classrooms, participants had greater difficulty with sustained attention and persistence. One of the pupils who completed little work in Dada classrooms exercised persistence with schoolwork when working in isolation, which suggests the important role such aspects of the classroom may have in the ability for pupils diagnosed with ADHD to access the curriculum.

Friio,³³³ although defining ADHD in his thesis through medical constructs of cognitive deficit, concluded on the basis of pupil accounts that much of the expression of ADHD symptoms is situational, and that the environment of school particularly contributes to, or triggers, these behaviours. Similarly, young people in Prosser's³¹⁴ study reported that it was the context of school where they experienced the greatest problems; they could negotiate other areas of life with some success. Young people in Brice's³³¹ study spoke of:

- feeling frustrated, angry, drained and/or imprisoned by school
- finding that the distraction of peer relationships, noise and movement in classrooms prevented them from learning (for related findings see *Impulsivity/lack of emotional self-control*).

BOX 15 Description of McDannel's 'classroom genres'³³⁴

Classroom genres: formal order classrooms

In a formal order classroom there is a sense of order and the sense that the teacher is in control; desks are set up in rows and columns; teachers interact more formally in style with pupils, although are not impersonal. The environment is relatively quiet; rules such as raising one's hand to speak are enforced.

Classroom genres: Dada classrooms

Dada classrooms negate 'some traditional social canons and values for deportment' (p. 135). Dada classrooms involve teachers who interact more informally with pupils and are less likely to establish consistent boundaries. Interactions in Dada classrooms are characterised by teachers who mediate resistance, hostility, alienation and stubbornness and pupils who take 'an unremitting delight in employing the use of self in acts of creative freedom' (p. 136).³³⁴

In contrast to the above examples of contexts that exacerbate ADHD symptoms, Brice,³³¹ in his doctoral thesis exploring the experience of learning for young people diagnosed with ADHD, described contexts in which these pupils learned despite their ADHD. These young people describe the experience of learning as:

- feeling still, calm, confident ('I know I can get the work done'), excited and happy ('I just wanted to keep learning')
- learning via observation, trial and error and repetition, and preferred visual/kinaesthetic, active learning to static/rote learning
- mostly learning alone, in some situations learning with others (teachers, parents and peers)
- being self-motivated, where they determined how much effort to put into learning and the content, extent and depth of what they learned.

There were echoes of these findings in other studies.^{261,299,333} Cooper and Shea²⁶¹ note that pupils who struggle academically may also claim to do exceptionally well in other areas, such as art; one of the participants in their study described great difficulty writing an essay on *The Merchant of Venice* for a lesson, but had written a number of short stories and part of a novel outside of school. This pupil found it difficult to engage in the classroom, often mentally creating storylines during lessons instead of listening. Pupils in Kendall *et al.*'s²⁹⁹ study commented on the difficulty they had sustaining attention when the lesson content was not intrinsically interesting to them. The statement by the young person below suggests that unless these pupils understand the purpose of their school activities they perceive them to be a waste of time:

[when I learn] I'm out on my own and not just sitting there doing nothing.

*American young person diagnosed with ADHD (aged 13–18 years)
[reviewer's edits], p. 80³³¹*

Brice³³¹ describes the difference between school learning and self-learning to be that school learning involves criteria that have to be performed on demand to authorities. School learning involves external time pressures, external expectations and relationships with authorities and these are all things that can be problematic for young people with ADHD.

Overall, the findings about context and ADHD symptoms suggest that the context of the classroom often creates barriers to learning for these pupils.

Implications of the role of the classroom context for non-pharmacological interventions are given in *Box 16*.

BOX 16 Implications for non-pharmacological interventions related to the role of classroom context in ADHD symptoms

Included studies demonstrated that macro- and micro-cultural expectations can play a part in what are interpreted as being ADHD symptoms; non-pharmacological interventions could improve their relevancy by incorporating flexibility in structure so they could be adapted according to context.

Included studies found that pupils diagnosed with ADHD often experience peer relationships, noise and movement in classrooms as barriers to learning; this could be explored further in developing approaches to support these pupils.

Included studies found that pupils diagnosed with ADHD could experience learning as rewarding when it involved observation, trial and error and repetition, visual/kinaesthetic approaches, active/meaningful learning and self-motivation; this could be explored further in developing approaches to support such pupils. Although findings suggest that pupils may learn more easily while working alone, this neglects the social needs of these pupils. Developing constructive ways to work with others may, therefore, be more worthwhile.

Stigma

Stigma is a concept developed within the field of social psychology and is particularly well expressed by Goffman.³²² Goffman describes stigma as the disgrace incurred on those categorised with attributes outside what is considered to be ordinary and natural; ‘an undesired differentness’ that leads us to ‘believe the person with a stigma is not quite human’, justifying us to ‘exercise varieties of discrimination, through which we effectively, if often unthinkingly, reduce his [sic] life chances’ (p. 15).³²² Such disgrace can result in the ‘spoiled identity’ of the person on whom the stigma is visited, as they internalise these understandings as accurate. Thornicroft³⁴⁸ further discusses stigma in relation to mental illness by distinguishing aspects of ignorance (lack of knowledge about a mental illness), prejudice (negative stereotypical beliefs about people with a mental illness) and discrimination (actions that result in marginalising people with a mental illness through differential treatment). Importantly, the attributes that provoke stigma are not discrediting in and of themselves, but only according to the value systems of those allocating the stigma, who Goffman calls ‘normals’.³²² Labelling involves the assignment of the category name invoking the stigma onto a person, and can be informal or formal. An example of informal labelling of ADHD symptoms is ‘naughty boy’; formal labelling of ADHD symptoms would involve clinical diagnosis of ADHD.

The papers included in review 4a report varying amounts of stigma related to the symptoms of ADHD and/or the label of ADHD. Cooper and Shea²⁶¹ found hyperactive/impulsive and/or combined types of ADHD to be more highly stigmatised than ADHD inattentive type, with school peers expressing irritation over ‘extreme and erratic’ behaviour. In contrast, ADHD inattentive type involves ‘a failure to meet expectations’ and, as it does not elicit negative reactions from others, it involves less stigma. Outside of school the authors characterise the label of ADHD, and medical treatment for it, to be stigmatising. Prosser³¹⁴ found that the young people in his study were stigmatised on the basis of their ADHD symptoms rather than for the label of ADHD. They did not experience diagnosis of ADHD or taking medication for ADHD as stigmatising. Pupils in both Kendall *et al.*²⁹⁹ and Exley’s³³⁸ studies describe feeling stigmatised by teachers and/or peers for taking medication for ADHD at school. These findings suggest patterns of stigma vary according to micro culture.

Although the above findings referred to stigma explicitly, other findings seem to link to Goffman’s³²² description of the workings of stigma (*Box 17*) without researchers’ explicit discussion of this concept. For example, descriptions by pupils of teachers who punish them excessively while ignoring similar behaviour by peers^{296,299,333} link to aspects of stigma described in *Box 17c*. Exley’s³³⁸ finding that ADHD children were labelled ‘bad’ and the resulting social exclusion is another example of similar behaviour (see *The role of context in attention-deficit/hyperactivity disorder symptoms*, above). In one of the quotes above from Friio’s³³³ study (see *Relationships*, above) a young person describes feeling that he is not treated as a human being; this links to the discussion of Goffman³²² about stigma. In addition, symptoms of ADHD are problematic specifically to the requirements of a classroom (e.g. see *Classroom structure as a contributor to attention-deficit/hyperactivity disorder symptoms*, below) rather than being problematic in and of themselves. Again, this fits with Goffman’s³²² description of stigma. This demonstrates the

BOX 17 Potential impact of a stigmatising label on a normal’s behaviour

Goffman³²² describes a number of potential ways that a stigmatising label may affect a normal’s perceptions or actions toward a stigmatised person:

- (a) generalising the particular faulty attribute to a wider gestalt of disability (e.g. assuming a child with ADHD is not capable of learning)
- (b) assuming the person exhibits the range of attributes by which the label is understood rather than seeking to understand the person
- (c) the person’s behaviour will be understood as an expression of the stigmatised attribute, whereas the same behaviour from a normal would not be regarded in the same way.

stigmatised nature of ADHD symptoms and the term 'ADHD' itself, although differences in the experiences of stigma between pupils suggest the intensity of this stigma varies according to micro culture.

Implications of stigma for non-pharmacological interventions are given in *Box 18*.

Psychological factors

The included studies suggest that psychological factors are implicated in the expression of ADHD symptoms and that pupils diagnosed with ADHD can be personally impacted in important and powerful ways. In the following sections, the desire for approval that pupils diagnosed with ADHD express, their perceptions of agency (or lack thereof) and issues of identity are discussed.

Desire for approval

A number of authors note the desire expressed by pupils diagnosed with ADHD to meet expectations for behaviour and schoolwork.^{261,299,333}

I have wanted to get over it . . . I have wanted to get better marks . . . and it just doesn't work.

Canadian young person diagnosed with ADHD (aged 14–18 years), p. 137³³³

Similarly, the young people in Prosser's³¹⁴ study express frustration at not being able to meet social expectations, and remorse and regret following incidents of problematic behaviour. Young people in McDannel's³³⁴ study said that they valued school as a means to gain qualifications that would help them get jobs.

Cooper and Shea²⁶¹ note that, in light of the ill effects described by pupils in relation to medication (see *Impact of polarised views*, below), the benefits of medication for ADHD can be understood as more relevant to those other than pupils, such as teachers and parents, because it makes the pupil easier to control, or makes them more socially acceptable, rather than supporting the pupil personally, and is therefore a form of social control:

[The pills] calm me down, to help me work. They help me calm down, so I don't embarrass my mother.

British pupil diagnosed with ADHD (aged 11–16 years) [author's edits], p. 44²⁶¹

The authors further note that many of the participants felt that this was a legitimate use of medication, indicating that it helped them to control their behaviour in order to please others, which they perceive themselves as incapable of doing otherwise. Some pupils do not want to take medication even if they perceive that this will bring them social acceptance, refusing to take it or complying only reluctantly.²⁶¹

Implications for non-pharmacological interventions of pupils with ADHD desire for approval are given in *Box 19*.

BOX 18 Implications for non-pharmacological interventions related to stigma and the expression of ADHD symptoms

The role of stigma in influencing ADHD symptoms relates to the barriers that it creates for teachers who support pupils with ADHD, in focusing attention on stereotypical beliefs about ADHD (whatever those might be) rather than directing focus to the child or young person. This can result in negative relationships between teachers and pupils, may result in choice of inappropriate strategies or interventions for ADHD, may act as an example for stigmatisation by peers, may negatively impact a pupil's self-perceptions (see *Identity*) and, ultimately, further marginalises the pupil. All these factors can exacerbate the pupil's expression of ADHD symptoms. The implication for non-pharmacological interventions involves the need for teachers to be educated about stigma. As stigmatising attitudes often involve implicitly held beliefs, reflective practice is likely to be needed in addition to information about ADHD and about the dangers of stigma in education for teachers.

BOX 19 Implications for non-pharmacological interventions related to ADHD pupils' desire for approval

Teacher and parent education would benefit from emphasising that pupils diagnosed with ADHD in included papers often desired to please teachers, peers and parents. As ADHD symptoms prove so problematic to adults, it is possible for them to be interpreted as purposefully destructive and/or personal. These accounts from pupils diagnosed with ADHD suggest that pupils desire approval from adults and peers, and try to act in ways to secure it, but do not know how to do so.

Agency

Agency refers to the sense that one is capable of acting intentionally (i.e. is able to bring about an outcome of choice).³⁴⁹ Authors of included papers often analyse the dynamics that result in either a lack of agency or a sense of agency for the pupils in these studies.

Exley³³² explores the perception that children diagnosed with ADHD have of their capacity to control their behaviour by introducing participants to a puppet who is described as exhibiting hyperactive/impulsive behaviour, then asking questions about the puppet:

Researcher: What are some of the things that [Puppy's] teacher can do to help remind [Puppy] to control himself?

Australian child diagnosed with ADHD (aged 8–9 years): Maybe, um, ask his Mum and Dad to give him four tablets.

[Reviewer's edits], p.72³³²

In this study, two boys diagnosed with ADHD, both on medication, understood medication as the way to control ADHD symptoms, rather than the puppet controlling himself. Exley³³² and others^{261,333} conclude that medication supports a decreased sense of agency for pupils as they come to understand that they are medicated to control their behaviour because they are incapable of doing so themselves.

As described above, Exley³³² also explored stigma and the role of peer social groups in excluding children diagnosed with ADHD. Once labelled 'bad', the child is excluded on the basis of the label as much as because of specific behaviour. Exley argues that this further reduces agency, because a change in the pupil's behaviour does not necessarily result in a change to peer responses.

Singh²⁷ describes the response teachers have to pupils diagnosed with ADHD according to their beliefs about the concept. Either they reject the concept of ADHD (seeing it as solely sociological) and, therefore, make no allowances for the behaviour of pupils identified with ADHD, or accept the concept of ADHD (seeing it as solely biological) and, therefore, excuse ADHD pupils' aggressive behaviour. Singh argues that both approaches reduce the agency available to pupils.

Studies also identified ways that pupils diagnosed with ADHD demonstrate agency. Singh²⁷ documents the agency ADHD pupils display in either curbing or releasing their feelings of anger and aggression. This suggests that these feelings are not entirely outside pupils' control, unlike the perceptions they express. Pupils with ADHD rely on their friends to help them avoid fights with peers, either through friends standing up for them or talking them down. There are some insults, however, that once made, require a fight (e.g. insult to a boy's mother). ADHD pupils, therefore, apply self-control in these situations as a moral obligation, either stopping themselves from fighting for their friends' sakes, or deciding to fight for

their mother's sake. Peers can find loss of control of emotion frightening, and pupils use their label of ADHD purposefully in order to support their friends:

If they're really bothering me, or bothering one of my mates, I'll just go into my ADHD. I'll flip on them and get really scary.

British pupil diagnosed with ADHD (aged 9–14 years), p. 894²⁷

Singh²⁷ argues this is a productive use of the stigma related to ADHD, as it is used to protect friends threatened by aggression. Singh²⁷ also identifies exploitation of an ADHD diagnosis by pupils; they admit to using it to abdicate responsibility for poor behaviour. Pupils in Prosser's³¹⁴ and Taylor and Houghton's³³⁵ study also confessed to defiant behaviours as a means to redress perceived injustices, and use of the ADHD label as an excuse to avoid consequences.

Houghton *et al.*²⁹⁶ identify a process that pupils undergo, whereby they initially perceive themselves incapable of controlling their emotions and behaviour; they blame others for creating a hostile environment. However, they found that some older pupils show agency in taking action against 'living up to a "bad", "lazy" and/or hyperactive label' (p. 140).²⁹⁶ Short-term approaches include 'armoring', which is defined as switching off, avoiding issues that bring up anger, and is most often employed with peers. Other strategies include 'feigning compliance' (avoiding interaction with teachers, pretending to know what one is doing in the classroom); and 'deflecting' (attempts to redirect attention away from educational shortcomings by creating classroom drama). Longer-term solutions include 'assessing self', or the analysis of past emotional outbursts, and trying to understand why they vent.

If I am hyper then my friends are hyper and laugh with me but if I'm normal then they are normal. When I'm upset people just let me be. I think that the other students that aren't my friends might be a little scared [. . .] sometimes they back away. Most of the time though they don't do anything as I can feel it coming on and I just leave the classroom to cool down.

Australian pupil diagnosed with ADHD (aged 6–17 years) [reviewer's edits], p. 143²⁹⁶

'Feeling remorse' involves reflection on the impact that past deeds may have had on themselves and others; 'changing perspective' involves a shift from perceiving themselves to lack control over their emotions and behaviour to understanding the dynamics of their emotions and behaviour and realising that they can control certain aspects of it:

I think ADD is like your level of tolerance which changes depending on the situation and how you are feeling. If you are feeling down or sore, then you will let things get to you easier and you will explode quicker. It is like you have a low level of resistance. On the one hand, when you are feeling good and happy with life, then people can pick on you all day and you won't get angry. It is then like you have a high level of resistance.

Australian pupil diagnosed with ADHD (aged 6–17 years), p. 144²⁹⁶

'Being proactive' is the final stage identified, and this involves trying to influence their parents' management of the home environment and teachers' management of the classroom. Young people comment that there are no straightforward answers to their problems, and that adults do not always respond well to their suggestions. However, they act through communication with parents and teachers about the contexts of home and school, and suggest strategies that they consider would work better for them.

Prosser³¹⁴ identifies action taken by young people to reframe the concept of ADHD more positively; however, he also concludes that pupils diagnosed with ADHD are the 'big losers':

Caught between condemnation from the sociological skeptics, and the neglect of their social needs in the medical model, they are attempting to forge their own path. These young people, showing an

awareness to the sociological side of ADHD rarely shown by those who would speak on their behalf, are recreating the label, reforming identity, and resisting inequalities in school, with varying success.

Researcher, p. 273³¹⁴

Thus, the way ADHD is understood and acted on by adults can decrease the agency of pupils diagnosed with ADHD. When they perceive themselves to be incapable of controlling their own emotions and behaviour, pupils are less likely to employ whatever control they have. This is likely to increase expression of ADHD symptoms. Some studies identified that pupils do have agency available to them,^{27,296,314} and that understanding and harnessing this appears to be a constructive way forward. Even when they act with agency, however, adults still hold the balance of power over the contextual factors that greatly impact pupils.

Implications related to agency for non-pharmacological interventions are given in *Box 20*.

Identity

Late childhood and adolescence are recognised as particularly important time periods for the development of identity,^{350,351} so the experiences of pupils diagnosed with ADHD during school years may be important to their developing identity. The development of identity is described by Bruner as a process that ‘proceeds from the outside in as well as from the inside out’ (p. 99).³⁴⁹ We come to understand who we are through our interactions with others, as well as through our personal understanding and experiences, so teachers’, parents’ and peers’ perceptions of and responses to ADHD symptoms are likely to contribute to the identity of pupils diagnosed with ADHD.

Pupils in Cooper and Shea’s²⁶¹ study perceived ADHD symptoms as ‘a serious flaw in their personal make up that pervades all aspects of their lives’ (p. 46). Pupils in both Cooper and Shea’s study²⁶¹ and in Kendall *et al.*’s²⁹⁹ study defined ADHD using the same words:

- ‘bad’
- ‘trouble’
- ‘weird’
- ‘hyper’
- a slow learner
- an illness or a brain defect.^{261,299}

BOX 20 Implications for non-pharmacological interventions related to pupil agency

Findings related to pupil agency would be relevant content for teacher and parent education about ADHD. Accounts from pupils diagnosed with ADHD in included studies suggest that, although they do not have the levels of emotional self-control that their peers have, they do have some self-control. Actions by teachers based on polarised conceptions of ADHD –

- biological determinist (e.g. the child’s behavioural difficulties are due to brain deficit; therefore, they cannot control their own behaviour)
- sociological (e.g. the child’s behavioural difficulties are due to poor parenting, not to any neurological difference; therefore, the child should be treated the same as any other child)
- psychological (e.g. the child is naughty and additional discipline is needed)

– can undermine pupil agency. This suggests that supporting pupils diagnosed with ADHD to understand how to harness and develop the self-control that they do have is a constructive approach to reducing ADHD symptoms and fostering these pupils’ well-being by establishing in them a greater sense of agency.

Pupils expressed a sense of failure and sometimes bewilderment because of their low levels of attainment. Low attainment and ADHD symptoms can link to low self-esteem^{261,299} and a sense of spoiled identity. For example, a participant in Cooper and Shea's study,²⁶¹ described above for his novel-writing ability, described this ability as a problem because figuring out storylines distracted him during lessons. The authors use this as an example of the potentially harmful effects of individual deficit explanations for learning and behavioural problems.

Cooper and Shea²⁶¹ and Prosser³¹⁴ note that most of the pupils in their studies expressed biological determinist beliefs – they described ADHD as 'something wrong' within them, rather than understanding ADHD symptoms to be the result of interactions between biological, sociological and psychological factors. Prosser³¹⁴ notes that this can lead them to struggle with social issues in private because they perceive that the problem is theirs alone. Young people in Prosser's³¹⁴ study describe an initial reluctance about accepting their ADHD diagnosis, but response to medication was often dramatic and this led them to accept the diagnosis. There was a common misperception by them that medication 'fixed' neurological ADHD deficits, so improvement in response to medication confirmed diagnosis, whereas, in fact, studies show a response of increased concentration and calm behaviour is common across children with and without ADHD diagnosis and/or symptoms.^{352,353}

Attention-deficit/hyperactivity disorder pupils in Exley's³³² study (aged 6–8 years) perceived that their peers would understand ADHD as an illness that can be 'caught'. This led them to want to hide their diagnosis and medication. Pupils in upper primary and secondary schools from Cooper and Shea's²⁶¹ and Kendall *et al.*'s²⁹⁹ studies also demonstrated confusion about ADHD. Although some pupils understood ADHD in terms of its symptoms, others, although they described behaving in ways commensurate with ADHD symptoms, did not connect these with ADHD (they did not know what it meant). Such misunderstandings prompted Exley³³² to emphasise the importance of explaining the biopsychosocial nature of ADHD, not only to pupils identified with ADHD but also their peers. This is particularly important for pupils diagnosed with ADHD because of the process of identity development that occurs in late childhood and teenage years.

Some pupils expressed discomfort or ambivalence about medication because its calming effect was experienced as changing their personality.²⁶¹ Sometimes this was valued, for example in the classroom, whereas other times this was resented, for example during free time:

If I do take [Ritalin] when we didn't have school, I wouldn't want to go outside and play with my friends.

British pupil diagnosed with ADHD (aged 11–16 years) [reviewer's edits], p. 44²⁶¹

Some pupils expressed that they were their true selves when unmedicated and they felt like someone else when medicated:

I like being myself instead of like calm.

British pupil diagnosed with ADHD (aged 11–16 years), p. 44²⁶¹

Some pupils expressed enjoyment of their experiences more without medication:

I felt so dead when I was on it. I felt kinda like I was blinded . . . like there was a filter put in front of me. So I felt like colors [sic] stopped being so vivid and I stopped hearing so much.

Canadian pupil diagnosed with ADHD (aged 14–18 years), [reviewer's edits], p. 145³³³

This suggests that some pupils may risk losing positive aspects of their identity by taking medication. Some pupils also reported stomach aches, headaches, bad taste and fear of addiction from taking medication.²⁹⁹ However, many pupils took medication anyway, because it improved their classroom behaviour by helping them concentrate, think before acting, be calmer and work harder,^{261,299} which enabled them to please others (see the discussion above).

In contrast to the aspects of ADHD found to be potentially harmful to pupils, some pupils describe positive aspects of ADHD. Two of McDannel's³³⁴ participants perceived ADHD as valuable; they felt people with ADHD were more interesting and more social, more 'real' about who they are than 'normal' people. However, they expressed their liking of ADHD alongside the perception that people with ADHD were not normal, and this demonstrates the complexity of their attitudes. Some participants in Kendall *et al.*'s²⁹⁹ study also cited an outgoing personality or sense of humour as benefits of ADHD.

Implications related to identity for non-pharmacological interventions are given in *Box 21*.

Impact of polarised views

Findings from included studies resulted in the identification of the overarching theme that ADHD symptoms involve an interaction between biological, sociological and psychological factors. The accounts in included studies by pupils diagnosed with ADHD describe real difficulties in terms different to peers, suggesting biological influences. The accounts also demonstrate that ADHD symptoms are influenced by relationships, classroom context, stigma and resulting psychological responses from the pupil. However, commonly, pupils express understanding of ADHD as only biological; whereas it is common for teachers to describe it as only sociological (see *Sociological factors: perceptions that attention-deficit/hyperactivity disorder symptoms result from difficulties in the home*, below). The adoption of such polarised biological views by pupils diagnosed with ADHD may be related to the processes of diagnosis and medication. Singh²⁷ argues that diagnosis and medication for ADHD are situated in an interaction between biological and social factors. There is no physical test that determines the presence of ADHD; rather, diagnosis is based on observation checklists completed by parents and teachers combined with observation of the child or young person by a clinician. The checklists are founded on normative ideas of classroom behaviour and these behaviours are evaluated on the basis of subjective perceptions, so diagnosis clearly involves sociological factors. However, there is an implicit link between ADHD symptoms and concepts of illness because diagnosis is carried out by medical doctors (because of the possible need to prescribe medication); therefore, diagnosis and pharmacological treatment of ADHD may prompt medicalised ideologies about ADHD for lay people,²⁶⁰ and this was common for pupils diagnosed with ADHD in included papers for review 4a. The following discussion explores pupils' experiences of diagnosis and medication and its implicit links to polarised biological attributions for ADHD.

A number of papers identified positive factors that pupils described about diagnosis, linked to diagnosis functioning to alleviate rifts between expectations and behaviour. These included:

- an explanation for difficulties^{299,314} including relief from guilt²⁹⁹
- effective treatment in the form of medication^{299,314}
- a way to explain behaviour objected to by others, for example, diagnosis resulted in the replacement of 'blame and criticism with understanding and support'.^{261,299} (This suggests that children and young people perceived that others held them accountable for their behaviour before diagnosis, and afterward made allowances for their behaviour.)

BOX 21 Implications for non-pharmacological interventions related to identity

Pupils can develop a spoiled identity in response to stigma related to ADHD symptoms and formal diagnosis of ADHD. Such negative self-perceptions can exacerbate ADHD symptoms (see *Impulsivity/lack of emotional self-control*) and be internalised in a pupil's process of developing identity, with the potential to impact them negatively over their lifespan. Explaining ADHD to pupils as an interaction between biological, social and psychological factors, at the time of diagnosis and/or within non-pharmacological interventions, may support them to be able to understand themselves more constructively (see *Explaining attention-deficit/hyperactivity disorder as an interaction between biological, sociological and psychological factors* for further discussion).

Kendall *et al.*²⁹⁹ conclude that such positive factors mean that diagnosis of ADHD stabilises family life, preventing further compounding of problem behaviours and familial stress. However, a number of other papers discussed other factors related to diagnosis that proved problematic. Polarised biological attributions can render invisible the sociological and psychological factors that also play an important role in ADHD symptoms, which is likely to compound pupils' ADHD symptoms on two fronts: by potentially diminishing pupils' agency and self-perceptions^{27,261,314} (see *Agency and Identity*), and by removing focus away from sociological and psychological factors as sources for adaptation and amelioration of ADHD symptoms.

The consensus from pupils is that methylphenidate helps improve classroom behaviour;²⁶¹ young people in Prosser's³¹⁴ study all reported that medication allowed them to think before acting. However, it did not predetermine better behavioural and learning outcomes, because sometimes pupils still chose to behave poorly or not to work. A central argument by Prosser³¹⁴ is that the real problems of ADHD for young people are the social barriers to learning that it creates, and that medication is inadequate to deal with social difficulties. Prosser further notes the rift between young people in his study, and their conceptualisation versus experiences of ADHD. Participants all understood ADHD as biological in origin; however, the experiences of difficulties they described were social or psychological, for example difficulties in motivation, poor self-esteem, suicidal and violent thoughts, difficulties with relationships and depression.

A number of studies found that children and young people conceptualise treatment of ADHD as solely medical; when asked about what helped them deal with ADHD symptoms, they talked exclusively about medication,^{261,299,314,332} despite a number being involved in non-pharmacological interventions at school. Biological determinist understandings of ADHD may be a barrier to motivation for pupils to engage fully with non-pharmacological interventions; if they understand their difficulties to be solely biological in origin, they may see non-pharmacological interventions as a waste of time, they may also be more inclined to dismiss any benefits they experience from these interventions.

Such arguments against medication, alongside the evidence that, to some extent at least, ADHD symptoms are triggered by the context of the classroom, might be taken to imply adaptation to education is preferable to medication. However, the current state of structures within education suggest that medication is a prudent means to support pupils to cope with the mandatory demands of education while structures develop and change to become more inclusive, and to give pupils support while they mature and develop coping strategies themselves.

Explaining attention-deficit/hyperactivity disorder as an interaction between biological, sociological and psychological factors

The included studies in this synthesis have demonstrated that pupils diagnosed with ADHD describe the experience of ADHD symptoms in terms of an interaction between biological, sociological and psychological factors (for a schema of these see *Figure 7*). The pupils described in these studies demonstrate the value they often place in understanding why they are learning what they are asked to learn in school, a lack of engagement in subjects that have low perceived relevance, and deep engagement when there is motivation to learn. Explaining ADHD as an interaction between biological, social and psychological factors to children and young people gives them the conceptual framework from which to address a number of issues highlighted as important in these studies:

- It gives them an explanation for the differences from their peers, in that they are experiencing heightened reactions to environmental stimuli, and this can be explained through differences in genes and cognitive processing. Understanding themselves to be different biologically offers a less personally negative, and therefore more constructive, basis for developing identity. It may also prevent the compounding of ADHD symptoms owing to decreased self-esteem.

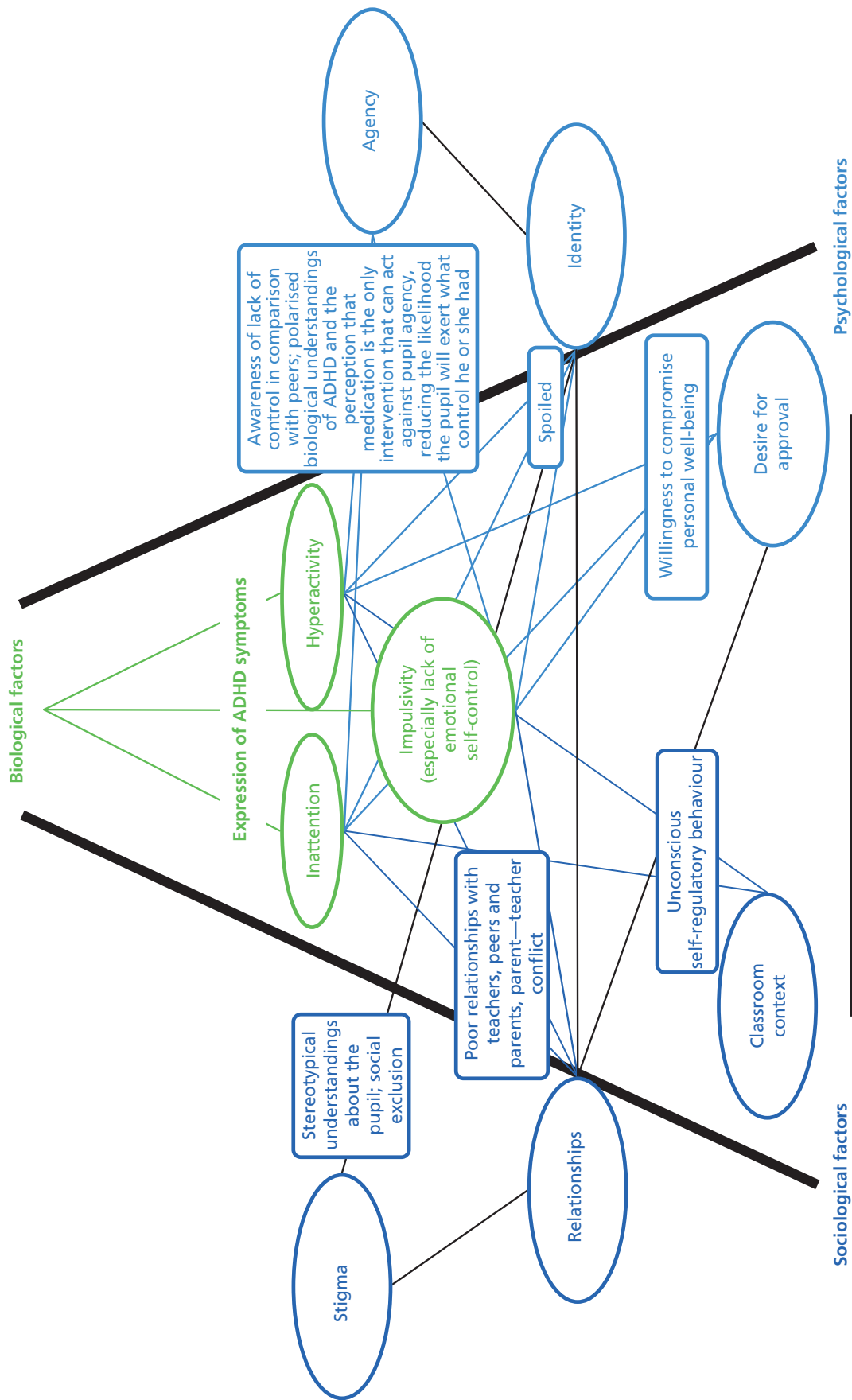


FIGURE 7 Schema of the experience of symptoms for pupils diagnosed with ADHD based on review 4a studies. Biological factors mean the pupil has less behavioural control than peers; interaction of these factors with sociological and psychological factors results in the expression of ADHD symptoms. Sociological and psychological factors can increase and decrease the expression of ADHD symptoms; factors that may increase symptoms are described in boxes. Thin black lines represent close relationship between sociological and psychological concepts.

- It locates their behavioural and emotional self-control in an interaction between this biology, their environment including classroom structures and relationships, and their own perceptions and decisions. Self-control is not binary; something they do or do not have. Rather they are likely to have lower levels of self-control than their peers in some situations and not others. In all situations they have some self-control, and by learning when and how they lose control they can develop strategies to develop more control. This offers a foundation from which to foster a sense of agency and from which to take action.
- It places the role of context on an equal footing with biological differences and pupil decisions in explaining the expression of ADHD symptoms. This encourages awareness and exploration of these kinds of factors by the pupil diagnosed with ADHD, and could lead to the development of self-understanding of trigger issues, which can be communicated with teachers, parents and/or peers and could form the basis for personalised strategies to improve function. Similar strategies are adopted in the management of other long-term conditions, such as asthma, migraine, stress and affective disorders.
- Finally, it provides a conceptual foundation that explains why it is worth engaging with non-pharmacological interventions. Understanding ADHD symptoms as an interaction that includes not only pupils' biology but also their decision-making processes and sociological context mean they can develop and improve their ability to function in these contexts. The findings suggest that pupils are often willing to take medicine which they experience as sometimes compromising physical well-being and/or personal identity in order to 'fit in' because they understand medication as the only way to treat their biologically caused behaviour. Should they understand processes of psychological and social development to be equally important, they may be highly motivated to engage with interventions developing other coping strategies which, if effective, may allow reductions in the dose of medication required.

Review 4b: the experiences and perspectives of teachers of pupils diagnosed with or at risk of attention-deficit/hyperactivity disorder

Study characteristics for review 4b (teacher views)

A total of eleven studies were included in synthesis 4b (teacher views).^{41,263–265,286,291,294,296,298,305,324} Summaries of included papers for review 4b are shown in *Table 49*.

Five studies involved participants from the USA,^{286,294,298,305,324} two studies involved participants from Australia,^{263,296} two studies involved participants from the UK,^{41,294} one study involved participants from Canada,²⁹⁴ one study involved participants from Iceland,²⁹¹ one study involved participants from the Republic of Korea (Hong²⁶⁴) and finally one study involved participants from Sweden.²⁶⁵ One study²⁹⁴ involved participants from three countries: USA, Canada and the UK.

All the studies explored the school experiences and perceptions of teachers of pupils diagnosed with, or at risk of, ADHD; however, it is possible to group the papers by their foci. Five of the studies explore teacher school-based experiences and perceptions without discussion of sociological influence,^{264,286,296,298,305} whereas six studies explored teacher school experiences and perceptions in terms of sociological influences on ADHD (Bailey and Thompson:⁴¹ the role of classroom structure; Einarsdottir:²⁹¹ changing society in Iceland; Hillman:²⁹⁴ gender and ethnicity; Lee:³²⁴ cultural expectations; Ljusberg:²⁶⁵ the environment of the remedial classroom; and McMahon:²⁶³ discourses and labelling). Teachers taught in a range of settings including private and mainstream preschools, primary (or elementary) and secondary (or middle/high) schools. Teachers taught pupils ranging in age from 3 to 18 years (*Table 50*), with approximately two-thirds of participants involved with preschool or primary education (30% teaching ages 3–6 years;

TABLE 49 Summary of included papers for review 4b: the school-related experiences and perceptions of teachers of pupils diagnosed with or and at risk of ADHD

First study author and year (n = 11)	Country of participants	Aim	n	Gender	Age of pupils taught (years)	ADHD status of pupils taught
Arcia 2000 ²⁸⁶	USA	To describe teacher understanding and strategies towards disruptive behaviours	21	17 females and four males	5–12	Diagnosed or at risk
Bailey 2009 ⁴¹	UK	To analyse some of the everyday micro-processes of the classroom in order to deconstruct assumed ideas of misbehaviour as symptomatic of ADHD, and rather explore the classroom structures and discourses which articulate it	4	Three females and one male	5–7	Diagnosed or at risk
Einarsdottir 2008 ²⁹¹	Iceland	To understand Icelandic early childhood teachers' experiences and perspectives of children with behavioural problems and ADHD-associated behaviour given the ongoing enormous changes in the Icelandic way of life, the recent changes in the educational system and the increasing rates of diagnosis and medication for ADHD	16	16 females	2–7	Diagnosed or at risk
Hillman 2011 ²⁹⁴	USA, UK, Canada	To examine teachers' ability to identify ADHD and the qualitative content of their referral recommendations with a focus on differences according to ethnicity and gender	30	24 females and six males	5–14	NR
Houghton 2006 ²⁹⁶	Australia	To explore how teachers deal with the frustration that arises from chaotic or near chaotic classroom conditions triggered by some students diagnosed with ADHD	36	Ratio: three females to two males	NR	Diagnosed or at risk
Hong 2008 ²⁶⁴	The Republic of Korea	To investigate Korean early childhood teachers' beliefs about child development by focusing on their perceptions of children with ADHD	23	Gender NR	0–15	Diagnosed or at risk (20), no (3)
Jones 2008 ²⁹⁸	USA	To explore how 20 currently practising pre-kindergarten teachers handle children identified with conduct disorder, ODD and ADHD to illuminate the strategies that are working	20	20 females	3–5	Diagnosed or at risk
Lee 2008 ³²⁴	USA	To understand US teachers' perceptions of problem behaviour, ADHD, diagnosis and medication treatment for children with ADHD and how this reflects local and larger cultural beliefs	10	Nine females and one male	5–9	Diagnosed or at risk
Ljusberg 2011 ²⁶⁵	Sweden	To highlight the physical and mental environment in the remedial classroom	10	Not reported	9–12	Diagnosed or at risk
McMahon 2012 ²⁶³	Australia	To better understand pre-service teachers' response to and participation in discourses of ADHD in contemporary schooling cultures	150	Questionnaire: 85% female Interviews: six females Focus group: three females, one male	NR	NR
Nowacek 2007 ³⁰⁵	USA	To explore teacher understandings of the characteristics associated with ADHD and what modifications and interventions are used with students	8	Five females and three males	7–14	Diagnosed or at risk

NR, not reported; ODD, oppositional defiant disorder.

TABLE 50 Numbers and school year taught for teachers in review 4b: the school experiences and perceptions of teachers of pupils diagnosed with or at risk for ADHD

First study author, year and location	Number of teachers and school years taught	Number of teachers teaching children aged 3–6 years	Number of teachers teaching children aged 6–11 years	Number of teachers teaching pupils aged 11–18 years	Number of SEN teachers
Papers reporting age ranges of children taught					
Arcia 2000 ²⁸⁶ USA	21 kindergarten/primary school teachers Kindergarten (<i>n</i> = 3), grades 1 (<i>n</i> = 3), 2 (<i>n</i> = 2), 3 (<i>n</i> = 6), 4 (<i>n</i> = 5), 6 (<i>n</i> = 1), SEN (<i>n</i> = 1)	3	16	1	1
Bailey 2009 ⁴¹ UK	Four infant school teachers Year 1 (<i>n</i> = 4)	4	0	0	0
Einarsdottir 2008 ²⁹¹ Iceland	16 preschool and grade 1 teachers	8	8	0	0
Hong 2008 ²⁶⁴ The Republic of Korea	23 preschool, kindergarten and elementary school teachers Preschool (<i>n</i> = 2), kindergarten (<i>n</i> = 8), elementary (<i>n</i> = 12), SEN (<i>n</i> = 1)	10	12	0	1
Houghton 2006 ²⁹⁶ Australia	36 high school teachers School year taught NR	0	0	36	0
Jones 2008 ²⁹⁸ USA	20 preschool teachers	20	0	0	0
Lee 2008 ³²⁴ USA	Eight kindergarten/elementary school teachers Two teachers each for kindergarten to grade 3	2	6	0	0
Ljusberg 2011 ²⁶⁵ Sweden	10 remedial teachers Remedial class years 3–5	0	0	0	10
Nowacek 2007 ³⁰⁵ USA	Eight elementary/middle school teachers Grades 2, 3, 4, 6: two teachers taught grades 6–8 and two teachers taught grade 8 only	0	3	5	0
Totals	146	47	45	42	12

continued

TABLE 50 Numbers and school year taught for teachers in review 4b: the school experiences and perceptions of teachers of pupils diagnosed with or at risk for ADHD (*continued*)

First study author, year and location	Number of teachers and school years taught	Number of teachers teaching children aged 3–6 years	Number of teachers teaching children aged 6–11 years	Number of teachers teaching pupils aged 11–18 years	Number of SEN teachers
Papers that do not report age ranges of children taught					
Hillman 2011 ²⁹⁴ USA	30 teachers kindergarten to grade 8 School year taught NR	NR			
McMahon 2012 ²⁶³ Australia	150 pre-service teachers	N/A			
Total	322				
N/A, not applicable; NR, not reported.					

33% teaching ages 6–11 years; 29% teaching ages 11–18 years). The female to male ratio of teachers in the samples (where reported) was approximately 4 : 1, demonstrating a predominance of female teachers. Most studies^{41,265,286,291,296,298,305} involved teachers with experience of teaching pupils who were diagnosed with, at risk of, or demonstrating core symptoms of ADHD. Hillman²⁹⁴ does not report this information, whereas 3 of 23 teachers in Hong's²⁶⁴ study did not have experience of teaching children diagnosed with, or at risk of, ADHD. Lee³²⁴ does not report this information; however, she states that 9% of pupils in the school district in which the study took place are diagnosed with ADHD. Finally, the pre-service teachers in McMahon's²⁶³ study were completing their final year of a Bachelor's degree in primary education, and the study did not report the extent of participants' experience of teaching pupils diagnosed with, or at risk of, ADHD.

Seven studies^{264,265,286,291,294,296,298,305} are included in both review 3 and review 4b (teacher views) because they contain analysis of perceptions of school-based strategies and/or interventions as well as experience of ADHD more generally. Therefore, only relevant findings from these studies are reported here. Review 4b reports the findings about the school-based experiences and perceptions of teachers regarding ADHD; for findings about the experiences of strategies and/or interventions from these studies please see review 3 (see *Chapter 5*).

Study methodologies for review 4b (teacher views)

Details of study methods for included papers in review 4b are given in *Table 51*. Nine of the eleven studies collected data through semistructured interviews.^{47,263,265,286,291,296,298,305,324} In addition to interviews, two used open-ended questions,^{263,305} one used classroom observation,³⁰⁵ and one used focus groups.²⁶³ The remaining two papers collected data through participant observation⁴¹ and an online open-ended questionnaire.²⁹⁴

Most authors explicitly described their research methodologies, which included discourse analysis,^{41,263,265} phenomenology,^{291,298} grounded theory^{296,305} and ethnography.⁴¹ Some authors also explicitly discussed the conceptual frameworks that were used to structure studies and/or analysis, including theories from Foucault,⁴¹ essentialist epistemology,²⁹⁴ symbolic interactionism and ecological validity,²⁹⁶ and sociocultural theory.^{263,265} Two authors were not explicit about their chosen research methodologies or conceptual frameworks.^{264,286}

TABLE 51 Methodological details of included papers for review 4b: the school experiences and perceptions of teachers of pupils diagnosed with or at risk of ADHD

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Arcia 2000 ²⁸⁶ USA	21	Three kindergarten 18 elementary school teachers Grades 1 (n = 3); 2 (n = 2); 3 (n = 6); 4 (n = 5); 6 (n = 1); SEN (n = 1)	Forty-two semistructured interviews Two telephone interviews with each participant completing rating scales	Purposive	The authors are not explicit about theoretical underpinnings. They implicitly refer to ADHD as a cognitive deficit and do not acknowledge complexities/uncertainties	Analysis followed Miles 1994. ³¹⁵ Passages in the transcripts were coded according to interview topic areas with use of qualitative software (Folio Views; Folio Corporation, Provo, Utah) to manage data. The first author extracted all segments that addressed the interview topics. All authors, who independently reported their preliminary conclusions and interpretations, reviewed the subsequent text. These observations were compared with the extracted segments, and the database was queried again for emergent themes. The first and second authors then conducted further confirmatory analyses using matrices. Member checking was conducted
Bailey 2009 ⁴¹ UK	4	Infant school teachers Year 1 (Two teachers, two teaching assistants)	Participant observation; data was field notes consisting of descriptions, recorded speech, maps and reflections written over 10 weeks	NR	Ethnography; post-structuralism, the authors adopt a primarily sociological stance about ADHD	Although the authors describe the theoretical underpinnings of their approach, they do not provide detail about their process of analysis beyond stating they applied Foucault's concepts of discourse and power to understand the data
Einarsdottir 2008 ²⁹¹ Iceland	16	Eight preschool teachers and eight grade 1 teachers	16 semistructured interviews	NR	Phenomenology with a sociological lens, discusses biopsychosocial vs. individual/medical views of ADHD	Following a phenomenological approach, interviews were read and reread then coded using NVivo. Interview questions were used as an initial coding framework, then themes were identified. Analysis was done first within-person then across primary school teachers and across primary school teachers

continued

TABLE 51 Methodological details of included papers for review 4b: the school experiences and perceptions of teachers of pupils diagnosed with or at risk of ADHD (*continued*)

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Hillman 2011 ²⁹⁴ USA, UK, Canada	30	30 teachers, kindergarten to grade 8 (School year taught NR)	Online open-ended questions followed one of four vignettes (half male, half female, half Caucasian, half African American) describing a child with ADHD symptoms	Self-selecting	Essentialist epistemological stance, theorising that language used is an accurate reflection of the participant's thought and ideas. The author implicitly treats ADHD as a cognitive deficit	Thematic analysis following Braun 2006. ³⁵⁴ An inductive approach of reading and rereading, coding and organising by content using qualitative software. Coded data and their inter-relationships were considered to generate higher-level themes. Themes were determined by relevance to the research questions and by prevalence
Houghton 2006 ²⁹⁶ Australia	36	High school teachers (School year taught NR)	Thirty-six semistructured interviews	Purposive	Ecological validity; symbolic interactions and grounded theory. These are substudies from a larger mixed-methods project, where a central aim was to explore not only biological aspects of ADHD, but the way these interact with psychological and sociological factors in natural settings	Constant comparative method: coding for patterns and salient features; codes constantly compared and interrogated by asking such questions as: 'What is this piece of data an example of? What property does this piece of data represent?' until saturation. This process developed codes into categories and relationships between them were established. A second researcher independently coded 10% of transcripts to establish reliability
Hong 2008 ²⁶⁴ The Republic of Korea	23	Interviews: kindergarten, $n = 4$; elementary, $n = 2$; occupational therapist, $n = 1$ Focus group: kindergarten, $n = 4$; preschool, $n = 2$ Survey: 13 participants from the interviews and focus group, plus 10 elementary school teachers	Seven semistructured interviews; one focus group; open-ended survey	Purposive	The author does not discuss theoretical underpinnings. The author appears to hold views of ADHD as individual, within-child deficit. Background section indicates that the Korean government does not acknowledge ADHD as a disability	The process of data analysis was not reported, beyond the author stating she focused mainly on issues identified in the semistructured interviews in the journal article

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Jones 2008 ²⁹⁸ USA	20	20 preschool teachers	Twenty semistructured interviews, follow-up telephone calls and e-mails	Convenience, purposive	Principles of phenomenology; constructionism. The author defines ADHD according to difficulties in the home and neurological deficit. Although discussing teacher strategies to ameliorate ADHD symptoms, she does not discuss the classroom environment as potentially exacerbating ADHD	Phenomenological processes following Moustakas' 1994 study ³⁵⁵ were conducted. The interviews were transcribed verbatim and significant statements identified by more than one participant were highlighted and extracted. Categories were listed in the margins of the interviews and later placed under subthemes. Subthemes were translated and organised into overall themes. The author created textual and structural descriptions, combining them in the final synthesis. The author conducted member checking
Lee 2008 ³²⁴ USA	10	10 pre-kindergarten/ kindergarten/elementary school teachers Two teachers each for pre-kindergarten to grade 3	Ten semistructured interviews	NR	Sociocultural theory; cultural psychology focusing on the cocreation of a person through interaction between the social and individual	Thematic analysis. Interview transcripts were searched for 'culturally learned and taken-for-granted assumptions' that teachers made about children in general and ADHD in particular, through reading and rereading. The author does not give further details about the analytic process
Ljusberg 2011 ²⁶⁵ Sweden	10	10 remedial teachers Remedial class years 3–5	Ten semistructured interviews	Convenience and purposive	Sociocultural theory; discourse analysis The author focuses on a sociological perspective, exploring the way children acquire problems with attention through relationships with others and the classroom environment	Thematic analysis involving looking for patterns, categorising text, identifying themes, reapplying themes systematically to interviews, evaluating the ability of themes to represent similarities and differences between teachers

continued

TABLE 51 Methodological details of included papers for review 4b: the school experiences and perceptions of teachers of pupils diagnosed with or at risk of ADHD (*continued*)

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
McMahon 2012 ²⁶³ Australia	150	Pre-service teachers	One hundred and fifty open-ended questionnaires; six semistructured interviews; one focus group (four participants)	NR	Constructionism; critical approach; sociocultural theory; Foucauldian discourse analysis The author seeks to represent fairly biomedical, biopsychosocial and sociocultural perspectives	Thematic analysis was conducted on questionnaires, interview and focus group transcripts. Five themes were identified but the journal article focused on only one of these, that of labelling, because of its unexpected nature (was not probed by questionnaires or interview schedules). The author carried out Foucauldian discourse analysis, comparing transcript discourses with known ADHD discourses in ADHD literature, using Foucault's rules of discursive formation. The author carried out member checking of her findings
Nowacek 2007 ²⁰⁵ USA	8	Four elementary teachers: grades 2, 3, 4 and 6 Four middle school teachers: grades 6–8 ($n = 2$); grade 8 ($n = 2$)	Open-ended question asking for definition of ADHD Eight semistructured interviews Classroom observations	Purposive	Grounded theory; the authors introduce ADHD through discussion of psychological literature The authors focus on the practical issue of knowledge and implementation of non-pharmacological interventions	Constant comparative method was employed; data were coded independently; codes were compared and differences negotiated between authors; categories were refined to be mutually exclusive. Categories were then applied to the transcripts to establish frequency and saliency to each participant
NR, not reported.						

Findings review 4b (teacher views)

For review 4b (teacher views), there was no single study appropriate for use as an index paper (for further discussion see *Chapter 4, Methods of analysis/synthesis, Data analysis and synthesis, Synthesising translations/creating a line-of-argument*). Instead, included study findings were coded inductively and relationships between codes were analysed and refined using concept maps and discussion with RG and DM. Following the data analysis process (for further discussion see *Chapter 4, Methods of analysis/synthesis, Data analysis and synthesis*), an overarching theme was identified, 'Factors that influence a teachers' willingness to adapt response to ADHD symptoms' with two subthemes: (1) orientation to the class or child; and (2) perceptions of ADHD behaviour (sociological, biological, psychological and maturity). Relationships between first-/second-order concepts and third-order concepts are shown in *Table 52*.

Overarching theme for review 4b: factors that influence a teacher's willingness to adapt their response to attention-deficit/hyperactivity disorder symptoms

The overarching theme identified for review 4b was factors that influence a teacher's willingness to adapt response to ADHD symptoms. The studies suggest that teachers are not always willing to adapt their teaching in response to ADHD symptoms, and through this theme we explore the situations when teachers are willing, when they are not willing and, where possible, why. The first main influence identified was the orientation of the teacher, which was usually to the classroom as a whole but also was occasionally towards the individual child. The second main influence identified was the teachers' perceptions of the origins of ADHD symptoms, which tended to be sociological, with some teachers expressing biological beliefs. Most teachers did not explicitly discuss psychological origins for ADHD symptoms; however, they implicitly inferred this type of understanding through discussion of the concept of 'naughtiness'. Finally, some teachers referred to the child's maturity in explaining ADHD symptoms, and as the discussions of maturity involve sociological, biological and psychological aspects it is discussed separately.

TABLE 52 Relationships between first- (participant) and/or second-order (researcher) concepts coded from review 4b included papers, and third-order (reviewer) concepts

First- and second-order themes (inductive/deductive thematic analysis)	Third-order themes (overarching theme: factors that influence a teachers' willingness to adapt response to ADHD symptoms)					
	Orientation		Perceptions of ADHD behaviour			
	Class	Child	Sociological	Biological	Psychological	Maturity
Attributions for ADHD symptoms			X	X	X	X
Child agency	X	X			X	X
Conceptions of how to handle ADHD symptoms	X	X	X	X		X
Interactions with parents	X		X			
Knowledge of ADHD	X	X	X	X		X
Role of context in determining problematic behaviour	X		X			X
Feelings	X					
Orientation to the class as a whole	X					
Contributing papers	263,264,286,291, 294,296,298,305,324	263–265,286, 291,305,324	41,264,265,286,291, 294,296,298,324	263,265,286,291,294	263,286,291,296	286,291,305,324

Orientation to the class as a whole and orientation to the individual child

Elementary school teachers in Nowacek and Mamlin's³⁰⁵ study demonstrated an 'orientation to the class as a whole', making decisions about strategies and modifications based on whether or not they impacted curricular content and how much individualisation in planning, pedagogy and resources were involved, with resistance to decisions that benefited one or two children to the cost of the group. Though this theme was only identified for teachers in this particular study, it is relevant to the studies with teachers across papers, with many examples of the perceptions of teachers being guided by this kind of consideration. Teachers also sometimes made classroom adaptations in response to consideration of the individual pupil. They also sometimes described themselves as experiencing dilemma, where an orientation to the pupil would result in negative impact to the classroom, and an orientation to the classroom would result in negative impact to the pupil. Those not responsible for a whole class, such as the study researchers, remedial teachers and pre-service teachers, were often oriented towards the needs of the individual child.

Importantly, one study author, Hong,²⁶⁴ reframed the concern that many teachers expressed over the disruption caused by ADHD symptoms to learning for the whole class as an argument for prioritising effective intervention for such behaviour, as such intervention not only supports learning for children displaying ADHD behaviours, but the learning of the whole class. Conversely, ignoring such behaviour neglects the rights to an education not only of the ADHD child, but the education of all the children in the class. Some of the teachers in Jones'²⁹⁸ study shared similar sentiments:

*I know that I am doing an injustice to the other children in the room when I can't handle these students.
American preschool teacher (pupils aged 3–5 years), p.75²⁹⁸*

However, teachers cannot implement effective strategies and interventions for ADHD if they are not aware of them. These findings emphasise the importance of training and support for teachers on approaches to ameliorating ADHD symptoms.

Aspects that linked teachers' orientation to decisions about support for ADHD were found to involve:

- greater concern over hyperactive/impulsive than inattentive symptoms
- stress caused to teachers by hyperactive/impulsive symptoms, and the need for teacher education
- dilemmas between the whole class and individual child
- orientation towards the whole class as justification for use of medication
- orientation towards the individual child.

These will be discussed in sequence below.

Greater concern over hyperactive/impulsive versus inattentive symptoms

Many teachers demonstrated more awareness and/or concern over hyperactive/impulsive type ADHD than inattentive type ADHD, suggesting an orientation to the classroom as a whole rather than orientation towards the individual child. Teachers in Arcia *et al.*'s²⁸⁶ study associated ADHD more with disruptive (hyperactive/impulsive) behaviours than inattentive ones, with two different teachers of the opinion that diagnoses of ADHD for two children were inaccurate because the children did not display disruptive behaviour. Kindergarten teachers in Hong's²⁶⁴ study said that they would not consult with parents about a child's inattentive behaviour even if it interfered with the child's learning; they would contact parents only if it interfered with other children's learning. Most of the teachers in Lee's study³²⁴ took a similar view, explained by one teacher as:

*listless children . . . are often overlooked because they're so quiet.
American elementary school teacher (pupils aged 3–9 years), p. 421³²⁴*

This demonstrates the priority teachers often express over dynamics and learning at the classroom rather than individual level.

Teachers in Lee's³²⁴ study expressed a sense of pressure owing to accountability for all their pupil's attainment, where display of ADHD symptoms was experienced as particularly problematic:

Especially in third grade, their learning is so vital because there's so much pressure with the testing that we have to take. There's not a lot of time to deal with severe problems. You want everything to flow smoothly so everyone can learn the best that they can and get ready for everything that they need to.

American primary school teacher (pupils aged 3–9 years), 421³²⁵

This finding provides another example of the way teachers' concerns tend to be on learning taking place for the whole classroom, rather than on consideration of the individual child.

Concern over the emotional equilibrium and learning of the whole class

Teachers in a study by Houghton *et al.*²⁹⁶ describe feeling stressed by the imposed inclusion of a pupil diagnosed with ADHD in their classrooms because they anticipate behaviour from ADHD pupils that may disrupt the emotional equilibrium of the class, so much so that the authors used the words of the teachers in naming the category of chaos to describe teachers' experiences with ADHD pupils in the classroom:

They shout or yell in class, scream out the windows, slam their books on their tables, throw pencils and erasers around the room, kick the furniture, turn the chairs or desks over and lash out and hit their classmates.

Australian secondary school teacher (pupils aged 6–17 years), p. 112²⁹⁶

Houghton *et al.*²⁹⁶ identified further themes describing teacher responses to the frustrations imposed by having an ADHD child in their classroom, one of which is 'objecting' (the vocalisation of a sense of unfairness in being required to teach ADHD pupils, when this was perceived as an unreasonable burden):

Looking after an ADHD child requires vigilance and a constant monitoring which can be tiring for the teacher . . . [such inclusion] requires modification of work programs which can be difficult in a class of over thirty children.

Australian secondary school teacher (pupils aged 6–17 years) [reviewer's edits], p. 113²⁹⁶

When teachers perceived the inclusion of an ADHD child in their classroom to be unfair, and their concerns not to be acknowledged and/or addressed by wider school support systems, the teachers not only failed to implement strategies and interventions, but their resentment had the potential to exacerbate the ADHD symptoms of the pupil:

I have had enough of this student. I despise him. He is so demanding and so disruptive that I cannot deal positively with him anymore. I find it really difficult to be nice to him and it has got to the stage where my feelings about him probably contribute to the situation and probably escalate his outbursts.

Australian secondary school teacher, pp. 113–14²⁹⁶

In addition to disrupting the emotional equilibrium of the class, teachers said that ADHD symptoms affected other children in the class, with some imitating inappropriate behaviour and generally reducing respect for teacher control.^{264,296} Teachers reported in studies by both Hong²⁶⁴ and Lee³²⁴ that ADHD symptoms prevented them from carrying out their main responsibility as teachers by preventing learning for the whole class, whereas the lack of any means to counteract such behaviour left teachers feeling

frustrated, helpless and ashamed. Hong²⁶⁴ concluded that teachers employed strategies to deal with ADHD symptoms that worked for typically developing pupils, but did not work for pupils with ADHD because of lack of training, and so were left frustrated in their attempts to respond to ADHD symptoms. This frustration explains the stance many teachers in Hong's study take, that children with ADHD should be withdrawn from mainstream classrooms and supported by specialist teachers. Until teachers know approaches that are effective in dealing with disruptive behaviour from children with ADHD, it makes sense that they would turn to specialist intervention as a solution to the difficulty.

Authors of a number of included studies concluded that teacher participants lacked knowledge about ADHD and/or strategies to ameliorate ADHD symptoms.^{264,286,294,296,305,324} Arcia *et al.* found that 'teachers' understanding of the condition, and of classroom management options, is very limited' (p. 98).²⁸⁶ In this study, teachers rarely discussed ADHD symptoms in terms of ADHD partly because they did not feel knowledgeable enough about ADHD as a condition. Instead, they reported numerous strategies that they administered according to their judgement developed through teaching experience. Nowacek and Mamlin³⁰⁵ found that, although teachers understood key symptoms of ADHD, their behaviour management strategies were idiosyncratic sets of modifications developed over years of teaching experience. Lee³²⁴ found that, although teachers knew core symptoms of ADHD, they often demonstrated a lack of knowledge about the need for ADHD symptoms to be persistent and pervasive before indicating ADHD. When teachers were asked to make hypothetical attributions for ADHD symptoms described in a vignette,²⁹⁴ a number of teachers refused to make any judgements. Some participants directly refused, whereas others qualified their judgements based on their lack of expertise. The authors suggest that this represents a desire to be accurate and to avoid making judgements about the child that may turn out to be incorrect. Such lack of knowledge may also mean that teachers are unable to distinguish between symptoms of ADHD and those of co-existing conditions such as conduct disorder.

Houghton *et al.*²⁹⁶ identified the turning point from teachers who object to the presence of pupils diagnosed with ADHD in their classrooms to acceptance of these pupils in their classrooms, to a change in their understanding of ADHD and knowledge about approaches to managing ADHD symptoms in the classroom. Teachers in this study attributed such gain in knowledge to reading research and continuing professional development. Preschool teachers in Jones'²⁹⁸ study reported that their teacher education had prepared them for typical child development issues, and that they continually drew from this knowledge in their teaching. However, they had not been given information about atypical development, and did not know how to handle pupils displaying disruptive behaviour. Although the teachers sought advice by taking postgraduate degrees and/or consulting experts in the field, they often found such advice removed from the actual experience of teaching large numbers of preschool children while a few of these children disrupted the lesson. Instead, they reported learning most from colleagues working in similar contexts:

They come in. They don't help. When you are not in the classroom you can't imagine what it is like to deal with these students.

American preschool teacher (pupils aged 3–5 years), p. 138²⁹⁸

Arcia *et al.*²⁸⁶ identified a lack of school-level support for teachers' management of ADHD symptoms, and teachers' sense of isolation as a result. Many preschool teachers in Jones'²⁹⁸ study also expressed a sense of isolation, which they attributed to a number of school-level factors which included (1) remote location of preschool classrooms in relation to administrators, which diminished shared management of behavioural problems; (2) lack of support from senior management; (3) perceptions of low status related to preschool compared with grade school; and (4) lack of knowledge by senior management about effective strategies for managing problematic behaviour.

By contrast, all nine schools in Jones'²⁹⁸ study provided teachers with a scheduled time to meet and plan together. The teachers described these interactions as their most effective source of ideas and strategies for dealing with ADHD symptoms. Teachers said that learning from past experiences through reflection and planned, regular discussion with colleagues was the only thing they had to help them deal with

children displaying disruptive conduct disorder, oppositional defiant disorder and ADHD symptoms. The middle school teachers in Nowacek and Mamlin's³⁰⁵ study also described the importance of working as a team in dealing with disruptive behaviours (ADHD-related or unrelated). They regularly (whether scheduled or impromptu) planned and discussed how to deal with specific pupils. They also reported the helpfulness of drawing on expertise from the 'school wide assistance team', a group of educational staff created to provide support and information to teachers:

I think that's been one of the best things that I've had a chance to work on . . . You're dealing with things that teachers have brought to this committee that there's no simple solution.

American middle school teacher (pupils aged 11–14 years), p. 33³⁰⁵

Teachers in Nowacek and Mamlin's³⁰⁵ study also discussed issues with pupils' former teachers or new teachers. One teacher mentioned parents as a helpful resource, and two mentioned the value of workshops and in-service programmes.

A number of authors of included papers recommended that teachers be given additional information about ADHD during teacher education and through continuing professional development, and/or access to specialist teachers.^{263,264,296,298,305} The findings from Jones²⁹⁸ and Houghton *et al.*²⁹⁶ suggest that structured teacher collaboration that includes reflection and research findings may provide an effective approach to disseminating information about effective use of non-pharmacological interventions.

As well as lacking support from the wider school, teachers also report a lack of support from parents.^{264,298,324} Teachers describe parents who blame their teaching for ADHD symptoms,³²⁴ who do not care about whether or not their child attains academically at school,²⁶⁴ perceive problem behaviour at school to be the responsibility of the teacher^{298,324} and dismiss problem behaviour as unimportant.

Dilemmas between the whole class and individual child

Some of the teachers in Hong's²⁶⁴ study described experiencing a sense of dilemma over a conflict between the needs of the child and the needs of the classroom. They thought that in order to be fair they must treat all the children in the classroom the same; however, because of the repeatedly difficult behaviour of the ADHD pupils, they perceived discipline for every infraction to be counter-productive:

Consistently telling them about what they [shouldn't] do might lead them not to do anything at all.

Korean primary school teacher (pupils aged 6–12 years) [reviewer's edits], p. 408²⁶⁴

Different teachers responded differently to this dilemma. One teacher taught classroom peers how to respond to ADHD symptoms so that together they could respond consistently. This demonstrates that it is possible to take the needs of both the individual and the whole class into consideration, as the peers learned strategies for dealing with difficult ADHD behaviours and the pupils diagnosed with or at risk of ADHD were supported more constructively. Other teachers who thought punishing children diagnosed with ADHD in the same manner as peers was inappropriate were perplexed about how to proceed, as these children's excessive behaviour still required control. A teacher who prioritised the classroom as a whole had the child stay after school so he could give additional support.

Teachers described an additional dilemma over the issue of inclusion or withdrawal. Some teachers in Hong's²⁶⁴ study reported that children diagnosed with, or at risk of, ADHD often lacked friends, and this was the outcome that was of greatest concern to them. As a result of their concerns about the social isolation of these children, they felt inclusion rather than withdrawal for support was important, so that pupils diagnosed with ADHD had the greatest opportunity to develop social skills. By contrast, preschool teachers in Jones'²⁹⁸ study described the extent to which children diagnosed with ADHD disrupted their classes, requiring teachers to abandon lesson plans, including field trips and the use of some toys. The extent to which peers were prevented from learning and issues of safety meant they suggested that the removal of children displaying ADHD symptoms from the classroom was sometimes preferable.

In Einarsdottir's²⁹¹ study, teachers of children of different ages held different perspectives. Playschool teachers argued for the importance of working with the child in context, within their peer group, because this approach enabled the child with ADHD to experience peer interaction, which was what they most needed. First grade teachers thought that children with ADHD symptoms needed to be removed from the classroom for their own learning and the learning of their peers, because learning for both the individual child and their peers was disrupted by their presence. Einarsdottir²⁹¹ makes sense of this according to responsibilities that first grade teachers had for delivering a more structured, academic curriculum.

Some teachers in Hong's²⁶⁴ study also expressed a conundrum in their attitudes towards children with ADHD being medicated to treat their behaviour; they said that, when taking medication, they thought children looked depressed, but without it, the child interfered within the classroom, disrupting other children's learning.

Justification for use of medication

Considerations for the classroom as a whole were implicated in attitudes towards whether or not medicating pupils for ADHD as a means to reduce ADHD symptoms was justified. Teachers in studies by Lee³²⁴ and Einarsdottir²⁹¹ supported use of medication under certain conditions (in pupils over a certain age; depending on severity of symptoms; as a last resort; with careful monitoring) because it meant children can 'function in a classroom much more effectively [. . .] by not interfering with their own and/or other children's learning' (p. 429; reviewer's edits in parentheses).³²⁴ Similarly, some teachers in Hong's study²⁶⁴ cited the negative impact of ADHD symptoms on the academic attainment of peers as justifying any perceived risks of medication to pupils with ADHD. However, some of the teachers in Lee's study³²⁴ said pupils' improved behaviour was reason for opposing medication, dismissing it as an 'easy way out'.

Orientation towards the individual child

Some classroom teachers described means to support individual children balanced with responsibility to the whole class, but mostly those who discussed the need to prioritise the needs of the individual child were the remedial teachers and authors.

Ljusberg²⁶⁵ argues that children's agency is reduced when they are diagnosed with ADHD and/or the strategy of placing them in separate classrooms is employed because withdrawal from peers officially establishes a pupil's deficits; when teachers take additional responsibility for pupils' learning the children lose this measure of control; the ADHD label and remedial classrooms create low expectations of co-operation from pupils and high expectations of incompetence; and pupils tend to become what is expected of them.

Mid-grade teachers in Nowacek and Mamlin's³⁰⁵ study understood that both self-acceptance and peer acceptance of ADHD pupils were highly important. Therefore, a concern for the individual child led them to be reluctant to apply strategies within the classroom that singled ADHD pupils out.

Teachers in Lee's³²⁴ study reversed their orientation from the classroom to the individual child when speaking to the child's parents in order to create a shared goal. These teachers perceived parents to be concerned about their child's attainment but not their child's behaviour in the classroom. In an attempt to establish shared goals, the teachers discussed the negative impact the child's ADHD symptoms had on his or her academic attainment when talking to parents, rather than focusing on problem behaviour and its impact on the learning of the whole class.

Teachers in remedial classrooms seem to orient themselves to the individual needs of the child; for example, unlike classroom teachers who usually only contacted parents when a pupil disrupted their classroom^{264,265} (suggesting orientation towards the learning of the class as a whole), remedial teachers routinely established relationships of cooperation with parents.²⁶⁵

Pre-service teachers in McMahon's²⁶³ study expressed concern over assumptions teachers might make once a child has been diagnosed with ADHD:

Many teachers just label them 'difficult' and don't appear to understand the condition – they don't realise that these kids are not 'trying to be naughty' they just can't help themselves.

Australian pre-service teacher (pupils' ages unknown), p. 255²⁶³

Although this concern for the individual child comes from a pre-service teacher who does not yet have responsibility for a whole class, teachers in Arcia *et al.*'s²⁸⁶ study also mentioned a similar concern.

Classroom teachers sometimes expressed concern over the lethargy shown by pupils on medication for ADHD:^{264,324}

[a child who] was usually happy when causing havoc in the class . . . sat feebly dozing off [when on medication].

Korean elementary school teacher (pupils aged 6–12 years) [reviewer's edits], p. 406²⁶⁴

Additional concerns expressed about medication included:

- loss of appetite and growth³²⁴
- filling children's bodies with chemicals³²⁴
- ADHD symptoms caused by other things such as diet, stress, lack of time with parents and poor parenting meant that medication was prescribed inappropriately.²⁹¹

Implications of teachers' orientation to the class as a whole for non-pharmacological interventions are given in *Box 22*.

BOX 22 Implications for non-pharmacological interventions related to teachers' orientation to the class as a whole and to the individual pupil

Teachers in these studies perceived their primary responsibility to be for the learning of the class as a whole, and ADHD symptoms often interfered with their ability to achieve this goal, at times creating high levels of stress for teachers. Implications for non-pharmacological interventions include:

- inclusion of information about benefits of any intervention in relation not only to the pupil with ADHD but also to the rest of the class may support teachers' willingness to implement non-pharmacological interventions
- effective implementation of non-pharmacological interventions in schools needs to include training for teachers
- non-pharmacological interventions that are meant to be delivered in the classroom should be evaluated in the classroom; optimal dissemination about non-pharmacological interventions may result from continuing professional development involving teacher collaboration
- a useful approach to be communicated during training for interventions may be that non-pharmacological interventions targeted at pupils diagnosed with ADHD also support better learning for the whole class because they reduce ADHD symptoms
- implementation of non-pharmacological interventions is likely to be most effective at the school rather than class level.

Perceptions of attention-deficit/hyperactivity disorder symptoms

The way teachers understood and perceived ADHD symptoms had an impact on whether or not they thought it was appropriate to intervene, either by referring for assessment or by adapting the approaches to discipline and teaching they generally applied within the classroom to better support pupils displaying these symptoms. As was found in review 4a (pupil views) [see *Findings for review 4a (pupil views)*], factors understood to contribute to ADHD symptoms can be categorised as biological, sociological and psychological factors.

Teachers often held polarised views, where they perceived ADHD symptoms to originate from social or biological factors, rather than understanding the behaviour as an interaction of factors. Although many included studies in review 4 describe a contribution of school-related factors to ADHD symptoms,^{27,41,260–263,265,266,291,293,296,314,324,331–334,347,356} the sociological factor that teachers tended to refer to was poor parenting. Often, teachers who attributed ADHD symptoms to sociological factors were not willing to adapt their teaching approach to support pupils who displayed this behaviour, because they understood the behaviour to result from poor parenting rather than the school context. This belief could reduce teacher perceptions of their own agency because the teacher could not control the parenting of the pupil. Often, teachers who attributed ADHD symptoms to biological factors were motivated to adapt their teaching to support pupils diagnosed with ADHD, because they believed ADHD symptoms to be out of the pupils' control, unlike the pupils' peers, justifying the adaptation. However, some teachers showing biological attributional beliefs did not refer to classroom adaptation but discussed only medication as treatment.

Although there was little discussion of psychological origins for ADHD symptoms, implicitly teachers described such beliefs through the concept of 'the naughty child'. 'Naughtiness' is often attributed to poor parenting, and is therefore conceptualised implicitly as a transaction between sociological and psychological factors.

The understanding that ADHD symptoms are a result of immaturity in relation to peers is usually conceptualised biologically, where maturity is understood to develop with age due to biological and neurological growth. However, sociological and psychological learning was also implicated by one author,³²⁴ who argued that use of medication or contingency management programmes prevented, rather than supported, the development of self-control in pupils diagnosed with ADHD. In this case, medication and contingency management are understood to prevent the development of self-control because the pupil is deprived of the opportunity of practising it. This suggests a belief that elements of sociological and psychological factors interact to foster maturity. Because attributions to maturity for ADHD symptoms implicate biological, sociological and psychological factors, it was identified as a separate subtheme. Teachers who attributed ADHD symptoms to immaturity were reluctant to refer a child for assessment of ADHD. The author who argued that emotional self-control had to be developed through practice argued against treatment of ADHD using medication or contingency management.

Sociological factors: perceptions that attention-deficit/hyperactivity disorder symptoms result from difficulties in the home

In Arcia *et al.*'s²⁸⁶ study, teachers were asked why children exhibited ADHD symptoms. Most teachers attributed ADHD symptoms to problems in the child's home, specifically a disruptive family environment; family neglect (e.g. children kept indoors, not having someone at home to talk to, not being read to, education not valued); lack of discipline; single parenthood; an overprotective mother.

In many cases, the reason for the child acting up is a result of bad parenting, not setting limits and allowing the child to get away with it.

Australian secondary school teacher (pupils aged 11–18 years), p. 115²⁹⁶

Many teachers attributed ADHD symptoms to problems in the child's home life, with examples including:

- poor parenting²⁹⁶
- young parents²⁹¹
- lack of structure, lack of rules and/or consequences, lack of praise, lack of security.²⁹⁴

Sociological factors: impact of belief that attention-deficit/hyperactivity disorder symptoms originate in the home

Teachers in Arcia *et al.*'s²⁸⁶ study, despite speaking of children who were known to be diagnosed with ADHD or had ADHD symptoms identified by rating scales, seldom linked children's behaviour to ADHD. Teachers explained this reluctance in a number of ways, the most common being that they understood ADHD to be a result of home factors. Teachers in Hong's study²⁶⁴ also mentioned that it is common for people to refuse to understand ADHD symptoms as a disorder. This may also impact perceptions about non-pharmacological interventions; for example, Arcia *et al.*²⁸⁶ asked teachers what might really help the child, and most teachers responded with descriptions of improved home life. Specific suggestions included a stable home environment, more reading and less television, a male role-model, family counselling, more discipline at home, extra attention and active parental involvement in teaching and homework, rather than the implementation of non-pharmacological interventions in school. Perceptions that ADHD symptoms originate in problems in the home may also act as a potential barrier to constructive relationships and reduce teacher agency.

The perception that parents were unwilling to support teachers was expressed by Hong.²⁶⁴ She concludes that Korean families often do not take responsibility for their children's behaviour in school, because they do not seem to care about whether or not the children achieve their educational goals, or because they understand ADHD symptoms to be typical of all children. Jones²⁹⁸ also reported that teachers felt unsupported by parents of pupils with ADHD who dismissed the behaviours as unimportant or refused to attempt to address the problems with the child at home because they thought the child's behaviour at school was the teacher's problem. Thus, not only was it common in included papers for teachers to attribute ADHD behaviour to problems in the home, but some teachers also anticipated that parents would be unwilling to work with them to address difficulties with behaviour in school.

One way that teachers tried to change parenting behaviour was through the distribution of information about ADHD. Teachers in a number of different studies thought that parents would benefit from education about dealing with ADHD symptoms. In response to vignettes given to teachers in Hillman's²⁹⁴ study, 8 out of 30 teachers hypothesised that they would try to inform parents about various aspects of ADHD, including assessment processes and non-pharmacological interventions such as contingency management. Hong²⁶⁴ concluded that parents could be provided with books or other resources such as community programmes in order to raise awareness of the impact of ADHD symptoms on a pupil's peer relationships, social adjustments and about how such behaviours disrupt the lives, learning activities and overall educational achievement of other children. It is interesting to consider whether this should be the role of education or health services. Other teachers expressed the need for community support for parenting:

The only thing that is offered to parents is how to work academically with their child. We need parenting classes on behavior [sic] issues.

American preschool teacher (pupils aged 3–5 years), p. 80²⁹⁸

Teachers who gave hypothetical descriptions of contacting parents in Hillman's²⁹⁴ study using vignettes of children displaying ADHD symptoms sometimes varied according to ethnicity. The author identified that a collaborative style of communication was used more often when contacting parents of Caucasian parents, whereas teachers more often described an approach of 'gathering information' when contacting parents of African American children. The author regarded the latter approach as more likely to foster a sense that teachers and parents were in opposition. This finding highlights the potential additional barrier to collaboration that differences in ethnicity between teachers and parents can contribute. This finding also has wider implications in suggesting that, should teachers contact parents having already made negative assumptions about them, for whatever reason, the potential for constructive relationships may be undermined.

Teachers in Lee's³²⁴ study said that usually they eventually developed working relationships with parents, some of which were positive and productive. They identified the times when parents worked co-operatively with them as a key to making progress. Some teachers described situations where their perceptions of a child's behaviour were different to parents' perceptions and the problems that this caused. Sometimes a working relationship was not achieved, and in extreme cases parents removed their child from the class:

Well, I can go just right back . . . to this child whose parents withdrew him from my classroom [. . .] he distracted me. And the parents of this child saw him as being more 'all boy', that my classroom is too structured. My classroom is not real structured . . . And they also have problems with school culture. These are very educated people. Very educated. And they seem to think that school culture really favours girls . . . They just felt like I was zeroing in on their son, and that I had some axe to grind with him . . . they thought that my expectations were out of line.

American preschool teacher (pupils aged 3–5 years) [reviewer's edits], p. 428³²⁴

In this case, both the teacher and parents make sociological attributions for ADHD behaviour, but these are opposite in context and in beliefs about why the child shows symptoms, with the teacher understanding ADHD to originate in the home and the parents understanding the behaviour to be the result of excessive structure in the classroom. This example describes a situation of negative assumptions from both teacher and parents about each other, as well as the unlikely nature of collaboration when both teacher and parents hold the other responsible for changing the child's behaviour, rather than seeking to change the behaviour of the child in the context over which they have control.

Perceptions that attention-deficit/hyperactivity disorder symptoms result from other social and cultural factors

Some teachers and/or the authors of included studies attributed ADHD symptoms to social factors other than problems in the home. Some teachers expressed the perception that boys displayed ADHD symptoms more commonly than girls,³²⁴ with some attributing this to socialisation but others to genetic influences.³²⁴ Hillman²⁹⁴ asked teachers how they would respond to ADHD symptoms in vignettes that varied by gender and ethnicity. Teachers were more likely to link ADHD symptoms in girls to learning difficulties than ADHD, especially in Caucasian girls compared with African American girls, whereas the same behaviour was more often attributed to ADHD in boys. Hillman²⁹⁴ suggests that as these teacher responses were hypothetical, they are more likely to represent beliefs based on stereotypes than if teachers were interacting with real children and parents. Teachers in this study were more likely to interact with African American parents in a style suggesting opposition than with Caucasian parents (see above). Although this finding is not necessarily applicable to the UK because of cultural differences, a more general interpretation of this finding is likely to be applicable; responses by teachers to parents based on stereotypical assumptions may create additional barriers, for example on the basis of class.

Lee³²⁴ asked teachers specifically about their experience of prevalence of ADHD according to ethnicity and socioeconomic status. Some teachers noted differences according to ethnicity, which were often related to the ethnic makeup of schools; teachers noticed higher numbers of pupils diagnosed with ADHD from the ethnic group in the majority. Overall it would appear that teachers may sometimes make assumptions based on stereotypical beliefs about ADHD and issues like ethnicity, gender, poor parenting, and, potentially in a UK context, class. Such assumptions may influence teachers' response to ADHD symptoms in pupils and/or their relationship with the pupil's parents. However, this is not necessarily the case:

I think I'm sometimes more self-conscious about [socio-economic status] than other people might be because I'm always looking, 'Don't make this assumption just because you think, "They're black and they're poor" '. I do see a lot of attention problems in my lower income black males. Is that because they watch a lot of TV and they're unsupervised? I don't know . . . It's really hard to know which of the factors are contributing to it.

American elementary school teacher (pupils aged 6–12 years) [reviewer's edits], p. 426³²⁴

This teacher takes care not to make assumptions, as well as showing awareness of the potential complexities of origins for ADHD symptoms.

Some authors of included papers discussed the role that cultural attitudes played in shaping teachers' perceptions of ADHD. Teachers in Hong's²⁶⁴ study described a lack of emotional self-control to be the most notable characteristic of children diagnosed with ADHD, rather than hyperactive behaviour. Hong argues²⁶⁴ that this is the result of the high value Korean culture places on being sensitive to others' emotions and the need to express ones' own emotions appropriately in order to 'fit in'; that Korean teachers may have higher levels of tolerance for 'rambunctious' behaviour; or that teachers simply lack knowledge about ADHD. Some of the teachers in Lee's³²⁴ study expressed the opinion that differences in societal expectations were expressed in differential diagnoses of ADHD by gender. For example, they surmised that generally permissive attitudes towards boys' behaviour ('boys will be boys') did not prepare boys to be able to meet school expectations for controlled behaviour. Lee³²⁴ discusses the teachers' overall positive response to medication for ADHD – that it allows children to be 'successful and effectively functioning in school by managing one's emotion and behaviour, being focused, getting work done, not interfering with one's own and/or other children's learning, and becoming a competent student' – in terms of Western culture which values individual efficiency, productivity, order and predictability. Einarsdottir²⁹¹ focuses on the cultural contingency of the concept of ADHD to explain the rise in ADHD diagnosis and treatment within Iceland since the late 1990s. Culturally contingent factors include cultural proximity to North America, with many pursuing academic study there, bringing back cultural influences. The author also discusses recent social changes in attitudes to child rearing and education, as well as changes to children's lives such as less time to play outside, more structure and monitoring by adults and less time spent with parents.

Classroom structure as a contributor to attention-deficit/hyperactivity disorder symptoms

Although mainstream teachers discuss how they use classroom strategies to manage ADHD symptoms, they do not seem to conceptualise them as originating in classroom structures. Only one study²⁸⁶ specifically asked why children display ADHD symptoms, and teachers in other studies might have attributed this kind of behaviour to classroom structures had they been asked specifically about it. In some schools teachers attributed ADHD symptoms to a child's lack of knowledge of English,²⁸⁶ which suggests a propensity towards seeing difficulty within individual children rather than seeing the impact of school structure. These teachers taught in schools with large minority populations without bilingual instruction and it could easily be argued that the difficulty was with the school.

Remedial teachers, however, were explicit in naming classroom structure as a contributor to ADHD symptoms, and also mainstream teachers' lack of expertise, or inability to adapt the classroom:

It can be easier to move the pupil than to move the teacher.

Swedish remedial teacher (pupils aged 9–12 years), p. 202²⁶⁵

Remedial teachers cited obstacles in mainstream classrooms as:

- insufficient funds
- unadapted accommodations
- classes that are too big
- insufficient educational knowledge
- negative views on children and inclusion.²⁶⁵

A number of authors provide second-order concepts related to the contribution of classroom structure to ADHD symptoms. Teachers in Lee's study³²⁴ expressed a sense of pressure owing to accountability for pupils' attainment, where ADHD symptoms were experienced as particularly problematic. Teachers perceived that during school years when exams were administered they did not have time to deal with difficult

behaviour. Lee frames teachers' acceptance of diagnosis and treatment for ADHD on the basis that it enables a child to be able to function in school, as what Nourot³⁵⁷ calls 'academic pushdown', where children are expected not only to master academic skills, but to be capable of behaving in school from the start of their school lives. Lee describes the school context as one where being young (chronologically or behaving young) is 'not only devalued but is also considered pathological' (p. 433).³²⁴ Einarsdottir²⁹¹ draws a similar conclusion based on her finding that more children are diagnosed with ADHD in first grade than playschool. She attributes this to differing classroom expectations, where playschool 'emphasises play and creative activities, has fewer children in a group, has more adults and possesses a more informal layout and structure, while the first-grade classrooms are more structured with larger groups and fewer adults and often whole-group instruction'. She notes further that changes in school expectations, including 'school entrance at earlier ages, a longer school day, bigger classes and an earlier emphasis on academics' may all contribute to greater numbers of children being diagnosed and treated for ADHD.

Bailey and Thomson's⁴¹ study focuses on the contribution of school classroom routines to the identification of ADHD behaviour following Foucauldian theory (Box 23).³⁵⁸ Bailey was a teaching assistant in the classroom studied and while he was there two children were diagnosed with ADHD. Classroom routines establish 'correct' behaviour, and in this study examples of routines included entering and exiting the classroom, ways in which to line up, wash hands, interact with other children, sit, listen, speak, cut with scissors and read a book. Deeply held understanding of the 'good teacher' role in the prevention of disruption within the classroom meant that teachers worked hard to enforce such routines through punishment and communication with headteachers, SEN co-ordinators, or parents in response to breaches in behavioural rules. Through these teacher-determined routines, children were taught how to behave in school, and through the performance of these routines children established whether they fell inside or outside the norm. The authors identified these routines as the overarching strategy used for classroom management, where following routine was considered normal and natural.

The authors categorised routines into eight groups according to their function:

1. surveillance – supervising, closely observing, watching, threatening to watch, avoiding being watched
2. distribution – dividing into parts, arranging, ranking bodies in space
3. segregation – setting up enclosures, partitioning, creating functional sites
4. differentiation – normative classification of ability and difference among individuals or groups (note this use of the word 'differentiation' by Bailey and Thompson⁴¹ differs from standard use of the word in education to signify the personalisation of learning to the individual learner)

BOX 23 Description of Foucauldian theory about power, knowledge and surveillance

Two studies included in review 4b, by Bailey and Thompson⁴¹ and McMahon,²⁶³ follow Foucauldian theory in their data analysis. Foucault defined power not as a thing but as a relation that was exercised at every level of social interaction. Foucauldian theory posits a relationship between power and knowledge, where power impacts what knowledge is accepted or rejected, and relationships between power and knowledge often involve the aim of social control. Foucault analysed institutional power exercised through use of architectural space, timetables and routine in order to regulate people's behaviour, including the use of multiple approaches to surveillance. Surveillance is a means to collect information through unequal gaze, where the person being surveyed knows they may be watched but do not know when they will be watched. This encourages self-regulation. The information, according to chosen systems of knowledge, is used to maintain power.

5. self-regulation – regulative practices directed at the self
6. examination – checking, recoding, measuring and displaying ability or progress
7. docility – rendering bodies still and/or silent, invoking passivity
8. legitimating an individual's authority, routinising an individual's presence.

We will discuss five of these categories (1, 2–4, 7) because they have particular relevance in relation to other findings in the review.

The function of surveillance was to make visible exceptions to the norm. As an example of surveillance, on his arrival as a teaching assistant, Bailey was given a list of six children who were 'ones to watch'. These children were often topics of conversation, where teachers and teaching assistants kept each other abreast of breaches in the children's behaviour. The children were not the only topic of interest; the children's parents were also discussed:

Christopher [a 'one to watch'] is the youngest child in the class . . . [the classroom teacher] and I had a chat about him . . . Sarah described Rosa [Christopher's mother] as 'carrying a lot of emotional baggage', saying that she had 'broken down' during the meeting. Sarah clearly didn't think much of her as a parent and thought Christopher was probably spoilt.

*English teaching assistant field notes (pupils aged 5–6 years)
[reviewer's edits], p. 216⁴¹*

The authors note that discussion of poor behaviour by a child and family circumstance were frequently 'tied together'; this repeats the frequent assumption teachers make in other studies about ADHD symptoms and 'poor parenting'. The authors also comment that the magnitude of the scrutiny these children were under was likely to increase the amount of problematic behaviour identified regardless of the quality of their behaviour in comparison to peers who were not watched so closely. Thus, the routine of surveillance functions as a process of stigmatisation (see *Box 17*).

The function of routines of distribution, segregation and differentiation are described as enabling surveillance. Children are distributed according to age and then subject across their school careers, as are teachers. The authors noted that segregation, where a child or group of children were withdrawn from the main group, invoked implicit notions about the children's ability levels. Differentiation is described as a necessary result of nationally prescribed, normative curricular achievement, where not only are children required to attain certain levels, but also teachers are held accountable for whether or not they get there.

The authors describe docility as the desired outcome of all the other routines. When children do not become docile, they are identified as being outside the norm. This is highly relevant to ADHD symptoms, which are not negative in essence; they are a problem in the classroom. As the authors write, 'There certainly seems to be nothing inherently productive about the ability to sit still, it may seem an odd skill for teachers to reward *for itself*' (p. 225; author italics).⁴¹ Thus, the idea of normal and abnormal is as pertinently social as individual.

Bailey and Thomson⁴¹ do not argue that school classroom routines are solely negative, rather they acknowledge their productive, essential nature. However, they also demonstrate the 'dangerous and damaging' effect such routines may have for a minority of children. Although routines cannot be abolished, the authors suggest a reorientation of teacher gaze away from the individual child as the problem, to investigation of possibilities for classroom adaptation. This study suggests that the behaviour of teachers follows other socially constructed norms where they are held accountable for keeping order and producing particular levels of achievement in order to meet professional obligations. Psychosocial interventions need to acknowledge these expectations and norms in order to successfully engage teaching staff.

Biological factors

Some teachers in Arcia *et al.*'s²⁸⁶ study attributed ADHD symptoms to within-child factors including, for example, brain imbalance, heredity, an innate behaviour pattern or chemical difference, for example lead poisoning. When ADHD symptoms were described in vignettes by Hillman,²⁹⁴ some teachers mentioned ADHD (or other medically orientated disorders, such as ASD) as a possible reason for this behaviour. Remedial classroom teachers in Ljusberg's²⁶⁵ study, who taught small groups of children who had been withdrawn permanently from mainstream classrooms owing to inattentive behaviour, understood the children to have deficits but also saw the schools as potentially able to compensate for these, thus demonstrating an understanding of an interaction between factors. Pre-service teachers in McMahon's²⁶³ study often described a medical diagnosis of ADHD as though it represented a biological 'truth'. Similarly, teachers in Einarsdottir's²⁹¹ study distinguished ADHD symptoms originating in sociological factors from ADHD symptoms originating in biological factors, where 'ADHD proper' only originated from biological factors. As a result, these pre-service²⁶³ and mainstream²⁹¹ teachers perceived a diagnosis of ADHD to mean the child could not control ADHD symptoms, and saw diagnosis as settling the question of whether or not the pupil was 'just being naughty'. Diagnosis could be understood as a prompt to give a pupil increased amounts of understanding and support, and some linked it to a willingness to adapt their teaching to be appropriate to the child's needs. Some pre-service teachers in McMahon's²⁶³ study expressed the view that an accurate diagnosis, although it risked stigma for the pupil, was ultimately preferable to no diagnosis because it supported the child's learning experience by justifying adaptation of teaching approaches.

Commonly, medical diagnosis of ADHD has been synonymous to 'labelling' (see *Stigma*). However, McMahon's²⁶³ study found that pre-service teachers understood diagnosis and labelling as unequivocal; medical diagnosis was an uncontested, neutral, biological 'truth', whereas construing a child as having ADHD before medical diagnosis, or making stereotypical assumptions about the child after diagnosis, involved inaccurate or unjust behaviour by a teacher that may result in stigma for the child. The author concludes that pre-service teachers understand ADHD from a medical model and that this belief impacts practice by rendering classroom adaptation and strategies for addressing ADHD symptoms contingent on a medical diagnosis. The author²⁶³ recommends pre-service teachers be challenged to reflect on 'taken-for-granted' assumptions regarding behaviour disorders, diagnosis and intervention.

This kind of simplistic understanding of ADHD as biologically caused and straightforwardly diagnosed is problematic on a number of grounds discussed elsewhere (see *Overarching theme for review 4a: attention-deficit/hyperactivity disorder symptoms as an interaction between biological, sociological and psychological factors*) and the interaction between biological, sociological and/or psychological factors is relevant before as well as after diagnosis. The issue of the extent to which a pupil displaying ADHD symptoms is capable of controlling behaviour is not possible to ascertain with any certainty; rather teachers have to make judgements about this based on their knowledge of the pupil. Attribution of too much control may result in excessive and therefore counterproductive correction and/or punishment; attribution of too little control removes agency from the pupil and encourages the pupil to use ADHD as an excuse for poor behaviour. The findings from McMahon suggest that teachers would benefit from preparation for such complexity.²⁶³

Psychological factors

Teachers and authors of included studies rarely specifically referred to psychological factors as contributing to ADHD symptoms, although teachers in Arcia *et al.*'s²⁸⁶ study mentioned poor self-esteem as a potential cause. Informally, however, ADHD symptoms are often attributed to psychological factors through the idea of 'the naughty child',^{263,291,296} where the behaviour is understood to be the chosen act of a pupil to ignore behavioural rules, and teachers of preschool-aged children in Einarsdottir's²⁹¹ study understood it to be

possible to discriminate between ADHD and naughty behaviour according to whether or not the child was able to adapt their behaviour to the expectations of the classroom environment:

Sometimes you suspect that something is wrong, but then it is a mistake. You may think that a child is hyperactive or with attention deficit or something like that, but if you give them time for a few weeks or months, then you see it is okay; they just have to learn and get used to being in school.

Icelandic preschool teacher (pupils aged 2–6 years), p. 388²⁹¹

This teacher understood that it was possible for ADHD symptoms to be a result of the child not understanding yet what the boundaries for behaviour were; once they understood these boundaries they were able to control their behaviour and, therefore, they did not 'have ADHD'.

Maturity

Teachers also attribute ADHD symptoms to a lack of maturity, and this acts as a reason not to pursue assessment for ADHD because it is assumed the behaviour is not attributable to ADHD. For example, teachers in Arcia *et al.*'s²⁸⁶ study cited immaturity as a reason for such behaviour. Many of the preschool teachers in Einarsdottir's²⁹¹ study expressed reluctance to refer a child for assessment of ADHD because they thought it was easy to conflate immaturity with ADHD. In their experience, younger children normally exhibited ADHD symptoms, and some had taught children who outgrew ADHD symptoms. As a result of a similar understanding, teachers in Lee's³²⁴ study working with children aged ≤ 6 years focused on inattentive behaviours when discussing ADHD, whereas teachers working with older children focused on hyperactive/impulsive behaviour. Lee³²⁴ concludes that this is because hyperactive/impulsive behaviour is perceived as normal for younger children.

Lee³²⁴ further argues, from a maturational perspective, that the use of medication and contingency management interventions to control ADHD symptoms deprives the child of the time and opportunity to develop self-control and self-discipline, making them reliant instead on medication and/or adults to control their behaviour. Lee³²⁴ describes the school context as one where being young (chronologically or behaving young) is devalued.

In a slightly different understanding about maturity and ADHD symptoms, middle school teachers in Nowacek and Mamlin's³⁰⁵ study perceived that they did not need to provide behavioural support to young people diagnosed with ADHD. They understood that by this age (11–14 years) the young people would have learned to control their behaviour. By contrast, the researchers completing classroom observations in this study found that these pupils still displayed inattentive and hyperactive behaviour.

Implications of teacher attributions for ADHD symptoms for non-pharmacological interventions are given in *Box 24*.

BOX 24 Implications for non-pharmacological interventions in relation to attributions for ADHD symptoms

When training teachers to implement non-pharmacological interventions, teachers' ability to formulate a constructive response to ADHD symptoms would be supported by information about the interaction of biological, sociological and psychological factors.

Sociological*Problems with polarised views*

Although studies suggest the pertinence of classroom issues to ADHD symptoms, teachers who made sociological attributions often focused on issues in the pupil's home without discussion of classroom factors. Such beliefs may lead to the perception that behaviour change is contingent on changes in parenting over which a teacher has no control, and may lead a teacher to dismiss the potential for non-pharmacological interventions to ameliorate ADHD symptoms.

Benefits in understanding social contributors

Knowledge of factors in the classroom that contribute to ADHD symptoms may support a teacher's willingness to engage more deeply with non-pharmacological interventions. Understanding that by changing the classroom they may be able to change ADHD symptoms supports their sense of agency in the face of difficult behaviour.

Biological*Problems with polarised views*

Teachers who understand ADHD symptoms to originate in biological factors may refuse to adapt their teaching response to pupils without a diagnosis of ADHD, and may regard the pupil with a diagnosis of ADHD as unable to control his or her behaviour, removing accountability from the pupil. They may also understand medication to be the only relevant response, dismissing non-pharmacological interventions because such interventions do not address biological origins.

Benefits in understanding biological contributors

Knowledge of biological factors that contribute to ADHD symptoms may support a teacher's willingness to adapt their response to pupils' ADHD behaviour on the grounds that these pupils are different to peers in the extent to which they can control their behaviour.

Psychological*Problems with polarised views*

Teachers who understand ADHD symptoms to be the result of a 'naughty child' hold the child accountable for emotional and behavioural control in a similar way to the child's peers. However, such response holds the pupils accountable for things they may not have control over. This can result in the child developing a spoiled identity and experiencing frustration and anger, and may exacerbate rather than reduce ADHD symptoms.

Benefits in understanding psychological contributors

Knowledge of psychological factors that contribute to ADHD symptoms can clarify that pupils diagnosed with ADHD have self-control, but lose control more easily than peers. This can support teachers to learn triggers for loss of self-control in pupils, which can inform classroom practice. It also justifies teaching coping strategies to pupils in order to support the development of greater self-control. Teachers can make better-informed judgements about the extent to which to hold pupils accountable for their behaviour.

Review 4c: the experiences and perspectives of parents of pupils diagnosed with attention-deficit/hyperactivity disorder

Study characteristics for review 4c (parent views)

A total of six studies reported in seven papers were included in review 4c.^{28,262,266,276,356,359,360} Summaries of included papers for review 4c are shown in *Table 53*. Two studies involved participants from the USA,^{359,360} two studies involved participants from Canada,^{266,276} one study involved participants from Australia²⁶² and two studies involved participants from the UK.^{266,356} Malacrida's study included parent participants from both Canada and the UK and is reported in two journal articles.^{28,266} When describing information from either study only the earlier publication²⁶⁶ will be cited in order to signify the singular nature of the study.

All the studies explored the school experiences and perceptions of parents of pupils diagnosed with ADHD; because of the nature of the research question for this review, which specifies school experiences, studies that focus on parent experiences of ADHD at home were excluded. Most of the papers were relatively congruent in their findings about the experiences of parents and the relationships with schools that developed following their children's display of ADHD symptoms, except for Malacrida's study²⁶⁶ which differed in that it focused on strategies of resistance for mothers. All of the children of the parents in included studies have clinical diagnoses of ADHD.

TABLE 53 Summary of included papers for review 4c: the school experiences and perceptions of parents of pupils diagnosed with ADHD

First study author and year (<i>n</i> = 6)	Country of participants	Aim	<i>n</i>	Gender (mother/father)	ADHD status of child (diagnosed or at risk)
Carpenter 2008 ²⁶²	Australia	To explore mothers' perceptions of the role of schools in the decision-making process leading to diagnosis and medication	15	Mothers	Diagnosed
Hibbitts 2010 ²⁷⁶	Canada	To explore the experience of a parent when interacting with her children's schools	1	Mothers	Diagnosed
Malacrida 2001 ^{28,266}	Canada and the UK	To investigate what it is like, within two different cultural contexts, to be a mother confronting multiple 'helping' professionals while dealing with ADHD; to examine maternal narratives in order to understand the different ways that these mothers perceive educators' roles in the medicalisation of their children's behaviour	34	Mothers	Diagnosed
Margalit 2010 ³⁵⁹	USA	To identify stressors, needs, supports and perceptions expressed by mothers of children with LDs and ADHD through their messages on an internet discussion board	168 ^a	Mothers	Diagnosed
Reid 1996 ³⁶⁰	USA	To explore the way parents perceive the process they have gone through in obtaining services for their children with ADHD	20	Eighteen mothers and two fathers	Diagnosed
Watson 2011 ³⁵⁶	UK	To analyse the narrative of a mother concerning the events surrounding the diagnosis of ADHD in her son, in particular the part played by the school in this process	1	Mothers	Diagnosed

LD, learning disability.

^a Margalit *et al.*³⁵⁹ is a study applying content analysis to internet discussion entries by mothers of children diagnosed with ADHD and LD. As there was little second-order interpretation in the study, it did not contribute extensively to the review. The study was included in the review, so the review encompasses the experiences and perceptions of at least 234 mothers, but analysis of the accounts of the 66 mothers in the other studies are represented in most detail.

With the exception of two fathers in Reid *et al.*'s³⁶⁰ study, all the parents in included papers are mothers. A number of authors^{262,266,356} comment on deeply ingrained cultural beliefs that hold mothers accountable for the work of parental nurturing, and that 'inextricably link'²⁶² the well-being of children to their mothers. Perhaps for this reason research on parenting and ADHD often focuses on mothers, through both purposive sampling by researchers and self-selection by mothers. Although teachers in included studies from review 4b sometimes attributed display of ADHD symptoms to poor parenting by fathers, where fathers are accused of providing violent examples to their children (e.g. see Bailey and Thompson⁴¹ and Carpenter and Austin²⁶²), 'parent-blame' is often a euphemism for 'mother-blame'.³⁶¹ Perhaps this accounts for higher levels of engagement by mothers; for fathers there is not as much at stake. This cultural belief, that mothers are to blame for poor behaviour in their children, is of key importance in the synthesis of findings from the included papers in review 4c. To be clearer in the discussion of findings, we refer to 'mothers' or 'fathers' rather than 'parents'.

Study methodologies for review 4c (parent views)

Details of study methods for included papers for review 4c (parent views) are given in *Table 54*. Three of the six studies collected data through semistructured interviews.^{262,266,360} In addition to interviews, one of these studies also conducted focus groups²⁶² and one study administered a questionnaire to collect additional demographic information.³⁶⁰ Two studies^{276,356} analysed narratives written by mothers of children diagnosed with ADHD. Hibbitts' study²⁷⁶ was an auto-narrative and Watson's study³⁵⁶ was based on a narrative written by a colleague. Finally, data for the study by Margalit *et al.*³⁵⁹ were based on 1502 internet messages written by mothers of children diagnosed with ADHD, ADHD and learning disabilities (LDs) or LDs.

Most authors explicitly described their research methodology and/or the use of conceptual frameworks to structure their research. Hibbitts²⁷⁶ conducted hermeneutic phenomenology; Reid *et al.*³⁶⁰ used a grounded theory approach. Three studies were framed by sociological theory such as feminist theory and the constitution of disorderly behaviour in schools;²⁶² theories of medicalisation and social control²⁸ and theories of stigma and mother blame.³⁵⁶ Only Margalit *et al.*^{359,380} did not explicate the methodology or theoretical framework employed in their study.

Findings for review 4c (parent views)

For review 4c (parent views), an index paper was chosen as an organising framework because the breadth of themes in the study represented the content of other papers well. The index paper for the parent synthesis is an auto-narrative,²⁷⁶ the doctoral thesis of a parent of an ADHD child describing her experiences of interacting with her children's schools. She has three children; her middle child has been diagnosed with ADHD and her youngest has been diagnosed with SEN. Some researchers argue that marginalised groups can be further marginalised when represented by researchers 'outside' the group;³⁸¹ the choice of this study as an index paper is an attempt to represent parents' experiences faithfully. Others have argued that auto-narrative approaches lack objectivity owing to their personal nature.³⁸² However, we decided that the author had addressed this potential weakness of auto-narrative because the paper represented themes from other parent perspective papers, because the author consulted academic literature about parent-school relationships to validate her emergent themes, because the index paper included a 'critical outsider' to critique the author's analysis as part of the method, and because the author demonstrated reflexive awareness of researcher subjectivity. The process of data analysis followed that described earlier (see *Chapter 4, Methods of analysis/synthesis, Data analysis and synthesis*). An overarching theme with three subthemes was identified. Relationships between first-/second-order concepts and third-order concepts are shown in *Table 55*.

Overarching theme for review 4c: mothers are silenced

The overarching theme identified for review 4c (parent views) was mothers are silenced. The index paper²⁷⁶ identified 'silencing' – both by others and self-silencing – as a theme. Although the other included papers do not discuss experiences specifically in terms of silencing, the experiences described by mothers and conclusions drawn by researchers are congruent. Silencing is a process involving social and political

TABLE 54 Methodological details of included papers for review 4c: the school experiences and perceptions of parents of pupils diagnosed with ADHD

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Carpenter 2008 ³⁶² Australia	15	Mothers	45 semistructured interviews One focus group	Purposive, self-selecting, convenience	Post-structural work of Butler 1997, ³⁶² 2004, ³⁶³ and Fraser 1997, ³⁶⁴ 2000, ³⁶⁵ 2003. ³⁶⁶ The authors approach ADHD from a primarily sociological standpoint using educational theory developed by Graham 2006, ³⁶⁷ 2008. ³⁶⁸	A process of narrative enquiry beginning with descriptive coding followed by development and refinement into themes. Use of moral language, metastatements and the logic of narrative were used as sensitising concepts while coding
Hibbitts 2010 ²⁷⁶ Canada	1	Mother	48 vignettes about experiences with her children's schools written by the author over a 3-month period 3 years later she analysed these for a doctoral thesis	N/A	Constructionism; phenomenology. The author is not explicit about her beliefs about ADHD. Implicitly she seems to understand her son's behaviour as internally driven, and not in his complete control; she follows the advice given to her by her son's doctor, 'accept him and make the best of your lives'	Auto-narrative using hermeneutic phenomenology following van Manen 1990, ³⁶⁹ 2002. ³⁷⁰ The process of analysis involved bracketing, selective reading and detailed reading in order to identify themes which were then compared to literature about the parent-school interface in order to validate or discard/develop them. She involved an outsider to provide critical feedback while writing the thesis
Malacrida 2001 ^{28,265} Canada and UK	34	Mothers	34 semistructured interviews	Self-selecting; snowball	Constructionist; Foucauldian; theories of medicalisation. ³⁷¹ The author discusses the contested nature of ADHD, and approaches it from a primarily sociological standpoint	Inductive and deductive analysis; initial coding involved inductive narrative analysis starting with reflexive immersion in the mothers' narratives and the eventual crystallisation of themes. ³⁷² Data were also considered deductively against theories of medicalisation and social control
Margalit 2010 ³⁵⁹ USA	316	Mothers of children diagnosed with ADHD (n = 44); ADHD and learning difficulties (n = 124); learning difficulties (n = 148)	1502 internet messages	Self-selecting	The authors are not explicit about their methodology or theoretical framework, nor do they discuss the nature of ADHD	Content analysis ³⁷³ of data expressing stress was conducted. Authors independently coded messages from the same 30 participants then met and discussed then agreed the three overarching themes. Inter-rater reliability of initial coding using these overarching codes was 0.97. Subcodes were added and overarching themes refined as analysis proceeded. Qualitative software was used to organise data

continued

TABLE 54 Methodological details of included papers for review 4c: the school experiences and perceptions of parents of pupils diagnosed with ADHD (continued)

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Reid 1996 ³⁶⁰ USA	20	18 females and two males	20 semistructured interviews 20 demographic questionnaires	Self-selecting then purposive	Grounded theory, the authors are not explicit about any other use of theory. Their approach to ADHD is that it is an accurately established medical condition; for example, teachers who do not accept it as a valid condition are coded as having misconceptions or lack of knowledge. However, they are interested in exploring non-pharmacological interventions so acknowledge environmental influences	Procedures of grounded theory were followed; three interviews were open coded, the coding framework was refined then these were reapplied to the three papers. As the next 12 interviews were coded they applied axial coding, relational and variational sampling. They adapted the interview schedule for the final interviews and purposively selected the participants in response to the findings from the first 15 interviews. Finally, a core category was developed with a tentative conceptual model. Member and professional checking was conducted
Watson 2011 ³⁵⁶ UK	1	Mother of a child who is diagnosed with ADHD	One narrative	Purposive	Theories of stigma, ^{322,374} mother blame, ³⁷⁴ use of satire to disrupt implicit assumptions. ³⁷⁵⁻³⁷⁷ She approaches ADHD from a primarily sociological perspective	The author does not describe her process of analysis beyond stating that scenes from the narrative were selected concerned with the positioning of the family as deviant by various external agencies; these were then fictionalised using satire following Barone 2007 ³⁷⁸ and Clough 2002 ³⁷⁹
N/A, not applicable.						

TABLE 55 Relationships between first- (participant) and/or second-order (researcher) concepts coded from included papers in review 4c, and third-order (reviewer) concepts

First- and second-order concepts (inductive/deductive thematic analysis)	Third-order concepts (overarching theme: mothers are silenced)			
	Dashed expectations	Parent–teacher conflict is the norm	Resistance	
			Deferential	Assertive
Teachers as professionals vs. amateur parents; teacher as critic of parenting skills		X		
Cultural dissonance	X	X		
Weapons of the weak: refuting criticism			X	X
Silencing	X	X	X	X
Expectations	X			
Schools as sites of the origins of ADHD		X		
Contributing papers	262,266,276	262,266,276,356,359,360	262,266,356,360	262,266,276,356,360

judgements of what is acceptable and unacceptable.²⁷⁶ Hibbitts²⁷⁶ analyses the content of the vignettes constituting her auto-narrative, characterising them as passive (silenced; 'I was told') or active (empowerment; 'I told'). Of 64 vignettes, she characterised 41 as primarily passive and 17 as primarily active. Hibbitts describes communication with teachers as:

The schools did do a lot of talking to me and I did little talking back. Most often, I did as I was told.
Canadian mother of a son diagnosed with ADHD, p. 273²⁷⁶

One vignette was almost entirely passive; here, a narrative is described of a meeting which she thought would be with her child's teacher and was in fact attended by seven other professionals, including the school principal, other teaching professionals and administrative staff. During the meeting she was not asked to share her thoughts while school staff negatively evaluated her child. Following this event she reports feeling 'humiliated, embarrassed and ashamed'. In her analysis of passive/active vignettes she notes a lack of active vignettes for some time after the team meeting, which she describes as a period of self-silencing. Most of the active vignettes occurred near the end of her children's school careers, when she reports feeling a 'renewed strength'.

Silencing is related to societal expectations for mothers. Authors of all the included papers in review 4c (parent views) comment on the way the problem behaviour of their children encouraged judgements about mothers to be made by other adults in their process of making sense of those behaviours. Carpenter and Austin³⁸³ describe the historical growth of the myth of "patriarchal motherhood" . . . incubated in the late part of the 19th century, and hatching fully feathered in the postwar 20th century'; including, most relevantly for studies of ADHD, 'the measure of a mother is her child' (p. 660).³⁸³ The authors remark that despite the inappropriateness of these beliefs to 21st century Western culture, their interviews with mothers suggest that these beliefs are still firmly entrenched in both men and women's value systems. Thus, the stigma of ADHD is not only towards the child, but is also what Goffman³²² calls 'courtesy stigma' – stigma for those affiliated with someone who is stigmatised. Singh,³⁸⁴ in a social–scientific history of ADHD, demonstrates the linking of boys' problem behaviour and problem mothers during the development of the psychiatric category of ADHD. Singh³⁶¹ describes the influence of 'mother-blame', where societal blame laid on mothers for their child's (particularly son's) poor behaviour means that the acceptance of medication for their children can be perceived as acting as 'a good mother' with the promise of alleviating some of this blame. However, Singh³⁶¹ further argues that, actually, a biological determinist belief of ADHD 'contains, supports and reconstitutes opportunities for mother-blame' (p. 1204).³⁶¹ The ways that mothers felt stigma from professionals, peers and family for their child's behaviours formed a focal point for all the parent perspective papers in this review.

Both the discussions of silencing and ‘mother-blame’ above touched on a finding that recurs across the included papers, that of the ‘Catch-22’ nature of the situation faced by mothers of children diagnosed with ADHD. In Joseph Heller’s novel³⁸⁵ of that name, a World War II US army captain named Yossarian grapples with the military rule ‘Catch-22’ specifying that if one is sane, one must engage in combat missions; if one is crazy one does not have to. However, expression of concern over one’s safety was considered sane, so if Yossarian engaged in attempts to avoid combat he was sane – and had to engage in combat. The experiences described by mothers in their relationships with schools were similar in the ‘lose–lose’ nature of the interactions. Regardless of the way that mothers sought support for their children, or the way they interacted with school staff, almost universally they describe experiences of frustration and dismissal.

Three subthemes to the overarching theme ‘Mothers are silenced’ were identified: (1) dashed expectations; (2) parent–teacher conflict is the norm; and (3) resistance. Each will be discussed in turn below.

Dashed expectations

In her auto-narrative, Hibbitts²⁷⁶ identifies expectations as a theme. As university graduates both she and her husband had hopeful but not ambitious expectations for their own children at school. She hoped they would learn to ‘fend for themselves as adults’ and that they would experience the same sort of school experiences she and her husband had. Her hopeful expectations become despair, not because of the nature of her children’s behaviour at school, but because of the schools’ performance in educating them.

Although teachers’ orientation is to the class as a whole (see *Orientation to the class as a whole and orientation to the individual child*, above), mothers’ orientation is to the well-being, education and socialisation of the individual child. Mothers’ expectations are for their child to be reasonably happy at school. Mothers cite their child’s unhappiness as a primary reason they attempt to intervene at school:

He was very pale, he was very, he was more emotional, he was starting to pull eyelashes, he developed a tick, and I thought he’s obviously stressed. He’s more stressed than he should be . . . and he was saying ‘I would rather be dead than go to school’.

Australian mother of a son diagnosed with ADHD [reviewer’s edits], p. 40²⁶²

Malacrida²⁶⁶ argues that the primary impetus for mothers’ work to support their ADHD children in schools was ‘a desire to protect and care for their children’:

I knew that Tom wasn’t a bad boy, because at home I had seen how loving and really how lovely he could be. And as time wore on, I could see that side of him quite simply fading away. It was that hope that I could salvage the good part of him that kept me going.

British mother of a son diagnosed with ADHD, p. 261²⁶⁶

Malacrida²⁶⁶ further argues that women acted to challenge medical, psychiatric and educational professionals because they perceive experiences in school to be important to children’s well-being, as well as considerations such as academic attainment and qualifications, and this motivates them to work hard to improve the situation in school for their children. Thus, mothers had expectations that their child should be happy in school and when this did not happen they worked to change the situation. Singh³⁶¹ frames mothers’ efforts to support their children with ADHD as an attempt to meet social ideology of ‘the good mother’ characterised by idealised notions of being understanding, protective, wise, selfless and close and harmonious in the relationship with their child.

Implications of mothers’ dashed expectations for their children diagnosed with ADHD for non-pharmacological interventions are given in *Box 25*.

BOX 25 Implications for non-pharmacological interventions related to mothers' dashed expectations for their children diagnosed with ADHD

Education and interventions for parents and teachers to raise awareness about ADHD can include information about the inherent differences in perspectives between mothers and teachers. Mothers are held responsible for the needs of their individual child and teachers are held responsible for the needs of the class as a whole. By drawing attention to the differences in responsibilities between parents and teachers both may be better prepared to accept and respect the others' views.

Parent-teacher conflict is the norm

In Hibbitts²⁷⁶ auto-narrative she identifies five 'lifelines', teachers who, over the course of her son's school career, were supportive and helpful to him. She attributes his ability to endure what she characterises as a deeply stressful experience of education (which in fact culminates with him feeling a sense of rage towards school) to these few teachers' support. Several mothers in Margalit *et al.*'s study³⁵⁹ described relationships of trust and a sense of satisfaction and confidence that teachers had supported their children appropriately. Reid *et al.*³⁶⁰ describe an episode of constructive teamwork between parents, teachers and other health professionals over transition between schools for a child diagnosed with ADHD. These experiences suggest just how powerful constructive and effective collaboration between teachers, parents, pupils and/or other professionals can be. Constructive relationships, however, between both parents and teachers, and children diagnosed with ADHD and teachers, tend to be described as exceptions to the norm. Potential reasons for difficult relationships drawn from included papers are discussed below, and can be characterised as:

- only being contacted in response to a problem
- 'being told' rather than collaborating
- feeling criticised
- cultural dissonance/otherness
- different notions of disability
- perceptions that the origin of the problem is in the school.

Only contacted in response to a problem

Hibbitts²⁷⁶ tallies the reasons for being contacted by the school in her auto-narrative; 48 contacts were prompted by problems, two contacts by 'good news'. Reid *et al.*³⁶⁰ characterise school-initiated conversation as being motivated by a child's negative behaviour. A mother in Malacrida's²⁶⁶ study said:

Oh, they were always calling from the school. You know: We've been having problems in class [. . .] And always it was, 'Is there something wrong at home?'

Canadian mother of a child diagnosed with ADHD [reviewer's edits], p. 148²⁶⁶

Therefore, the initiation of the relationship between a parent and teacher may be a result of the problem behaviour of the child, with implicit, explicit or perceived blame of parenting as the reason for the poor behaviour as a subtext.

'Being told' rather than collaborating

Hibbitts²⁷⁶ experienced communicating with teachers as 'being told' rather than as a two-way conversation. Most of the Canadian mothers in Malacrida's²⁶⁶ study were advised by teachers to have their children assessed by professionals. Some mothers experienced this as pressure to medicate without a willingness to engage in alternatives:

When I would suggest some strategy to them, they always asked me if I'd thought about putting Mike on medication.

Canadian mother of a child diagnosed with ADHD, p. 68²⁶⁶

Malacrida²⁶⁶ concludes that, although teachers are not qualified to make diagnoses, they wield considerable power to influence assessment and diagnosis. Although British educators did not push for diagnosis of ADHD (as they were adverse to the label) they pushed for psychiatric evaluation of family issues as they perceived poor behaviour to be a sign of a troubled home life. Teachers in both countries exerted pressure for assessment through exclusion, parent–teacher/team meetings, disciplining children ‘unfairly’ or pressing for assessment via telephone calls, classroom visits and school meetings. Reid *et al.*³⁶⁰ characterise school-initiated communication about problem behaviour as concluding with the ‘demand’ that parents correct the situation. Watson³⁵⁶ describes the negative home–school relationship in her case study as involving the school’s tendency to interpret any disagreement with teacher’s requests as ‘evidence of familial deviance’. Therefore, interactions between parents and teachers may be ‘one way’ rather than collaborative.

Feeling criticised

Hibbitts²⁷⁶ identified teachers’ constructions of themselves as professionals, and the way they communicated with her as a parent, as the origin of the problems that she and her children experienced with schools. She describes feeling criticised as a parent, including feelings of shame and humiliation in response to teachers’ criticism. In some cases, however, she experienced direct criticism of parenting:

[The headteacher] said that based on [her son’s] behaviour he wondered if there was any discipline in the home at all.

Canadian mother of a son diagnosed with ADHD [reviewer’s edits], p. 153²⁷⁶

At other times the criticism was more indirect, as when a teacher asked one of her other children to make sure she dressed her (ADHD) son in snow pants and gloves, rather than the teacher asking her herself. Thus, explaining that she dressed him that way repeatedly and that he removed snow pants and gloves repeatedly was more difficult. Feeling criticised by others was also described by the mothers in Malacrida’s²⁶⁶ study. Malacrida characterised this with the theme ‘bad children have bad mothers’:

Women who pressed too hard to achieve a diagnosis, or who insisted that there was something that their children needed in order to achieve their full potential, were named by teachers, psychiatrists, psychologists and physicians as over-protective, over-achieving, or simply in denial of their children’s true limits. Women who were reluctant to have yet another assessment or therapy session, or who were loath to medicate their children, were accused of being negligent or in denial of their children’s difficulties.

Researcher, pp. 146–7²⁶⁶

Watson *et al.*³⁸⁶ write up a case study of a mother with an ADHD son as a satire because the demands made by the school on the mother ‘invert rationality’:

The paradox of the home–school partnership is apparent here. The school ascribes the label of ‘deviant’ to the mother/family and simultaneously expects the parent [as ‘partner’] to play a policing role. This creates a tension that is impossible to reconcile, producing further deviance: the more the parent protests or cannot fulfill this role . . . the deeper they become mired.

Researcher [reviewer’s edits], p. 24³⁸⁶

Malacrida²⁶⁶ concludes that medical and educational professionals were judgemental towards mothers, dismissed their perceptions, and assumed some level of maternal blame, while mothers responded with suspicion and anger. Carpenter and Austin²⁶² describe this relationship as ‘educational disablement’ involving inequitable power relationships where both mother and child are devalued and stigmatised.

Cultural dissonance/otherness

Hibbitts²⁷⁶ identified cultural dissonance as a theme in her self-narrative, in response to the lack of diversity in her children's schools and the impact this had on them as a family representing a culturally diverse identity. As an itinerant family who repeatedly moved across Canada following her husband's job in mining management, they experienced variation in local cultures between places in these insular, sometimes rural, communities, for example, in terms of school clothing expectations and knowledge of local songs. Hibbitts attributes a number of the misunderstandings and conflicts between her family and their schools to such cultural dissonance. She remarks that their experience paralleled experiences of marginalisation and other forms of cultural dissonance in the literature, for example, the disadvantage in schools caused to children from ethnic minorities and those who look different and/or are from cultures different from their teachers and peers. Although the reasons for perceptions by school staff that a pupil is 'different' may vary according to local context, this can be a reason for misunderstanding between teachers and parents anywhere.

Hibbitts²⁷⁶ further identifies the theme of otherness as contributing to conflict between her family and schools. She distinguishes 'otherness' from cultural dissonance because it relates to more personal and private identity characteristics than the family's differences owing to being newcomers to the area. Two of her three children had identified SEN (one with ADHD), and Hibbitts²⁷⁶ describes four of five of the family as 'persons of size'. Thus, Hibbitts concludes negative, prejudicial assumptions about her children and family were made in response to these two factors, and exacerbated problems in communication between her and schools. As studies in some cultures link ADHD to obesity,³⁸⁷ this link is discussed in one included paper,²⁷ and obese children are found to be particularly stigmatised at school, by both teachers and peers,³⁸⁸ being overweight may be a pertinent source of additional stigma for some children with ADHD, as may other sources of 'difference'.

Different notions of disability

All the papers representing a mother's perspective in this review noted the potential for conflict between mothers and schools owing to different notions of disability. Hibbitts,²⁷⁶ following her psychologist's advice to 'accept him as he is and get on with your lives', understood ADHD as one position on a normal continuum of diversity. Despite school policy celebrating diversity and inclusion, Hibbitts experienced teachers' approach to ADHD behaviour as 'conversion to as normal as possible' and 'sickness, in need of healing', suggesting a deficit model where the problem was understood to reside in the pupil. Carpenter and Austin²⁶² conclude that many struggles between mothers and schools have a foundation in the uncertain nature of ADHD, and that despite inclusive policies, schools remain ambivalent about the nature of ADHD and their responsibilities in response to it. Reid *et al.*³⁶⁰ echo this conclusion by emphasising the view of school staff to ADHD ('problem recognition') as a core theme, which they find to be the foundation for what action is taken following diagnosis, at both individual (teacher) and organisational (school) level. Reid *et al.*³⁶⁰ conceptualise the understanding and acceptance of ADHD as a disorder to be the desired context for collaboration between parents and teachers/school, and identify that problems occur when teachers do not. However, Malacrida²⁶⁶ (Canadian mothers) and Watson³⁵⁶ (a UK mother) also document the potential for there to be conflict because the school desires ADHD diagnosis and treatment for a child when the mother does not. Finally, although initially reluctant to risk the stigma associated with a label like ADHD, Carpenter and Austin's study²⁶² found that mothers turned to diagnosis and medication as a last resort, in an attempt to adapt their child so they become 'recognisable' within schools. However, mothers reported that diagnosis did not ameliorate stigma. Such discussions across papers are interesting because of their focus on diagnosis and medication rather than on non-pharmacological strategies and/or interventions as treatment for ADHD.

Perceptions that the origin of the problem is in the school

It was common for mothers to perceive the attendance of their child at school to be the origin of the difficulties. Mothers in Carpenter and Austin's²⁶² study repeatedly noted the central role of schools in their narratives about ADHD, by describing the school context as the site where the ADHD behaviours first become apparent or where they are least manageable. This is echoed by Canadian mothers in Malacrida's

study,²⁶⁶ for whom their children’s teachers were responsible for initiating the process of diagnosis for most of the mothers. For these children, behaviour was not problematic enough to suggest pathology until they were in school, as is also the case in Watson’s³⁵⁶ case study of a UK family with a child diagnosed with ADHD. Mothers may resent being blamed for behaviour that in their experience originated in the classroom. Malacrida²⁶⁶ analyses interviews with mothers about their ADHD children in both the UK and Canada, with a focus on the power exerted over families by schools. Although the different cultures had quite different approaches to ADHD symptoms, Malacrida found that both exerted power over families, which she describes as a form of social control to secure amenable behaviour from children in schools.

Canadian mothers felt pressure from educational professionals to diagnose and medicate their children for ADHD. Malacrida²⁶⁶ reasons that as expulsion is difficult to bring about and the concept of ADHD was widely accepted and known in Canada, medication for problem behaviour was the obvious choice. In the UK, where concepts of ADHD were not so acceptable or integrated, educators pressured families to seek counselling and turned to exclusion. It was usual for the UK children to have previously been or currently be excluded from school during the study. In the UK, it was more common for mothers to pursue a diagnosis of ADHD, and for schools to refuse ADHD as an invalid syndrome.

Carpenter and Austin²⁶² explore the way that the discourses and practices in schools might constitute the notion of ‘disorderly behaviour’ through use of the category of ADHD, where the school delineates what appropriate and inappropriate behaviour is. There are no consistent boundaries for behaviour that is appropriate; rather, this is decided according to local context and so may be different by classroom, school and area. Watson’s³⁵⁶ narrative analysis illustrates this:

... the appointments became routine to discuss and review his intolerable behaviour. Surprisingly we never discussed: violence, fighting, abuse, deceit, dishonesty or any other behaviour I consider unacceptable. We spoke about; not sitting still, walking around class, talking to other children, not finishing set work or homework and [coming to school without a tie].

British mother of a son (aged 9–11 years) diagnosed with ADHD [reviewer’s edits], p. 22³⁵⁶

Carpenter and Austin²⁶² note that the child whose behaviour lies outside whatever the local boundaries might be, and his or her mother, tend to be stigmatised and devalued in the process of addressing the problem behaviours. Thus, parent–teacher conflicts may arise because mothers may perceive that they are receiving blame for issues that are the school’s responsibility.

Implications of information about the reasons for parent–teacher conflicts for non-pharmacological interventions are given in Box 26.

BOX 26 Implications for non-pharmacological interventions related to reasons for parent–teacher conflicts

Information about the reasons for parent–teacher conflicts offer pertinent topics for teacher and parent education and training about ADHD. Main points include:

- Constructive parent–teacher relationships are possible, and, where they occur, are powerful in improving educational experiences for pupils. However, constructive relationships may be the exception rather the norm, so an awareness of the possibility of conflict and strategies to optimise relationships are likely to be beneficial.
- ‘Mother-blame’ and stereotypical assumptions about cultural difference, otherness and disability all involve deeply held, although implicit, ideology, so education on these subjects would benefit from reflective practice.
- Accounts from mothers emphasised the need for teachers to be educated about the interaction of biological, sociological and psychological aspects of ADHD symptoms to prevent implicit sole blame of parenting.

Resistance

Malacrida²⁶⁶ analyses the power that mothers of children with ADHD may exercise in their dealings with educators and psychiatrists to combat the stigma and surveillance associated with ADHD. Such resistance was shown to evolve over the trajectory of their ADHD 'journey', with initial responses characterised as non-confrontational 'weapons of the weak'³⁸⁹ that are:

Tacit, informal and unwitting [. . .] Particularly in their early encounters with professionals, mothers' efforts to restate the truth, to draw boundaries around intervention and judgement and to lay claim to services and information on their own terms occurred in an ad hoc way . . . These early resistance strategies typically occurred in an immediate response to breaches in women's trust in professional knowledge and compassion, or in response to a dawning sense that they and their children were being judged inappropriately.

Researcher [reviewer's edits], pp. 160–1²⁶⁶

In Hibbitts' auto-narrative,²⁷⁶ she describes a similar initial phase which was followed by withdrawal as an expression of her hurt and anger. Later, near the end of her children's school careers, she became more assertive in her resistance. This finding is repeated in Malacrida's study,²⁶⁶ which found that following considerable conflict, mothers chose to take more public stances such as involving themselves in public advocacy or choosing to home school.

Malacrida²⁶⁶ emphasises the high risk involved with any form of resistance owing to the likelihood that they might be judged as poor mothers; however, mothers perceived a greater risk in inaction as they witnessed their children struggling at school and felt that they must act in order to protect and care for them. The form of resistance chosen was tempered by the fear that any non-compliance on their part might increase difficulties for their children at school by giving professionals more reason to view the family as troubled. Malacrida²⁶⁶ also points out resistance available to mothers was not equivalent; those who took the greatest action – home-schooled, volunteered for school boards or paid for private tuition – had greater levels of financial, intellectual and social capital available.

Ultimately, despite the creativity and resourcefulness shown by the mothers in Malacrida's²⁶⁶ study in showing resistance, Malacrida²⁶⁶ concludes that the findings complicate post-structural theory which describes power as circulating and accessible to all subjects. Rather, these mothers were limited by the power 'that is situated in institutions and practices that are able to withstand resistance and wield material power in ways that mothers cannot'.²⁶⁶ She summarised that despite the great lengths to which mothers went on behalf of their children, professionals showed little appreciation for their efforts.

Following attempts to appear deferential and compliant, mothers in Malacrida's²⁶⁶ study sometimes began to refuse to co-operate, although usually only after a number of negative parent–teacher interactions. A process of escalating action was also described by Watson,³⁵⁶ Margalit *et al.*,³⁵⁹ and Hibbitts.²⁷⁶

Approaches to resistance identified in included studies are:

- compliant:
 - presentation of the family as normal^{262,266}
 - bearing witness²⁶⁶
 - policy work and advocacy²⁶⁶
 - taking on professional workloads^{266,356}
 - strategic diffidence^{266,360}

- assertive
 - bringing in the ‘Big Guns’^{262,266,360}
 - taking issues to a higher authority³⁶⁰
 - refusing to play^{266,356}
 - lack of co-operation.^{266,276,356}

These will be discussed in turn in the following sections.

Compliant

Presentation of the family as normal Malacrida²⁶⁶ found that professional blame of mothers for their children’s problems at school was ‘almost universal’ in both sites of her study (Canada and the UK). Mothers combated this by presenting the family as normal, for example:

I just got to the point that I learned to smile and say, ‘No, home life is pretty good these days. Is there something wrong at school?’.

Canadian mother of a child diagnosed with ADHD, p. 148²⁶⁶

Another mother compiled a 50-page document that detailed other families’ difficulties with their children who had ADHD. Thus, she not only demonstrated her family to be numerically normal, she also chose to include other families based on ideas of normality (e.g. married, heterosexual, middle class – ‘respectable’). One approach identified by Carpenter and Austin²⁶² that mothers took to making their child ‘fit’ for school was to frame the child’s behaviour as only slightly different from the norm, to claim ‘sameness’. Examples include suggesting ‘little’ adaptations to otherwise commonplace approaches and suggesting their child’s behaviour was improving even though they privately thought the child’s behaviour was getting worse. Mothers reported that these efforts were mostly ignored. Mothers in Carpenter and Austin’s²⁶² study also attempted to demonstrate their family as normal through volunteering at the school, ‘As people got to know you in the school they gave your child that little bit of extra regard. They realise he comes from a nice family’.²⁶²

Bearing witness ‘Bearing witness’ involves the attempt to ‘return the gaze’ of professional scrutiny by keeping meticulous records (e.g. report cards, assessments, information sheets, letters) and by becoming involved in the school. All mothers in Malacrida’s²⁶⁶ study kept careful records to keep track of critical incidents, who said what and what promises were made, and to illuminate discrepancies. By volunteering in their child’s school they were able to understand better how their children were being treated; they were concerned that teachers’ frustrations might be vented on their children. In addition, involvement demonstrated their willingness to co-operate and that their child was supported. However, Malacrida²⁶⁶ found that, despite considerable contributions to the school, school staff did not always respond with consideration and respect.

Policy work and advocacy A number of the mothers in Malacrida’s²⁶⁶ study were involved in ADHD advocacy work at levels beyond their child’s immediate school, with most of them claiming to have reduced their working hours in order to spend more time on advocacy. The mothers report trying to change policy at higher levels not only to support their own children, but to try to help ADHD children who will follow their own in the school system.

Taking on professional workloads Mothers in Malacrida’s²⁶⁶ study took on professional workloads, saying they often spent 2–3 hours per night working with their children on homework owing to the fact that their children did not grasp the materials taught in the day (the average age of the children was 9 years). This commonly involved power struggles that had a negative impact on the mother, child and rest of the family. One mother, whose daughter was assessed to have extremely low IQ, found that when working with her one-to-one at home she seemed to read above what would be expected for her age, and that in fact she seemed to learn well. When she broached this with her daughter’s teacher,

she was dismissed. She then spent hours in effect home schooling her daughter after school, to be told at school that she was a pushy mother and in denial about her daughter's lack of ability. In Watson's³⁵⁶ narrative analysis of a mother of a boy diagnosed with ADHD, the mother complies with his teacher's request to police her son's behaviour, leading to nagging and increased stress at home in what the mother had previously experienced as a 'private, comparatively happy, family life'.

Strategic diffidence Following experiences where teachers rejected information about ADHD or their children, women in Malacrida's²⁶⁶ study adopted the stance of 'strategic diffidence', where they learned to introduce information in a non-threatening way, for example by mentioning information already available in the school, like a previous teacher's report. Parents in Reid *et al.*³⁶⁰ also reported that teachers rejected information about ADHD from parents because they appeared to find it threatening.

Assertive

Bringing in the 'Big Guns' It was common for mothers (and this was also mentioned by one of the fathers in Reid *et al.*'s study³⁶⁰) to provide information to teachers about ADHD.^{262,266,360} Although parents in Reid *et al.*'s³⁶⁰ study noted that teachers contacted them primarily with reference to behavioural problems, parents contacted teachers in order to provide information, either about ADHD or strategies to support the specific needs of their child. Mothers perceived a lack of knowledge and understanding about ADHD in teachers, and they attempted to 'teach teachers'. Mothers perceived that they 'educate every teacher every year' and found this not only arduous but also frustrating, because teachers only rarely were receptive to such information. Reid *et al.*³⁶⁰ comment on the lack of institutional-level structures to provide continuity of information as children move up a year, or a school (for linked findings see *Processes of collaboration* and *Resources*). Although Canadian teachers in Malacrida's²⁶⁶ study more often initiated assessment and diagnosis than parents or clinicians, once a child was diagnosed they resisted parent-initiated discussion of implementing non-pharmacological school-based interventions, focusing on medication instead. Malacrida²⁶⁶ remarks on the misconception teachers can have of medication as an end to previous problems; rather, medication is the beginning of a process to support the child to catch up academically and socially on learning he or she missed out on during years of inappropriate behaviour. Some behaviour by teachers did demonstrate a lack of understanding; for example, a teacher wrote on a child's report that a mother who was implementing a successful contingency management programme at home was spoiling her child by buying 'him toys to make him behave'.²⁶⁶ Reid *et al.*³⁶⁰ comment that the strategies for ADHD that parents suggested to teachers were in line with those recommended by researchers and specialist practitioners, and suggest that teachers may not have acted on them because (1) lack of teacher education about ADHD; (2) lack of time to implement strategies because of overloading; (3) lack of organisation-level structures; and (4) lack of ownership of ADHD diagnosis and treatment because of its origins in medical diagnosis and treatment.

Malacrida²⁶⁶ suggests a further explanation, that educational professionals hold different perspectives than medical and psychological professionals. Some of the mothers in Malacrida's²⁶⁶ study also paid outside professionals to come into their children's schools to give information about ADHD to their child's teacher, and dubbed this 'Bringing in the Big Guns'. Malacrida draws a parallel between providing professional information to teachers and what Michel Foucault describes as 'truth games', where claims to legitimacy are made through language and general understandings of what is 'true'. By drawing on professional advice and opinion, mothers were attempting to provide a 'superior' truth about ADHD. However, the teachers in the study, although polite to visiting professionals, did not seem to adopt the principles that they were told about. One mother said 'It's their choice not to be educated' when she offered to pay for a visiting specialist and was told, 'thanks but no thanks'.

Taking issues to a higher authority When teachers rejected parents' suggestions or information in Reid *et al.*'s study,³⁶⁰ most endured the situation until the following year, hoping the next year's teacher would be more receptive. However, some took issues to a higher authority by going to the school principal to insist that notice be taken of their input. Parents said this approach was useful in the short term but did not initiate any lasting changes in attitudes or behaviour.

Refusing to play Mothers in Malacrida's²⁶⁶ study resorted to 'refusing to play' by changing to home schooling or moving their children from mainstream to private specialised settings. This action was the culmination of years of 'efforts at conciliation, education and advocacy' without rectifying what they perceived to be 'inadequate and often punitive situations for their children'. One mother describes a change to her understanding of what education is, from being in a classroom learning a curriculum:

[to a] socialisation process that will hopefully keep [my daughter] intact in order for her to become an adult – where diversity is more acceptable.

Canadian mother of a daughter diagnosed with ADHD [author's edits], p. 160²⁶⁶

Similarly, the mother in Watson's³⁵⁶ narrative analysis removed her son from mainstream school following escalation of symptoms, where he experienced 'nightmares, sleepwalking, hypochondria, fear of flying, depression' and, finally, a serious cutting episode.

Lack of co-operation Mothers in Malacrida's²⁶⁶ study described refusing to co-operate when they felt that the well-being of their child was in jeopardy. For example, one mother refused to include her child in parent-teacher meetings despite the school's policy that children attend, because she anticipated that the meeting would involve negative messages about him. However, parents expressed concern about refusing to co-operate because it promoted lack of teamwork; also, parents expressed concern that refusal to co-operate could be used as confirmation of suspicions that the child's behaviour originated in family problems. Mothers also were concerned that being branded a 'bad mother', an 'overachieving mother' or a 'hostile mother' would negatively impact treatment of their child at school. Another study that described lack of co-operation was the auto-narrative by Hibbitts,²⁷⁶ where she eventually refused to attend future parent-teacher conferences because they were too 'demoralising' and 'depressing' (p. 187),²⁷⁶ characterising the message she heard from teachers for all three of her children to be 'Mrs. Hibbitts, your children are useless and no good' (p. 156).²⁷⁶ Watson³⁵⁶ describes a similar situation in her analysis of the parent-school paradox involved with homework and ADHD children, where the school judges the family to be deviant while also demanding them to play a policing role. When the tension created causes parents to protest, or find they cannot fulfil teachers' expectations, they are simply further implicated in their role as deviant.

Overall, these findings about resistance suggest that ADHD can change the private family into a public space, justifying scrutiny and judgement of family life by schools.

Implications of mothers' resistance for non-pharmacological interventions are given in *Box 27*.

BOX 27 Implications for non-pharmacological interventions related to resistance by mothers of pupils diagnosed with ADHD

The included papers suggest that knowledge about ADHD can be a contested area, with parents and teachers in conflict over its nature. Findings suggest the following might support collaboration between parents and teachers:

- School policy for managing ADHD symptoms and developing teacher knowledge about ADHD, so that schools can lead the way in establishing common ground.
- Mothers may start out with intentions to work in positive collaboration with teachers. By respecting mothers' capacities, teachers could draw on their resources to support the work they both do for the pupil with ADHD.
- The nature of escalation in resistance means that parent-teacher relationships will be influenced by the prior experiences of the parent.

Review 4d: the school experiences and perceptions of pupils diagnosed with, or at risk of, attention-deficit/hyperactivity disorder, their teachers, parents and peers

Study characteristics for review 4d (mixed views)

A total of seven studies were included in review 4d (mixed views). Summaries of included papers for review 4d are shown in *Table 56*. These studies analyse interactions between participant types (pupils diagnosed with ADHD, their teachers and/or parents and/or peers) rather than exploring perceptions of one participant type, as was the case for included papers in reviews 4a–c. Four of the included studies involved participants from the USA,^{293,347,390,391} two studies involved participants from Canada,^{347,392} one study involved participants from New Zealand²⁹⁰ and one study involved participants from the UK.²⁶⁰ Rafalovich's³⁴⁷ study included participants from both the USA and Canada. Each study is represented by a single publication.

Four of the studies analyse the relationships between different participant types and what effect this has on support for pupils diagnosed with or at risk of ADHD.^{260,347,390,391} Although three of these studies included views of clinicians,^{260,347,390} only the views of mothers, teachers and pupils will be discussed in full because the review is concerned with experiences of school. One of the studies integrates analysis between perceptions of a pupil diagnosed with ADHD and the perceptions of his teachers and mother with regards to meeting his learning needs in the classroom.²⁹³ Two studies explore relationships between pupils diagnosed with ADHD and their peers from the perspective of pupils diagnosed with ADHD, their teachers and parents. As is common in most of the other included studies that incorporate pupil participants, the pupils have received clinical diagnoses of ADHD,^{260,290,293,347,390,392} with the exception of the pupils in one study³⁹¹ where pupils had been scored as 'high risk' through school district-based screening. Four studies included multiple perspectives about the same pupil, which allowed a greater depth of analysis about the dynamics between participant types.^{260,290,293,392}

Numbers, gender and ages of pupils diagnosed with ADHD in review 4d are shown in *Table 57*. Four of the included studies in review 4d involve pupil participants.^{260,290,293,392} Although the pupil participants were mostly of secondary school age in review 4a, the ages of pupils in review 4d were evenly distributed across preschool–primary school (aged 4–11 years) and secondary school (aged 11–18 years). There were more boys than girls among pupil participants in review 4d, as would be expected from the epidemiology of ADHD. Numbers and school year taught for teachers of pupils diagnosed with ADHD in review 4d (mixed views) are shown in *Table 57*. All of the included studies in review 4d (mixed views) involved teacher participants. The majority of the teachers in additional included studies for review 4d (mixed views) taught secondary school–college pupils (aged 11–18 years). The number and gender of parents of pupils diagnosed with ADHD in review 4d (mixed views) are shown in *Table 57*.

All of the included studies for review 4d (mixed views) involved parent participants; however, one study did not report parent gender²⁶² and one study did not report number or gender.³⁹⁰ A greater proportion of the parent participants in the included studies for review 4d (mixed views) were fathers than when parent experience was studied alone (review 4c), although the majority were still mothers.

Two studies^{290,293} are included in both review 3 and review 4d (mixed views) because they contain analysis of perceptions of school strategies and/or interventions as well as experience of ADHD more generally. Therefore, only relevant findings from these studies are reported here. Review 4d reports only the findings about peer relationships²⁹⁰ and the interactions between a pupil diagnosed with ADHD and his teacher;²⁹³ for findings about the experiences of strategies and/or interventions from these studies see review 3 (see *Chapter 5*).

TABLE 56 Summaries of included studies for Review 4d: the school experiences and perceptions of pupils diagnosed with ADHD, their teachers, parents and peers

First study author and year (n = 7)	Country of participants	Aim	n	Participant type	Age of pupils (years)	ADHD status of pupils (diagnosed or at risk)
Edwards 2008 ²⁹⁰	New Zealand	To identify some effective educational strategies that help the children diagnosed with ADHD in this study learn; to explore how their social experiences may impact their learning	6	Children	6–10	Diagnosed
			7	Parents		
			1	Teacher		
Guevara 2005 ³⁹⁰	USA	To identify system-level problems in the communication and co-ordination of care provided to minority children with ADHD	Exact number not reported; between 42 and 130 participants (4–10 participants in 13 focus groups)	School staff (teaching kindergarten to eighth grade); parents of African American and Latino children; primary care providers; ^a mental health therapists ^a	5–14	Diagnosed
Hands 2009 ²⁹³	USA	To investigate what lessons can be learned from an underachieving gifted pupil with ADHD and a non-verbal LD about how education addresses his individual cognitive and affective needs	1	Young person	16	Diagnosed
			1	Parent		
			2	Teachers (English and science)		
Hughes 2007 ²⁶⁰	UK	To identify the type of support required for pupils with ADHD	14	Pupils	7–12	Diagnosed
			14	Parents		
			14	Teachers		
			9	Clinicians ^a		
Koro-Ljungberg 2011 ³⁹¹	USA	To increase understanding of existing practices and preferences between parents of students with ADHD and their teachers by describing the shared meanings of effective desirable communication established during parent–teacher focus group interactions	7	Parents	12–16	At risk
			8	Teacher		

First study author and year (n = 7)	Country of participants	Aim	n	Participant type	Age of pupils (years)	ADHD status of pupils (diagnosed or at risk)
Rafalovich 2005 ³⁴⁷	USA and Canada	To detail how educators conceptualise the nature of ADHD children, including concepts of abilities/disabilities and organisation in response to pupils with ADHD, focusing on the school-based team and the way parents, teachers and clinicians account for their interactions with each other	25 30 26	Teachers Parents Clinicians ^a	6–17	Diagnosed
Shea 2003 ³⁹²	Canada	To gain insight into the experience of chronic peer victimisation for boys with ADHD	4 4 4	Young people Parents Teachers	11–13	Diagnosed

^a Experiences and perceptions of clinicians are not synthesised in this synthesis as it is outside the scope of the review.

TABLE 57 Numbers, ages and gender (pupils), number and years taught (teachers) and number and gender (parents) for included studies in review 4d: the school experiences and perceptions of pupils diagnosed with ADHD, their teachers, parents and peers

First study author and year	Pupils diagnosed or at risk of ADHD					Teachers					Parents		
	Sex		Age			Number of teachers			Number of teachers		Gender		
	n	Female	Male	Preschool–primary (aged 4–11 years)	Secondary–college (aged 11–18 years)	n	Number of teachers teaching children aged 3–6 years	Number of teachers teaching children aged 6–11 years	Number of teachers teaching children and young people aged 11–18 years	n	Mother	Father	
Edwards 2008 ²⁹⁰	6	2	4	6	0	1	0	0	0	1	7	3	4
Hands 2009 ²⁹³	1	0	1	0	1	2	0	0	2	0	1	1	0
Shea 2003 ³⁹²	4	0	4	0	4	4	0	0	4	0	4	3	1
Koro-Ljungberg 2011 ³⁹¹	N/A					8	0	0	8	0	7	7	0
Totals ^a	11	2	9	6	5	15	0	0	14	1	N/A		
Rafalovich 2005 ³⁴⁷	N/A					25	16	teachers teaching pupils aged 6–17 years		9	30	21	9
Totals ^a	N/A					40				10	49	35	14
Hughes 2007 ²⁶⁰	14	0	14	14 (aged 7–12 years)		14	14	teachers teaching pupils aged 7–12			14	NR	
Totals ^a	25	2	23	N/A		54					63	N/A	
Guevara 2005 ³⁹⁰	N/A						Between 12 and 30	teachers teaching pupils aged 5–14 years			Between 16 and 40	parents of pupils diagnosed with ADHD	

N/A, not applicable; NR, not reported.

^a Totals represent information only for the studies where that information is reported.

Study methodologies for review 4d (mixed views)

Details of study methods for included papers analysing mixed perspectives in review 4d are given in *Table 58*. Five of the seven studies collected data through semistructured interviews.^{260,290,293,347,392} In addition to interviews, one study used picture cards to better engage pupils with ADHD with the interview questions and asked these pupils to create drawings,²⁹⁰ and one study included classroom observations which were used to prompt explanation for behaviour during semistructured interview with a pupil diagnosed with ADHD.²⁹³ The other two studies collected data through focus groups, one involving only one type of participant in groups (e.g. parents, school staff or clinicians)³⁹⁰ and one mixing types of participants in groups (parents and teachers).³⁹¹

Although most authors were not explicit about their research methodologies, most discussed the theory/theories that framed their study design and/or analysis. Methodologies included grounded theory^{347,392} and discourse analysis,³⁹¹ with structuring theories including constructionism,^{260,391} root cause analysis,³⁹⁰ theories of asynchrony and hope,²⁹³ theory about the need for integrated attributions about ADHD,²⁶⁰ theories of parent–teacher communication,³⁹¹ theories of the construction of deviance and medicalisation³⁴⁷ and theories of bullying.³⁹² One author was not explicit about methodology or theories structuring his study.²⁹⁰

Findings for review 4d (mixed views)

The studies in review 4d (mixed views) focus on interactions between three groups:

- parents and teachers^{347,390,391} (with integration of experiences of pupils diagnosed with ADHD)²⁶⁰
- a pupil diagnosed with ADHD and his teachers (with integration of perceptions of his mother)²⁹³
- pupils diagnosed with ADHD and their peers (from the perspective of pupils diagnosed with ADHD, their teachers and parents).^{290,392}

Data analysis followed the process described in *Chapter 4* (see *Methods of analysis/synthesis, Data analysis and synthesis*). Because of differences in foci, there was not one paper that could act as an index paper. However, of the four papers focused on parent–teacher interactions,^{260,347,390,391} themes from Koro-Ljungberg *et al.*'s study³⁹¹ were used to organise findings from two of the other studies exploring teacher–parent interactions.^{260,390} Rafalovich's³⁴⁷ findings on the way deviance becomes formally constructed through interactions between teachers and parents was not represented by Koro-Ljungberg *et al.*'s³⁹¹ themes and so were framed using Rafalovich's³⁴⁷ second-order concepts. First- and second-order concepts in the remaining papers were analysed thematically. Third-order concepts were then developed as described in *Chapter 4* (see *Methods of analysis/synthesis, Data analysis and synthesis, Synthesising translations/creating a line-of-argument*), and the foundations for conflict was chosen as an overarching third-order construct. The relationships between first- and second-order concepts and third-order concepts are shown in *Table 59*.

Foundations for conflict

The overarching concept identified in review 4d (mixed views) was 'foundations for conflict'. Six subthemes representing different foundations for conflict were identified:

- the 'fit' between pupils diagnosed with ADHD and school
- orientation to the class versus orientation to the individual
- processes of collaboration
- different funds of knowledge
- accountability and
- resources.

The foundations for conflict identified in review 4d (mixed views) represent cultural and structural aspects of the education system which can facilitate interpersonal conflict and the aggravation of ADHD symptoms through the sociological and psychological contributors discussed in review 4a (see *Sociological factors* and *Psychological factors*). The issues described by different participant types are similar to those expressed

TABLE 58 The methodological details of included papers for review 4d: the school-based experiences and perceptions of pupils diagnosed with or at risk of ADHD, their teachers, parents and peers

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Edwards 2008 ²⁹⁰ New Zealand	14	Six children, seven parents and one teacher	28 interviews (two with each participant) First interview with children: three picture cards used; this was more effective in keeping their attention than questions Second interview with children: picture cards were used alongside all questions. Children also drew pictures	Reputational	The author is not explicit about theoretical underpinnings of research design and/or analysis. In describing ADHD and giftedness the author draws on psychological literature and describes disability according to the New Zealand Minister of Health's definition following social model of disability principles	The author conducted narrative and thematic analysis, applying her research questions deductively to the data (relating to effective strategies, ineffective strategies and social experiences). She also looked for unexpected findings. She conducted member checks
Guevara 2005 ³⁹⁰ USA	NR	Regular and special education kindergarten to Grade 8 teachers Primary care staff (paediatricians and paediatric nurses) ^a Mental health staff (psychologists and social workers) ^a Parents of children with ADHD	13 focus groups of 4–10 participants each were held Two groups with African Americans parents Two groups with Latino parents Three groups of primary care staff ^a Three groups of mental health therapists ^a Three groups of educational staff	Purposive and then self-selecting	The authors do not explicitly address their research methodology; however, they use RCA originating in patient safety literature as a conceptual framework to classify themes related to causality by technical factors, organisational factors and human factors. The authors do not discuss their orientation towards ADHD	Three researchers coded transcripts, meeting regularly to discuss codes and arrive at a consensus. The agreed themes were then applied to the transcripts by two researchers who used the constant comparative technique to support or refute themes for further development. They then applied RCA, attempting to categorise themes and subthemes within the three categories of technical factors, organisational factors and human factors

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Hands 2009 ²⁹³ USA	3	Two teachers and one pupil	5.5 hours of classroom observation (three 45-minute observations each for two classrooms) Teachers: two semistructured interviews	Reputational	The author is not explicit about methodology, but structures data analysis using theory related to asynchrony ³⁹³⁻³⁹⁵ and hope ^{396,397}	The author applied the constant comparative method including immersion in the data, reconfiguration of categories, axial and selective coding. The author completed a matrix recording frequency and establishing triangulation between participants
Hughes 2007 ²⁶⁰ UK	51	14 pupils; 14 parents; 14 teachers and nine clinicians ^a	Pupils: one semistructured interview including asking for explanations of events noted during classroom observation Parent: one semistructured interview Pupils: 14 semistructured interviews Parents: 14 semistructured interviews Teachers: 14 semistructured interviews Clinicians: nine semistructured interviews ^a	Opportunistic then reputational	The author states a constructionist stance and frames the study with findings from a previous study where 'despite the need for ADHD to be recognised as a biopsychosocial condition, medical and education domains continue to work in isolation to each other resulting in inconsistent support and professional dominance that undermines children's individualism and need'	The author completed case studies of each child by synthesising perceptions of child, teacher and parent. The author coded each transcript for key incidents and issues that impacted on the child, and used these to explore the issues in transcripts from the other participants, then followed the same procedure for teachers and parents. He explored similarities/differences, how issues were managed and the impact of this on each participant. The author chose to report five case studies because they represented dynamics found across the 14

continued

TABLE 58 The methodological details of included papers for review 4d: the school-based experiences and perceptions of pupils diagnosed with or at risk of ADHD, their teachers, parents and peers (*continued*)

First study author, year and location	Sample size	Sample characteristics	Data collection	Sampling	Theoretical approach/ADHD attributions	Data analysis
Koro-Ljungberg 2011 ³⁹¹ USA	15	Seven mothers and eight teachers	Two focus groups: Three mothers/four teachers Four mothers/four teachers	Purposive	The authors state a constructionist stance and they structure the study using theories and models of parent-teacher communication practice with consideration of structural, psychological and institutional barriers to communication. The authors are not explicit about their orientation towards ADHD, but their discussion focuses on sociological and psychological factors	Data analysis was triangulated and multilayered. The authors conducted domain analysis through open coding then to examine social symbols and social references. ³⁹⁸⁻⁴⁰⁰ Terms related to communication were grouped into domains (interpersonal, situational, policy and political, purpose) and 26 subdomains. The authors also conducted discourse analysis to explore the communication that took place the focus groups ^{89,339,401,402}
Rafalovich 2005 ³⁴⁷ Canada and USA	81	25 teachers; 30 parents; 26 clinicians ^a	Teachers: 25 semistructured interviews Parents: 30 semistructured interviews Clinicians: 26 semistructured interviews ^a	Snowball	The study is underpinned by theories of symbolic interactionism and grounded theory and theory about the social construction of deviance ^{403,404} and medicalisation ^{405,406}	Analysis was conducted following grounded theory, with open coding (framed by types of trouble ADHD children encountered and the way adults accounted for the trouble) followed by selective coding (looking for social processes related to medicalisation)
Shea 2003 ³⁹² Canada	12	Four pupils; four parents; four teachers	Face-to-face or by telephone Pupils: four semistructured interviews Parents: four semistructured interviews Teachers: four semistructured interviews	Purposive; drawn from a larger study	The study design follows grounded theory and defines bullying following Olweus 1993, ⁴⁰⁷ 2001. ⁴⁰⁸ The authors are not explicit about their orientation towards ADHD	The authors applied the constant comparative method including open coding (using increasingly complex and inclusive categories), analytical notes (to keep track of conceptual decisions), axial coding (review of categories and notes to refine categories) and selective coding (integration of categories to create the story line). Ethnograph qualitative software was used to organise and manage the data

NR, not reported; RCA, root cause analysis.
a Experiences and perceptions of clinicians are not synthesised in this synthesis as it is outside the scope of the review.

TABLE 59 Relationship between first- (participant) and second-order (researcher) concepts to third-order (reviewer) concepts in review 4d: the school experiences and perceptions of pupils diagnosed with, or at risk of, ADHD, their teachers, parents and peers

First- and second-order concepts (inductive/deductive thematic analysis)	Third-order concepts (overarching theme: foundations for conflict)					
	Fit between pupils diagnosed with ADHD and school	Orientation to the class vs. the individual	Different funds of knowledge	Processes of collaboration	Accountability	Resources
Interactions between teachers, parents and pupils diagnosed with ADHD						
Role of interpersonal context			X	X	X	X
Role of policy and political context				X	X	X
Role of situational context		X				X
Creation of deviance	X		X			
Interactions between pupils diagnosed with ADHD and their peers						
Factors that make relationships between pupils diagnosed with ADHD and peers difficult	X					
'True' peers	X					
Bullying	X					
Interactions between a pupil diagnosed with ADHD and their teachers						
Factors that make relationships between the teachers and the pupil diagnosed with ADHD difficult	X	X		X		X
Teacher–pupil relationship is key to success	X	X				
Contributing papers	290,293,347,392	293	260,347,391	390,391	390,391	293,390,391

singly in reviews 4a–c; review 4d offers illustrative examples of the way difficulties between pupils diagnosed with ADHD, their teachers, parents and peers arise, with some studies allowing exploration of different viewpoints of the same pupil^{260,290,293,392} and how ADHD symptoms may be exacerbated. However, there are also illustrative examples of resolution, demonstrating the potential for the amelioration of ADHD symptoms.

Fit between pupils diagnosed with attention-deficit/hyperactivity disorder and school

The included studies in review 4d that explore interactions between pupils diagnosed with ADHD and their teachers and peers find differences between pupils and their peers in terms of learning needs and social skills.^{290,293,392} These can be a foundation for conflict between pupils and their teachers and peers. In review 4d differences between classroom expectations and pupil behaviours are conceptualised as an issue of 'fit' between the pupils and their classroom and classroom relationships because it is not solely the behaviour of the pupil diagnosed with ADHD, but the interaction between the pupil and the classroom that proves problematic (for further discussion see *Classroom structure as a contributor to attention-deficit/hyperactivity disorder symptoms* and *Perceptions that the origin of the problem is in the school*, above).^{41,262,332} Findings from included papers in review 4d suggest that experiences of fit can be powerful in improving pupil

behaviour, whereas experiences of disconnection can aggravate problem behaviour and may ultimately create barriers to future experiences of ‘fit’ for the pupil. When ADHD symptoms are perceived to arise solely from differences in the pupil, focus can be drawn away from the contribution made by classroom contexts and relationships. These papers illustrate the production of narrowed aims to create adaptation in the child while neglecting the powerful potential that adaptation to the classroom context and supportive relationships can have in the amelioration of ADHD symptoms.

This section will synthesise findings about the disconnection between pupils diagnosed with ADHD and their peers. Edwards²⁹⁰ and Shea and Wiener³⁹² discuss findings from a case study that describes the potential for different classroom contexts to impact on learning behaviour,²⁹³ and then conclude with findings from a study exploring the role of teacher expectations and perceptions in the shift from understanding problematic behaviour as normal to formally identifying it as deviant.³⁴⁷ These findings provide examples of both fit and disconnection, demonstrating that in certain classroom contexts pupils diagnosed with ADHD are able to cope in a manner acceptable to teachers and pupils. However, experiences of disconnection are prominent.

Disconnect between pupils and peers Shea and Wiener³⁹² conducted a study that focused on peer victimisation of pupils diagnosed with ADHD that involved interviews the teachers and parents of bullied pupils as well as the bullied pupils.³⁹² They identified the theme of ‘being different’ as both an implicit and an explicit explanation for the common experience described by these boys of being bullied. The authors noted that study participants did not usually blame bullies or the school context for bullying, and specified that descriptions by teachers and parents of these pupils’ social skills deficits were not ‘blaming the victim’. For example, one teacher described a pupil diagnosed with ADHD thus:

Alan’s just different than them, you know, he has a great imagination, and, he, he’s a kind kid and he’s a good kid. He’s just a little bit more spontaneous, and [. . .] his personality is different than most kids, and kids don’t dislike him for being different but they don’t want to be friends with him because he’s just odd.

*Canadian teacher of a pupil diagnosed with ADHD (aged 11–13 years)
[reviewer’s edits], p. 65³⁹²*

Studies of pupils with other disabilities have demonstrated that bullying can follow attitudes school staff display towards children.^{409,410} Exley^{332,337,338} (see *The role of context in attention-deficit/hyperactivity disorder symptoms*, above) also describes bullying as a response by pupils to the way ADHD symptoms are identified as ‘bad’ by school staff, whereby peers then exclude them socially. Although the teacher in the extract above is understanding of Alan rather than accusing, it is still possible that responses to Alan by school staff contribute towards his peers’ response to him. Shea and Wiener³⁹² posit that participants do not comment on bullies or contextual aspects of bullying, but describe it as a response to the nature of the pupil diagnosed with ADHD. However, exclusion based on stigmatised behaviour is implicitly sanctioned within the context in which it occurs, and those who enact it are not usually aware of the social aspects of the process but do ‘blame the victim’. That the four pupils in Shea and Wiener’s study³⁹² are diagnosed with ADHD suggests that their behaviour is different enough from that of their peers to result in diagnosis; however, the stigmatisation of this different behaviour involves a social process in which the school culture is likely to play at least an implicit role.

Shea and Wiener³⁹² identify four subcategories of being different:

1. Emotionally volatile: participants described the pupils as ‘explosive’; ‘volcanic’; ‘meltdown’. These descriptions, including those made by the pupils themselves, are similar to descriptions of a lack of emotional self-control found in other included studies (e.g. see *Impulsivity/lack of emotional self-control*).
2. Emotionally immature: mothers described their sons as emotionally immature, more interested in playing hide-and-seek, or with cars in the bath, than in the kinds of activities their peers are interested by, such as clothes and sex.

3. Lacking insight: teachers and parents describe the pupils as being unaware of the relationship between their different behaviour and the negative response of their peers:

Like if they were kidding I might not yell at them and stuff but I don't know that.

Pupil diagnosed with ADHD (aged 11–13 years), p. 67³⁹²

4. Social skills deficits: the inappropriate behaviour of pupils diagnosed with ADHD act as a barrier to social relationships, further preventing the pupils from developing social skills. They therefore became increasingly isolated with age.

The aspects of difference in pupils diagnosed with ADHD from their peers identified by Shea and Wiener³⁹² are commensurate with descriptions of behaviour by pupils diagnosed with ADHD in other included studies (e.g. see *Experience of attention-deficit/hyperactivity disorder*, above). We have argued, however, that the bullying described by the authors as being in response to these behaviours is actually a response to the behaviours in the particular contexts of the boys' schools (see *Impact of a disconnect between pupils diagnosed with attention-deficit/hyperactivity disorder and peers: shunning and bullying*, below). In other words, it is possible for other school contexts to include pupils displaying similar behaviour without bullying. This can be an important distinction, because without acknowledgement of the interaction between pupil and school, the pupil can be the focus for change rather than foregrounding both pupil and context in seeking resolution.

Hands²⁹³ describes the difference between the pupil in her case study and his peers as an 'all or nothing personality':

Everything is kicked up a notch, no matter what it is – it's kicked up a notch. If he's not going to pay attention, he's not going to pay attention at all [. . .] or if something's upsetting to him, to the degree that it would be upsetting to another child, it's kicked up a notch. It's just that much more upsetting.

Canadian mother of pupil (diagnosed with ADHD; aged 16 years) [reviewer's edits], p. 91²⁹³

Hands²⁹³ does not position this behaviour as solely negative, but instead describes it as both a strength and weakness, where this intensity 'breathes life' into mundane situations, but also creates an extremity of emotion from which the pupil can suffer, as well as negatively impacting relationships. Both Hands²⁹³ and Edwards²⁹⁰ discuss differences between gifted pupils with ADHD and their peers in terms of the need for pupils diagnosed with ADHD to find 'true peers'²⁹⁰ or 'intellectual peers'²⁹³ where the pupils benefit from relationships with others who are like-minded. Both studies focus on gifted pupils with ADHD, and so this is in part a reference to the benefit these pupils can experience in interacting with other gifted pupils. The six gifted participants diagnosed with ADHD in Edwards' study²⁹⁰ were friends with pupils younger than them and older than them, or friends with pupils of the same age who shared common interests (e.g. were gifted). An 'intellectual peer' is someone of similar intellect regardless of age, where this similarity provides a stronger basis for friendship than belonging to the same cohort. Edwards²⁹⁰ surmises that participants befriended older friends for reasons in addition to intellect, for example being attracted to boisterousness or the excitement of involvement in different pursuits from those of same-aged pupils. Both Edwards²⁹⁰ and Shea and Wiener³⁹² noted that the pupils diagnosed with ADHD in their studies sometimes befriended younger pupils. The authors suggest that this is because:

- the pupils diagnosed with ADHD are more emotionally immature (so younger children are true peers emotionally)³⁹²
- they have no same-age friends³⁹²
- they were able to 'boss around' younger pupils;^{290,392} and
- they were less likely to be bullied by younger pupils.³⁹²

True peer friendships are an example of an experience of fit for pupils diagnosed with ADHD, where the vicious cycle of social skills deficit compounded by social isolation is broken. Edwards²⁹⁰ linked experience of a true peer friendship to positive impact on both social and academic pursuits for pupils diagnosed with ADHD. The pupils in his study who had experience of a true peer were the ones who were happy to work with peers in groups, whereas those who did not have experience of a true peer were more likely to prefer to work alone. Edwards²⁹⁰ suggests that experience of a true peer friendship supports social interactions with others in general, although he also acknowledges that these may be pupils who already have better social skills, and it is these skills that enable friendship with true peers and positive working relationships with others.

Impact of a disconnect between pupils diagnosed with attention-deficit/hyperactivity disorder and peers: shunning and bullying Shea and Wiener³⁹² attribute the peer victimisation of pupils diagnosed with ADHD to the differences between them and their peers identified above. The forms of victimisation identified by the authors include verbal abuse (e.g. name calling and insulting remarks about clothing) as the most common form of victimisation, but boys' experiences also included physical abuse (pushing, shoving, hitting, having things thrown at them) and shunning (derisory looks and gestures). Much of the behaviour was subtle and covert and therefore difficult to punish. Daniel described his experiences:

[They're] mean to you and just 'cause you want to do something they leave you out. Like, I wanted to play a game and they say 'Ew, Daniel's here. We don't want to play with him'.

Canadian young person diagnosed with ADHD (aged 11–13 years) [reviewer's edits], p. 63³⁹²

This passage describes the social isolation the authors identified as a theme, demonstrating the purpose and outcome of bullying. The participants perceived that friends provided protection against bullying, but could not always be relied on:

They kind of stand-up for me . . . sometimes . . . like, 'Leave him alone!' Things like that. [But] sometimes he doesn't . . . he doesn't want to get bullied or hurt.

Canadian young person diagnosed with ADHD (aged 11–13 years) [author's edits], p. 69³⁹²

This suggests that befriending bullied children may put the befriender at risk of being bullied too. One approach to coping with bullying was to withdraw from the peer group, for example by spending recess helping the teacher instead of being on the playground, where much of the bullying behaviour took place. Bullying, therefore, reinforced any social skills deficits by preventing positive interaction with peers.

The authors identified the theme 'beaten down' to represent the emotional and psychological distress that these boys experienced in response to bullying. Aspects of feeling beaten down included stigma, powerlessness and emotional and psychological distress. This study echoed studies in review 4a–c by finding that:

- the development of a reputation for being disliked can legitimise future victimising behaviour by peers regardless of the future behaviour of the disliked child (see *Agency*)
- the victimised boys described being punished for attempts to stand up for themselves
- there can be a process where pupils diagnosed with ADHD begin by being bullied and then become bullies.

The potential for different classroom contexts to impact learning behaviour Hands²⁹³ case study of one 16-year-old pupil diagnosed with ADHD, who was also gifted despite mild non-verbal LDs, provided an example of differences in pupil behaviour in response to a changed school context with a focus on difficulties related to learning, rather than the more common focus in included studies of difficulties with behaviour. Hands²⁹³ interviewed current teachers chosen by the pupil to represent a class in which he currently felt successful and one in which he currently struggled. He attended two schools: in the morning a 'magnet' school involving an accelerated curriculum, and in the afternoon a mainstream high school.

The pupil chose his biology class at the 'magnet' school as the class in which he felt successful, and his mainstream high school honours English class as the class in which he felt he was struggling. Notably, his attainment was similar in both classes; he was failing the English class and nearly failing the biology class. However, Hands²⁹³ noted a marked difference in the pupil's behaviour based on classroom observations in the two classes, where she characterised his behaviour as:

- high-school English class: disengaged, rarely contributed to class discussion, isolated from peers and often left the classroom without reason
- magnet school biology class: engaged with both peers and adults, laughed and made jokes, made valuable contributions to classroom discussion.

Hands²⁹³ described the pupils' history of academic and behavioural difficulties established in elementary school, and suggests that the pupil had created barriers in response to previous punitive treatment that would take time to overcome in the magnet school, even though his biology teacher was committed to supporting his learning needs.

The role of teacher expectations and perceptions in the shift from understanding problematic behaviour as normal to formally identifying it as deviant Rafalovich³⁴⁷ examined the process by which interactions between parents, teachers and clinicians transform children's troubles into formalised types of deviance. He describes deviance according to sociological theory,⁴⁰³ which asserts that deviance is not recognised through intrinsic behavioural characteristics but through the way people respond to the behaviour. Rafalovich³⁴⁷ further explores the role of educational staff in medicalisation (see *Box 11*). He links Goffman's³²² discussion of informal and formal labelling (for further discussion see *Stigma*) to the process where behavioural trouble is normalised (Rafalovich³⁴⁷ calls this 'personal trouble'), to a shift in social response where it is publicly acknowledged as deviant by experts (Rafalovich³⁴⁷ calls this 'relational trouble' because of the interaction between stakeholders that render this response). The author's interest is focused on the key part that educational staff, as non-experts in medicine, play in this transformation, and the resistance that parents sometimes bring to the process. This study, therefore, focused on the role of schools in establishing when a pupil's behaviour becomes a reason for clinical assessment.

Rafalovich³⁴⁷ notes that participants reported that concern over ADHD symptoms was often first expressed at a time when academic expectations increased, usually during or after second grade (aged 7–8 years) (for a similar discussion see findings from Einarsdottir, p. 312,²⁹¹ although this referred to transition from playschool to first grade, when children were aged 6–7 years). Before this, poor performance is normalised, then if it persists general remedial efforts will be applied. If these do not succeed more formalised approaches ensue, including conferences with parents, additional academic assistance and lowered academic expectations. What is initially explained as a normal aspect of immaturity becomes a concern with time, as peers begin to perform in academically superior ways. Rafalovich³⁴⁷ gives as an example of the shift from informal to formal the characterisation of the behaviour as a 'phase', to the characterisation of the behaviour as a 'symptom'.³⁴⁷

Parents and teachers in Rafalovich's³⁴⁷ study describe pupils diagnosed with ADHD as easily antagonised by others, and attribute this to difficulty in interpreting social cues.³⁴⁷ This description of heightened irritability, often resulting in emotional outbursts, is in line with the experiences pupils describe themselves (e.g. see p. 260), as well as the findings from Shea and Wiener³⁹² and Hands²⁹³ (see *Impact of a disconnect between pupils diagnosed with attention-deficit/hyperactivity disorder and peers: shunning and bullying*, above). Rafalovich³⁴⁷ finds that parents and teachers move from the evaluation of such responses as normal, to responding to them with heightened concern, when:

- they are unprovoked
- they are recurring, and
- intervention by adults does not quickly resolve the behaviour.³⁴⁷

The author suggests that medical explanations are invoked more quickly by displays of violence than by academic struggles, where parents and teachers perceive that behaving according to expectations is beyond the pupil's capacity:

They get just plain crazy, but you take a step back and you can see something is wrong there. They don't realize what they're doing.

North American teacher of pupils diagnosed with ADHD (aged 7–8 years), p. 34³⁴⁷

However, as already discussed by other studies in the review,^{293,392} such aggravated behaviour is also linked to long-term experiences of frustration related to difficulties with relationships and learning in the classroom.

Unlike many of the teachers in review 4b (teacher views), who tended to attribute ADHD symptoms to poor parenting (see *Sociological factors: perceptions that attention-deficit/hyperactivity disorder symptoms result from difficulties in the home*), Rafalovich³⁴⁷ characterised attributions for ADHD symptoms by teachers in his study as polarised biological, where the symptoms are understood to result from neurological factors. Rafalovich³⁴⁷ identified a turning point to be the school-based team meeting, where current and previous teachers of the pupil, a school psychologist and/or the school principal might meet, in addition to parents, to discuss academic and behavioural difficulties of a pupil with inference about the cause of these difficulties. Rafalovich³⁴⁷ noted that such meetings often signalled a shift from educational staff in understanding difficulties as personal (normalised; a phase) to relational (formally identified as deviant), and, because of attributional beliefs, had the effect of narrowing treatment strategies to a focus on medication. One mother in his study described such a meeting:

I thought we would be able to have a conversation about what was going on, but there was none of that. The school had already made up their minds and it was this cut-and-dried thing. So, there I am trying to defend my daughter and they didn't even want to listen. I felt very frustrated by the way they approached this . . . People were trying to put her into a nice neat box. But no one was acknowledging what a good kid she was. She gets along very well with other kids. She doesn't have any of the social problems a lot of other kids have . . . Another thing that kept nagging at me was why they never gave her any other options for her school lessons. They try to cookie-cutter the kids all the same. She has lots of things that she is very capable of, but they never took the time to try and help her with some of those.

North American mother of a child diagnosed with ADHD (aged 6–17 years), p. 37³⁴⁷

Thus, the mother thought that the school had come to conclusions about her daughter before the meeting and she experienced her perceptions about her daughter, which included positive, normalising interpretations, as being dismissed (for other similar examples see *Different notions of disability* and *Perceptions that the origin of the problem is in the school*). Rather than understanding her child as having ADHD, she thought the school had not met her child's educational needs adequately. Nonetheless, the child was referred to a clinician and diagnosed with ADHD, and prescribed a small dose of Ritalin.

Rafalovich's³⁴⁷ study has similar findings to a number of other papers in review 4,^{27,41,293,332,356} that problematic behaviour associated with ADHD is not solely a result of neurological differences in the child, but a result of the interaction between the child and the perceptions of educational staff in a specific context.

In conclusion, differences in learning needs and social skills between pupils diagnosed with ADHD and their peers at school can be a foundation for conflict between these pupils and their teachers and peers. However, this is an interaction between pupil differences and the school context and experiences of fit can be powerful in improving pupil behaviour, whereas experiences of disconnection can aggravate problem behaviour. When ADHD symptoms are perceived to arise solely from differences in the pupil, focus can be drawn away from the contribution made by classroom contexts and relationships. This may result in narrowed aims to produce adaptation in the child while neglecting the powerful potential that the adaptation to the classroom context and supportive relationships can have in ameliorating ADHD symptoms. For a related discussion, see *Sociological factors: perceptions that attention-deficit/hyperactivity*

disorder symptoms result from difficulties in the home and Classroom structure as a contributor to attention-deficit/hyperactivity disorder symptoms.

Implications of the disconnection between pupils diagnosed with ADHD and school for non-pharmacological interventions are given in Box 28.

Orientation to the class versus the individual

Hands' case study²⁹³ gives a detailed description of the manner in which teachers' orientation to the class as a whole can act as a foundation for conflict between the teacher and the pupil diagnosed with ADHD. In this study, teachers' unwillingness to meet the learning needs of a pupil who is academically gifted leads him initially to rage and aggravated behaviour and then eventually to passivity and internalised behaviour.

The pupil's English teacher links his lack of concern over the pupil, 'I don't really worry about him too much. His behaviour is fine' (p. 124),²⁹³ to the teacher's orientation to the class as a whole:

... by him not handing in his work, it doesn't really – believe me, I sleep very soundly at night. It's no problem, you know what I mean? I have other things to deal with and I have other kids that I have responsibilities for – all these other kids too, so I'm worried about them getting their work in. But unless it just gets out of hand and he hasn't handed anything in in a month or something, then we just can deal with it and I deal with it. We just go on to the next day.

American English teacher of young person (diagnosed with ADHD, aged 16 years), pp. 125–6²⁹³

Thus, the English teacher describes his level of concern over the pupil in relation to teaching the whole class, where concern over schoolwork is triggered at a certain point – 'unless it just gets out of hand' – and this point is determined by the balance of the pupil's work in relationship to his classroom peers. The biology teacher expresses a related consideration when she talks about this pupil's curiosity during lessons:

... the way in which he asks questions. There is a difference. He will go very quickly to a very high level place with his questions, which is excellent. Very good, you know. Sometimes I have to tell the young man that, 'This is great, but we have to stop. It's not part of the curriculum,' and I did observe that he would get frustrated at times and it made me feel bad but I also have to think of the class as a whole.

American biology teacher of young person (diagnosed with ADHD, aged 16 years), p. 105²⁹³

BOX 28 Implications for non-pharmacological interventions related to disconnection between pupils diagnosed with ADHD and school

Included studies suggest that the relationship between a pupil with ADHD and the classroom, rather than the pupil only, create situations of 'fit' or 'disconnect', where ADHD symptoms are more problematic in situations of disconnect. Interventions that seek to adapt both classroom elements – for example the pupil–teacher relationship and classroom structure and ethos – as well as the pupil, therefore, all have the potential to improve behaviour.

Teacher education could include:

- information about the contribution of the classroom and the pupil to ADHD symptoms
- caution about the ease with which focus can rest with the pupil to the exclusion of classroom considerations, including the role of stigma in focusing blame on the pupil
- information about the role of past experiences in contributing to behaviour, where pupils may become disillusioned through negative past experiences and so the establishment of constructive relationships can take time.

Thus, his biology teacher respects his curiosity, even feels bad that she might stifle it; nonetheless, she has to meet her responsibility to the whole class first. However, for this pupil, who is academically gifted, the issue of whether or not he is learning something in class is deeply important to him. Hands²⁹³ attributes the pupil's problem behaviour in late elementary and middle school years to rage over his frustrating inability to meet school expectations, where he lacked intellectual challenge but at the same time lacked the self-control to produce the work assigned to him. For example, in his fifth grade class weekly spelling words were learned by completing different daily tasks Monday to Thursday, with the spelling test on Friday. His mother describes how he knew the meanings and spellings of the words by Monday night and resisted the repetitive work that followed. As punishment for other problematic behaviour, he was asked to write his teacher an apology. He combined this task with his homework requiring him to use each spelling word in a sentence. His letter of apology read:

*Dear Mrs. [teacher's name], I'm so sorry to have **protruded** into your classroom. I should have **camouflaged** my **carcass** so as not to have been seen. It would have been much nicer to have **basked** in your **glory** than to have felt your **wrath**. **Gratefully**, not. Your student, [pupil's name].*

American child (diagnosed with ADHD, when in fifth grade, age 10–11 years) [reviewer's edits], p. 120²⁹³

His mother reports that the school wanted to suspend her son in response to this letter, understanding it as insolence, whereas his mother understood it as a creative response to the tasks that faced him. His mother describes the destructive nature of this event, where the school perceived her to be supportive of her son's misbehaviour, and she perceived school staff to be uncompromising and incapable of understanding her son. Hands²⁹³ characterises this time in this pupil's school career as a point of rage, because he is actively expressing his frustration at not being able to succeed academically, whereas during the time of the study, approximately 6 years later, Hands²⁹³ characterises him as being in a phase of despair, where he is passively facing the sense that his goal of academic achievement is insurmountable. This is communicated by the pupil when he says about his underachievement:

I never tried to hold this kind of thing over a teacher and say that it's his fault or her fault because a student is failing, and I think I hold this over myself. It's never their fault that I'm not able to stay up to their curriculum and they shouldn't have to make changes. The student who's failing has to make the changes because he's not doing what everybody else can.

American young person (diagnosed with ADHD, aged 16 years), p. 130²⁹³

This intimates the extent of his change from rage to internalisation and passivity. However, his mother does not express the same view:

It's very frustrating to hear the teachers, and every one of them, at public high school and the [magnet school], has said to me, almost verbatim, 'This child is brilliant. He is so much more knowledgeable and smarter than we can tell you . . .' and I say . . . 'but he's getting an F in your class'. 'Well that's because he doesn't do this, that and the other thing'. 'But you have a report from a doctor who tells you he can't do what you want him to do'. 'Well, he still has an F'. And I want to say to these teachers, 'You cannot say to a mother what you're saying to me and then give my child an F, without you getting an F, because somewhere, somebody dropped the ball and I don't think it's him'.

Mother of son (diagnosed with ADHD, aged 16 years) [reviewer's edits], pp. 185–6²⁹³

The author describes this exchange as a conflict between the needs of an individual pupil and the system-level expectations of the school. The pupil's eventual acquiescence to the greater value of the curriculum over his own desire for learning and learning needs can be interpreted as the indication of a power imbalance between pupils (and their parents) and established educational systems. This analysis links the issue discussed first in review 4d, that of pupil fit and disconnection (see *The potential for different classroom contexts to impact learning behaviour* and *The role of teacher expectations and perceptions in the shift from understanding problematic behaviour as normal to formally identifying it as deviant*), to the responsibilities of teachers to the needs of most children in priority over the needs of an individual child.

Although the issue of the need for challenge may be particularly relevant to pupils who are academically gifted, this case study was valuable because it focused on difficulties with learning rather than behaviour. That it identified a number of issues identified in other studies, for example it found relationships with teachers as key (for other discussion see *Relationships* and *Parent–teacher conflict is the norm*), described a process of rage that developed over the time of his school career in response to stress (for related discussion see *Relationships*, *Concern over the emotional equilibrium and learning of the whole class* and *Assertive*) and discussed the importance of the content of what pupils are learning (for similar discussion see *The role of context in attention-deficit/hyperactivity disorder symptoms*), suggests that these experiences may be at least partly applicable to pupils diagnosed with ADHD who are not academically gifted.

Implications of teachers' orientation to the class as a whole for non-pharmacological interventions are given in *Box 29*.

Different funds of knowledge

Three studies refer to differences in understanding ADHD as a foundation for conflict between pupils diagnosed with ADHD, their teachers and parents.^{260,347,391} Koro-Ljungberg *et al.*³⁹¹ link this to a concept called funds of knowledge (*Box 30*). Parents and teachers agreed that 'stigma, disbelief and ignorance' were common in relation to ADHD.³⁹¹ One mother commented:

You still have teachers who think [that attention-deficit disorder] and ADHD is some kind of made-up thing . . . They have to be transformed into believers that it is real and just like autism.

Mother of a young person diagnosed or at risk of ADHD (aged 12–16 years) [author edits], p. 56³⁹¹

Rafalovich³⁴⁷ also notes the disputed nature of the 'definition and solution for a relational trouble'; some clinicians in his study remarked that teachers could overstep professional boundaries by suggesting a child probably has ADHD to parents. Some clinicians suggested that teachers were avoiding professional responsibilities, because they 'unjustifiably attribute children's troubles to behaviour disorders rather than to the environment that causes or exacerbates them'. For further discussion see *Biological factors*, and also *Concern over the emotional equilibrium and learning of the whole class* for a discussion of the limited training and resources teachers may face. If options such as exclusion are not available, medication may be

BOX 29 Implications for non-pharmacological interventions related to teachers' orientation to the class as a whole

Teachers' orientation to the class as a whole can prevent them from adequately addressing a single pupil's learning needs. Particularly for more academically able children, this can exacerbate ADHD symptoms, and/or lead to internalisation of stigma.

BOX 30 Definition of 'funds of knowledge'

Funds of knowledge refer to historical and culturally situated forms of knowledge and/or skills used for functioning in social groups. Examples Koro-Ljungberg *et al.*³⁹¹ give related to ADHD include conceptions and misconceptions about ADHD, teacher experience and training, knowledge claims, and disagreements between parents and teachers. The potential for differences in professional knowledge between groups is discussed in a similar fashion by Malacrida²⁶⁶ (see *Different notions of disability*).

the most realistic choice for teachers in such a situation. This issue of the disputed nature of ADHD has occurred repeatedly across included papers (e.g. see *Perceptions that attention-deficit/hyperactivity disorder symptoms result from other social and cultural factors* and *Different notions of disability*). However, positions and attitudes can shift within and across participant type. In Rafalovich's³⁴⁷ study with US and Canadian participants the teachers press for a diagnosis of ADHD, with reluctance to diagnosis and/or medication sometimes expressed by parents [for a similar example from review 4c involving UK participants, see *Chapter 6, Review 4c: the experiences and perspectives of parents of pupils diagnosed with attention-deficit/hyperactivity disorder, Findings for review 4c (parent views), Different notions of disability*]. For other UK participants,²⁶⁶ parents desire a diagnosis of ADHD whereas professionals resist (see *'Being told' rather than collaborating*). Differences in attribution vary across and within participant types, with both teachers and parents tending to take polarised biological, psychological or sociological stances. As each stance results in differences in opinion about effective intervention, it is not surprising that conflict between stakeholders is the norm.

Hughes' study²⁶⁰ involves 14 case studies that focus on the impact that different perceptions of ADHD (parent, teacher, pupil) can have on a child's support in school. These can be understood as conflict between funds of knowledge. The following extracts that involve four young people and their teachers and parents illustrate four examples of conflicts in understanding.

Case study 1:

I get the impression that he can't be bothered. It's a lot of laziness. I think a lot of laziness. It's, all, 'I don't want to do it. I can't be bothered with it'.

Mother of child (diagnosed with ADHD, aged 7–11 years), p. 73²⁶⁰

The only reason he stands out from the others in the class is because he worries so much about what other people think of him.

Teacher of child (diagnosed with ADHD, aged 7–11 years), p. 73²⁶⁰

Some people beat me up. It's been happening in school. A couple of days ago, every time I went outside all these boys jumped on me and started beating me up and said 'We'll be back to beat you up later', and then they pretend to go, but they're hiding behind the wall and I think, they're gone, so I go outside and then they jump on me. I cry, sometimes on my own. My mum says that I sometimes act stupid and that's why they tease me, but to me I'm not acting stupid, I don't think it's stupid.

British child (diagnosed with ADHD; aged 7–11 years), p. 73²⁶⁰

This pupil's teacher and mother both believe that he is responsible for his own difficulties: his mother thinking he is lazy, and his teacher understanding his social insecurity to be the problem. They do not consider the influences of social factors on his behaviour. The author further describes that the pupil is anxious over his disability but afraid of being reprimanded, leaving him feeling isolated and let down. Without social and self-management skills to draw on, he is left open to bullying and academic difficulty. The author concludes that this case demonstrates the importance of support being available in a child's school and home environment and the benefits that might be realised if social/emotional and/or self-management interventions were to be offered.

Case study 2:

My husband will not accept that he's not just a naughty child and we have terrible weekends, because he believes he just needs a good smack and [my son] immediately picks up on this and reacts. His outbursts can last two hours, we have to restrain him, and when it's over he slumps and he'll say, 'I'm sorry Mummy', and he'll put his arms round me and he'll sob, he'll sob his heart out.

Mother of child (diagnosed with ADHD, aged 7–11 years) [reviewer's edits], p. 75²⁶⁰

You know, it is very much, 'I have moods and tough, you've to put up with me'. I believe there is some element of reinforcement from home, that such things are accepted. Obviously at school you try and encourage the children to become part of the 'norm' system and to produce behaviour which is acceptable rather than accepting unacceptable behaviour. [The pupil] knows exactly what he is doing: he wants attention.

Teacher of child (diagnosed with ADHD, aged 7–11 years) [reviewer's edits], p. 75²⁶⁰

I take my medication so I don't get very hyper. So I don't get to hit anyone in the class because if I do I get in bother. Medication makes it go away because it's me temper – it just comes up. Don't know why, sweeties and that.

British child (diagnosed with ADHD; aged 7–11 years), p. 76²⁶⁰

The author describes the inconsistency in response over the pupils' home behaviour as reducing his confidence and emotional security. Because the pupil's teacher believes his problematic behaviour is attributable to poor parenting and that he is seeking attention, she ignores the behaviour. The author concludes this is unfair punishment because the child does not understand why his teacher is ignoring him, and he may be incapable of controlling this behaviour. The inconsistency in response to his behaviour from his parents and teacher exacerbates his ADHD symptoms, and the child is left feeling that medication is the only form of support.

Case study 3:

I worried when he first took them. He has had chest pains last month, [and] the doctor gave him a scan. Now they didn't think it was related to tablets, but he has pins and needles in his feet and that's a problem, and he's lost weight. Since he lost weight he's got paranoid about his bones, I mean his bones seem to be like sticking out . . . I've explained and I've said that 'these tablets will make you lose weight but they are to make you good, do you want to be good?' and he said 'Yeah' . . . He doesn't like to be embarrassed. . . And this is what is happening at school, when his teacher was calling him out to take his medication, that would make him angry, the embarrassment.

*Mother of child (diagnosed with ADHD, aged 11–12 years)
[reviewer's edits], pp. 76–7²⁶⁰*

Sometimes the tablets work because sometimes they make me be good, but when they're not working I don't do any work.

British child (diagnosed with ADHD, aged 7–11 years), p. 77²⁶⁰

This pupil's mother sets up medication to be the 'answer' to his problematic behaviour and academic difficulties. This puts the child in a pressured situation, where he has to choose between addressing the anxieties he feels over the negative effect he understands the medication to have on him and meeting parental and educational expectations. His agency is undermined by the way medication is positioned as the only way to control his behaviour, and he is undermined by the embarrassment he faces in the classroom over taking medication. His mother describes this latter situation as contributing to feelings of anger, which may exacerbate ADHD symptoms.

Case study 4:

I will be very, very good then, sitting quietly, sitting sensibly. I'm naughty, only when me tablets have wore off, I need me tablets to stop me from being naughty.

British child (diagnosed with ADHD; aged 7–11 years), p. 77²⁶⁰

He wasn't getting an education because every other day I was being phoned up telling me that he was too bad and I had to come and get him, the Ritalin and school just didn't seem to go together.

Mother of child, p. 77²⁶⁰

Even with Ritalin his concentration is still poor. He is less hyperactive though. But I believe that James has physical problems that are in his head, and his characteristics are too embedded for any changes to occur.

Teacher of child, p. 78²⁶⁰

This pupil understands medication as controlling his behaviour; the author makes the distinction that medication makes it easier for him to control his own behaviour. The pupil's understanding of being good as 'sitting quietly, sitting sensibly', and of naughtiness as anything else is similar to findings in review 4b (see *Biological factors*). Despite the pupils' understanding that medication has stopped him from being naughty, his mother and teacher suggest that his behaviour in school is still problematic. The school the pupil's mother describes resorted to exclusion in response to his problematic behaviour (despite medication); she then moved him to a different school. However, the teacher in the new school has no expectation that James' problematic behaviour can be addressed because medication has not worked. The author remarks that the child's mother and teachers agree that he has no part to play in addressing his problem behaviours and that the case illustrates the way that faith in and focus on medication to treat ADHD symptoms can narrow or exclude strategies and options for other approaches.

The author concludes the study by emphasising that 'parents and school staff sometimes only agree that the child is displaying problematic behaviour';²⁶⁰ other included studies demonstrate that they do not always even agree about this.^{276,298,356} Hughes²⁶⁰ summarises common differences in funds of knowledge between teachers and parents, and potential impacts, as:

- they may disagree on why the child is displaying the behaviour, with disagreement orientated around the extent of the control the child has, and whether the behaviour results from biological or sociological influences
- their response to the behaviour follows from the beliefs about ADHD that are held, or the belief that there is nothing that can be done which can result in abdication of responsibility
- the failure to agree consistently on an approach to intervention between stakeholders is a 'fundamental barrier to positive change'
- the failure to agree consistently on an approach to intervention between stakeholders can exacerbate the problems, through patterns of blame or by ignoring wider factors
- the failure to agree consistently on an approach to intervention between stakeholders can leave pupils diagnosed with ADHD feeling helpless and frustrated, and beliefs that medication is a powerful and effective intervention for ADHD without consideration of other strategies and intervention factors can encourage pupils to understand that they have no control over their behaviour.²⁶⁰

The conclusions drawn here coincide with many from studies in reviews 4a–c (see *Sociological factors: impact of belief that attention-deficit/hyperactivity disorder symptoms originate in the home; Perceptions that attention-deficit/hyperactivity disorder symptoms result from other social and cultural factors; Biological factors; Different notions of disability; Agency; and Impact of polarised view*). This study was conducted in the UK, and the similarity of the issues highlighted here to papers from other countries supports the potential for applicability of studies across cultures. A range of views are expressed about ADHD behaviour, many of which are conflicting, but they are views also expressed by other participants in other countries. This study demonstrates clearly the way that confusion and disagreement about ADHD results in reduced effectiveness in dealing with ADHD symptoms and more difficult situations for pupils diagnosed with ADHD. That teachers respond to ADHD symptoms according to their understanding of ADHD supports the need for increased education about ADHD and strategies to address symptoms. The complexities of the case studies described in Hughes²⁶⁰ require sophisticated judgements in order to respond optimally to the pupils, and suggest that teachers need to have a relatively developed understanding of issues surrounding ADHD to be able respond in constructive ways.

Implications of findings of differences between funds of knowledge for non-pharmacological interventions are given in *Box 31*.

BOX 31 Implications for non-pharmacological interventions related to differences between funds of knowledge

Differences in perceptions about ADHD between parents and school staff are identified as a fundamental barrier to consistent, effective intervention for ADHD symptoms.

ADHD interventions would benefit from designs that include support for relationships between parents and teachers of pupils displaying ADHD symptoms, particularly in relation to perceptions about ADHD.

Processes of collaboration

Two of the included studies specifically explored collaboration between teachers and parents of pupils diagnosed with ADHD.^{390,391} Guevara *et al.*,³⁹⁰ who separately interviewed clinicians, teachers and parents in focus groups, found that there was agreement over lack of collaboration across participant type. Koro-Ljungberg *et al.*,³⁹¹ who interviewed teachers and parents together in focus groups, found that, although on the surface the aims parents and teachers spoke of seemed similar, there was a lack of conceptualisation over what constructive collaboration between teachers and parents was. This prevented 'these two roads from truly connecting'.³⁹¹ These findings suggest that processes of collaboration are a foundation for conflict between teachers and parents.

Koro-Ljungberg *et al.*³⁹¹ created a communication model that involved interpersonal, situational and policy/political contexts; all of these were found to be involved in the quality of collaboration. At the interpersonal level, communication involved a sender, receiver, message and feedback. Situational aspects such as ethnicity, gender, age and educational level influenced the message, its interpretation and its feedback. Finally, the method of communication (e.g. telephone, e-mail, letter) affected the interpretation of the message, as did perceptions of its purpose. This analysis is useful in providing a framework for understanding problems with communication between parents and teachers. For example, in other included studies mothers mention negative interpretations of situational aspects (e.g. 'otherness'), method (e.g. a message to a mother sent through a pupil's sibling) and perceptions of purpose (criticism of parenting skills) in communications from teachers, which then affected their feedback (see *Parent-teacher conflict is the norm*).

While discussing communication in focus groups for parents and teachers, a parent noted the need for a case manager for pupils diagnosed with ADHD. This person would be responsible for liaison between the stakeholders supporting the pupil and could keep records of correspondence and distribute important documents. She called them a 'translator':

[another participant] said, 'relationships'; if you can't get it with the teacher or teachers, then you have to find somebody in that school. 'Why?' Because you need that translation; I look at it as translations.

American mother of a young person (diagnosed with or at risk of ADHD, aged 12–16 years) [reviewer's edits], p. 62³⁹¹

The authors note that the parents' use of the term 'translation' could refer to the sense that parents and school staff speak in different languages (see discussion of funds of knowledge in *Different funds of knowledge*). However, the mother does not then recommend that parents and teachers attempt to understand the others' languages, rather she proposes that a third party is needed to enable constructive communication. This may signify the extent of the breach experienced by this parent.

Much of the discussion between parents and teachers in Koro-Ljungberg *et al.*'s study³⁹¹ involved descriptions of approaches that they had taken to communicate with each other that provided alternatives to the telephone or e-mail. These included:

- attendance, behaviour and homework sheets
- teacher notebooks (used in middle and high schools) which the pupil carried with them that acted as a source of information about pupil learning needs
- the suggestion that teachers include information about ADHD in school newsletters to educate parents; and
- that teachers propose ways for parents to support pupils and improve communication.³⁹¹

Despite similar content in things said by parents and teachers, the authors argue that parents and teachers did not necessarily share a commitment to particular action or improved communication. Rather, their statements reflected differences according to their identity. Teachers tended to position themselves as professionals, referring to communication with parents as a task requiring extra effort; parents were more inclined to refer to communication with teachers in terms of collaboration and relationship. One teacher explained their appreciation of advocacy by parents for their child:

As a teacher, I appreciate parents advocating for their child, because when you do teach 60 and 70 children, you can't know and you can't have those IEPs memorized and I appreciate a parent who stays in contact with me rather than expecting me to initiate.

American teacher of young people (diagnosed or at risk of ADHD, aged 12–16 years), p. 57³⁹¹

This expression of appreciation by a teacher is also consistent with some of the experiences of parents in review 4c (parents' views), who described positive or at least polite responses to their offers of information about their children. However, the action taken in response to the information was often inconsistent or lacking (see *Assertive*). Indeed, Koro-Ljungberg *et al.*³⁹¹ note that when parents and teachers communicate only with exchange of information, any response may be hypothetical. They conclude that communication related to activity, which implies commitment to specific responsibilities, is most likely to result in changed situations for the pupil in the classroom and improved parent–teacher relationships.

Although Koro-Ljungberg *et al.*³⁹¹ conclude that communication between parents and teachers involving the exchange of information without a focus on activity (where commitment to specific responsibilities are not made) are less likely to achieve constructive collaboration, they also acknowledge that resources may not be available for teachers to make such commitments (see *Resources* for further discussion). They also note that, despite higher stakes for parents and pupils, teachers hold the balance of power in influencing decisions and school action.

Koro-Ljungberg *et al.*³⁹¹ note that when effective collaboration occurred it was often the result of individual effort, or was accidental and/or inconsistent, rather than the result of a systemic model promoting equal access to effective collaboration. They further comment that a view of teacher–parent collaboration as solely personal could be a barrier to effective communication:

When communication is viewed merely as a reflection of relationship, it can result in less effective problem-solving efforts in response to conflicts, possibly further hindering effective communication. Instead, when communication is perceived as a complex process influenced by a variety of personal, interpersonal, contextual, and policy factors, communication problems can be attributed to diverse sources, and a more comprehensive problem-solving reply can be mounted in response.

Authors, p. 64³⁹¹

This suggests the benefit of school-level education and/or guidelines about teacher–parent communication. Guevara *et al.*³⁹⁰ have a similar finding. Participants in Guevara *et al.*'s study³⁹⁰ rarely described constructive

relationships and those that were described required ‘enormous effort to overcome obstacles’.³⁹⁰ An exemplar of effective collaboration included a mandate to work together at the institutional level; however, such mandates were unusual. Institutional structures tended to create barriers to constructive interactions between stakeholders rather than facilitating them, in a way that the authors described as ‘system failure’. This study was conducted with minority inner-city schoolchildren and so collaboration might have been unusually complex. Nonetheless, the predominance of included studies that note problems in collaboration between teachers and parents suggested the need for system-level guidelines and structures that clarify expectations for constructive relationships and processes for building and maintaining them.

Guevara *et al.*³⁹⁰ also identified discontinuity in care as a contributing factor to the fragmentation of support for minority pupils diagnosed with ADHD in inner cities in the USA.³⁹⁰ This particularly occurred over transition periods between school years, through school moves or a change in teacher within the school year (as well as frequent clinical staff turnover). This resulted in a lack of continuity in educational support as each successive teacher or school was unfamiliar with the specifics of the child’s ADHD diagnosis and effective approaches for support, while new relationships between stakeholders had to be established. Transition points were perceived by the participants to require substantial levels of effort, but few institutional structures were in place to facilitate this.

The most frequent transition point was the beginning of a new school year. Teachers in Guevara *et al.*’s study³⁹⁰ perceived that parents did not usually inform them about ADHD diagnosis before the start of the school year. Rather, teachers used their knowledge to identify pupils consistently displaying ADHD symptoms, and teachers perceived this to cause delay in implementing educational support:

When you have 30 kids in your class, you don’t get a list in September that says Juan is oppositional, Jose is ADD. We don’t get that information; you have to get that on your own.

American teacher of pupils (diagnosed with ADHD, aged 5–14 years), p. 514³⁹⁰

Thus, teachers can perceive that they lack the information needed from parents about pupils in order to support them. Parents in Guevara *et al.*³⁹⁰ reported that work structures made daytime liaison with schools difficult and resulted in them scheduling school and clinical appointments on days off. One clinical participant remarked that what could look like ‘non-compliance’ could be related to work restrictions, where parents’ employment can become threatened because of the demands of caring for a child with ADHD. Thus, communication with teachers may prove difficult for parents. The experience described by the teacher above complements that described by a number of parents from review 4c (parent views), who described the need to educate their child’s teacher about ADHD every year, and that teachers were rarely engaging with the information given. How this may relate to differences in funds of knowledge between teachers and parents has been discussed earlier (see *Box 31*). However, institutional-level structures that encourage information-sharing between teachers, in addition to structures for information-sharing between teachers and parents, are one potential means to address this issue.

Processes of collaboration raise implications for non-pharmacological interventions which are given in *Box 32*.

BOX 32 Implications for non-pharmacological interventions related to issues of collaboration

Parent–teacher conflict over influences on and strategies to manage ADHD symptoms in pupils is the norm in included studies; collaborative relationships between parents and teachers occurred through great personal investment of time and overcoming structural barriers. Interventions might benefit from the systemic development of collaborative support, where schools structure constructive collaboration by defining and supporting processes (e.g. transfer of information between teachers at transition points and the purposes of parent–teacher communications) and/or by providing case workers to aid collaboration.

Accountability

Two included papers identified a lack of accountability as contributing to conflict between teachers and parents.^{390,391} Participants in two other included papers within review 4d describe experiences of conflict related to a lack of accountability (see *Different funds of knowledge* and *Resources*). Teachers and parents in Koro-Ljungberg *et al.*'s study³⁹¹ identified two purposes of communication as important: (1) communication to exchange knowledge; and/or (2) to engage in activity. Parents and teachers agreed that it is appropriate for parents to:

- communicate about medication changes
- follow up on their children's progress
- be persistent regarding ongoing communication
- be present and care, and
- initiate contact with teachers.

Koro-Ljungberg *et al.*³⁹¹ note that, despite shared desire for effective communication, there was a 'simultaneous displacement' between teachers and parents about accountability relating to activity following on from communication. Any resulting lack of action could impair future communication. The authors conclude that there is no idea of what effective communication between parents and teachers in the context of ADHD would be – who holds responsibility for what, and what the form of interaction should be. They recommend that teachers and parents focus on 'what' and 'how' in their interactions.

Guevara *et al.*³⁹⁰ identified a lack of accountability across participant type (clinicians, teachers and parents), with a lack of agreement about who was in the best position to take responsibility for overseeing care of pupils with ADHD. Those who took the view that other groups should lead often expressed unwillingness to take responsibility themselves owing to lack of knowledge or lack of time (see *Resources*). However, there was agreement between clinicians and teachers that most parents were not capable of taking responsibility, as they were perceived as 'disorganised, misinformed, and inconsistent':

You know it could be a whole laundry list of things. They could be on drugs, or they could be working. We really don't always know. But there's specific problems with certain kids, and they're having difficulty succeeding here. And we're trying to solicit parental help or to make suggestions, and we can't get that message across. There's no phone; there's nobody home; or there's no one willing or able to come here. And that's one of the problems, probably the biggest.

American teacher of pupils (diagnosed with ADHD, aged 5–14 years), p. 514³⁹⁰

Such negative attitudes of parental capacity expressed by professionals in this study align with perceptions described by mothers in review 4c (parent views, for example see *Feeling criticised*), who felt dismissed and silenced by school staff. However, unlike the parents described here by the teacher, many of the mothers in review 4c were pursuing engagement with their child's education. Parents in Guevara *et al.*'s study³⁹⁰ describe some similar perceptions to mothers in review 4c, and reported that they felt dismissed by school staff when they shared concerns, that their perspectives were not appreciated and/or respected and so they sought help elsewhere.

Guevara *et al.*³⁹⁰ identified the theme 'finger pointing' to describe the tendency for clinicians, teachers and parents to blame each other for inadequate levels of support for pupils diagnosed with ADHD. They also found that parents could be placed in the role of arbiter between different professionals who disagreed. Alongside perceptions of low-quality care professionals expressed distrust in the practice of others. By contrast, those who perceived they had good working relationships expressed appreciation for the work done by others and were more tolerant of others' professional practice.

Resources

A lack of resources, in the form of knowledge, time and support structures, was identified as a foundation for conflict between a pupil diagnosed with ADHD and his teachers,²⁹³ and between teachers and parents.^{390,391} Problems related to a lack of resources are found in other included studies in reviews 4a–c (see *Relationships, Concern over the emotional equilibrium and learning of the whole class* and *Assertive*).

The teachers interviewed in Hands' case study²⁹³ of a young person diagnosed with ADHD acknowledged the pupil's good conceptual ability, but expressed confusion about his inability to submit work on time, and to respond relevantly to assignment criteria. Their response to him is to attempt to be accepting on the basis that he has SEN rather than to attempt to communicate a strategy for him to learn how to turn in work on time, with the format and content needed to pass the assignment, and why it is worth learning how to do this. The pupil describes his difficulties to the researcher:

I have a problem with getting started. Sometimes I procrastinate a lot and just shove it off, shove off bigger projects for working on smaller things that I know I can get done [. . .] It's just I use time in a way that I do everything. I procrastinate some work for other work that doesn't need to be done. It's really a dance.

American young person (diagnosed with ADHD, aged 16 years) [reviewer's edits], p. 110²⁹³

This description suggests that the pupil is aware of the issue himself and would be capable of developing self-regulatory strategies, as well as benefiting from external support such as having large projects broken down into manageable chunks. Better education for the teachers might have provided a basis from which to understand and to act to support. The pupil's mother comments:

We had a [Parent-teacher] meeting recently and they [the Magnet teachers] were at the last meeting. They don't know what to do. They don't. I don't think they've dealt with his kind before. They really truly are at a loss. They're like, 'Well if he doesn't do homework, then you know, what are we going to do?' They have no idea and the problem is he's the guinea pig.

Mother of young person (diagnosed with ADHD, aged 16 years) [reviewer's edits], p. 97²⁹³

This suggests that the wider school, despite being a magnet school (see *The potential for different classroom contexts to impact learning behaviour*), did not have the knowledge themselves to provide support to the pupil's teachers for developing strategies to help him. However, the biology teacher met with the pupil and a SEN consultant following this meeting:

I was just learning that there was a plan in place and I met with him and with the special ed. consultant and we talked about the accommodations just so it was clear to both of us at the same time and he's made some efforts I think to get things in a little bit more often.

American biology teacher of young person (diagnosed with ADHD, aged 16 years), p. 98²⁹³

This comment suggests that even without a clear understanding of the pupil's difficulties or a comprehensive strategy of support, collaboration between him, his mother and the teachers at the magnet school was at least partially productive. His biology teacher appears to have made a particular effort, by arranging the meeting with him and the SEN consultant. His English teacher was less proactive:

I haven't called home, because I figure this is a long-standing problem, obviously, because [the pupil has] been through the evaluations and he's probably been through a battery of tests by the Special Ed. Department and the psychologist . . . He's been identified as a 504, so that means there's a 504 team, so, you know, I think they're looking after this.

American English teacher of pupil (diagnosed with ADHD, aged 16 years) [reviewer's edits], pp. 98–9²⁹³

The English teacher seems to distance himself from the need to understand his pupil's difficulties because he may perceive the team to be accountable for supporting the pupil rather than himself (see *Accountability* for further discussion). In both school contexts, to develop further knowledge about and strategies for the pupil, the teachers had to exert unusual effort. His biology teacher did this, whereas his English teacher did not; but, even with additional effort, the biology teacher did not seem to access adequate information about her pupil's needs or strategies to support him. This situation illustrates the comment made by Koro-Ljungberg *et al.*³⁹¹ above, that, in collaboration with parents, teachers may share aims but not be willing to make commitments for action because they lack the resources to carry them through (see *Processes of collaboration*).

Other included papers address the issue of lack of resources. Guevara *et al.*³⁹⁰ identified limited knowledge and resources as a barrier described by both teachers and parents in their study. Teachers and clinicians described the uncertainty they faced in understanding whether or not ADHD was the cause of the child's symptoms, because it was difficult to untangle other issues such as chaotic home life and co-occurring difficulties. Teachers also described limited training about ADHD; those with adequate training said the field developed quickly and it was difficult to keep up with. Teachers were concerned by cutbacks in school support by specialists like educational psychologists and counsellors who might be able to give them information about behaviour management. Parents expressed the desire to attend support groups but did not know of any.

Koro-Ljungberg *et al.*³⁹¹ identify the situational context as a factor affecting parent–teacher interactions. Factors identified as being relevant to teachers included class size and grade level, with larger classes and/or multiple classes taught (as in secondary schools) adding additional barriers, and a difference in teacher attitude and tone for teachers teaching elementary (pupils aged 5–11 years), middle (pupils aged 11–14 years) and high (pupils aged 14–18 years) schools. The teachers described these factors as being relevant for all pupils, but that the additional complexities of ADHD symptoms act to increase barriers, including further hindering relationships with parents. One teacher described how difficult it was to prioritise the needs of pupils with ADHD over the needs of the rest of the pupils in a large classroom (see review 4b, *Orientation to the class as a whole and orientation to the individual child* and *Orientation to the class versus the individual*, for further discussion of orientation to the class as a whole). Although this issue results in teachers' orientation to the class as a whole rather than individual pupils, the specific interest here is the reluctance for investment by teachers in understanding individual pupils because of limited time, and in the case of teachers of secondary aged pupils, a high number of pupils.

Several of the parents in Koro-Ljungberg *et al.*'s³⁹¹ study mentioned that they had found it easier to interact with teachers during their child's elementary years (aged 5–11 years), when the child attended one class, but once their child transitioned to middle school where they had multiple teachers they experienced greater difficulties. Multiple teachers meant inconsistency in pedagogy and inconsistent knowledge about the nature of a child's issues related to ADHD. Although meetings were held to discuss pupil IEPs, which were meant to act as information-sharing events, these were not attended by most of the child's teachers.

Teachers in Guevara *et al.*'s³⁹⁰ study perceived a lack of support by school management, where the focus was on attainment with a lack of support for behaviour management.

I think the teachers get a little disgusted because again with the time frame, it seems like all this paperwork [related to assessment procedures] they do, and then nothing ever happens. We also don't have enough psychologists . . . So the school itself doesn't have enough support to do what they are supposed to do and what they could do if they had the support.

American teacher of pupils (diagnosed with ADHD (aged 5–14 years) [author's edits], p. 516³⁹⁰

This suggests that there is the potential for resentment when teachers spend limited time completing rating scales used for diagnosis and then do not receive additional behaviour management support owing to lack of resources. Teachers may become reluctant to invest limited time to understanding the learning and/or a behavioural need of individual pupils if, from past experience, they have learned that support is not available.

Discussion

Reviews 4a–d

As described in *Structure of review 4*, review 4 was conducted by grouping included studies by participant type into four subreviews (4a–d), and paper characteristics for each subreview were described in the relevant sections (4a pupil views; 4b teacher views; 4c parent views; 4d mixed views). *Table 60* gives the number of included studies for reviews 4a–d.

Across the 34 included papers, fewer children diagnosed with, or at risk of, ADHD (aged ≤ 11 years) were participants than young people (aged ≥ 12 years). By contrast, more teacher participants taught children diagnosed with, or at risk of, ADHD in preschool to primary years (ages 4–11 years) than taught young people in secondary to college years (ages 12–18 years). This suggests that there may be general mismatch in perspectives of the two groups owing to differences related to maturation of pupils and/or differences between educational context at preschool/primary school and secondary/college school levels, and identifies a research gap (see *Recommendations for research*).

Quality appraisal

Results of the quality appraisal (for discussion of methods, see *Chapter 4, Methods of analysis/synthesis, Quality assessment*) are shown in *Table 61*. All but one study²⁶⁰ showed clear research questions, all but two studies^{286,305} substantiated their findings by linking them to the data, all but one³⁵⁶ had study designs appropriate to answer their research questions, and all but three studies^{264,286,290} explicitly described research methodology and/or conceptual frameworks. The conceptual frameworks of the studies tended to influence design and/or findings; for example, when interest was shown in social aspects of ADHD symptoms,^{27,41,260–263,265,266,291,293,314,324,332,347,356,390,391} the findings were often centred round the dynamics of these. By contrast, studies that did not situate themselves in social theory^{264,286,294,296,298,299,305,335,359,360,392} often did not discuss findings in relation to the dynamics of social and/or cultural factors, or at least not in the same depth. Rather, they were more focused on categorising and describing content.

A number of studies lacked sufficient reporting of methods, for example by failing to describe participant samples adequately,^{264,291,294,324} omitting contextual information^{27,260–262,290,294,296,331,392} such as description of schools, or by failing to describe the process of data analysis.^{41,264,290,332} The areas in which studies were most often lacking involved the omission of discussion of study limitations,^{27,41,260,262–265,291,293,296,299,314,324,332,335,347,392} omission of discussion of aspects of generalisability,^{41,260,264,293,296,298,299,305,332,334–336,356,360,392} or the study authors were not reflexive in that they did not acknowledge the impact of their perspectives on the study designs and findings.^{27,260,261,265,266,286,291,294,296,305,332,336,347,359,360,390–392} However, all but five studies^{260,264,291,296,332} met at least 10 out of the 14 criteria, suggesting a large majority were of good quality as assessed by these standards.

TABLE 60 Number of included studies in each part of review 4

Syntheses in review 4	Number of included studies
4a. The school experiences and perceptions of pupils diagnosed with ADHD (pupil views)	11 ^a
4b. The school experiences and perceptions of teachers of pupils diagnosed with or at risk of ADHD (teacher views)	11 ^a
4c. The school experience and perceptions of parents of pupils diagnosed with ADHD (parent views)	6
4d. The school experiences and perceptions of pupils diagnosed with or at risk of ADHD, their teachers, parents and peers (mixed views)	7
Total	34 ^a

a One study²⁹⁶ contributed to reviews 4a and 4b.

TABLE 61 Quality appraisal of included studies for review 4 (n = 34)

First study author and year	1. Is the research question clear?	2. Is the theoretical or ideological perspective of the author explicit?	3. Has the theoretical or ideological perspective influenced the study design, methods or research findings?	4. Is the study design appropriate to answer the question?	5. Is the context or setting adequately described?	6. Is the sample adequate to explore the range of subjects and settings, and has it been drawn from an appropriate population?	7. Was the data collection adequately described?
Papers from review 4a (pupil views; n = 11^a)							
Brice 1998 ³³¹	Y	Y	Y	Y	N	Y	N
Cooper 1998 ²⁶¹	Y	Y	Y	Y	N	Y	Y
Exley 2005 ^{332,337,338}	Y	Y	Y	Y	Y	N	Y
Friio 1999 ³³³	Y	Y	N	Y	Y	Y	Y
Houghton 2006 ²⁹⁶	Y	Y	Y	Y	Y	Y	Y
Kendall 2003 ²⁹⁹	Y	Y	Y	Y	Y	Y	Y
McDannel 2005 ³³⁴	Y	Y	Y	Y	Y	Y	Y
Prosser 2006 ³¹⁴	Y	Y	Y	Y	Y	Y	Y
Singh 2011 ²⁷	Y	Y	Y	Y	N	Y	Y
Taylor 2008 ³³⁵	Y	Y	Y	Y	Y	Y	Y
Wolfberg 1999 ³³⁶	Y	Y	Y	Y	Y	Y	Y
Totals for review 4a (pupil views) (Y, N, CT)	11, 0, 0	11, 0, 0	10, 1, 0	11, 0, 0	8, 3, 0	10, 1, 0	10, 1, 0
Papers from review 4b (teacher views; n = 11^a)							
Arcia 2000 ²⁸⁶	Y	N	CT	Y	Y	Y	Y
Bailey 2009 ⁴¹	Y	Y	Y	Y	Y	Y	Y
Einarsdottir 2008 ²⁹¹	Y	Y	Y	Y	Y	CT	Y
Hillman 2011 ²⁹⁴	Y	Y	Y	Y	N	CT	Y
Houghton 2006 ²⁹⁶	Y	Y	Y	Y	N	Y	CT
Hong 2008 ²⁶⁴	Y	N	CT	Y	Y	CT	Y
Jones 2008 ²⁹⁸	Y	Y	Y	Y	Y	Y	Y
Lee 2008 ³²⁴	Y	Y	Y	Y	Y	CT	Y
Ljusberg 2011 ²⁶⁵	Y	Y	Y	Y	Y	Y	Y
McMahon 2012 ²⁶³	Y	Y	Y	Y	Y	Y	Y
Nowacek 2007 ³⁰⁵	Y	Y	Y	Y	Y	Y	Y
Totals for review 4b (teachers views) (Y, N, CT)	11, 0, 0	9, 2, 0	9, 0, 2	11, 0, 0	10, 1, 0	7, 0, 4	11, 0, 0

8. Was data collection rigorously conducted to ensure confidence in the findings?	9. Was there evidence that the data analysis was rigorously conducted to ensure confidence in the findings?	10. Are the findings substantiated by the data?	11. Has consideration been given to any limitations of the methods or data that may have affected the results?	12. Do any claims to generalisability follow logically and theoretically from the data?	13. Have ethical issues been addressed and confidentiality respected?	14. Is/are the author/s reflexive?	Totals (Y, N, CN)
CT	Y	Y	Y	Y	Y	Y	11, 2, 1
Y	Y	Y	Y	Y	CT	N	11, 2, 1
Y	N	Y	N	CT	Y	N	9, 4, 1
Y	Y	Y	Y	Y	Y	Y	13, 1, 0
Y	Y	Y	N	CT	Y	Y	12, 1, 1
Y	Y	Y	N	CT	Y	Y	12, 1, 1
Y	Y	Y	Y	CT	Y	Y	13, 0, 1
Y	Y	Y	N	Y	Y	Y	13, 1, 0
Y	Y	Y	N	Y	CT	N	10, 3, 1
Y	Y	Y	N	CT	Y	Y	12, 1, 1
Y	Y	Y	Y	CT	Y	N	12, 1, 1
10, 0, 1	10, 1, 0	11, 0, 0	5, 6, 0	5, 0, 6	9, 0, 2	7, 4, 0	128, 17, 9
Y	Y	CT	Y	Y	Y	N	10, 2, 2
Y	N	Y	N	CT	Y	Y	11, 2, 1
CT	Y	Y	N	Y	CT	N	9, 3, 2
Y	Y	Y	Y	Y	Y	N	11, 2, 1
Y	Y	Y	N	Y	CT	N	9, 3, 2
Y	N	Y	N	CT	CT	Y	7, 3, 4
Y	Y	Y	Y	CT	Y	Y	13, 0, 1
Y	Y	Y	N	Y	CT	Y	11, 1, 2
Y	Y	Y	N	Y	Y	N	12, 2, 0
Y	Y	Y	N	Y	Y	Y	13, 1, 0
Y	Y	CT	Y	N	Y	N	11, 3, 1
10, 0, 1	9, 2, 0	9, 0, 2	4, 7, 0	6, 1, 4	8, 0, 3	6, 5, 0	118, 20, 17

continued

TABLE 61 Quality appraisal of included studies for review 4 (n = 34) (continued)

First study author and year	1. Is the research question clear?	2. Is the theoretical or ideological perspective of the author explicit?	3. Has the theoretical or ideological perspective influenced the study design, methods or research findings?	4. Is the study design appropriate to answer the question?	5. Is the context or setting adequately described?	6. Is the sample adequate to explore the range of subjects and settings, and has it been drawn from an appropriate population?	7. Was the data collection adequately described?
Papers from review 4c (parent views; n = 6)							
Carpenter 2008 ²⁶²	Y	Y	Y	Y	N	Y	Y
Hibbitts 2010 ²⁷⁶	Y	Y	Y	Y	Y	Y	Y
Malacrida 2001 ^{28,266}	Y	Y	Y	Y	Y	Y	Y
Margalit 2010 ³⁵⁹	Y	N	CT	Y	Y	Y	Y
Reid 1996 ³⁶⁰	Y	N	CT	Y	Y	Y	Y
Watson 2011 ³⁵⁶	Y	Y	Y	CT	Y	N	Y
Totals for review 4c (parent views) (Y, N, CT)	6, 0, 0	4, 2, 0	4, 0, 2	5, 0, 1	5, 1, 0	5, 1, 0	6, 0, 0
Papers from review 4d (mixed views; n = 7)							
Edwards 2008 ²⁹⁰	Y	N	CT	Y	N	Y	Y
Guevara 2005 ³⁹⁰	Y	Y	Y	Y	Y	Y	N
Hands 2009 ²⁹³	Y	Y	Y	Y	Y	N	Y
Hughes 2007 ²⁶⁰	N	Y	Y	Y	N	Y	Y
Koro-Ljungberg 2011 ³⁹¹	Y	Y	Y	Y	Y	Y	Y
Rafalovich 2005 ³⁴⁷	Y	Y	Y	Y	Y	Y	Y
Shea 2003 ³⁹²	Y	Y	Y	Y	N	Y	Y
Totals from review 4d (mixed views) (Y, N, CT)	6, 1, 0	6, 1, 0	6, 0, 1	7, 0, 0	4, 3, 0	6, 1, 0	6, 1, 0
Totals for all papers in review 3 (n = 34 ^a) (Y, N, C)	33, 1, 0	29, 5, 0	28, 1, 5	32, 0, 2	26, 8, 0	26, 3, 5	31, 3, 0
CT, cannot tell; N, no; Y, yes.							
a One study 300 contributed to reviews 4a and 4b.							

8. Was data collection rigorously conducted to ensure confidence in the findings?	9. Was there evidence that the data analysis was rigorously conducted to ensure confidence in the findings?	10. Are the findings substantiated by the data?	11. Has consideration been given to any limitations of the methods or data that may have affected the results?	12. Do any claims to generalisability follow logically and theoretically from the data?	13. Have ethical issues been addressed and confidentiality respected?	14. Is/are the author/s reflexive?	Totals (Y, N, CN)
Y	Y	Y	N	Y	Y	Y	12, 2, 0
Y	Y	Y	Y	Y	Y	Y	14, 0, 0
Y	Y	Y	Y	Y	Y	N	13, 1, 0
Y	Y	Y	Y	Y	Y	N	11, 2, 1
Y	Y	Y	Y	N	Y	N	10, 3, 1
Y	Y	Y	Y	CT	Y	Y	11, 1, 2
6, 0, 0	6, 0, 0	6, 0, 0	5, 1, 0	4, 1, 1	6, 0, 0	3, 3, 0	71, 9, 4
Y	N	Y	Y	Y	Y	Y	10, 3, 1
CT	Y	Y	Y	Y	Y	N	11, 2, 1
Y	Y	Y	N	N	Y	Y	11, 3, 0
Y	Y	Y	N	CT	Y	N	9, 4, 1
Y	Y	Y	Y	Y	Y	N	13, 1, 0
Y	Y	Y	N	Y	Y	N	12, 2, 0
Y	Y	Y	N	CT	Y	N	10, 3, 1
7, 0, 0	6, 1, 0	7, 0, 0	3, 4, 0	4, 1, 2	7, 0, 0	2, 5, 0	77, 18, 4
29, 2, 3	29, 5, 0	32, 0, 2	17, 17, 0	18, 3, 13	28, 0, 6	17, 17, 0	374, 64, 39

Issues of quality appraisal in qualitative systematic review are contested²⁷³ and the experience of conducting quality appraisal for review 4 suggested the criteria adopted were not as relevant as they could be; high appraisal scores did not necessarily predict the studies that contributed most to the synthesis. For example, the study by Margalit *et al.*³⁵⁹ was descriptive in nature and, despite a relatively high rating for quality appraisal (11 of 14 possible 'yes' answers, see *Table 61*, review 4c), contributed the least out of the papers included in review 4c. This experience is supported by Garside's conclusion²⁷³ that theoretical considerations such as reference to wider theory and the development of secondary, explanatory concepts in appraisal of quality are as important as more technical reporting aspects.

Applicability

Although inclusion criteria specified studies published or conducted from 1980 onwards, no included papers were published before 1996 (*Figure 8*) and a large majority (82%) were published in the past 10 years. Age of studies may be particularly relevant to judging applicability in this review because of societal changes, such as rapid increase in ADHD diagnosis, that mean that experiences of ADHD are likely to be dynamic. That all studies were conducted within the past 20 years, and most studies are relatively recent, supports greater applicability of the findings of these reviews.

Of the 34 included papers, seven involved participants from the UK (*Table 62*), and the majority were conducted with US participants. The low number of UK studies has potential relevance to applicability, for example because of cultural differences and differences in educational structure between countries. Although reviews 4a, c and d included only one or two UK studies each, these were all of high quality and contributed substantially to these subreviews. However, a lack of research on the experiences and perceptions of UK teachers of pupils diagnosed with ADHD is a particularly important gap in the included studies for review 4b. Although two studies involving UK teacher participants were included in review 4b (teacher views), one study²⁹⁴ was based on an online open-ended questionnaire for which the UK teacher participants were in the minority and was not a study that contributed substantially to review 4b. The other study,⁴¹ although contributing important information about the relationship between ADHD and UK classroom structures and processes, had more limited findings about teacher attitudes and experiences. Nonetheless, there are considerations that suggest findings from studies conducted in other countries are still applicable to the UK:

- UK studies found differences within and/or between participant types with reference to experience of ADHD symptoms, diagnosis and medication,²⁶¹ attributional beliefs about ADHD^{260,266,356} and within different UK contexts with reference to the expression of ADHD symptoms,²⁷ suggesting that a range of beliefs and experiences are relevant within the UK.

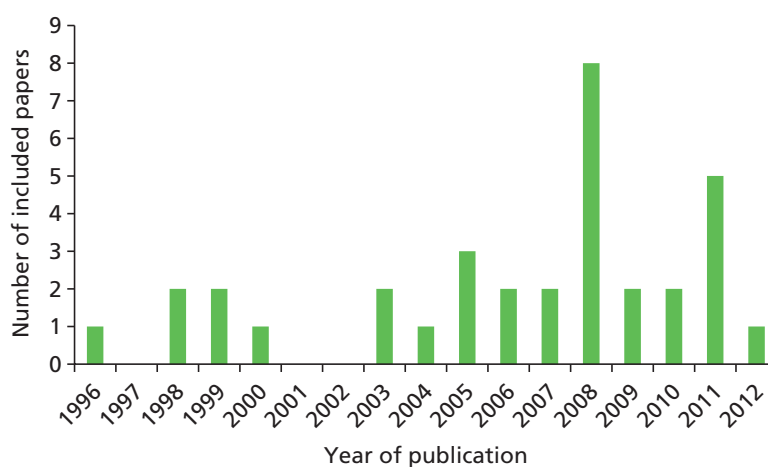


FIGURE 8 Total number of included studies in review 4 by year of publication.

TABLE 62 Country of participants for studies included in review 4

Country	Number of studies
USA	16 ^a
UK	7 ^a
Australia	6
Canada	6 ^a
Iceland	1
The Republic of Korea	1
Sweden	1
New Zealand	1
Totals	39 ^a (34 studies)

a Four studies included participants from two countries (by Singh 2011,²⁷ Rafalovich 2005³⁴⁷ and Malacrida 2001²⁶⁶) or three countries (Hillman 2011²⁹⁴).

- The experiences and attitudes expressed by these UK participants had parallels in other countries, where the range of beliefs and experiences was similar, but with different aspects foregrounded or backgrounded (for an example, see *'Being told' rather than collaborating* for the discussion of differences in the experiences of mothers in the UK and Canada regarding the kinds of pressure from schools that are felt by parents).

Some studies report experiences for participants related to subcategories of ADHD, for example ethnic minorities,^{294,390} pupils diagnosed with both ADHD and giftedness^{290,293} and experiences of peer victimisation.³⁹² Similarly, in these cases the findings had echoes in other included studies, which suggested differences of degree rather than kind. For example, in the study focused on peer victimisation, the participants were boys diagnosed with ADHD who had experience of bullying and who had been drawn from a larger study. Although pupils diagnosed with ADHD are not always victimised, some level of dislike and/or conflict between pupils diagnosed with ADHD and peers was a finding across many studies in review 4.^{27,264,276,290,296,299,314,332,335,336} Thus, the findings from the study on peer victimisation hold the potential for transferability.

Overall, it was possible to make sense of findings from across countries using third-order concepts that encompassed the broader issues and allowed differences in expression within and between both participant groups and countries. At any rate, as is true for qualitative studies, review 4 does not claim to generally represent the school-based experiences and perceptions of pupils diagnosed with or at risk of ADHD, their teachers, parents and peers, even on the basis of UK studies. Rather, we claim credibility of the studies in representing participants on the basis of study designs incorporating approaches like member checks and consultation with the project Steering Group to check findings against specialist knowledge and experience; we also claim the potential for transferability based on consultation with the Steering Group and our experiences of stakeholder engagement during the project (for further discussion see *Appendix 11*). As there are a range of differences in perceptions and experience in different contexts, transferability is likely to be important, where the reader judges the relevance of findings according to knowledge of a particular context.

Limitations

The findings of review 4 are limited by the kinds of studies available for synthesis [e.g. issues of gender, pupil maturity and school level (primary/secondary) were noted to be relevant to the review]; however, there were no studies that focused on these issues. The study designs also limited the extent to which relationships could be established between factors; studies that involved multiple perspectives offered the chance to directly link different experiences and perspectives pertaining to a particular child, but were of

limited number. The synthesis was also limited by the differences between studies, where underpinning theory and/or approaches to data collection were widely divergent (e.g. grounded theory vs. post-structural theories; semistructured interviews vs. entries to social networking websites). In such cases, assumptions were made about links between unrelated studies.

Findings from the synthesis of reviews 4a–d

An overarching synthesis was conducted for review 4, to combine findings from reviews 4a–d. Relationships between themes from reviews 4a–d were established by querying each theme (for further description, see *Chapter 4, Review 4*) in relation to the research questions (see *Chapter 4, Aims*).

Table 63 shows the relationships between third-order (reviewer) concepts identified in reviews 4a–d and the third-order concepts developed for the synthesis of reviews 4a–d. Many papers touched on the role that school expectations and/or structures could make towards ADHD-related behaviour in pupils. Owing to the rift between this finding and the way ADHD was conceptualised by participants, who rarely described ADHD in these terms, and because this finding is relevant to the implementation of non-pharmacological interventions for ADHD in schools, the overarching theme identified was ‘school expectations and structures can be one of the factors that compromise and/or aggravate ADHD symptoms’ with four subthemes:

- constituting deviance and invoking stigma
- school and the aggravation of ADHD symptoms
- polarised attributions as an outcome of stigma; and
- relationships: ADHD symptoms as a threat to educational and parental identities.

These will be discussed in turn below.

TABLE 63 Relationships between third-order concepts identified in reviews 4a–d and third-order concepts identified for the synthesis of reviews 4a–d

Third-order concepts from reviews 4a–d	Overarching theme for review 3: school expectations and structures establish boundaries for the identification of ADHD symptoms and can aggravate ADHD symptoms			
	School and the aggravation of ADHD symptoms	Constituting deviance and invoking stigma	Relationships: ADHD symptoms as a threat to educational and parental identities	Polarised attributions as an outcome of stigma
<i>Synthesis 4a: expression of symptoms in pupils diagnosed with ADHD as an interaction of biological, sociological and psychological factors</i>				
Experience of ADHD symptoms	X	X	X	
Sociological factors that impact the expression of ADHD symptoms	X	X	X	
Relationships	X		X	
Classroom context	X	X		
Stigma	X		X	
Psychological factors that impact expression of ADHD symptoms	X		X	X
Relationships	X		X	
Agency	X			X
Desire for approval	X			
Impact of polarised attributions about ADHD				X

TABLE 63 Relationships between third-order concepts identified in reviews 4a–d and third-order concepts identified for the synthesis of reviews 4a–d (*continued*)

Overarching theme for review 3: school expectations and structures establish boundaries for the identification of ADHD symptoms and can aggravate ADHD symptoms				
Third-order concepts from reviews 4a–d	School and the aggravation of ADHD symptoms	Constituting deviance and invoking stigma	Relationships: ADHD symptoms as a threat to educational and parental identities	Polarised attributions as an outcome of stigma
Synthesis 4b: factors that influence teachers' willingness to adapt their response to ADHD symptoms				
Orientation		X	X	
Class		X	X	
Child		X		
Perceptions of ADHD behaviour				X
Sociological				X
Biological				X
Psychological				X
Maturity				X
Synthesis 4c: mothers are silenced				
Dashed expectations		X		
Parent–teacher conflict		X	X	
Resistance			X	
Deferential			X	
Assertive			X	
Synthesis 4d: relationships between participant types – conflict is the norm				
Foundations for conflict	X	X	X	X
Fit between pupils diagnosed with ADHD and school	X	X	X	
Orientation to the class vs. the individual	X	X	X	
Processes of collaboration		X	X	
Different funds of knowledge		X	X	X
Accountability		X	X	
Resources		X	X	

School expectations and structures establish boundaries for the identification of attention-deficit/hyperactivity disorder symptoms and can aggravate attention-deficit/hyperactivity disorder symptoms

In the following sections, findings that link ADHD symptoms to the school context will be explored. Our focus on the school context follows the directives of our research questions, but we emphasise the need to regard such issues in combination with other factors. We seek to redress a balance in understanding and response to complex issues surrounding ADHD that have been dominated by conceptions of within-pupil differences and/or contributions of home life, in order to contribute towards more holistic and effective design of non-pharmacological interventions and the evaluation of such interventions.

Constituting deviance and invoking stigma

Some papers in review 4^{41,262,347,356} focused on the role of the school in constituting what acceptable and unacceptable behaviour was:

- Bailey and Thompson⁴¹ by exploring school routines (see *Classroom structure a contributor to attention-deficit/hyperactivity disorder symptoms*)
- Rafalovich³⁴⁷ by examining the process of a shift in perception of behaviours from being evaluated as 'normal' to 'deviant' (see *The role of teacher expectations and perceptions in the shift from understanding problematic behaviour as normal to formally identifying it as deviant*)
- Carpenter and Austin²⁶² by exploring the work mothers do either to reframe their child's behaviour to establish it as normal by school standards or to seek diagnosis and medication for ADHD in order to change the child to fit school expectations (see *Presentation of the family as normal and Different notions of disability*) in response to the local schools' boundaries for normal behaviour (see *Perceptions that the origin of the problem is in the school*)
- Watson³⁵⁶ by analysis of a narrative written by the mother of a pupil diagnosed with ADHD about her dealings with her son's school, where the author employed satire as a means to communicate the seemingly arbitrary nature of the school's construction of deviant behaviour (see *Perceptions that the origin of the problem is in the school and Feeling criticised*).

These studies describe the way schools determine boundaries for acceptable behaviour, with differences at the local level. Processes that mark particular pupils as different from their peers hold the potential for stigma (*Box 33* provides a recap of theories of stigma); however, stigma only results when the pupil becomes marginalised as a result of such decisions (for examples of mechanisms by which stigma operates, see *Box 33a–c*). Many studies find examples of stigma in relation to ADHD symptoms or the syndrome of ADHD;^{27,41,261–263,266,299,314,332,356,391,392} for example, Cooper and Shea²⁶¹ found hyperactive/impulsive and/or combined types of ADHD to be more highly stigmatised than ADHD inattentive type (see *Stigma*). This hierarchy of stigma corresponds to the finding that classroom teachers tend to be orientated to the learning of the class as a whole (threatened by hyperactive/impulsive behaviour, see *Concern over the emotional equilibrium and learning of the whole class*) over the learning needs of individual pupils (threatened by symptoms of inattention). Therefore, the boundaries of stigma follow school priorities. Finally, other studies^{276,296,299,333,392} give findings where the mechanisms of stigma can be identified as being in operation even when study authors do not analyse the data with specific reference or full use of such theories. For example, pupils^{296,299,333,392} and parents/teachers³⁹² describe situations where teachers punish pupils excessively while ignoring similar behaviour by peers. This links to aspects of stigma described in *Box 33c*. These findings suggest that the marginalisation associated with stigma is common in schools in relation to pupils diagnosed with or at risk of ADHD. As will be seen below, stigma can aggravate ADHD-related behaviour in pupils.

BOX 33 Recap of the mechanisms and outcomes of stigma as described by Goffman³²² and Thornicroft³⁴⁸**Nature of stigma**

- (a) Goffman describes stigma as, 'an undesired differentness' that leads us to 'believe that the person with a stigma is not quite human' (p. 15).³²²
- (b) The attributes that provoke stigma are not discrediting in and of themselves, but only according to the value systems of those allocating the stigma whom Goffman calls 'normals'.³²²
- (c) Often the attributes that provoke stigma threaten the effective functioning of social groups.³⁴⁸
- (d) Labelling involves assigning the category name invoking the stigma onto a person, and can be informal (e.g. 'naughty boy') or formal (ADHD).

Outcomes

Goffman describes stigma as justification to 'exercise varieties of discrimination, through which we effectively, if often unthinkingly, reduce his [sic] life chances' (p. 15).³²² Examples of the mechanisms of discrimination include:

- (a) generalising the particular faulty attribute to a wider gestalt of disability (e.g. assuming a child with ADHD is not capable of learning)
- (b) assuming the pupil exhibits the range of attributes by which the label is understood rather than seeking to understand the pupil and/or the pupil's specific circumstances
- (c) the pupil's behaviour may be understood as an expression of the stigmatised attribute whereas the same behaviour from non-stigmatised peers would not be regarded in the same way.

School and the aggravation of attention-deficit/hyperactivity disorder symptoms

A number of study authors and parent and/or pupil participants commented that school was the context where their ADHD difficulties were most apparent.^{262,266,314,331,333,334,356} Findings from included studies suggest the school context contributes to the aggravation of ADHD symptoms in at least two ways:

1. By triggering symptoms because of classroom structures, where pupils are expected to concentrate and/or remain still for long periods of time. Pupils describe an inability to learn in school, where peer relationships, noise and movement in classrooms were experienced as distractions.^{261,296,299,331,333,334} One author³³⁴ found that pupils may unconsciously resort to the expression of ADHD symptoms like hyperactivity to cope with demands in the classroom (see *Hyperactivity*), so displays of such behaviour could be understood as clues about pupil needs. The same study identified that the pupil participants were more able to learn in quiet, ordered classrooms than in dynamic, less structured classrooms.
2. Through escalation of negative emotions and difficulties in relationships in pupils diagnosed with ADHD over the course of their school careers, where these can compound already-present ADHD-related difficulties with self-regulation and control.^{296,299} Studies describe different aspects of this issue, for example as escalating 'stress'²⁹⁶ or a sense of rage.^{276,293,392} Some studies link this kind of pupil behaviour to pupil perception of injustice from teachers and peers,^{260,276,293,296,314,333} for example in response to overpunitive teachers who punish them for behaviour that peers are not punished for,^{296,299,333,392} or in response to bullying.^{332,392} Such findings suggest that this may be a pupil response to the marginalisation and/or social exclusion they face in response to stigma related to ADHD symptoms or diagnosis.

Polarised attributions as an outcome of stigma

One of the puzzling findings of review 4 was the mismatch between the experiences of ADHD described by pupils and teachers, and the attributional beliefs that they expressed about ADHD. During interviews, teachers described strategies they implemented to support pupils diagnosed with or at risk of ADHD in class,^{264,265,286,290,291,293,294,296,298,305} and pupils described how the classroom environment and their relationships could act as barriers to their learning.^{261,293,296,299,331,333,334} These experiences provide the basis for understanding a link between the context of school and symptoms of ADHD. This is an important finding as it suggests that modification to the school context could contribute to managing pupils' ADHD symptoms in school, and non-pharmacological interventions might benefit from classroom- and school-level change targets in addition to pupil-level targets.

However, interviews with teachers and pupils did not demonstrate this kind of understanding of ADHD. Pupils and teachers tended to focus on biological aspects of the pupil (pupils and teachers)^{27,260,261,263,286,291,294,299,314,332,347} when making attributions for ADHD symptoms, or on sociological aspects involving poor parenting (teachers).^{260,286,291,294,296} The conclusion we draw in response to these findings is to suggest that this lack of conceptualisation about school factors is at least partly a result of the school's role as the social group of 'normals' (see *Box 33b*) who determine the boundaries for the 'undesired differentness' (see *Box 33a*), which is the basis for stigma in response to either informal or formal aspects of ADHD. This would explain the 'invisibility' of school factors in teacher and pupil attributions for ADHD, because criteria for discrimination on the basis of stigma are implicit and appear normal and right to members of the group.

Relationships: attention-deficit/hyperactivity disorder symptoms as a threat to educational and parental identities

Studies in review 4 identify many reasons for conflict in school relationships associated with ADHD (see *Disconnect between pupils and peers; Orientation to the class versus the individual; Different funds of knowledge; Processes of collaboration; Accountability; and Resources*); this synthesis of reviews 4a–d adds to this by positing that the mechanisms of stigma establish a particularly emotive foundation from which this conflict plays out, by threatening important identities for teachers, pupils, peers and parents.

Thornicroft,³⁴⁸ in his discussion of stigma in relation to mental illness, describes reasons that human social groups invoke stigma:

Stigma originates in a universal human tendency to avoid danger. Stigmatisation is not therefore mainly directed against individuals, but against those who are understood to pose a threat. Such understandings are socially created, and individual 'stigmatisers' are essentially only repeating (and recreating) their society's norms about what are appropriate feelings and behaviours to display to members of any threatening group.

p. 189³⁴⁸

Many teachers in included studies talk about the way that ADHD symptoms in the classroom prevent them from doing their jobs;^{264,286,296,298} Bailey and Thompson⁴¹ characterise the 'good teacher' role as centred round the prevention of disruption (see *Classroom structure as a contributor to attention-deficit/hyperactivity disorder symptoms*). Punitive responses of teachers to pupils who exhibit ADHD symptoms in the classroom can therefore be seen as the 'appropriate feelings and behaviours to display to members of any threatening group' as described by Thornicroft³⁴⁸ in the extract quoted above. The threat of ADHD symptoms to teacher identity may explain the determination with which some teachers approach the punishment of such pupils.

Many pupils diagnosed with ADHD in included studies describe the desire that they feel to meet expectations for behaviour and schoolwork,^{261,296,299,314,333,334,392} including acknowledgement of the value of educational qualifications³³⁴ and remorse at not meeting school expectations.^{296,314} Therefore, ADHD symptoms also threaten an identity fundamentally important to children and young people in Western societies, that of the 'good pupil'.

Although important identities for both teachers and pupils are threatened by ADHD, a power imbalance between the institution of schools and individual pupils and their families means, as Prosser³¹⁴ puts it, that pupils diagnosed with ADHD are 'the big losers' (see *Agency*). Findings from review 4c would also suggest that mothers of pupils diagnosed with or at risk of ADHD also lose out in this power imbalance.^{262,266,276,356} Although they have no educational identity under threat, the fundamentally important identity for women of 'the good mother' is threatened when their children display ADHD symptoms (see *Overarching theme for review 4c: mothers are silenced and Dashed expectations*). Some studies in review 4 also suggest that processes in school related to the informal and formal identification of deviance in pupils and a common teacher attribution of poor parenting in relation to ADHD symptoms justifies a breach in the privacy normally afforded to personal relationships in families.^{41,356} Such loss of privacy may be experienced as an offence that acts in addition to threats to identity.

Implications of stigma for non-pharmacological interventions for attention-deficit/hyperactivity disorder in schools

Thornicroft³⁴⁸ argues that identification of stigma for mental illness may only perpetuate that stigma unless action is taken at individual, institutional and/or national levels, but that with action, change is possible. The findings of review 4 suggest that in order to address issues related to ADHD in schools, more than individual-level pupil interventions are needed; school-level issues, particularly the issue of stigma in relation to ADHD, need also to be addressed. Owing to the implicit nature of contravened norms in stigma, and because of the perceived threat to the effectiveness of existing educational practice that ADHD symptoms may pose, national-level intervention is implicated in establishing and upholding legislation and policies that support inclusion.

In response to Thornicroft's distinction of different aspects of stigma as lack of knowledge, application of stereotypical assumptions and discrimination (see *Stigma*),³⁴⁸ review 4 suggests that the first of these, lack of knowledge, is an important aspect of the difficulties faced by all stakeholders in schools in response to ADHD symptoms, as well as an important candidate for potential change. Many included studies identify a lack of teacher knowledge about ADHD^{264-266,286,293,294,296,305,324,360} and a few included studies suggest increased knowledge reduces stigma not only through reduction of ignorance and response to stereotypical assumptions, but also because teachers feel less threatened by ADHD-related behaviour when they have strategies to alleviate it in the classroom (see *Concern over the emotional equilibrium and learning of the whole class*).

Conclusion

Implications for policy and practice

Review 4 findings suggested a need for school policies that:

- provide guidelines for strategies that teachers can adopt to address disruptive behaviour related to ADHD
- provide information and guidance related to the nature of ADHD (as differences in beliefs between parents and educational staff often acted as a barrier)
- provide guidelines to structure collaboration between parents of children diagnosed with ADHD and their teachers
- provide additional support strategies for pupil behaviour and learning during transitions between preschool and school, and then primary and secondary school, when academic demands change.

Review 4 findings suggested the following might be beneficial in educational practice.

Provision of education to teachers about ADHD, including:

- information about ADHD symptoms that explores interactions between biological, sociological and psychological factors, including:
 - the nature of the differences between pupils with ADHD and peers
 - information about the potential for classroom factors either to aggravate or to relieve ADHD symptoms
 - the importance of relationships to school functioning for pupils diagnosed with ADHD, including the role of stigma in excluding pupils
 - potential impacts on pupil identity and agency
- information about classroom strategies to support pupils
- information about effective collaboration with parents.

Provision of resources such as:

- structured regular time for collaboration between educational staff to discuss support of pupils experiencing difficulties
- time for classroom teachers to spend in collaboration with parents of pupils diagnosed with ADHD, and/or for administering strategies or non-pharmacological interventions.

Recommendations for research

Gaps in content

There were gaps in research for studies exploring the following:

- experiences of ADHD for UK teachers
- experience of gender issues in ADHD in schools across countries (although this issue was repeatedly mentioned as relevant, it was not explored systematically)
- the impact of increasing maturity for ADHD pupils and differences in school expectations between preschool and primary, and primary/secondary school (this was mentioned as important in different papers, but was not explored in depth). This might involve research exploring pupil and teacher experience, as well as exploration of the impact of additional behavioural and/or learning support for pupils diagnosed with or at risk of ADHD during these transitions.

There were only limited numbers of studies exploring:

- the experiences of ADHD for secondary school teachers across countries
- the experiences of children diagnosed with ADHD across countries
- issues of learning in the classroom in relation to symptoms of inattention (the focus particularly in teacher studies tended to be on hyperactivity/impulsivity and/or disruptive behaviour)
- teacher–pupil relationships (the key importance of this relationship was a repeated finding; however, only one case study²⁹³ explored such relationships in any depth).

Methodological gaps

Studies exploring the perception of more than one participant type in relation to a particular pupil diagnosed with ADHD were able to explore issues in more depth and complexity, but there were only a few studies that adopted this design. This design would be a particularly valuable means to explore:

- experience of relationships between pupils diagnosed with ADHD and their teachers
- teacher–parent collaboration for ADHD pupils.

Methodological and theoretical considerations will have influenced study findings; however, the approach to evidence synthesis applied in this review (meta-ethnography) synthesised study findings without reference to the impact of methods and author theoretical considerations on these findings. Considering the broad range of methods and theories that underpinned the studies synthesised, analyses such as meta-theory that evaluate relationships between methods, theory and findings might have allowed inferences to be established more securely. Analysis of such considerations in qualitative systematic review would also create knowledge about the productivity of methods and/or theory in relation to findings, and enable recommendations for the optimisation of useful findings through study design.

Chapter 7 Overarching synthesis

Aims

The aim of the overarching synthesis is to draw together the findings from reviews 1–4. The focus of each review is summarised below.

Review 1 (see *Chapter 2*) synthesises the evidence on the effectiveness and cost-effectiveness of non-pharmacological interventions delivered in school settings for children and young people with, or at risk of, ADHD.

Review 2 (see *Chapter 3*) considers quantitative studies that explore attitudes towards school-based non-pharmacological interventions for pupils with ADHD.

Review 3 (see *Chapter 5*) synthesises the attitudes and experiences of pupils, teachers, parents and others using ADHD interventions in school settings.

Review 4 (see *Chapter 6*) explores the experiences and perceptions of ADHD in school among pupils, their parents and teachers more generally.

Method

There are few established methods that integrate findings from quantitative and qualitative reviews. The Cochrane Collaboration Qualitative Methods Group argue that the integration of qualitative evidence with intervention reviews aims to inform, enhance, extend and/or supplement issues of interest in quantitative reviews of effectiveness.⁴¹¹ In one of the few examples of quantitative and qualitative synthesis, Thomas *et al.*⁴¹² use the findings from their qualitative review as a framework with which to combine these results with findings from their controlled trials. A matrix was used to juxtapose barriers, facilitators and implied recommendations from the qualitative reviews against the actual intervention evaluations reviewed quantitatively. The extent to which the interventions matched the implied qualitative recommendations was analysed, alongside an analysis of whether or not interventions meeting such recommendations proved to be more effective or explained heterogeneity. In another example, where quantitative and qualitative research questions were different, as is the case in the current project, a qualitative review was undertaken in order to explain a lack of evidence for or against the effectiveness of two different approaches to tuberculosis intervention.⁴¹³ The qualitative research questions focused on the meanings that people attached to their experiences of tuberculosis and its treatment, and how these shaped their treatment uptake behaviour. Findings in the qualitative review were used to explain quantitative findings by describing potential barriers to uptake and differences between user group needs. In our overarching synthesis, we have adopted similar approaches where they are relevant to our review. We take a dual approach of:

1. inductively working from the qualitative review findings (reviews 3 and 4) about the experience of ADHD interventions and of ADHD in schools more generally to create a model that identifies potential influences among contextual elements on the effectiveness of interventions
2. deductively working from the quantitative findings about the effectiveness of and moderators for interventions for ADHD in schools (review 1) to use findings from reviews 2, 3 and/or 4 to explore potential relationships between possible moderators and effectiveness.

Approach 1 draws from complexity theory⁴¹⁴ that assumes any intervention needs to be understood in terms of larger environment and relationships. Approach 2 discusses potential variables and seeks to clarify and develop distinct ideas in relation to the experimental evaluation of interventions. In both cases we aim to identify qualitative findings that illuminate potential explanations for the findings of review 1.

While conducting this overarching synthesis, we had to be cognisant of challenges in the synthesis of different types of evidence, especially when drawing out the implications from this work. As discussed in the previous chapters, quantitative and qualitative research has different aims, methods and questions, and, therefore, different markers of study quality and potential sources of bias. For example, the aim of meta-analysis (conducted in review 1) is to test theory, and interpretation occurs largely before and after synthesis, whereas the aim of meta-ethnography (conducted in reviews 3 and 4) is to generate theory, and interpretation occurs during synthesis to develop meaning.⁴¹⁵ Therefore, although the reliability of the quantitative findings in reviews 1 and 2 may be strengthened through greater frequency of occurrence, qualitative findings in reviews 3 and 4 are strengthened by their ability to inform theory development and represent the complexity and depth of participant perceptions and meanings (for further discussion see *Chapter 1, Triangulation of data in quantitative versus qualitative research*). Each review has conducted quality appraisal and analysis of the applicability of studies according to its respective research questions, and identified methodological and/or analytical issues in the literature. In reviews 1 and 2, the poor methodological quality of some included studies was identified as a barrier to establishing effectiveness or comparing attitudes (see *Table 13; Chapter 3, Discussion*). In review 3 analysis used by the majority of studies was mainly at a descriptive level (see *Chapter 5, Strengths and limitations*). In review 4 important gaps in the literature were identified (see *Limitations*). Furthermore, in each separate synthesis, then here in this overarching synthesis, we make assumptions about relationships and shared meaning between unconnected studies.⁴¹⁶ In this overarching synthesis, therefore, we can only explore potential relationships between and explanations for review findings and any conclusions remain tentative. The following sections describe the procedure we undertook during this overarching synthesis.

We commenced the overarching synthesis by undertaking a collaborative question and answer exercise. This first stage occurred before the completion of review 2, so was conducted using findings from reviews 1, 3 and 4. Questions based on the findings of reviews 1, 3 and 4 were generated and used to interrogate the other two reviews for information that could potentially inform the findings or reveal gaps. Questions were framed systematically using the format 'review 1 found X, can reviews 3 or 4 inform these findings?'. The lead reviewer of each review developed questions in the agreed format and the other lead reviewers responded to these questions from the perspectives of their reviews. The six resultant sets of questions and answers were analysed independently by the three reviewers (MR, DM, RGJ) and later discussed.

Analysis under the two approaches described above proceeded iteratively and in parallel, rather than sequentially. In approach 1, we started with the findings from reviews 3 and 4 in order to identify the contextual elements that might influence the effectiveness of interventions. DM and RGJ developed a coding framework derived from the question and answer exercise relating to reviews 3 and 4 (see first column of *Table 64*). DM and RGJ coded reviews 3 and 4 respectively in NVivo v.9.2 using this framework, and then short summaries of codes that appeared in each review were produced. These were reduced to short sentences and tabulated for the purpose of display in this chapter. These code summaries were further analysed and refined, leading to the identification of four levels of context, and identification of key categories linking to each level across reviews 3 and 4. A conceptual model (*Figure 9*) was created to represent a hierarchy of levels and key categories that might potentially influence the effectiveness of interventions for ADHD in schools. Finally, a narrative synthesis describing findings from reviews 3 and 4 about the relationships between levels, key categories and subthemes in the model and table was written.

TABLE 64 Findings contributed by reviews 3 and 4 for levels of context, key categories and subthemes

Level of context; key categories; subthemes	Findings from review 3: the attitudes and experiences of pupils, teachers, parents and others using ADHD interventions in school settings	Findings from review 4: the experiences and perceptions of ADHD in school among pupils, their parents and teachers more generally
<i>Pupil-level factors: pupil knowledge about beliefs about ADHD</i>		
Lack of knowledge about ADHD	Awareness about their disorder was thought to help intervention success for pupils with ADHD	Pupils expressed confusion about the nature of ADHD, particularly a lack of knowledge about sociological and psychological aspects
Beliefs about ADHD including biological factors and medication	Pupils with ADHD often perceived reasons for attending interventions to relate to difficulties originating in themselves	Pupils most often expressed polarised biological attributions for ADHD, where they understood their symptoms as a problem in themselves, including a character flaw and/or biological deficit. It was common in studies for pupils to describe medication as the only potential treatment, and to express the belief that they were incapable of controlling their behaviour
<i>Pupil-level factors: identity, agency, processes of stigma and marginalisation</i>		
Desire for approval	No relevant findings	Pupils wish to meet school expectations and are distressed and full of remorse that they cannot
Low self-esteem/issues of identity	Low self-esteem is seen as a problem for pupils with ADHD	ADHD is linked to negative impact on self-esteem and developing identity
Agency	Pupils with ADHD held low self-efficacy, attributing learning outcomes to circumstances beyond their control	Many factors related to ADHD have the tendency to decrease pupil agency
	Studies noted the lack of agency seemingly experienced by pupils displaying ADHD symptoms during interventions and learning more generally	
Negative attitudes towards school	There are negative attitudes towards school and learning seen from pupils with ADHD	Negative emotions about school can accumulate over the course of the school careers of pupils with ADHD
<i>Pupil-level factors: prior experiences</i>		
The experience of ADHD symptoms	No relevant findings	Pupils often link their symptoms to issues in relationships, the classroom environment and self-perceptions. They express most concern over relationships
Lack of knowledge about ADHD	Awareness about their disorder was thought to help intervention success for pupils with ADHD	Pupils expressed confusion about the nature of ADHD, particularly a lack of knowledge about sociological and psychological aspects
Maturity important for intervention effectiveness	The age of pupils with ADHD was frequently mentioned as a moderator	No relevant findings

continued

TABLE 64 Findings contributed by reviews 3 and 4 for levels of context, key categories and subthemes (*continued*)

Level of context; key categories; subthemes	Findings from review 3: the attitudes and experiences of pupils, teachers, parents and others using ADHD interventions in school settings	Findings from review 4: the experiences and perceptions of ADHD in school among pupils, their parents and teachers more generally
Classroom-level factors: fit of pupil to the class		
Fit of pupil to the classroom	Teachers see ADHD as a problem situated within the child, meaning that action is taken to compensate for the child rather than address the context	A number of studies established that ADHD is a problem in the relationship between a pupil and a classroom as much as a problem with a pupil; for example, pupils with ADHD behaved differently in different classrooms according to relationships with teachers, teaching styles and classroom structure
Noise and movement barrier to learning	Some studies consider the opportunity for movement and socialising as critical for pupils with ADHD	Pupils with ADHD commonly describe the classroom as a difficult context in which to learn
Facilitators to learning	No relevant findings	Pupils described the enjoyment of learning; however, they usually experienced successful learning outside a school context
Teacher responsibility to the whole class	Many studies highlight a tension for regular class teachers between implementing individualised strategies for pupils with ADHD, while managing and remaining responsible to a whole class of pupils	Teachers' primary responsibility was to the learning of the whole class and this could act as a barrier to responding to ADHD pupils in many ways
Teacher stress	No relevant findings	Without strategies to address ADHD behaviour in the classroom, teachers can experience high levels of stress
Withdrawal vs. inclusion	Educators across many studies believed that withdrawing pupils from their regular classroom to allow for specialised learning is beneficial. But there are dilemmas regarding withdrawal from mainstream classrooms	Classroom context and teacher knowledge influenced views on withdrawal/inclusion; classes (such as preschool) where academic attainment was not a priority were more likely to favour inclusion; classroom teachers of older pupils sometimes preferred withdrawal because of conflicts between inclusion and whole class learning
Classroom-level factors: teacher knowledge about ADHD		
Lack of knowledge	Teachers' lack of guidance and knowledge is perceived as a barrier by them across a large number of studies. One study found that a teacher training workshop successfully increased knowledge and attitude towards ADHD	Teachers described a lack of knowledge about ADHD in many papers Pupils described a lack of knowledge about ADHD in many papers Parents described a lack of teacher knowledge in many papers This seems to be an important barrier to the improvement of symptoms
Teacher collaboration	Peer support (colleagues) were seen as more consistently helpful than outside experts	Teachers describe learning through collaboration with colleagues as effective
Education changing attitudes and practice	Interventions that targeted attitude towards ADHD were generally received positively by teachers and were perceived to improve attitudes	Teachers describe changes in attitudes, practice and/or levels of stress in response to education about ADHD

TABLE 64 Findings contributed by reviews 3 and 4 for levels of context, key categories and subthemes (*continued*)

Level of context; key categories; subthemes	Findings from review 3: the attitudes and experiences of pupils, teachers, parents and others using ADHD interventions in school settings	Findings from review 4: the experiences and perceptions of ADHD in school among pupils, their parents and teachers more generally
Classroom-level factors: teacher pedagogy in response to ADHD		
Curriculum/teaching style	Many studies recognised the tension between prescribed learning and choice, with pupils and teachers feeling that both must play a part in pedagogy for pupils with ADHD	Studies found that pupils with ADHD behaved differently in different classrooms according to relationships with teachers, teaching styles and classroom structure
Teacher strategies likened to good practice	Teachers report using existing mainstream teaching strategies with pupils with ADHD. Sometimes this is a necessary resort given the lack of guidance available regarding teaching pupils with ADHD	Teachers explained that knowledge gained in general teacher training that was effective with most pupils was often not effective with pupils diagnosed with ADHD
Structure and meaning	Tension was reported in several studies between the structure, routine and control associated with interventions and strategy use for pupils with ADHD on one hand and choice, flexibility and responsibility on the other hand. Several studies do recognise that structure and choice are not mutually exclusive	Pupils diagnosed with ADHD describe the added ease with which they engage with school topics that have personal relevance to them and/or that they are interested by. They also describe the desire to understand why they are learning what they are being taught
Supervision	Studies generally consider that these pupils need close supervision and greater teacher attention than that typically required for other children. Yet often pupils respond negatively to high levels of monitoring	Pupils describe how questions from teachers (asking how they are doing) can act to interrupt them from concentration which they then cannot return to
Perceived effectiveness of interventions	The majority of studies reported positive comments from users regarding the effectiveness of interventions	No relevant findings
Perceived need for study skills	Several studies noted that pupils with ADHD need support with study skills and that these skills are perceived to have a marked effect on learning	No relevant findings
Previous experiences of interventions impact future responses	Experience provides a context in which any future intervention must operate. Experience of prior interventions affects anticipation and experience of future interventions	Pupil's negative attitudes and resistance from mothers are described as escalating across school careers
Classroom-level factors: teacher beliefs about ADHD		
Beliefs about ADHD	Beliefs about ADHD often cast ADHD as a problem. There were mixed beliefs about how much control pupils with ADHD have over the expression of their symptoms. There was some resistance to working with pupils with ADHD reported by teachers. Knowledge gained about ADHD seemed to improve attitudes for teachers	Attributional beliefs were found to impact teacher response to ADHD behaviour, quality of relationships, pupil self-perceptions and expression of symptoms in both helpful and harmful ways Studies revealed that polarised attributions predominated, which could limit choice of strategies/interventions and often impacted pupils negatively. This included perceptions of pupil self-control, which was often perceived dichotomously

continued

TABLE 64 Findings contributed by reviews 3 and 4 for levels of context, key categories and subthemes (*continued*)

Level of context; key categories; subthemes	Findings from review 3: the attitudes and experiences of pupils, teachers, parents and others using ADHD interventions in school settings	Findings from review 4: the experiences and perceptions of ADHD in school among pupils, their parents and teachers more generally
Polarised biological views of ADHD	Teachers see ADHD as a problem situated within the child, and action is taken to compensate for the child in preference to addressing the contextual factors that might have indicated alternative views	<p>Potential benefit: explanation, basis for differential treatment (medication and sometimes classroom adaptation), relief of stress</p> <p>Potential limitation: can decrease teacher understandings of pupil accountability when linked to perceptions of no behavioural self-control, can narrow treatment to medication, can negatively impact identity and perceptions of agency in pupils</p>
Polarised sociological views of ADHD	No relevant findings	<p>Potential benefit (when understood as poor parenting): none identified</p> <p>Potential limitation: reason to dismiss concept of ADHD, to reject need for differential treatment and can act as a barrier to teacher–parent collaboration</p>
Psychological views about ADHD	No relevant findings	<p>Teachers: ‘naughty child’ = poor parenting (so same as sociological)</p> <p>Pupils: ‘naughty child’ = ‘something wrong with me’ (so same as biological)</p>
Maturational views about ADHD	Teachers’ beliefs about or experience of which interventions would be effective differed according to the age of the pupil. For instance, some teachers reported that interventions were used less once children reached middle school years	<p>Discussed by early years teachers</p> <p>Potential benefit: considers interactions between biological, sociological and psychological factors in ADHD behaviour so is a holistic response</p> <p>Potential limitation: reason to dismiss concept of ADHD, can prevent both drug and non-drug treatment</p>
Differences in beliefs between stakeholders can be a barrier to interventions	No relevant findings	Differences in attributional beliefs about ADHD between parents and teachers were identified as a fundamental barrier to effective change
<i>Classroom-level factors: relationships: processes of stigma and marginalisation</i>		
Teacher–pupil relationships	All types of participants across studies reported the importance of positive relationships between teachers and their pupils with ADHD	Conflict was the norm between teachers and pupils diagnosed with or at risk of ADHD
Teacher–parent relationships	<p>Educators across multiple studies voice the importance of effective relationships with parents and its impact on the success of interventions</p> <p>Teachers and parents sometimes recognise that much of the communication occurring between school and home regarding pupils with ADHD is negative</p>	Conflict was the norm between teachers and mothers (who tended to be the parent involved with schools) of pupils diagnosed with or at risk of ADHD

TABLE 64 Findings contributed by reviews 3 and 4 for levels of context, key categories and subthemes (*continued*)

Level of context; key categories; subthemes	Findings from review 3: the attitudes and experiences of pupils, teachers, parents and others using ADHD interventions in school settings	Findings from review 4: the experiences and perceptions of ADHD in school among pupils, their parents and teachers more generally
Pupil–peer relationships	Pupils with ADHD often have poor relationships with their peers. Still teachers think pupils with ADHD should work with their peers	Studies commonly report difficulties with peer relationships, and greater numbers of pupils diagnosed or at risk of ADHD were bullied or were bullies Conflict was not necessarily the norm – with ‘shunning’ common, where the pupil was ignored
Stigma	The view of ADHD as a problem situated within the diagnosed child seen across research, leads to frequent stigmatisation as evidenced across studies	Studies suggested stigma could act as a mechanism that creates focus on ADHD pupils as ‘the problem’ to the exclusion of other factors
Stigma attributable to interventions	Stigmatisation experienced does not necessarily relate to ADHD, but attending interventions	No relevant findings
Stigma from teachers	Some disbelief regarding the existence of ADHD or the severity of the disorder was seen from mainstream teachers and this was recognised by pupils	Study data and/or findings from a number of papers suggested stigma for the ADHD label and/or ADHD symptoms was present
School-level factors: processes of stigma and marginalisation		
Processes of stigma and marginalisation	No relevant findings	Schools may unintentionally support stigma when they perceive ADHD symptoms as a threat to existing educational practice; in such cases marginalisation may result
School-level factors: resources		
Knowledge	Teachers from many countries report that they are working in schools that do not have ADHD specific guidance	Teachers explained that knowledge gained in training that was effective with most pupils was often not effective with pupils with ADHD, and many expressed the need for greater knowledge of ADHD. A shortage of capacity-building about ADHD and classroom strategies provided by teacher education and continuing professional development can be seen as a barrier to support for pupils diagnosed with ADHD
Class size	The most frequently mentioned structural constraint in review 3 was mainstream class size	Teachers, particularly those in secondary schools who teach multiple classes of different pupils, and who therefore find it harder to get to know their pupils and have less time to spend on addressing the needs of individual pupils, describe the need to relate to such a large number of pupils as a barrier to support for pupils diagnosed with ADHD

continued

TABLE 64 Findings contributed by reviews 3 and 4 for levels of context, key categories and subthemes (*continued*)

Level of context; key categories; subthemes	Findings from review 3: the attitudes and experiences of pupils, teachers, parents and others using ADHD interventions in school settings	Findings from review 4: the experiences and perceptions of ADHD in school among pupils, their parents and teachers more generally
Time pressure	Many teachers across studies emphasise the time pressure involved in accommodating pupils with ADHD	Teachers talk about lack of time to address symptoms, give pupils individual attention, communicate with parents School culture dictates priorities, for example academic attainment over pastoral issues; preparation for national exams can act as a barrier
Lack of support	No relevant findings	Some teachers describe lack of support from senior management regarding behaviour management and provision for ADHD pupils
School-level factors: policy		
Accountability	No relevant findings	Teachers and parents in some studies lacked understanding about what collaboration over a pupil diagnosed with or at risk of ADHD should be, including who was responsible for what. This finding was commensurate with other data from other studies that did not specifically identify that theme
ADHD policy	No relevant findings	Some studies identified that a lack of school-level guidance about ADHD acted as a barrier, in relation to classroom support of pupils diagnosed or at risk of ADHD and to collaboration between parents and teachers. School policies could lead with information about ADHD that could support resolution of differences in beliefs between parents and teachers
Sociopolitical-level factors		
Medicalisation	No relevant findings	Some studies found pupils diagnosed with ADHD and/or some teachers and parents to hold medicalised beliefs about ADHD which could result in narrowed conceptualisation of effectiveness favouring medication over non-pharmacological intervention; authors concluded that trends towards more highly medicalised societies influence beliefs and actions with regard to ADHD
National educational policies and legislation	No relevant findings	National educational policy and legislation guide school expectations and constraints placed on teachers
Power imbalance	No relevant findings	Though the dynamics of ADHD tend to play out in the classroom, the drivers for these dynamics can be located in expectations established in the sociopolitical and then school level contexts. The interests expressed by pupils and parents were least often taken into account, despite outcomes having great impact on them

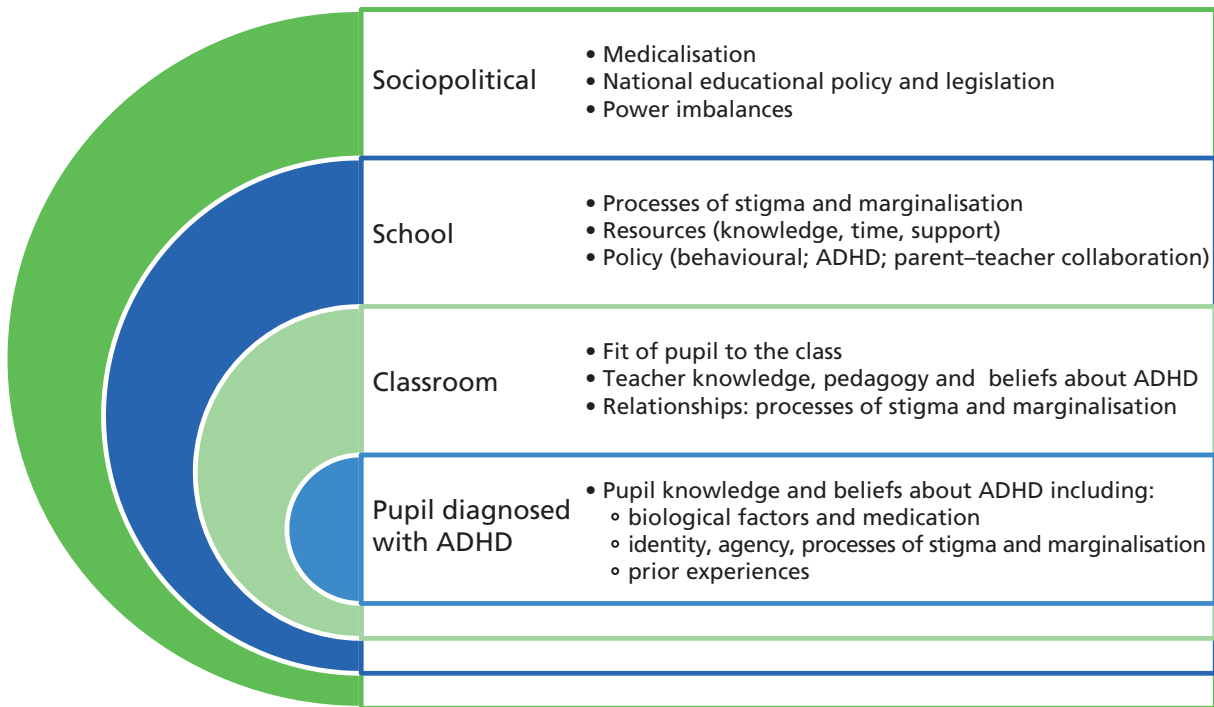


FIGURE 9 Contextual levels and key categories identified through synthesis of reviews 3 and 4, categorised at pupil, classroom, school and sociopolitical levels of context.

In approach 2, we started from the quantitative findings about the effectiveness of and moderators for interventions for ADHD in schools (review 1) in order to identify findings in reviews 2, 3 and/or 4 that offered hypotheses about the relationships between possible moderators and effectiveness. During this process three additional tables were created. In *Table 65*, the effectiveness findings from review 1 were tabulated, in *Table 66* the potential moderators related to intervention packages from review 1 were tabulated, and in *Table 67* the other potential moderators, including delivery characteristics, participant characteristics and study design, were tabulated. For each table reviewers then considered how the findings reported in reviews 2, 3 and 4 could inform, support or contradict what was reported in review 1 and generate potential hypotheses about the relationships between possible moderators and effectiveness.

Finally, in the discussion section we bring together the inductive and deductive approaches taken to highlight the key potential relationships between possible moderators and effectiveness of non-pharmacological school interventions and to consider the complexity of the context in which these interventions are used. Strengths and limitations of the approach that we used for this overarching synthesis are discussed and implications of the findings are considered. Implications for policy and practice, and recommendations for research, are drawn from the report as a whole and considered in *Implications*.

TABLE 65 Effectiveness: comparison across reviews

Outcome measure	Review 1 (95% CI) ^a	Review 3	Review 4
Core symptoms			
Inattention (teacher)	$d_+ = 0.60$ (0.14 to 1.06)	Teachers report that routine will help pupils feel secure and respond to issues of inattention	No relevant findings
Inattention (child)	$d_+ = 0.44$ (0.18 to 0.70)	No relevant findings	No relevant findings
Inattention (observer)	$d_+ = 1.30$ (-0.17 to 2.77)	No relevant findings	No relevant findings
Hyperactivity/impulsivity (teacher)	$d_+ = 0.23$ (-0.03 to 0.49)	No relevant findings	Findings suggest that teachers often considered symptoms of hyperactivity and impulsivity to be of greater concern than symptoms of inattention
Hyperactivity/impulsivity (child)	$d_+ = 0.33$ (0.13 to 0.53)	No relevant findings	Young people with ADHD report issues regarding emotional self-regulation more than hyperactivity and impulsivity
ADHD-related symptoms			
Externalising symptoms (teacher)	$d_+ = 0.28$ (0.04 to 0.53)	No relevant findings	Externalising behaviour such as anger and defiant behaviour were described as escalating over the school career in a number of papers exploring ADHD pupil experience; suggests these symptoms could be highest during secondary school years
Scholastic behaviours and outcomes			
Perceptions of school adjustment (teacher)	$d_+ = 0.26$ (0.05 to 0.47)	There are negative attitudes towards school and learning seen from pupils with ADHD	Negative attitudes to school
Curriculum achievement (child)	$d_+ = 0.50$ (-0.06 to 1.05)	Some studies revealed that teachers and pupils with ADHD might be more interested in achievement than other outcomes	No relevant findings
Standardised achievement (child)	$d_+ = 0.19$ (0.04 to 0.35)	Some interventions were seen to be effective for specific targeted skills, yet were not perceived to impact on achievement	No relevant findings
Other	Not applicable	Additional pupil outcome measures considered by studies: mood, attitude, motivation, organisational skills	Pupils' emotional self-regulation, pupil and teacher attributional beliefs and pupil self-perceptions (e.g. agency/self-efficacy) suggested as relevant outcomes

^a d_+ , the difference between the means in each of two groups divided by their pooled SD (Cohen's d).

TABLE 66 Sources of heterogeneity: intervention packages

Intervention package identified in review 1	Definition of intervention package identified in review 1	Frequency of intervention packages and summary of corresponding moderator analyses in review 1	Review 3 relevant findings	Review 4 relevant findings
Reward and punishment				
1. Contingency management	Systematic use of rewards and/or punishments to change, alter or redirect the child's behaviour(s)	RCTs $n = 19$ Non-RCTs $n = 7$ Tested: no evidence from analysis that inclusion of contingency management may have an impact on effectiveness	1/12 ³⁰⁶ studies that focused on interventions Pupils with ADHD, particularly adolescents, often indifferent to contingency management Negative behavioural sanctions deemed unsuccessful by pupils with ADHD	No relevant findings
2. DRC with contingency management ^a	A method used by teachers and/or parents in collaboration with a child to set goal(s), and monitor progress towards them. Rewards and/or punishments are then used in response to the child's progress towards their goals in order to reinforce the wanted behaviour(s) or create barriers to the unwanted behaviour(s)	RCTs $n = 7$ Non-RCTs $n = 2$ Tested: no evidence from analysis that inclusion of DRCs may have an impact on effectiveness	Pupils with ADHD need immediate reinforcement 0/12 Parents reported benefits from working more closely with the school as part of the intervention used in Ozdemir's 2006 study ³⁰⁶ Teachers and parents sometimes recognise that much of the communication occurring between school and home regarding pupils with ADHD is negative. Collaboration can be challenging	Collaboration found to be important but challenging for teachers and parents

continued

TABLE 66 Sources of heterogeneity: intervention packages (continued)

Intervention package identified in review 1		Frequency of intervention packages and summary of corresponding moderator analyses in review 1	Review 3 relevant findings	Review 4 relevant findings
Skills training and self-management				
3.	Motivational beliefs	Encourage or facilitate the adoption of beliefs that facilitate self-motivation towards obtaining the focal behaviour(s) (e.g. the attribution of success at school to hard work and effort)	RCTs <i>n</i> = 2 Non-RCTs <i>n</i> = 0 Not tested: insufficient data for moderator analyses	0/12 Participant explanations for the ineffectiveness of interventions and strategies included pupil's lack of motivation and passivity towards learning Lack of motivation was perceived to be due to disinterest, difficulties learning and lack of perceived relevance
4.	Cognitive-behavioural self-regulation training	Establish methods for the child to self-monitor and record their behaviour(s). Includes analysing the factors that lead to problem behaviour(s) and identifying solutions to overcome them ('problem solving') and self-instruction on how to perform the behaviour(s)	RCTs <i>n</i> = 10 Non-RCTs <i>n</i> = 7 Tested: (n.s.). No evidence from analysis that cognitive-behavioural self-regulation training has an impact on effectiveness	0/12 studies Teachers recognised difficulties on self-regulation for pupils displaying ADHD symptoms
5.	Cognitive retraining	Training and practice in the use of cognitive processes related to executive functioning (e.g. attention and working memory)	RCTs <i>n</i> = 4 Non-RCTs <i>n</i> = 3 Not tested: insufficient data for moderator analyses	1/12 ²⁸⁰ (metacognitive skills training) Issues of applicability for this study – students did not apply skills they had learned beyond intervention setting
6.	Academic and study skills training	Training and practice in academic skills (e.g. reading and writing strategies) and general study strategies (e.g. note taking, test taking, organisation and time management)	RCTs <i>n</i> = 12 Non-RCTs <i>n</i> = 5 Tested (n.s.). No evidence from analysis that inclusion of academic and study skills training have an impact on effectiveness	No relevant findings No relevant findings Several studies ^{280,287,289,293,300} noted that young people with ADHD need support with study skills and that these skills are perceived to have a marked effect on the learning of these pupils

Intervention package identified in review 1	Definition of intervention package identified in review 1	Frequency of intervention packages and summary of corresponding moderator analyses in review 1	Review 3 relevant findings	Review 4 relevant findings
7. Social skills training	Training and practice in effective social interaction	RCTs $n = 6$ Non-RCTs $n = 3$ Tested ($p < 0.06$). For the 'perceptions of school adjustment' outcome, there was weak evidence that inclusion of social skills training has a negative impact on effectiveness	0/12 Part of skills taught in three special education classrooms to younger pupils (aged 6–12 years) ^{295,302,303} Pupils with ADHD often have poor relationships with their peers The importance of social skills is recognised across a number of studies where such skills are actively incorporated into interventions and teaching strategies with perceived effectiveness	Pupils of both primary and secondary age diagnosed with, or at risk, of ADHD express great concern over the difficulties they experience in relationships. Teachers and parents also remark on the importance of these difficulties. Authors of included studies remark on the greater social demands of secondary schools, and the greater social difficulties pupils face there
8. Emotional skills training	Training and practice in learning to recognise and control emotions (e.g. relaxation training and/or enhancing positive emotion)	RCTs $n = 11$ Non-RCTs $n = 0$ Tested (n.s.). No evidence from analysis that inclusion of emotional skills training has an impact on effectiveness	0/12 In relation to emotional skills, low self-esteem is seen as a barrier to learning and intervention effectiveness for pupils with ADHD Several papers ^{280,287,289,293,300} reported that pupils felt their self-confidence increased as a result of interventions used	Lack of emotional self-control is an issue commonly described by pupils with ADHD; it is also commented on by teachers and parents. Authors link it to difficulty in relationships There is a predominance of poor self-perceptions in ADHD pupils
9. Biofeedback	Feedback about physiological or biochemical activity (e.g. heart rate and brain waves) using an external monitoring device to enhance self-control of behaviour(s)	RCTs $n = 8$ Non-RCTs $n = 1$ Not tested: insufficient data for moderator analyses	0/12	Same information relevant as for cognitive-behavioural regulation training; see above

continued

TABLE 66 Sources of heterogeneity: intervention packages (continued)

Intervention package identified in review 1	Definition of intervention package identified in review 1	Frequency of intervention packages and summary of corresponding moderator analyses in review 1	Review 3 relevant findings	Review 4 relevant findings
Creative-based therapy				
10. Music therapy	Music used in a prescribed way to modify or alter thoughts, emotions and behaviours	RCTs <i>n</i> = 3 Non-RCTs <i>n</i> = 0 Not tested: insufficient data for moderator analyses	0/12 Although not therapeutic, one intervention ³¹¹ involved listening to music. Perceived to be effective by the pupil with ADHD, his parents and teacher	Two studies ^{331,334} describe pupils diagnosed with ADHD who choose to listen to music in the classroom because it enables them to concentrate
11. Play therapy	Play used in a prescribed way to modify or alter thoughts, emotions and behaviours (including narrative therapy)	RCTs <i>n</i> = 1 Non-RCTs <i>n</i> = 0 Not tested: insufficient data for moderator analyses	0/12	No relevant findings
Physical treatment				
12. Massage	Applying pressure to parts of the body (e.g. rubbing or kneading in a prescribed way to modify or alter thoughts, emotions and behaviours)	RCTs <i>n</i> = 1 Non-RCTs <i>n</i> = 0 Not tested: insufficient data for moderator analyses	0/12	No relevant findings
13. Structured physical activity	Planned physical activity with the aim of increasing energy expenditure and improved physical fitness and health	RCTs <i>n</i> = 0 Non-RCTs <i>n</i> = 1 Not tested: insufficient data for moderator analyses	0/12 Studies consider the opportunity for movement and socialising at break time as critical for pupils with ADHD	One study ³³² identified the theme 'I gotta move', where pupils described the way movement made them feel more comfortable; another study found similar ³²⁴

Intervention package identified in review 1	Definition of intervention package identified in review 1	Frequency of intervention packages and summary of corresponding moderator analyses in review 1	Review 3 relevant findings	Review 4 relevant findings
Other				
14. Adaptations to learning environment	Alteration to the environment (physical and social) where learning takes place and/or learning materials in order to facilitate performance of the wanted behaviour or create barriers to the unwanted behaviour (e.g. adapt teaching methods, tasks and classroom)	RCTs $n = 3$ Non-RCTs $n = 3$ Not tested: insufficient data for moderator analyses	5/12 studies ^{265,295,300,302,303} mainly focused on special educational programmes in alternative classrooms or schools Many adaptations to teaching made on ad hoc basis reported by teachers in other studies Many studies highlight a tension for regular class teachers between implementing individualised strategies for pupils with ADHD, while managing and remaining responsible to a whole class of pupils	Expression of ADHD symptoms is more accurately conceptualised as an interaction between the pupil and their class rather than a problem in the pupil, suggesting interventions that target the learning environment for adaptation may be effective. Review 4 also found tension for regular class teachers between responsibilities for the whole class vs. one pupil
15. Information	Provide information about focal behaviour(s) (e.g. information about positive peer relationships, communication skills)	RCTs $n = 1$ Non-RCTs $n = 0$ Not tested: insufficient data for moderator analyses	1/12 ²⁸⁸ (teacher training) Component of one programme for students with ADHD ³⁰³ Regarding teachers' psychoeducation, teachers' lack of guidance and knowledge is perceived as a barrier by them across a large number of studies reviewed The workshop for teachers that appeared in Bos' 1997 study ²⁸⁸ was claimed to change teacher attitudes and increase their knowledge Helping pupils with ADHD understand their behaviour and its effects considered important	Teachers and pupils (and some parents) expressed the need for information about ADHD. Review 4 findings suggest the way ADHD is understood can act as a barrier to addressing symptoms. Attributional beliefs that explain ADHD symptoms as an interaction between biological, psychological and sociological (including school relationships and school context) factors may provide a more beneficial approach to conceptualising ADHD than polarised biological or sociological explanations

n.s., non-significant effects.

a Review 2 found positive attitudes ($\geq 60\%$ attitude scores) across seven DRC interventions considered. All other interventions categories either had varying attitudes or were not considered in studies reviewed.

TABLE 67 Potential sources of heterogeneity: study design, participant characteristics and intervention delivery characteristics

Source of heterogeneity	Review 1	Review 3	Review 4
Study characteristics			
Comparator type: treatment as usual vs. Experiment	Not tested: insufficient number of studies		
Participant characteristics			
Medication status at start of treatment: high ($\geq 60\%$ using) medication vs. low ($< 10\%$ using)	Tested (n.s.)	Medication use improved the perceived effects of some interventions	Pupils, teachers and parents describe medication as helpful in improving attention and controlling behaviour; however, it can have a negative impact on pupil identity and agency; some pupils describe unpleasant side effects; some pupils do not want to take medication but do so to please parents and teachers
Gender: % female	Not tested: insufficient variance between studies	Lack of gender comparison	Differences were often identified between genders in relation to behavioural expectations and/or ADHD behaviours in review 4, but this issue was not addressed systematically in most studies that comment on it, and is sometimes discussed in confused terms. This seems to be an important gap
Grade level: elementary/primary vs. higher school levels	Not tested: insufficient variance between studies	The age of pupils with ADHD was frequently mentioned as a moderator More focus on academic interventions at secondary school. Differences between interventions used at preschool and primary school	The finding that some symptoms decreased with age (hyperactivity) and some symptoms increased with age (difficulty with social skills; internalising and/or externalising behaviour) were represented in studies Differences between primary and secondary school structures were also suggested to contribute to pupil difficulties (e.g. added academic and social pressures of secondary schools alongside reduced teacher support)

TABLE 67 Potential sources of heterogeneity: study design, participant characteristics and intervention delivery characteristics (*continued*)

Source of heterogeneity	Review 1	Review 3	Review 4
Intervention delivery			
Frequency of packages: single vs. multiple	Tested (n.s.)	No relevant findings	Different priorities for different stakeholders implies a need for multiple interventions (e.g. teachers value control of disruptive behaviour; pupils desire improved relationships)
Intervention context: school and home vs. school only	Tested (n.s.)	The inclusion of parents was considered a positive thing in one study ³⁰⁶	Parent–teacher collaboration suggested to be powerful in supporting behaviour change
Setting within school: classroom vs. all other settings	Tested (n.s.)	Mixed teacher perceptions regarding benefit of withdrawing pupils from their classroom	No relevant findings
Time of delivery: normal school hours vs. before/after school	Tested (n.s.)	No relevant findings	No relevant findings
Intervention provider: teachers vs. non-school staff	Tested (n.s.)	Teachers report time pressure and tension regarding responsibility to rest of class when they deliver interventions	Teachers describe importance of knowledge of classroom setting when implementing strategies in mainstream classes
Duration of intervention: weeks	Tested ($p < 0.05$) for 'perceptions of school adjustment', there was weak evidence for the negative effect of intervention length suggesting that shorter interventions are more effective	Of relevance when teachers provide the intervention, teachers emphasise the time pressure involved in accommodating pupils with ADHD. One study suggested teachers often do not see through interventions, hence shorter may be more likely to be implemented in full. However, several interventions experienced perceived to need more time	No relevant findings
Intensity of intervention: hours	Tested (n.s.)	Of relevance when teachers provide the intervention, teachers emphasise the time pressure involved in accommodating pupils with ADHD	No relevant findings
Frequency of packages: single vs. multiple	Tested (n.s.)	No relevant findings	Different priorities for different stakeholders implies a need for multiple interventions (e.g. teachers value control of disruptive behaviour; pupils desire improved relationships); the complexity of context suggests that interventions targeting isolated aspects of ADHD symptoms may be less effective

n.s., non-significant effects.

Findings

Inductive synthesis: complexity of context

In this section we summarise the findings from review 1 about the effectiveness of non-pharmacological interventions for ADHD in schools, and then report the inductively synthesised qualitative review findings (reviews 3 and 4) in the form of a model (see *Figure 9*) that identifies issues that are potentially relevant to the findings about the effectiveness and heterogeneity of interventions.

In summary, the results of review 1 indicate that interventions that target children with, or at risk of, ADHD are typically composed of multiple features and few interventions consist of common sets of intervention elements. Lack of consistently used outcome measures adds to the complexity, as several measures have been developed to assess the same constructs. Both these issues made synthesis difficult (see *Table 3* in *Chapter 2*). Owing to the range of interventions reported in review 1 and the lack of overlap in intervention elements between studies, results were synthesised by outcome and rater across different types of intervention in the meta-analyses. The findings from review 1 provide overall support for the beneficial effects of non-pharmacological interventions on child outcomes related to ADHD. Focusing on the meta-analysed RCTs ($n = 36$), weak to strong evidence (p -values range from 0.08 to 0.001) of beneficial effects was observed for core ADHD symptoms ('inattention', 'hyperactivity'), and ADHD-related symptoms ('externalising' symptoms) as well as scholastic behaviours and outcomes ('perceptions of school adjustment', 'curriculum achievement' and 'standardised achievement') (see *Table 14* for the results of the meta-analyses of RCTs and *Table 3* for definition of outcomes). Beneficial effects were reported for relatively objective assessments, which included neurocognitive assessments and tests with objective performance criteria (see *Table 65*). Beneficial effects were also observed for some teacher perception-based measures but not for parental- and child-reported perception-based measures. There was little evidence of beneficial effects of intervention for two ADHD-related symptoms ('internalising' symptoms, and 'social skills') and the core symptom 'ADHD combined', which includes both 'hyperactivity' and 'inattention'.

Pooled effect sizes ranged from very small ($d_+ < 0.2$) to large ($d_+ \geq 0.8$), and CIs were wide, which emphasises high levels of uncertainty about the true value of pooled effects. With the exception of neurocognitive assessment of 'hyperactivity/impulsivity', 'standardised achievement' and teacher 'perceptions of school adjustment', I^2 values indicated substantial heterogeneity in effect sizes across studies. Meta-regressions showed weak evidence ($p = 0.06$) for possible harmful effect of social skills training on 'perceptions of school adjustment'. For the same outcome, there was also weak evidence for harmful effect related to intervention length ($p = 0.04$), with longer interventions linked to negative outcomes. No effects were reported for the remaining potential moderators identified, which included a range of intervention packages, intervention delivery characteristics and participant characteristics. It is important to note that these meta-regressions were based on few studies of generally low methodological quality and, therefore, conclusions based on the findings must necessarily be tentative.

No studies included economic outcomes, thus the cost-effectiveness of non-pharmacological interventions targeting pupils with, or at risk of, ADHD cannot be established from the current evidence base.

In order to contextualise and illuminate potential explanations for the findings from review 1 regarding heterogeneity of effect sizes, the findings from reviews 3 and 4 were synthesised. This synthesis identified four levels of context: pupil, classroom, school and sociopolitical, within each of which we defined key categories, depicted in *Figure 9*. Such a categorisation by level of context is likely to be an overly simplistic distinction, in that many issues within key categories hold relevance for multiple levels, for example the operation of stigma for ADHD and time pressures on teachers relate to all levels of context from sociopolitical to the pupil concerned. In the narrative discussion in the remainder of this section, we give some examples of interactions across multiple contextual levels; however, in general we simply acknowledge this shortcoming in favour of the benefits of using this approach because of its ability to depict and help understanding of the complexity of interaction within and between levels.

Reviews 3 and 4 identify beliefs about ADHD to be an important potential moderator that can act at all contextual levels. A central finding from reviews 3 and 4 is the tendency by educational staff to focus either on biological or 'within-child' factors as an explanation for ADHD at the pupil level of context, or to reject the validity of the syndrome of ADHD and attribute ADHD symptoms to difficulties in the pupil's home such as 'poor parenting'. Either tendency may lead to the failure to consider other potentially important factors that may be present at the pupil, classroom, school and sociopolitical levels that could aggravate or ameliorate ADHD symptoms. This can confine the focus of interventions to those factors that target adaptation of the pupil, and exclude consideration of other potential targets for adaptation, such as teaching staff, classroom or school. Polarised beliefs can also negatively impact pupil self-perceptions and perceptions of agency, which may also aggravate ADHD symptoms (for further discussion, see *Chapter 6, Impact of polarised views*). Social trends such as increasing medicalisation (for a definition see *Chapter 6, Box 11*) were identified by studies as offering an ideology that supports the concept of ADHD as a within-child problem. Some studies linked polarised biological beliefs in educational staff to a focus on medication for ADHD to the exclusion of non-pharmacological intervention. However, teachers in other studies believed that ADHD diagnosis provided validation of these pupil's different learning needs, and therefore justifies adaptation to pedagogy. Reviews 3 and 4 identified attitudes towards ADHD held by pupils with ADHD, their teachers, parents and peers to be important potential barriers and/or facilitators to non-pharmacological interventions in schools. Review 2 focused on attitudes towards school-based interventions for ADHD and found that educators had varying attitudes, and highlighted DRCs as the only intervention towards which educators showed positive attitudes across studies.

Reviews 3 and 4 demonstrated the significance of relationships, suggesting that they are potential moderators to intervention effectiveness, particularly relationships between the teacher and pupil, but also between pupils and peers. The relationships between pupils displaying ADHD symptoms and educators are a contextual factor that frames how interventions are perceived by both pupils and the intervention provider(s). For instance, review 3 suggests that pupil-teacher relationships are an active element of intervention and can impact the effectiveness of interventions. Stigma was identified as a potential reason for negatively impacted relationships at pupil, classroom and school levels that could further aggravate symptoms.

Findings from reviews 3 and 4 suggest that stigma for pupils who display symptoms of ADHD is common in schools and, therefore, that stigma is likely to influence how well interventions work. Stigma acts as a protective device for existing social practice (for further discussion see *Chapter 6, Box 33*) and, therefore, may act against the adaptation of current educational practice in addition to marginalising the pupil, and possibly the pupil's family. Included studies suggest that ADHD symptoms result from an interaction between the pupil and the classroom structure and routine, for example where the need to sit still and concentrate for long periods of time can aggravate symptoms. Although educational structures and routines are broadly similar between schools, specific boundaries for accepted behaviour are established locally by school and even classroom. These are implicitly understood and accepted as normal; the pupil displaying ADHD symptoms contravenes these expectations and can first informally, then formally, be marginalised and excluded on the basis of such contraventions. Review 3 found that interventions and support intended to result in normalisation of the pupil can actually further aggravate stigma and marginalisation, because treating the pupil differently can make any perceived differences more explicit.

Studies in reviews 3 and 4 suggest that systemic issues at the national and school level may act to moderate the effectiveness of interventions. Power differences between the levels of context identified are evident; for instance, schools are required to follow national policy and legislation that can work against inclusive practice. For example, national targets for improved academic outcomes and school exam results published in league tables place pressure on schools, which, alongside financial constraints, can influence matters of resource at the school level. The purchase of interventions, education for teachers about ADHD and time allocated to teachers to implement classroom interventions and/or collaborate with colleagues and parents may receive lower priority than academic considerations for the majority of pupils. Policy moves towards more inclusive practice may mean reduced scope for specialist services;

for example, pupils who would previously have attended pupil referral units or specialist schools might be placed in mainstream classes. Although the aim is towards inclusion, unless teachers receive adequate training and resources to meet additional demands for pedagogy and behaviour management, the result can be frustrated, stressed teachers and escalating behavioural difficulties from pupils.

Teachers are also required to teach within the constraints and priorities established at the school level. In reviews 3 and 4, teachers identify the time pressure involved in the accommodation of pupils with ADHD, particularly within mainstream classrooms. Lack of guidance and knowledge are perceived as barriers by teachers across a large number of studies reviewed; this lack of guidance often leads teachers to use general teaching methods, which may be ineffective for pupils with ADHD. Many teachers in reviews 3 and 4 describe their responsibility to the whole class rather than the individual pupil. Some review 4 studies found that, in order to meet the needs of pupils diagnosed with or at risk of ADHD, teachers had to expend additional personal effort to overcome school level barriers. Finally, studies suggested that pupils and parents often held the least amount of power, as their recommendations for school action were rarely taken into account. Although the dynamics of ADHD tend to play out in the classroom, the drivers for these dynamics can be located in expectations established at sociopolitical and school context levels.

In summary, the complexity of contextual issues related to ADHD in schools is demonstrated by multiple interactions within and between levels of context. This complexity is increased by the hidden nature of the role that the structures of education can have in aggravating symptoms of ADHD, through the local character of school expectations and through stigma. The role of these issues, although difficult to address, suggest that there are multiple ways to intervene to improve pupils' ADHD symptoms, and that a range of diverse factors potentially moderate school-based interventions for ADHD.

Table 64 describes the findings contributed by reviews 3 and 4 for each level of context and key category. Subthemes under each key category that emerged during analysis are also considered here. Findings between reviews were complementary, and where there were gaps it most often seemed to be an artefact of differences between each review's research questions. The table serves to provide more detailed information about the contextual levels and key categories, through the description of subthemes. A few highlights of this more detailed approach that were not evident in discussion of the model include:

- The importance of pupil age for interventions and behaviour, which can be linked to differences in pupil maturity and differences in school's expectations at preschool, primary and secondary school stages.
- Differences in priority in relation to the perception of ADHD symptoms, where teachers in studies express most concern over disruptive classroom behaviour (e.g. core symptoms of hyperactivity and impulsivity, and secondary symptoms such as externalising behaviour), whereas pupils diagnosed with, or at risk of, ADHD most often express concern over their relationships.
- Low self-esteem is seen as a problem for pupils with ADHD and therefore may act as a barrier to the effectiveness of interventions.
- Participants across many studies recognised dilemmas regarding the withdrawal of pupils with ADHD from mainstream classrooms for interventions. Classroom context and teacher knowledge influenced views on withdrawal/inclusion.
- There were varying beliefs from participants in the studies reviewed about how structured teaching should be for pupils with ADHD. For example, some teachers emphasised the need for pupils diagnosed with, or at risk of, ADHD to be closely supervised, whereas some pupils spoke about the negative effects of such close supervision. Participants more often agreed that meaningful educational content was important.
- Although both reviews found that studies suggest the potential benefit to be gained from parent-teacher collaboration, teacher and parent differences in beliefs about ADHD, lack of structure and expectations regarding aims for collaboration, and lack of teacher time and knowledge acted as barriers to collaboration.

Deductive synthesis: effectiveness

Table 65 cross-references the findings from the meta-analyses reported in review 1 with relevant information identified in reviews 3 and 4. Column one reproduces the effect sizes reported in review 1 and corresponding CIs for child-related symptom and scholastic outcomes that showed weak to strong evidence of effectiveness (p -values range from 0.08 to 0.001) of non-pharmacological interventions (findings with p -values > 0.08 are not tabulated here), whereas columns 2 and 3 include qualitative information identified in reviews 3 and 4 as potentially relevant to the findings from review 1. The aim here is to consider how the other reviews may speak to review 1's findings. Given that review 2 focused solely on attitudes towards particular types of interventions, these findings are not relevant to the synthesis of findings across different types of interventions (as synthesised and assessed in the meta-analyses in review 1) and are therefore not considered here. As highlighted above in *Method*, any associations between different reviews identified in this and Tables 66 and 67 are tentative given the different foci and evidence base in each review.

Reviews 3 and 4 support the identification of school adjustment as an important outcome and highlight that the negative attitude towards school held by many pupils who display ADHD symptoms may be an important factor in underachievement at school. Review 1 found a small beneficial effect of non-pharmacological interventions on 'perceptions of scholastic adjustment' assessed by teachers. Review 3 supports the identification of academic achievement as an important outcome in review 1, given that some teachers and pupils indicate that they prioritise achievement outcomes. There was weak evidence of effects for 'curriculum achievement' improvement according to child-based assessments but little evidence of effects for parent- and child-rated perception-based measures of 'scholastic adjustment' shown by review 1.

There are some differences in the perceived importance of outcomes indicated by review 3 and 4 compared with those used in review 1 studies. Review 4 noted that pupils reported deficits in emotional self-regulation more than hyperactivity, which may suggest that pupil emotional self-regulation outcomes ought to be considered when evaluating interventions. Pupils in review 4 described a lack of emotional self-regulation in response to stress which seemed to represent an absence of understanding about the process of emotional build-up and capacity to control venting of emotion. Thus, although failure to self-regulate is captured in some review 1 outcome measures, such as emotional distress (internalising) and loss of control (externalising and impulsivity), these constructs do not entirely represent emotional self-regulation, which may be conceptually distinct and warrants empirical investigation in the context of ADHD.

Review 4 suggests that teachers often considered symptoms of hyperactivity and impulsivity to be of greater concern than symptoms of inattention. Review 1 reported positive effectiveness of non-drug interventions on inattention across three raters, indicating that, despite being less of a priority or less problematic for teachers, interventions do improve inattentive symptoms.

Reviews 3 and 4 suggest that pupil outcomes rarely seen among the specific self-perceptions measured in review 1 are important for pupils with ADHD, including self-concept and a range of attitudes (e.g. perceptions of agency, attributions for ADHD and attitudes towards school and/or interventions). For example, although child perceptions of 'school adjustment', 'social skills' and 'internalising' symptoms were included in review 1, assessments of agency, attributions for ADHD and attitudes towards interventions were not. In addition, the majority of interventions in review 1 targeted children at elementary school (40/54 studies) aged typically ≤ 11 years. The ages of relevant children with ADHD in review 3 spanned across childhood and adolescence, whereas the age of pupils diagnosed with ADHD in review 4 was more often young people aged ≥ 11 years rather than children aged < 11 years. Older children are likely to be better at reporting on self-perceptions than younger children, and this is another potential contributor to differences between reviews. Given that these pupil outcomes were found to be important in both reviews 3 and 4 and could potentially act as a barrier to intervention implementation and effectiveness they should be considered as intervention targets in future interventions for pupils with ADHD.

Deductive synthesis: sources of heterogeneity – potential moderators identified in review 1

Intervention packages

Table 66 cross-references the intervention packages identified in review 1 with relevant findings across the other reviews. The frequencies with which interventions were identified across 54 studies in review 1 (including 39 RCTs and 15 non-RCTs) are reported alongside summary results of the relevant moderator analyses (conducted and reported in review 1, see *Tables 18–21* for results). As noted earlier, where meta-regressions were conducted, we were constrained by the small number of studies and the generally low methodological quality. Therefore, conclusions based on these findings must necessarily be tentative. Attitudes of educators towards particular intervention packages synthesised in review 2 are highlighted where clear trends in the review were identified. Descriptions of relevant findings from reviews 3 and 4 are cross-referenced and information for review 3 includes the number of papers (out of a total of 12) that were focused on intervention packages identified in review 1.

Although contingency management was the intervention package that most frequently appeared in review 1 papers, its inclusion was not found to moderate effectiveness relative to a combination of other types of non-pharmacological interventions (review 1), and perceptions of its effectiveness (review 3) and educators attitudes (review 2) towards this type of intervention were varied. DRCs were the only intervention type towards which papers in review 2 consistently reported positive attitudes among educators. This is interesting as contingency management is usually an integral element of DRCs and therefore prompts the question of why contingency management without a DRC elicited mixed attitudes about effectiveness. Inclusion of a DRC was not found to moderate effectiveness relative to a combination of other types of non-pharmacological interventions in review 1. Review 3 suggests that a DRC may address some of the school–home relationship issues.

Reviews 3 and 4 suggest that self-regulation training is relevant to the needs of pupils diagnosed with or at risk of ADHD, for instance pupils sometimes describe a lack of awareness about the antecedents to loss of behavioural control, and one study²⁹⁶ suggested that by becoming aware of such antecedents pupils were more able to take control of their behaviour. However, review 1 did not find that inclusion of self-regulation training moderated effectiveness (relative to a combination of other non-pharmacological interventions). Reviews 3 and 4 suggest that emotional skills training could be valuable because of its potential ability to address issues of low self-esteem in pupils with ADHD, and review 4 suggests it could be valuable because of its potential to increase levels of emotional self-control. However, there were too few studies in review 1 to test these hypotheses.

Social skills training may have the potential to improve poor relationships with teachers and peers that are often reported by teachers and/or pupils displaying ADHD symptoms in reviews 3 and 4. However, for perceptions of school adjustment, review 1 reported weak evidence that inclusion of social skills training may have a negative impact on effectiveness relative to other types of interventions. This result has to be treated with caution as only three studies^{104,159,182} that included social skills training were included in the meta-regression analyses. Nevertheless, this finding would not be predicted by review 3 or 4, where relationships were considered to be critical to the experience of ADHD in school settings and, therefore, one might assume that effective social skills training would have indirect beneficial impact on perceptions of school adjustment through improved relationships with teachers and peers.

The specific social skills training used might suggest explanations for the discrepancy in findings across reviews. First, if social skills training makes pupils with ADHD more aware of their social difficulties and strained relationships, this may negatively affect school adjustment. Social skills training is often delivered to small groups, and, as discussed elsewhere, withdrawal from the regular classroom can be evaluated negatively and increase stigma, which may decrease school adjustment. Some studies in review 4 found that difficulties in relationships for pupils diagnosed with, or at risk of, ADHD are increased by stigma, and arise from teachers' and peers' behaviour in addition to the pupils'. This suggests that social skills

interventions that target pupils, teachers and peers might be more effective than those that target pupils alone. Review 3 findings reported that social skills training was used as part of intervention packages for children aged 6–12 years, whereas review 4 found that social demands increased in secondary school, suggesting social skills training would be important across the school years.

Reviews 3 and 4 point to issues regarding adaptations to learning environments or materials, where both reviews found tensions between accommodation for one pupil and teacher responsibilities to the class as a whole, and both reviews found the need for greater consideration of adaptation at the classroom and school levels in addition to focus on pupil adaptation. A higher proportion of studies in review 3 compared with review 1 considered adaptations to learning environment, which may be indicative of differences between how schools and researchers typically view interventions (see *Chapter 5, Implications for practice and recommendations for research*). In review 3 special education was frequently seen by educators as a response to managing ADHD, whereas in review 1, the focus was on interventions specifically targeting children with ADHD, even among those studies conducted in special educational provision. Only six studies^{143,154,187,195,196,198} explicitly examined adaptations to the environment in review 1; a focus on the pupil without consideration of the environmental (physical and or social) could unwittingly reinforce perceptions of the pupil as the problem and hamper management of ADHD.

Reviews 3 and 4 found that psychoeducation for teachers and pupils with ADHD was desired and perceived to be helpful. Psychoeducation was not identified as an intervention package in review 1, thus the extent to which it is delivered alongside non-drug interventions remains to be clarified, and psychoeducation needs to be added to the next version of the classification system reported in review 1. Although the presence or absence of provider training was coded in review 1, the content of training was not coded; therefore, the extent to which psychoeducation has previously been included in complex interventions that involve training teachers to deliver interventions was not the focus of this report. In any case, the findings from reviews 3 and 4 suggest the need to include ADHD content in teacher training and that interventions ought to consider inclusion of psychoeducation for pupils and parents as well as teachers. Review 4 also suggests that the content of psychoeducation is important, for example that ADHD symptoms are explained as the result of an interaction of biological, psychological and social factors rather than as solely biological or solely sociological in their origin.

Study design, participant characteristics and intervention delivery characteristics

Table 67 considers the findings of each review about the remaining moderators specified in review 1 including study design, participant characteristics and intervention delivery characteristics (see *Table 67*, column one). For each potential moderator the second column summarises the findings from the moderator analysis conducted in review 1 (see *Chapter 2, Heterogeneity* for complete findings). Where reviews 3 and 4 have relevant findings this is tabulated in columns two and three, respectively. As noted above, conclusions regarding the results of the meta-regression must be interpreted in light of review 1's limitations given the small number and therefore low power to detect effects and low quality of the studies on which they were based which compromises their reliability. Given these methodological provisos, a non-significant result does not necessarily indicate that a moderator has no effect, just as our conclusions about statistically significant moderators have to be similarly tentative.

The three participant characteristics included in review 1 were also considered by reviews 3 and 4. Reviews 3 and 4 suggest that medication for ADHD could potentially positively moderate the effectiveness of interventions, although this was not supported by the moderator analysis in review 1. Review 4 found a consensus for the beneficial effects of medication in the reduction of restlessness and improved concentration in the classroom. However, negative side effects, perceptions of reduced agency and reduced quality of pupil life experience were also reported. Control for medication status in intervention trials is essential. Intervention with trial arms that compare those on medication for ADHD with those who are not is critical to establish the importance of non-drug interventions over and above first-line drug treatment and informed treatment guidelines for ADHD. Although several studies^{294,324,391} in reviews 3 and 4 suggest that there are

differences in experience for pupils diagnosed with or at risk of ADHD according to gender, there was a lack of analysis that focused on gender differences. There was insufficient heterogeneity with regards to the inclusion of female participants in review 1 to explore gender as a moderator of intervention effectiveness.

Review 3 points to differences in grade level that influence the response of participants to interventions. For instance, behaviour modification might be resisted by young people, whereas they could be more positive about study skills. Children, on the other hand, were considered to benefit from social skills training. Furthermore, review 4 findings suggested that social demands increased in secondary school, indicating continuing need for social skills training. There was insufficient variance in grade level (as a proxy for age) to assess this potential moderator in review 1. These findings suggest that the development (and associated understanding about issues relevant to delivery) needs to be highly age-sensitive. Review 4 also suggests that issues related to differences in the structures of primary and secondary school could be predicted to influence the school experience of ADHD; for example, greater academic and social demands in secondary schools with less pastoral support and more diffuse relationships with multiple teachers were cited as grounds for additional difficulties.

The weak evidence from review 1 suggests that shorter interventions were more effective for teacher 'perceptions of school adjustment' than longer interventions, which conflicts with review 3's findings, where educators in two studies^{301,306} said that their pupils needed more time using the intervention they experienced. Length of intervention, however, does not provide information about the intensity of an intervention, the number of intervention packages employed or fidelity to intervention, which are all potential confounders of the relationship between intervention length and effectiveness. The effect of intervention length on effectiveness should, therefore, be explored controlling for intervention intensity and fidelity to intervention to help clarify these findings. In the light of review 3 and 4's findings about stress and limited resources among teachers providing interventions, it seems plausible that longer interventions may be experienced by teachers as more stressful, which in turn could lead them to rate outcomes less favourably. This highlights the limitation of perception-based measures which are always prone to bias. Intervention context, related to whether interventions in review 1 were located at school only or involved some delivery at home, was not related to effectiveness. Delivery at home is assumed to support parent involvement and training in management of ADHD to aid consistency in the use of strategies across school and home settings. Reviews 3 and 4 highlight that parents' involvement in interventions or collaboration with teachers is considered to be important, although challenging. Taken together, these findings suggest that methods to improve collaboration between parents and school staff in the management of ADHD warrant more detailed empirical study.

Findings of review 3 suggest that the setting within school might be predicted to moderate intervention effectiveness, although there were mixed perceptions in terms of whether or not withdrawing a pupil from their classroom for an intervention was preferable (see *Chapter 5, Withdrawal*). However, setting within school and time of delivery (i.e. during normal school hours vs. before/after school) was not found to moderate the effectiveness of interventions in review 1. Development and testing of interventions designed factorially to compare treatment in a pupil's usual classroom and alternative school settings (e.g. playground or other school room) could, therefore, help to clarify if withdrawal from regular school classrooms compromises the effectiveness of interventions and adversely impacts self-perceptions and/or increases stigma. Similarly, class- and school-wide interventions could usefully be compared with pupil targeted treatments either within the classroom setting or elsewhere. The issue of time of delivery did not arise in either reviews 3 or 4, highlighting a potential gap for qualitative research. Before- or after-school interventions may address issues identified in review 3 about pupils missing work from mainstream classes if they are withdrawn for intervention during school hours. In North America, summer treatment programmes for pupils with ADHD are common and have been shown to be effective.⁴¹⁷ The design and testing of interventions outside of school hours in the UK could therefore usefully be tested. The findings from review 4 suggest that multiple intervention packages would be preferable given the range of needs that relate to ADHD in the classroom. There is a tension, however, between the need for highly complex intervention and the time and resource constraints also identified in reviews 3 and 4. The frequency of intervention packages was not found to moderate the effectiveness of interventions in review 1.

Discussion

In this chapter we have drawn together findings from the four reviews reported in previous chapters. We first took an inductive approach to explore the complexity of the context in which non-pharmacological school-based interventions for ADHD are used as revealed by qualitative reviews 3 and 4. Second, a deductive approach to synthesis was taken to consider potential relationships between possible moderators and effectiveness, starting from review 1 findings and examining how other review findings may provide potential explanations and relevant information in response to them.

The inductive approach 1 led to a model that indicated a range of contextual levels at play when school-based interventions are considered. Furthermore, factors like teachers' time pressure operate across these contextual levels, making it hard to address particular issues in advance of implementing interventions. Key contextual issues that appear to impact the implementation and effectiveness of interventions are the relationships that pupils with ADHD have with their teachers and peers and the stigma that may be experienced because of ADHD symptoms, diagnosis or attendance of an intervention.

The deductive approach 2 revealed that outcomes that did not often feature in review 1 appeared to be important in reviews 3 and 4, such as attributions made by teachers and pupils about ADHD, attitudes towards school and/or interventions and pupils' self-concept. Review 4 also suggests that emotional self-regulation is an important issue for pupils diagnosed with, or at risk of, ADHD and should be a measured outcome distinct from aspects of internalising, externalising and impulsivity measures. Regarding intervention packages, tests of heterogeneity in review 1 found weak evidence that social skills training corresponded to less beneficial effectiveness relative to other non-pharmacological interventions. This would not be predicted by reviews 3 and 4, where it could be concluded that social skills training would address the concerns with relationships that pupils with ADHD report are critical to them. There was some weak evidence in review 1 for the beneficial effect of shorter interventions on perceptions of school adjustment compared with longer interventions. Time was a concern for teachers revealed by reviews 3 and 4; however, teachers in review 3 also often wanted more time for interventions, suggesting some conflict in findings between reviews.

Strengths and limitations

There is a lack of examples of syntheses that bring together quantitative and qualitative reviews. Where such overarching reviews exist, they have typically been able to focus on explanations of the effectiveness findings and considered a quantitative and qualitative review focused on the same intervention.⁴¹² In the current overarching synthesis we have drawn together findings from four reviews, with a focus at least as much on moderators of effectiveness as effectiveness itself. We developed an approach that allowed comparison across all reviews and, through adopting two approaches, captured a breadth of evidence of relevance to the use of ADHD interventions in school settings. Approach 1 (the inductive synthesis of findings from qualitative reviews 3 and 4) also provided a model that demonstrates the complexity of the context in which interventions in school settings are implemented, with a range of factors at different levels identified as potential influences on the use of non-pharmacological interventions for ADHD.

The main limitation of this overarching synthesis relates to the different research questions across the four reviews brought together in this chapter. Because of this, reviews 1–3 sometimes focused on different interventions, which presented a challenge to comparison. Review 1 identified a range of fairly discrete intervention packages targeted at children with ADHD, whereas the other reviews focused on attitudes and/or experiences of interventions or ADHD in school more generally, including a range of informants (parents, educators and pupils). The ages of pupils diagnosed with or at risk of ADHD differed across reviews, further contributing to difficulties in comparison. The majority of pupils in review 1 were children at elementary school level aged < 11 years. In review 2 the majority of educators were teaching younger children in kindergarten and elementary/primary schools (aged 5–12 years). The ages of relevant children with ADHD in review 3 spanned across childhood and adolescence and in review 4 more pupils were

young people aged 11–18 years than children younger than 11 years. Of the child participants in review 4 most were aged 9–11 years. Although reviews 2 and 3 did adopt the intervention categories developed during review 1, there was little direct overlap between interventions studied across reviews. Interventions in review 1 were often composed of more than one intervention package with few interventions that consisted of common sets of intervention elements. Synthesis was, therefore, not only a challenge within review 1 but also across the reviews. A point of similarity between all four reviews was that most studies took place in the USA. Some interesting links between reviews were identified, but they remain tentative because of these identified limitations.

Implications

We have considered the implications for intervention design and research suggested by *Tables 64–67*. Here, we summarise implications in three groups: (1) context affecting interventions; (2) implications for development and evaluation of interventions; and (3) potential moderators of effectiveness. As reiterated throughout this chapter, any implications and recommendations remain tentative in light of the uncertainty in the evidence base.

Context affecting interventions

The inductive synthesis of review 3 and 4 identified a range of contextual levels that interact to provide a complex context in which interventions happen in school settings. The implication for implementation of interventions is that the particular context for a pupil with ADHD, their classroom, school and issues at the sociopolitical level need to be actively considered.

Despite review 1 findings of effectiveness across interventions, the qualitative reviews suggest that stigma and marginalisation may actually be increased through intervention. This is an important consideration for intervention development and implementation. Future interventions might involve an inclusive approach that does not single out pupils diagnosed with, or at risk of, ADHD, for example targeting the classroom rather than pupil level. Some studies suggested that educating teachers about ADHD and effective classroom strategies decreased stigma. Such approaches might be particularly helpful for milder levels of difficulties and may prevent the need for as many interventions targeted at specific pupils. The risk of additional stigma arising from the use of interventions that involve the withdrawal of individual pupils might be warranted for those who already demonstrate more severe levels of difficulty, but there is need to balance potential benefits against the potential harms. We believe that the role of stigmatisation deserves greater attention in intervention development and implementation.

The findings from reviews 3 and 4 about power imbalances between levels of context suggest that the development of inclusive strategies and interventions is not sufficient to address the issues of ADHD in the school context without policy and financial support at the sociopolitical level, and policy and support at the school level for teachers. Studies in reviews 3 and 4 suggest that systemic issues at the national and school level may act to moderate the effectiveness of interventions. The implication of these findings to intervention design is that adaptation at pupil and classroom contexts without support at school and sociopolitical levels is likely to be less effective. As teacher–parent collaboration was identified in reviews 3 and 4 as an important barrier and/or facilitator to intervention and the amelioration of ADHD symptoms, policy and support to guide these interactions may be particularly influential.

Educators and researchers may hold different conceptions of what an ‘intervention’ appropriate for a pupil with ADHD may look like. The examples of interventions that were evaluated for effectiveness in review 1 and appeared in qualitative papers synthesised in review 3 often differed, with special education classes more often considered in review 3, whereas general classroom teachers in several papers referred to the ad hoc teaching practice used with pupils with ADHD as interventions.^{264,291,293,305} In which case, where teachers are involved in intervention delivery or support, the intervention’s purpose and design ought to be made explicit to them. For example, reviews 3 and 4 highlighted classroom teachers’ responsibility for the needs of the class as a whole. As ADHD symptoms are experienced to some extent by all pupils,

interventions for ADHD that specify the potential to support all pupils may be more appealing to general classroom teachers. Findings suggest that if an intervention has salience it is more likely to be accepted and implemented.

Implications for development and evaluation of interventions

The findings from reviews 3 and 4 suggest that psychoeducation about ADHD could usefully be provided to staff and pupils as an adjunct to any intervention that targets pupils diagnosed with, or at risk of, ADHD. The importance of attributions about ADHD revealed by reviews 3 and 4 suggest that development of inclusive strategies and interventions should involve the provision of information about ADHD as an interaction of factors to combat tendencies towards polarised beliefs about ADHD, and that such education is important for staff, pupils with ADHD and their peers. Review 1 found inattention to improve across several raters for interventions reviewed, where the greatest effectiveness was demonstrated by observer ratings. Review 4 noted that teachers showed greater concern over symptoms of hyperactivity/impulsivity and may be less aware of changes in inattention. As such, psychoeducation regarding ADHD could stress the impact of inattention for pupils with ADHD on their academic work. Attitudes could be considered both in terms of beliefs regarding ADHD and attitudes towards particular interventions, as both may impact on effectiveness.

Given the importance of relationships highlighted by reviews 3 and 4 and the possible reduced effectiveness of social skills training for pupils with ADHD suggested by review 1, novel interventions that target the actual relationships with teachers and peers, as opposed to the social skills of pupils diagnosed with, or at risk of, ADHD only, would seem an important component for development. Interventions may need to target different behaviours for pupils with ADHD at different age levels. These different behaviours in turn require different interventions. For example, self-management and study skills may be more appropriate and might be more effective for older pupils, whereas social skills training may be appropriate across age ranges, but with content chosen to match the different social challenges faced by younger versus older pupils.³¹⁴

Reviews 3 and 4 highlight the relevance of pupil self-concept outcomes including self-esteem, perceived stigma related to ADHD and attributions about ADHD. Such outcomes could usefully be targeted by interventions directly but also assessed to explore whether or not attending non-pharmacological interventions impacts stigma experienced and self-esteem. Teacher and parental perceptions of stigma and attributions about ADHD were also identified as important as they may influence the implementation of interventions and management of ADHD. Pupil attitudes to school and learning and emotional self-regulation as a construct distinct from measures that focus on self-regulation (e.g. internalising symptoms) were identified as relevant to pupils diagnosed with ADHD and, therefore, could be useful intervention targets. Although the child perception-based measures in review 1 were not linked to effectiveness, they sometimes involved different constructs to those identified in reviews 3 and 4, were infrequently measured and were based on perceptions of children mainly at elementary school level. Perception-based measures are more reliable for older children.²⁰³

In line with current recommendations for intervention design and evaluation,²⁰⁹ the findings emphasise the importance of involving stakeholders in the design of interventions and in conducting a process evaluation alongside interventions to help understand why effectiveness and implementation are, or are not, realised. A combination of qualitative and quantitative evaluations holds the potential to isolate the most effective components and lead to the development and implementation of cost-effective interventions.

Moderators of effectiveness

Review 1 assessed the type of intervention provider; reviews 3 and 4 suggest that the quality of the relationship between pupils and providers (typically teachers) as potentially critical to effectiveness. This idea coincides with the finding that successful therapeutic outcomes are linked to alliance (e.g. between client and therapist) rather than the methods used to target behaviour change (e.g. CBT, psychoanalysis).⁴¹⁸ Thus, in addition to intervention content that specifically targets relationships for children with ADHD and their teachers and carers, the choice of intervention provider(s) may be critical to the effectiveness of any

non-pharmacological intervention. Practical considerations aside, in the context of ADHD, teachers known to have a positive relationship with the target pupils could be more suitable for intervention delivery or particular elements thereof, than when there is no previous relationship or a negative relationship between the provider and pupil. This suggests that the provider–pupil relationship could be explored for ADHD interventions.

Findings suggest that a range of potential moderators could be researched, given their importance across reviews. These include age, whose effect as a potential moderator of effectiveness appears on several occasions in reviews 3 and 4; for instance, older pupils in review 3 were more likely to be resistant or indifferent to contingency management. Given the importance of home–school collaboration mentioned above and the positive attitudes towards DRCs reported by review 2, research teasing apart the influence of DRCs on parent–teacher collaboration, or comparing elements of home–school communication to elements of contingency management, is recommended. Research could consider the link between social skills training and its impact on relationships. As the moderator finding from review 1 focused on a comparison between social skills training and a combination of other non-pharmacological interventions, research could usefully investigate potential moderators comparing different elements of social skills training, for example age of pupil, intervention targets, intervention methods, quality of current relationships including presence of stigma and home–school collaboration, and intervention context. Intervention trials should control for medication status and report unadjusted means. In relation to issues of stigma and withdrawal from mainstream teaching, research could consider the impact of individual whole class interventions. Finally, intervention length could be explored more thoroughly; for instance, do time pressures on teachers imply that longer or shorter, and less or more intense interventions would be preferred?

Chapter 8 Discussion and conclusions

The aim of this research project was to evaluate the clinical effectiveness and cost-effectiveness of non-pharmacological interventions delivered in school settings for children and young people diagnosed with, or at risk of, ADHD and to explore the factors that may enhance, or limit, the delivery of such interventions. A series of four systematic reviews were conducted, and we have tried to relate these to each other in an overarching synthesis of the reviews. In this final chapter we summarise the findings of each review and the overarching synthesis, consider strengths and limitations, and present implications for practice and recommendations for research.

Summary of findings

Summary of review 1

In review 1 (see *Chapter 2*) a total of 54 controlled trials (39 RCTs; 15 non-RCTs) that assessed the effectiveness of non-pharmacological interventions were synthesised. Results indicate that few interventions consist of the same elements, which makes evidence synthesis and theoretical integration difficult. The absence of standardised tools to synthesise across interventions and outcome measures meant that we had to develop our own systems. Fifteen types of intervention packages were identified inductively and few studies included similar combinations of packages. Results from the primary studies were therefore synthesised across intervention packages to address whether or not non-pharmacological interventions in general lead to a reduction in symptoms and scholastic outcomes. As many different measures of the same underlying constructs were reported we had to map them onto the relevant outcomes prior to examination of effectiveness. Assessed outcomes included core ADHD symptoms ('inattention', 'hyperactivity/impulsivity' and 'ADHD combined'); ADHD-related symptoms ('externalising' symptoms, 'internalising' symptoms and 'social skills') and scholastic behaviours and outcomes ('perceptions of school adjustment', 'curriculum achievement' and 'standardised achievement').

In line with previous work, we conclude that non-pharmacological interventions delivered in school settings lead to improvement in both symptom and academic outcomes.^{72,74,75} Building on Dupaul *et al.*⁷² our results indicate that the effects of non-drug interventions in school settings vary by particular symptom and scholastic outcomes, and assessments with beneficial effects were observed for relatively objective assessments including child-based neurocognitive assessments ($d_+ = 0.44$; $p = 0.001$ for 'inattention' and $d_+ = 0.33$; $p = 0.001$ for 'hyperactivity/impulsivity'); observer-rated 'inattention' ($d_+ = 1.30$; $p = 0.08$) and academic-related tests with objective performance criteria ($d_+ = 0.50$; $p = 0.08$ for curriculum achievement and $d_+ = 0.19$; $p = 0.02$ for standardised achievement). Of the tested perception-based measures, beneficial effects were reported for teacher-rated outcomes of 'inattention' ($d_+ = 0.60$; $p = 0.01$), 'hyperactivity/impulsivity' ($d_+ = 0.23$; $p = 0.08$), 'externalising' symptoms ($d_+ = 0.28$; $p = 0.03$) and 'perceptions of school adjustment' ($d_+ = 0.26$; $p = 0.02$), but not for children and parents. Applying Cohen's guidelines for interpreting effect sizes, 147 mean weighted effect sizes ranged from very small ($d_+ < 0.20$) to large ($d_+ \geq 0.80$), but 95% CIs were generally very wide and substantial heterogeneity in effect size estimates across studies was reported. No studies included economic outcomes; thus, the cost-effectiveness of non-drug interventions targeting children with, or at risk of, ADHD cannot be established and compared with other available treatments.

With the exception of 'standardised achievement' and teacher 'perceptions of school adjustment', I^2 values indicated substantial heterogeneity in effect sizes across studies. There was weak evidence ($p = 0.06$) for possible harmful effect of social skills training and longer (vs. shorter) interventions ($p = 0.04$) on teachers' 'perceptions of school adjustment'. The remaining potential moderators tested, including participant characteristics, intervention package(s) and intervention delivery characteristics, do not explain the large proportion of unaccounted variance in effect size heterogeneity.

Although the inclusion of more controlled trials indicates that the methodological quality of reviewed studies in the current meta-analysis was improved on those that precede it, only one of the 39 RCTs¹⁵⁵ was identified as having made a good attempt at concealment of random allocation and only 10^{104,142,143,153,157,161,163,170,179,196} included at least one blinded outcome assessment. Few studies reported scores adjusted for baseline differences. Of all 54 included studies, only 17^{104,142,143,153,159,160,161,164,165,167,168,173,182,183,185,187,197} assessed some element of intervention fidelity and even fewer (14/54 studies^{104,142,153,164,166,167,170,177,179,180,187,190,194,198}) included a follow-up. Conclusions, therefore, are necessarily tentative. The majority of included studies targeted children at elementary school (40/54 studies^{104,142,143,153–157,161–163,165,168–170,173,175–179,181–183,185–188,189–198,201,202}) and none of the included studies were from the UK. Applicability of these findings to older students and students at schools in UK settings therefore warrants consideration.

The heterogeneity in effect sizes is unsurprising as the lack of standardised interventions and agreed outcome measures makes theoretical integration difficult. This leads us to echo Trout *et al.*'s⁷⁴ call for more systematic lines of research. Specifically, we call for the development and testing of a shared, reliable tool for characterising intervention content that could facilitate the identification of the precise contents of interventions, isolate the potentially active ingredients and compare results reliably within and across reviews. The current literature does not allow us to assess accurately which intervention elements are linked to effectiveness. The identification of an agreed set of outcomes with gold-standard measures would complement such work and facilitate evidence synthesis and the accumulation of knowledge in this field. Finally, more rigorously evaluated trials are needed. Theory-based interventions have been shown to be more effective and aid the systematic accumulation of knowledge. Intervention mapping,²⁰⁹ a formal systematic method for the design and implementation of interventions, could usefully be applied.

Summary of review 2

In review 2 (see *Chapter 2*) we reviewed quantitative research measuring attitudes towards school-based interventions for ADHD. The 28 included studies represented the attitudes of a variety of educators, namely teachers, school psychologists, school social workers, school counsellors and student teachers. Attitudes were measured in relation to nine types of intervention identified across studies. The majority of the studies used bespoke attitude measures rather than existing standardised assessment instruments. As a whole the included papers were of low quality and therefore prone to bias. Particular problems were lack of definitions of interventions and failure to pilot vignettes and attitude measures developed by authors. The psychometric detail of attitude measures was usually not tested, particularly for bespoke measures.

Likert scale scores were converted to percentages, allowing comparison across studies in 19 of the 28 included papers.^{214,217,222–229,233,236–238,240,241,243,245,246} Across these studies educators held a variety of attitudes that ranged from negative to positive. The most striking finding is the lack of consistency among attitudes towards particular interventions or types of interventions. Most interventions were rated positively or neutrally across different studies. The only intervention that consistently recorded positive attitudes from educators were DRCs, an intervention where behaviour is monitored and recorded at school on a card or in a book that the pupil then takes home to share with their parent or carer. No variables were consistently identified across reviewed studies that affected attitudes towards interventions.

Summary of review 3

In review 3 (see *Chapter 3*) we have synthesised qualitative research on the experience of and attitude towards non-pharmacological interventions for ADHD delivered in school settings. Only 12 of the 33 included studies^{265,278,280,288,292,295,300–303,306,311} were focused on a particular intervention; the majority of included studies instead considered the range of interventions or strategies used in participants' school settings. Seven main themes were used to organise and guide the synthesis. These themes are (1) individualising interventions; (2) structure; (3) time; (4) impact of interventions; (5) problem situated within the child; (6) relationships; and (7) expectations. A line of argument was developed that offers an explanatory model of the experience of interventions and teaching strategies for ADHD in school settings according to the papers reviewed (see *Chapter 5, Figure 5*). The model suggests a cyclical process, whereby issues relating to the intervention or strategy response to ADHD in schools influences the action and reaction to such interventions. The reaction

to interventions used has the potential to impact on issues of socialisation that involve pupils with ADHD, their teachers, peers and parents. Finally, the process continues as the socialisation of those people involved in the school lives of pupils with ADHD affects future intervention responses to ADHD.

The synthesis revealed three main tensions related to responding to ADHD in schools. The first is if interventions ought to be structured and controlled or if they should offer choice and flexibility, although several studies recognise that structure and choice are not mutually exclusive. A second tension relates to the extent to which interventions ought to be individualised. The third concerns considerable time pressure reported by teachers in reviewed studies. There were some concerns reported by participants in reviewed studies that interventions may be effective for specific targeted skills and behaviours, but not impact the academic achievement, which is considered an important outcome by young people, parents and teachers. There are also issues concerning how well skills and knowledge learned during interventions are applied beyond the intervention period. It is clear that interventions may influence relationships, attitudes and participants' conceptions of ADHD, but the reported positivity of this impact was mixed both across and within different interventions. The individual differences among participant pupils diagnosed with ADHD may explain differences in perceived intervention effectiveness.

The review indicated some potential challenges for the implementation of interventions for ADHD used in school settings. Contextual factors, including the relationships held by pupils displaying ADHD symptoms with their teachers and peers, may impact the experience of interventions. Attitudes regarding school, ADHD and interventions, as well as knowledge of ADHD, also appear to impact the use of interventions. Many of the studies reviewed present a rigid view that ADHD in the school setting is a problem that resides in the child and that any issues relating to the classroom and curriculum are ignored. This, along with pupils' reported experience of stigmatisation owing to having a diagnosis of ADHD or attending interventions, implies that there are barriers to intervention use and that interventions also impact the context when they are used.

Summary of review 4

In review 4 (see *Chapter 6*) we explored the school-based experiences and perceptions of pupils diagnosed with, or at risk of, ADHD, their teachers, parents and peers. The 34 included studies were divided into four groups by participant types, then the subreviews were synthesised. The overarching themes identified for each subreview and the final synthesis were:

Review 4a, pupil views 'Expression of ADHD symptoms as an interaction between biological, sociological and psychological factors'.

Review 4b, teacher views 'Factors that influence teachers' willingness to adapt their response to ADHD symptoms'.

Review 4c, parent views 'Mothers are silenced'.

Review 4d, mixed views 'Relationships between participant types: Conflict is the norm'.

Reviews 4a–d 'School expectations and structures can be factors that compromise and/or aggravate ADHD symptoms'.

In review 4a, it was found that pupils diagnosed with ADHD described experiences commensurate with the core symptoms specified in diagnostic criteria for ADHD, including inattention, hyperactivity and impulsivity. However, they spoke most about impulsivity in relation to a lack of ability to self-regulate emotion. Pupils expressed great concern over the difficulties in relationships between themselves and their teachers, peers and parents that were a common feature of their experiences. They described the classroom as a place in which they found it difficult to learn, because of requirements to concentrate for long periods, remain still and remain silent. Studies identified differences in the expression of ADHD

symptoms in pupils according to classroom features, with some authors concluding that the school context particularly triggered ADHD symptoms. Stigma for ADHD symptoms, diagnosis and/or medication was identified in a number of studies, and linked to poor self-perceptions by pupils. Pupils most commonly made polarised biological attributions for ADHD, where they understood the source of their behaviour to be biological without consideration of other potential contributors. Study authors linked such beliefs to poor self-perceptions, where pupils understood themselves to be flawed and incapable of controlling their behaviour.

In review 4b it was found that teachers of pupils diagnosed with or at risk of ADHD described their main professional responsibility to be to their classroom as a whole, and expressed reluctance to adapt their teaching to accommodate the individual needs of a pupil displaying ADHD symptoms if this might risk the reduction of learning for the whole class. Teachers commonly described time pressures and lack of knowledge about ADHD to be barriers to pupil accommodation. Many teachers attributed ADHD symptoms to problems in the home such as poor parenting, and this was linked to a reluctance to adapt teaching expectations and responses for such pupils. Other teachers understood symptoms to be a result of biological factors, leading to decisions that adaptation of classroom practice was justified on the basis of different need, or to conceptualisations of treatment that excluded all but medication.

In review 4c it was found that mothers of pupils diagnosed with or at risk of ADHD commonly characterised their experiences with school staff as ones of conflict, where they felt blamed for their child's behaviour and dismissed when sharing information or making requests to school staff. Mothers described the nature of the conflict as escalating, where initially they expected to collaborate with teachers, they then began deferential resistance in response to breaches to trust, and sometimes eventually resorted to assertive resistance.

In review 4d studies exploring experiences of multiple participant types found a range of foundations for conflict between pupils diagnosed with ADHD and their teachers, pupils and peers, as well as parents and teachers. As might be expected, the conflict was linked to the interaction of many issues identified in reviews 4a–c, including lack of fit between pupil capacities and educational expectations, lack of pupil support owing to teacher responsibilities to the whole class, and difficulties in collaboration between teachers and parents. Some studies identified the barriers created by school structures, where in order to meet pupil needs and/or collaborate with parents, teachers were required to expend additional, personal, time and energy. The review suggests that existing educational provision did not always resource the necessary knowledge, time, or space for collaboration with parents and colleagues required to support pupils diagnosed with ADHD.

In drawing together reviews 4a–d, it was concluded that, although biological differences made pupils diagnosed with, or at risk of, ADHD prone to symptoms of inattention, hyperactivity and/or impulsivity, the context of schools can aggravate such behaviour through the nature of its expectations, and that local classroom contexts determined when such behaviour was or was not considered to be a problem. When behaviour was determined to threaten processes of learning in the school, mechanisms of stigma could operate in order to protect existing school practice. These could impact relationships negatively and might aggravate ADHD symptoms further, leading to escalating marginalisation. Polarised attributions, whether of poor parenting or for a biological basis, further drew attention away from the school contributions to the expression of ADHD symptoms. It was concluded that an important aspect of addressing ADHD symptoms in schools is to redress an imbalance by exploring the potential for adaptation to school practice to ameliorate symptoms in interaction with existing knowledge of approaches to pupil adaptation.

Summary of the overarching synthesis

The overarching synthesis (see *Chapter 7*) synthesised the findings from all four reviews. An inductive approach was used to explore the complexity of the context in which non-pharmacological school-based interventions for ADHD are used, drawing on findings from the two qualitative reviews (reviews 3 and 4). Second, a deductive approach to synthesis was taken to consider potential relationships between possible moderators and effectiveness, using review 1 findings and examining how other review findings may provide potential explanations and relevant information.

Despite the tension between the application of different research questions and methods of synthesis between the systematic reviews, the overarching synthesis led to a number of tentative implications. These implications were categorised as the context affecting interventions, the development and evaluation of interventions and moderators of intervention effectiveness. The highlights are summarised below.

The inductive approach revealed a range of contextual levels that influence the use of school-based interventions; these contextual levels form a hierarchy from the pupil diagnosed with ADHD through to the classroom, the school and the sociopolitical level. Key contextual issues that appear to impact the implementation and effectiveness of interventions operate across and within these levels and include the attributional beliefs that teachers and pupils hold about ADHD, the relationships that pupils with ADHD have with their teachers and peers and that their parents have with their teachers, and the stigma that may be experienced because of ADHD symptoms, diagnosis or attendance of an intervention. Differences in power between levels suggest that without school and sociopolitical level policy and support, non-pharmacological interventions for ADHD may be less effective. Differences in classroom context, for example between classes for pupils with SEN, mainstream classrooms and withdrawal settings, suggest the need for tailoring of interventions according to purpose, and the value for explicit intervention description that is accessible by teachers.

The deductive approach found some links across the systematic reviews, as well as some refutational evidence. With regards to the development and content of non-pharmacological interventions, the importance of psychoeducation for teachers, parents and pupils was acknowledged as a potentially useful adjunct to non-drug intervention to help overcome lack of knowledge and stigma around ADHD, both of which may have negative implications for implementation and effectiveness of non-pharmacological interventions for ADHD in schools. The relevance of building relationships between parents, teachers, pupils and peers was also highlighted in reviews 3 and 4 as critical to implementation and effectiveness of non-drug interventions. Although these conclusions conflict with the negative effect of social skills training for children in review 1, the latter evidence was weak and based on few studies of low methodological quality. Age of intervention target was commonly identified as a potentially important moderator of effectiveness; therefore, the content of interventions that target relationships may need to be highly age sensitive.

Several pupil outcomes were identified as important in reviews 3 and 4. These included pupil attitudes towards school, self-concept, perceived stigma and attributions about ADHD. These outcomes are therefore potentially useful intervention targets for pupils diagnosed with, or at risk of, ADHD and warrant empirical investigation. Such outcomes could also be assessed to explore if attending non-pharmacological interventions affect stigma experienced and self-esteem. Review 1 found no evidence of effectiveness on child perception-based outcomes among children typically at elementary school level. Nonetheless, perception-based measures in review 1 were infrequently measured and limited in range and may be more reliable among older children.

With regards to the moderators of effectiveness, the overarching synthesis suggested the potential importance of age; the quality of relationships of pupils diagnosed with, or at risk of, ADHD and their teachers, parents and peers; home-school collaboration; the presence of stigma; gender; length of intervention; medication status; and aspects of school context including type of classroom, school level and quality of school support to teachers.

Strengths and limitations

Strengths of the four reviews and overarching synthesis reported in previous chapters include the comprehensive search strategies employed and efforts to locate unpublished research where this was found. Review 1 included a wider range of non-pharmacological interventions and outcome measures, and benefited from a larger set of controlled trials than previous reviews that have investigated the effectiveness of non-pharmacological interventions that target children with or at risk of ADHD in school settings. Review 2 responded to a gap for quantitative synthesis of attitudes towards school-based interventions for ADHD. Although the main finding was varying attitudes from educators across papers reviewed, the review did allow for comparison to all other reviews in the overarching synthesis. Reviews 3 and 4 represent the first systematic reviews of qualitative research on the experience of school-based interventions for ADHD and the experience of ADHD in schools, respectively, of which we are aware. Both syntheses provide explanations of a range of relevant participants' experiences relating to ADHD and school settings. As outlined in the overarching synthesis, these two reviews point to the complexity of the context within which non-pharmacological interventions for ADHD used in schools are expected to be implemented. They also shed light on some findings from review 1 related to effectiveness of interventions and moderators for this effectiveness.

The breadth of both interventions and outcomes in reviewed studies presented a challenge for categorisation, analysis and interpretation in review 1. The lack of common sets of intervention elements across studies meant that synthesis by intervention type was not feasible. The absence of standardised tools to synthesise across interventions and measures meant that we had to develop our own systems; this is an iterative, ongoing process and we anticipate further development. Many included studies were judged to have a high potential for bias in one or more of the critical domains of allocation concealment and blinding of outcome assessors; results therefore must be interpreted in light of the review's limitations. None of the studies reviewed were conducted in the UK, and thus the applicability of findings to UK education must be considered.

There was a paucity of quantitative research considering children's or parents' views towards non-pharmacological interventions for ADHD in school settings. Therefore, review 2 focused only on educator attitudes. The majority of studies used vignettes to provide ADHD case descriptions to participants. However, often these vignettes were not adequately piloted, so consistency across the vignettes used within studies may be questioned. Many of the reviewed studies developed attitude measures for the purpose of their research, rather than using an established reliable and valid scale for measuring attitudes towards interventions. For systematic reviews of attitude research, agreed standardised measures would avoid the need to convert varying Likert scores to a comparable format and arbitrarily decide what constitutes a positive attitude.

Few review 3 studies focused solely on the attitudes and experiences of those using specific intervention packages in school settings and only one paper considered an intervention whose effectiveness had been quantitatively reviewed in review 1. This posed a challenge in terms of comparing qualitative and quantitative reviews of interventions, given that review 3 often focused on the strategies and teaching practice used in school settings for pupils with ADHD. Very few studies reviewed were conducted in the UK, and thus the applicability of findings to UK education must be considered. Although included studies were of reasonable to very good quality according to quality appraisal criteria, the majority of studies contained mostly descriptive qualitative analysis, despite claims to use interpretive analytical tools. This constrained the theoretical basis for discussion of themes and constructs seen across reviewed papers.

Findings related to non-pharmacological interventions for ADHD in schools were excluded from review 4 as these were covered by the other reviews; rather the focus was on experience of ADHD in schools more generally. Although offering a valuable overview that allowed the creation of hypotheses regarding implications to interventions, it was impossible to link findings specifically to interventions. Eleven studies^{264,265,286,290,291,293,294,296,298,299,305} were included in both reviews 3 and 4; however, data related to

interventions were extracted to review 3 and data regarding more general issues unrelated to interventions were extracted to review 4. Some overlap in findings between reviews 3 and 4 may result from shared studies; however, other unshared studies in both reviews 3 and 4 also supported shared themes. Therefore, we do not see this as a limitation but as being generally supportive to the relevance of review 4 findings to interventions.

Quality appraisal found many review 4 studies to be of good methodological quality, and studies commonly employed theory in the design, framework for analysis and/or development of second-order (researcher) constructs. This supported the further application of theory in developing third-order (reviewer) themes, for example through the use of theory about stigma. The inclusion of seven studies^{27,41,260,261,266,294,356} involving UK participants allowed analysis of applicability, suggesting that findings from other countries seemed relevant to the UK educational context. Review 4 was limited by the content of studies available for synthesis. For example, issues of gender, pupil maturity and school level (primary/secondary) were noted to be relevant in included studies; however, there were no studies that focused on the experience and impact of these issues. The study designs also limited the extent to which relationships could be established between factors; studies that involved multiple perspectives offered the chance to directly link different experiences and perspectives pertaining to a particular pupil, but were of limited number. Disparate methodologies and underpinning theory provided a further challenge.

Implications for policy and practice

Here we consider the implications of the four reviews reported and their overarching synthesis. Given the nature of the review findings and challenges in synthesising across reviews considered in the previous chapters, recommendations for research and, in particular implications for policy and practice, can only be tentative. We discuss some implications for intervention design and implementation first.

The inductive synthesis of reviews 3 and 4 identified a range of contextual levels that interact to explain the complex situation in which interventions may be implemented in school settings. The implication for the design and implementation of interventions is that the particular context for a pupil with ADHD, their classroom, school and issues at the sociopolitical level need to be actively considered. This suggests a need to consider co-ordinated approaches to interventions where the response to an individual child with ADHD fits with policy and guidance at the class, school and wider contextual levels. An implication of review findings about intervention design is that intervention at pupil and classroom contexts without support at school and sociopolitical levels is likely to be less effective. Interventions that retain some flexibility such that they can be tailored to individual pupils with ADHD and the wider context in which the pupil experiences their education, would allow a response to individual contexts.

The qualitative reviews suggest that stigma and marginalisation may be increased through intervention. This is an important consideration for implementation. For instance, where children with ADHD are withdrawn from mainstream classes, such programmes can result in issues of stigmatisation. Alternatives might involve an inclusive approach that does not single out pupils diagnosed with, or at risk of, ADHD, for example that targets the classroom rather than pupil level. Some studies suggested that educating teachers about ADHD and effective classroom strategies decreased stigma.

The findings from reviews 3 and 4 suggest that psychoeducation about ADHD could usefully be provided to school staff, pupils with ADHD and their peers as an adjunct to any intervention that targets children with, or at risk of, ADHD. Provision of information about ADHD as an interaction of factors could combat tendencies towards polarised beliefs about ADHD. Findings also emphasise the importance of involving a range of stakeholders (e.g. parents, teachers, other school staff, mental health professionals, children, researchers) in the design of interventions. This may also help address different perceptions held by practitioners and researchers of what constitutes 'an intervention'. Review 1 found inattention to improve across several raters for interventions reviewed. However, review 4 noted that teachers showed greater

concern over symptoms of hyperactivity/impulsivity, and may be less aware of changes in inattention. As such, we believe that psychoeducation regarding ADHD could stress the impact of inattention for pupils with ADHD, and its potential to respond to intervention.

Different stakeholder priorities imply a need for interventions with multiple components that tackle different aspects of the difficulties that young people with ADHD face in coping with school. For example, teachers may prioritise behaviour management but pupils may prioritise social skills, and parents may prioritise self-concept. Interventions may need to target different behaviours for children with ADHD at different age levels. These different behaviours in turn require different interventions. For example, self-management and study skills may be more appropriate and possibly more effective for older pupils. We believe that 'fine-tuning' in the design of interventions may be valuable in matching therapy and need.

Given the importance of relationships highlighted by reviews 3 and 4 and the possible reduced effectiveness of social skills training for pupils with ADHD suggested by review 1, support for relationships with teachers and peers seems an important additional component of interventions. The choice of intervention provider(s) may be critical to the outcome of any intervention. Practical considerations aside, in the context of ADHD, teachers known to have a positive relationship with the target pupils could be more suitable for intervention delivery or particular elements thereof, than when there is no previous relationship or a negative relationship between the provider and child. Provider relationship is therefore important for future evaluation.

Implications for research practice identified by review 1 in particular suggest a benefit from raising the standards of the reporting of intervention content. In the absence of clear, detailed description of interventions and a shared, reliable tool for characterising intervention content, it is difficult to establish the precise content of interventions, isolate the potentially active ingredients and compare results reliably across papers.

Suggested research priorities

Methodological issues

- Examination of what works and for whom should be the focus of intervention research and, therefore, interventions should be theory based with BCTs explicitly matched to the relevant outcomes (see review 1). A formal intervention mapping process could enhance the selection of appropriate change techniques and examination of potential moderators.
- Non-pharmacological interventions that target children and young people diagnosed with or at risk of ADHD should be rigorously evaluated, conforming where feasible to Consolidated Standards of Reporting Trials (or other relevant) guidelines. In particular, cluster randomised controlled designs should be used and these trials should employ allocation concealment; blinding of outcome assessors; control for baseline characteristics, including pharmacological treatments for ADHD; the use of objective outcome measures; long-term follow-ups; collection of economic data alongside trials; and tests of intervention fidelity wherever possible.
- Process evaluations should accompany evaluations of intervention trials in order to explore the experience and attitudes of those involved in interventions, which may profoundly influence the effectiveness and the experience of the intervention.
- Some outcomes (e.g. self-concept of the child including perceptions of emotional self-control and child attitudes towards ADHD, school and learning) were identified as important in reviews 3 and 4 but were not commonly assessed in the RCTs identified in review 1; consideration should be given to the best way to measure and incorporate these into future trials. These issues are important to those who access services in terms of what they would like to improve.
- Quantitative evaluations of intervention trials are needed to assess the acceptability and perceived effectiveness of interventions. For example, validated scales such as the BIRS and the IRP-15 are available and should be used in preference to bespoke measures with unproven validity to measure teacher attitudes.

Gaps in the current research literature

- The development and testing of standardised tools to describe programme features relevant to ADHD, so that the design, reporting, replication, implementation and synthesis of interventions that target children with, or at risk of, ADHD can be enhanced. Such work would facilitate examination of which particular behavioural change techniques or combinations thereof are most effective for ADHD. It would also help encourage researchers and journal editors to raise standards on the reporting of intervention content.
- Given the wide range of outcome measures reported in review 1, identification of gold-standard outcome measures assessing aspects related to ADHD is essential to facilitate comparison across studies and future meta-analysis.
- No relevant cost-effectiveness studies were detected during review 1. Although this is an obvious gap in the literature, the tentative nature of the evidence of effectiveness, and the methodological complexities that surround the development, testing and implementation of school-based interventions for ADHD, suggest that there is a great deal of work needed to establish evidence of effectiveness before cost-effectiveness studies will provide meaningful results. However, there may be scope for modelling of potential cost-savings should effectiveness be demonstrated.
- Findings suggest that a range of potential moderators could be researched alongside intervention trials given their importance across reviews. These include:
 - i. age
 - ii. medication use
 - iii. intensity and duration of intervention
 - iv. individual versus group delivery
 - v. intervention packages that the overarching synthesis highlighted as being in need of further research to understand their effectiveness and moderators include DRCs and social skills training.
- Reviews 3 and 4 identified important gaps in qualitative research related to the role of interventions in schools for the following:
 - i. UK teachers' experiences of pupils with ADHD.
 - ii. Experience of gender issues in ADHD in schools across countries, including exploration of any sociological contributions to differences by gender in perceptions of ADHD symptoms in the classroom and referral for clinical assessment.
 - iii. The impact of increasing maturity for pupils diagnosed with, or at risk of, ADHD and differences in school expectations between primary and secondary school levels.
 - iv. The experiences of ADHD for secondary school teachers across countries.
 - v. The experiences of children diagnosed with ADHD across countries.
 - vi. Issues in relation to symptoms of inattention. The focus in review 4, particularly in teacher studies, tended to be on hyperactivity/impulsivity and/or disruptive behaviour; this mirrors wider literature in the field.
 - vii. An exploration of the differing understandings of the term intervention held by teachers and researchers/evaluators.
- Evaluations of interventions in the UK and for older students at primary and secondary levels are under-represented and therefore should be especially supported.
- Given our findings regarding individual differences in the expression and experience of ADHD, it would be useful to explore the effectiveness of more flexible, individualised interventions for children with ADHD (e.g. functional behavioural assessment) in controlled trials.
- Mixed-method research that draws on the complexity of the school context highlighted in *Chapter 7*, to investigate how factors influence the implementation of interventions. We need to understand what works best, for whom and how. Suggested foci for such studies include:
 - i. experience of relationships between pupils diagnosed with, or at risk of, ADHD and their teachers
 - ii. teacher–parent collaboration for pupils diagnosed with, or at risk of, ADHD.

Acknowledgements

We would like to thank a range of parents and practitioners who either attended workshops during the design of the project, provided feedback on findings in later workshops, or replied to e-mails during the design of the project. In particular, we would like to thank the following for their essential contributions:

Catherine Shotton, a member of the Family Faculty at the University of Exeter Medical School's Cerebra Research Unit, was involved in writing the project application, project design and commenting on *Chapters 4–6*.

Tracy Elliott, Head of Research and Education at the charity Cerebra, assisted with recruitment of parents for stakeholder involvement during the project. She, with her colleagues Jane Margetson and Melanie Dean, supported and promoted the well-attended dissemination event aimed at parents and practitioners held in Bristol, UK, 25 September 2013.

Will Pritchard, Professional Lead (Behaviour) at Babcock International Group, Exeter, supported the project application, project design and arranged a feedback workshop with advisory teachers (see *Appendix 11*).

This project was supported by a range of junior and senior academics who were generous with their time. In particular we would like to thank:

Rebecca Abbott for assistance with title and abstract screening for all reviews and comments on review 2.

Jeni Reeve for assistance in screening, data extraction, backward citation chasing and analysis for review 2.

Daniel Racey for assistance with backward citation chasing, hand-searching of journals and website searching for all reviews and screening for review 2.

Rosina Kyeremateng for assistance with full-text screening and data extraction for review 2.

Angelica Chan for assistance in proofreading the final report and preparing appendices.

Brahm Norwich, Professor of Education at the University of Exeter, was a member of our expert advisory group and provided expert advice on the design of the project, recommendations of relevant research and detailed comments on *Chapters 4–6*.

Carolyn Webster-Stratton, Professor of Psychology and Social Work at the University of Washington, was a member of our expert advisory group and provided expert advice on the design of the project and recommendations of relevant research.

Kapil Sayal provided feedback on the project workshop output and recommendations of relevant research.

Bogdan Grigore, Astrid Janssens, Anni Vanhatalo, Sara Ingarfield and Hilary Kaube for translating foreign-language papers during full-text screening.

Kate Allen, Kate Grimes, Pamela Bowman, Emily Rhodes, Matt Allwood and Abigail Russell for assistance in proofreading draft chapters.

Chris Cooper for advice on literature searches.

We acknowledge funding from the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care for the South West Peninsula. The views expressed in this publication are those of the authors and not necessarily those of the NHS, the National Institute for Health Research or the Department of Health in England.

Contributions of authors

Michelle Richardson, Research Fellow, led review 1, assisted with other reviews, developed the overarching synthesis, wrote and edited the final report, organised and conducted stakeholder involvement events.

Darren A Moore, Associate Research Fellow, led reviews 2 and 3, assisted with other reviews, developed the overarching synthesis, wrote and edited the final report, organised and conducted stakeholder involvement events.

Ruth Gwernan-Jones, Associate Research Fellow, led review 4, assisted with other reviews, developed the overarching synthesis, wrote and edited the final report, organised and conducted stakeholder involvement events.

Jo Thompson-Coon, Research Fellow in Health Services Research, was involved in study design, provided advice on systematic review methods and commented on draft chapters and the final report.

Obioha Ukoumunne, Senior Lecturer in Medical Statistics, advised on review 1 synthesis and commented on *Chapter 2* drafts.

Morwenna Rogers, Information Specialist, designed and undertook literature searches, forward citation chasing for all reviews, title and abstract screening for reviews 1 and 2, and commented on draft chapters.

Rebecca Whear, Research Fellow, provided advice on systematic review methods, title and abstract screening for reviews 1, 3 and 4, and commented on final report.

Tamsin V Newlove-Delgado, Doctoral Research Fellow, was involved in screening across all reviews, data extraction for reviews 1 and 2, and commented on draft chapters.

Stuart Logan, Cerebra Professor of Paediatric Epidemiology, contributed to the initial application and commented on draft chapters.

Christopher Morris, Senior Research Fellow in Child Health, supported stakeholder involvement and commented on draft chapters.

Eric Taylor, Emeritus Professor of Child and Adolescent Psychiatry, was involved in study design, ADHD topic advice, recommendations of relevant research and commented on draft chapters.

Paul Cooper, Professor of Education, was involved in study design, ADHD topic advice, recommendations of relevant research and commented on the draft final report.

Ken Stein, Professor, Deputy Director, Peninsula Collaboration for Leadership in Applied Health Research and Care (PenCLAHRC), was involved in study design and commented on draft chapters and final report.

Ruth Garside, Senior Lecturer in Evidence Synthesis, was involved in study design, provided advice on qualitative review methods, assisted in qualitative synthesis and commented on draft chapters as well as the final report.

Tamsin J Ford, Professor of Child and Adolescent Psychiatry, supervised the project, was involved in study design, ADHD topic advice and commented on draft chapters and the final report.

Publications

Gwernan-Jones R, Moore DA, Garside R, Richardson M, Thompson-Coon J, Rogers M, *et al.* ADHD, parent perspectives and parent–teacher relationships: grounds for conflict [published online ahead of print]. *Br J Special Educ* 2015.

Moore DA, Richardson M, Gwernan-Jones R, Thompson-Coon J, Stein K, Rogers M, *et al.* Non-pharmacological interventions for ADHD in school settings: an overarching synthesis of systematic reviews [published online ahead of print 9 March 2015]. *J Atten Disord* 2015.

References

1. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 5th edn. Arlington, VA: American Psychiatric Publishing; 2013.
2. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 4th edn. Washington, DC: American Psychiatric Association; 2000.
3. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 3rd edn. Washington, DC: American Psychiatric Association; 1980.
4. World Health Organization (WHO). *The ICD-10 Classification of Mental and Behavioural Disorders*. Geneva: WHO; 1992.
5. Barkley RA. *Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment*. New York, NY: Guilford Press; 1990.
6. Faraone SV, Perlis RH, Doyle AE, Smoller JW, Goralnick JJ, Holmgren MA, et al. Molecular genetics of attention-deficit/hyperactivity disorder. *Biol Psychiatr* 2005;**57**:1313–23. <http://dx.doi.org/10.1016/j.biopsych.2004.11.024>
7. Wu KK, Anderson V, Castiello U. Neuropsychological evaluation of deficits in executive functioning for ADHD children with or without learning disabilities. *Dev Neuropsychol* 2002;**22**:501–31. http://dx.doi.org/10.1207/S15326942DN2202_5
8. Barkley RA, Murphy KR. *Attention-Deficit Hyperactivity Disorder: A Clinical Workbook*. 2nd edn. New York, NY: Guilford Publication; 2006.
9. Barkley RA. Deficient emotional self-regulation is a core component of ADHD. *J ADHD Relat Disord* 2010;**1**:5–37.
10. Wu J, Xiao H, Sun H, Zou L, Zhu LQ. Role of dopamine receptors in ADHD: a systematic meta-analysis. *Mol Neurobiol* 2012;**45**:605–20. <http://dx.doi.org/10.1007/s12035-012-8278-5>
11. Taylor E. Developing ADHD. *J Child Psychol Psychiatr* 2009;**50**:126–32. <http://dx.doi.org/10.1111/j.1469-7610.2008.01999.x>
12. Copeland WE, Angold A, Costello EJ, Egger H. Prevalence, comorbidity, and correlates of DSM-5 proposed disruptive mood dysregulation disorder. *Am J Psychiatr* 2013;**170**:173–9. <http://dx.doi.org/10.1176/appi.ajp.2012.12010132>
13. Polanczyk G, de Lima M, Horta B, Biederman J, Rohde L. The worldwide prevalence of ADHD: a systematic review and metaregression analysis. *Am J Psychiatr* 2007;**164**:942–8. <http://dx.doi.org/10.1176/ajp.2007.164.6.942>
14. Boyle CA, Boulet S, Schieve LA, Cohen RA, Blumberg SJ, Yeargin-Allsopp M, et al. Trends in the prevalence of developmental disabilities in US children, 1997–2008. *Pediatrics* 2011;**127**:1034–42. <http://dx.doi.org/10.1542/peds.2010-2989>
15. Ford T, Goodman R, Meltzer H. The British Child and Adolescent Mental Health Survey 1999: the prevalence of DSM-IV disorders. *J Am Acad Child Adolesc Psychiatr* 2003;**42**:1203–11. <http://dx.doi.org/10.1097/00004583-200310000-00011>
16. National Center for Health Statistics. *Health, United States, 2011: With Special Feature on Socioeconomic Status and Health*. Hyattsville, MD: Centers for Disease Control and Prevention; 2012.
17. Russell G, Rodgers LR, Ukoumunne OC, Ford T. Prevalence of parent-reported ASD and ADHD in the UK: findings from the Millennium Cohort Study. *J Autism Dev Disord* 2014;**44**:31–40. <http://dx.doi.org/10.1007/s10803-013-1849-0>

18. Cantwell DP. Attention deficit disorder: a review of the past 10 years. *J Am Acad Child Adolesc Psychiatr* 1996;**35**:978–87. <http://dx.doi.org/10.1097/00004583-199608000-00008>
19. Ford T, Fowler T, Langley K, Whittinger N, Thapar A. Five years on: public sector service use related to mental health in young people with ADHD or hyperkinetic disorder five years after diagnosis. *Child Adolesc Ment Health* 2008;**13**:122–9. <http://dx.doi.org/10.1111/j.1475-3588.2007.00466.x>
20. Froehlich TE, Lanphear BP, Epstein JN, Barbaresi WJ, Katusic SK, Kahn RS. Prevalence, recognition, and treatment of attention-deficit/hyperactivity disorder in a national sample of US children. *Arch Pediatr Adolesc Med* 2007;**161**:857. <http://dx.doi.org/10.1001/archpedi.161.9.857>
21. Russell G, Ford T, Rosenberg R, Kelly S. The association of attention deficit hyperactivity disorder with socioeconomic disadvantage: alternative explanations and evidence. *J Child Psychol Psychiatry* 2014;**55**:436–45. <http://dx.doi.org/10.1111/jcpp.12170>
22. Barbaresi WJ, Colligan RC, Weaver AL, Voigt RG, Killian JM, Katusic SK. Mortality, ADHD, and psychosocial adversity in adults with childhood ADHD: a prospective study. *Am Acad Pediatr* 2013;**131**:637–44. <http://dx.doi.org/10.1542/peds.2012-2354>
23. Parker HC, Ellison AT, Sherman G, Frisch ME, Kay C, Burton BS, *et al*. Improving the diagnosis, treatment, and follow-up of adult attention deficit/hyperactivity disorder (ADHD) patients in primary care utilizing a performance improvement continuing medical education (PI CME) Activity. *CE Meas* 2012;**6**:3–12.
24. Ahuja A, Martin J, Langley K, Thapar A. Intellectual disability in children with attention deficit hyperactivity disorder. *J Pediatr* 2013;**163**:890–5. <http://dx.doi.org/10.1016/j.jpeds.2013.02.043>
25. Mikami AY. Attention-Deficit/Hyperactivity Disorder and the Challenges of Social Exclusion. In DeWall CN, editor. *The Oxford Handbook of Social Exclusion*. New York, NY: Oxford University Press; 2013. pp. 228–37 <http://dx.doi.org/10.1093/oxfordhb/9780195398700.013.0021>
26. Reid R, Hakendorf P, Prosser B. Use of psychostimulant medication for ADHD in South Australia. *J Am Acad Child Adolesc Psychiatr* 2002;**41**:906–13. <http://dx.doi.org/10.1097/00004583-200208000-00008>
27. Singh I. A disorder of anger and aggression: children's perspectives on attention deficit/hyperactivity disorder in the UK. *Soc Sci Med* 2011;**73**:889–96. <http://dx.doi.org/10.1016/j.socscimed.2011.03.049>
28. Malacrida C. Medicalization, ambivalence and social control: mothers' descriptions of educators and ADD/ADHD. *Health (Lond)* 2004;**8**:61–80. <http://dx.doi.org/10.1177/1363459304038795>
29. Jarrett MA, Wolff JC, Davis TE, Cowart MJ, Ollendick TH. Characteristics of children with ADHD and comorbid anxiety [published online ahead of print 3 August 2012]. *J Atten Disord* 2012.
30. Campbell Daley K. Update on attention-deficit/hyperactivity disorder. *Curr Opin Pediatr* 2004;**16**:217. <http://dx.doi.org/10.1097/00008480-200404000-00020>
31. Reiersen A, Constantino J, Volk H, Todd R. Autistic traits in a population-based ADHD twin sample. *J Child Psychol Psychiatry* 2007;**48**:464–72. <http://dx.doi.org/10.1111/j.1469-7610.2006.01720.x>
32. Larson K, Russ SA, Kahn RS, Halfon N. Patterns of comorbidity, functioning, and service use for US children with ADHD, 2007. *Pediatrics* 2011;**127**:462–70. <http://dx.doi.org/10.1542/peds.2010-0165>

33. Staikova E, Gomes H, Tartter V, McCabe A, Halperin JM. Pragmatic deficits and social impairment in children with ADHD. *J Child Psychol Psychiatr* 2013;**54**:1275–83. <http://dx.doi.org/10.1111/jcpp.12082>
34. Gillberg C, Gillberg IC, Rasmussen P, Kadesjö B, Söderström H, Råstam M, *et al.* Co-existing disorders in ADHD – implications for diagnosis and intervention. *Eur Child Adolesc Psychiatr* 2004;**13**:i80–92. <http://dx.doi.org/10.1007/s00787-004-1008-4>
35. Pajo B, Cohen D. The problem with ADHD: researchers' constructions and parents' accounts. *IJEC* 2012;**45**:11–33. <http://dx.doi.org/10.1007/s13158-012-0064-z>
36. O'Regan F. A review of SENCo and GP attitudes towards ADHD. *ADHD in Practice* 2009;**1**:4–7.
37. Bailey S. *Lost in Translation? Parental Agency and Specialist Therapeutics*. Paper presented at the British Sociological Association annual conference, University of Warwick, UK, 28–30 March 2008.
38. Mayes R, Bagwell C, Erkulwater J. ADHD and the rise in stimulant use among children. *Harv Rev Psychiatr* 2008;**16**:151–66. <http://dx.doi.org/10.1080/10673220802167782>
39. Scholtens S, Rydell A, Wallentin F. ADHD symptoms, academic achievement, self-perception of academic competence and future orientation: a longitudinal study. *Scand J Psychol* 2013;**54**:205–12. <http://dx.doi.org/10.1111/sjop.12042>
40. Elder T. The importance of relative standards in ADHD diagnoses: evidence based on exact birth dates. *J Health Econ* 2010;**29**:641–56. <http://dx.doi.org/10.1016/j.jhealeco.2010.06.003>
41. Bailey S, Thomson P. Routine (dis)order in an infant school. *Ethnography Educ* 2009;**4**:211–27. <http://dx.doi.org/10.1080/17457820902972879>
42. Timimi S, Taylor E. ADHD is best understood as a cultural construct. *Br J Psychiatr* 2004;**184**:8–9. <http://dx.doi.org/10.1192/bjp.184.1.8>
43. Hjärne E, Saljo R. 'There Is Something About Julia': symptoms, categories, and the process of invoking attention deficit hyperactivity disorder in the Swedish school: a case study. *J Lang Ident Educ* 2004;**3**:1–24. http://dx.doi.org/10.1207/s15327701jlie0301_1
44. Kiger G. Economic transformation and the processing of hyperactive school children. *Mid Am Rev Sociol* 2013;**10**:65–85.
45. Karnik Niranjana S. Categories of control: foster children and ADHD. *Child Youth Serv Rev* 2001;**23**:761–80. [http://dx.doi.org/10.1016/S0190-7409\(01\)00159-1](http://dx.doi.org/10.1016/S0190-7409(01)00159-1)
46. National Collaborating Centre for Mental Health (NCCMH). *The NICE Guideline on Diagnosis and Management of ADHD in Children, Young People and Adults*. London: NCCMH; 2011.
47. Hinshaw SP, Scheffler RM, Fulton BD, Aase H, Banaschewski T, Cheng W, *et al.* International variation in treatment procedures for ADHD: social context and recent trends. *Psychiatr Serv* 2011;**62**:459–64. http://dx.doi.org/10.1176/ps.62.5.pss6205_0459
48. Coghill D. Use of stimulants for attention deficit hyperactivity disorder: FOR. *BMJ* 2004;**329**:907. <http://dx.doi.org/10.1136/bmj.329.7471.907>
49. Baldwin S, Cooper P. How should ADHD be treated? *Psychologist* 2000;**13**:598–601.
50. Timimi S. Inappropriate use of psychostimulants. *Br J Psychiatr* 2003;**183**:173. <http://dx.doi.org/10.1192/bjp.183.2.173>
51. Care Quality Commission (CQC). *The Safer Management of Controlled Drugs: Annual Report 2012*. Newcastle: CQC; 2013.

52. Prasad V, Brogan E, Mulvaney C, Grainge M, Stanton W, Sayal K. How effective are drug treatments for children with ADHD at improving on-task behaviour and academic achievement in the school classroom? A systematic review and meta-analysis. *Eur Child Adolesc Psychiatr* 2013;**22**:203–16. <http://dx.doi.org/10.1007/s00787-012-0346-x>
53. Swanson JM, McBurnett K, Wigal T, Pfiffner LJ, Lerner MA, Williams L, et al. Effect of stimulant medication on children with attention deficit disorder: a 'review of reviews'. *Except Child* 1993;**60**:154–61.
54. Banaschewski T, Roessner V, Dittmann RW, Santosh PJ, Rothenberger A. Non-stimulant medications in the treatment of ADHD. *Eur Child Adolesc Psychiatr* 2004;**13**:i102–i116. <http://dx.doi.org/10.1007/s00787-004-1010-x>
55. Graham J, Banaschewski T, Buitelaar J, Coghill D, Danckaerts M, Dittmann RW, et al. European guidelines on managing adverse effects of medication for ADHD. *Eur Child Adolesc Psychiatr* 2011;**20**:17–37. <http://dx.doi.org/10.1007/s00787-010-0140-6>
56. Gilmore A, Milne R. Methylphenidate in children with hyperactivity: review and cost-utility analysis. *Pharmacoepidemiol Drug Saf* 2001;**10**:85–94. <http://dx.doi.org/10.1002/pds.564>
57. Lord J, Paisley S. *The Clinical Effectiveness and Cost-Effectiveness of Methylphenidate for Hyperactivity in Childhood*. London: National Institute for Health and Care Excellence; 2000.
58. Foster EM, Jensen PS, Schlander M, Pelham WE, Hechtman L, Arnold LE, et al. Treatment for ADHD: is more complex treatment cost-effective for more complex cases? *Health Serv Res* 2007;**42**:165–82. <http://dx.doi.org/10.1111/j.1475-6773.2006.00599.x>
59. Purdie N, Hattie J, Carroll A. A review of the research on interventions for attention deficit hyperactivity disorder: What works best? *Rev Educ Res* 2002;**72**:61–99. <http://dx.doi.org/10.3102/00346543072001061>
60. Abikoff H, Hechtman L. Multimodal Therapy and Stimulants in the Treatment of Children with ADHD. In Hibbs ED, Jensen PS, editors. *Psychosocial Treatments for Child and Adolescent Disorders: Empirically Based Strategies for Clinical Practice*. Washington, DC: American Psychological Association; 1996. pp. 341–69. <http://dx.doi.org/10.1037/10196-014>
61. Jensen PS, Hinshaw SP, Swanson JM, Greenhill LL, Conners CK, Arnold LE, et al. Findings from the NIMH Multimodal Treatment Study of ADHD (MTA): implications and applications for primary care providers. *J Dev Behav Pediatr* 2001;**22**:60–73. <http://dx.doi.org/10.1097/00004703-200102000-00008>
62. Sonuga-Barke EJ, Brandeis D, Cortese S, Daley D, Ferrin M, Holtmann M, et al. Nonpharmacological interventions for ADHD: systematic review and meta-analyses of randomized controlled trials of dietary and psychological treatments. *Am J Psychiatr* 2013;**170**:275–89. <http://dx.doi.org/10.1176/appi.ajp.2012.12070991>
63. Fabiano GA, Pelham WE Jr, Coles EK, Gnagy EM, Chronis-Tuscano A, O'Connor BC. A meta-analysis of behavioral treatments for attention-deficit/hyperactivity disorder. *Clin Psychol Rev* 2009;**29**:129–40. <http://dx.doi.org/10.1016/j.cpr.2008.11.001>
64. Pelham WE Jr, Fabiano GA. Evidence-based psychosocial treatments for attention-deficit/hyperactivity disorder. *J Clin Child Adolesc Psychol* 2008;**37**:184–214. <http://dx.doi.org/10.1080/15374410701818681>
65. Cohen J. A power primer. *Psychol Bull* 1992;**112**:155. <http://dx.doi.org/10.1037/0033-2909.112.1.155>
66. Pelham WE, Burrows-MacLean L, Gnagy EM, Fabiano GA, Coles EK, Tresco KE, et al. Transdermal methylphenidate, behavioral, and combined treatment for children with ADHD. *Exp Clin Psychopharmacol* 2005;**13**:111–26. <http://dx.doi.org/10.1037/1064-1297.13.2.111>

67. Willis WG, Weyandt LL, Lubiner AG, Schubart CD. Neurofeedback as a treatment for attention-deficit/hyperactivity disorder: A systematic review of evidence for practice. *J Appl Sch Psychol* 2011;**27**:201–27. <http://dx.doi.org/10.1080/15377903.2011.590746>
68. Lofthouse N, Arnold LE, Hersch S, Hurt E, DeBeus R. A review of neurofeedback treatment for pediatric ADHD. *J Atten Disord* 2012;**16**:351–72. <http://dx.doi.org/10.1177/1087054711427530>
69. Chronis AM, Jones HA, Raggi VL. Evidence-based psychosocial treatments for children and adolescents with attention-deficit/hyperactivity disorder. *Clin Psychol Rev* 2006;**26**:486. <http://dx.doi.org/10.1016/j.cpr.2006.01.002>
70. Barkley RA. Adolescents with attention-deficit/hyperactivity disorder: an overview of empirically based treatments. *J Psychiatr Pract* 2004;**10**:39–56. <http://dx.doi.org/10.1097/00131746-200401000-00005>
71. Sayal K, Ford T, Goodman R. Trends in recognition of and service use for attention-deficit hyperactivity disorder in Britain, 1999–2004. *Psychiatr Serv* 2010;**61**:803–10. <http://dx.doi.org/10.1176/ps.2010.61.8.803>
72. DuPaul GJ, Eckert TL, Vilaro B. The effects of school-based interventions for attention deficit hyperactivity disorder: a meta-analysis 1996–2010. *SPR* 2012;**41**:387–412.
73. Raggi VL, Chronis AM. Interventions to address the academic impairment of children and adolescents with ADHD. *Clin Child Fam Psychol Rev* 2006;**9**:85–111. <http://dx.doi.org/10.1007/s10567-006-0006-0>
74. Trout AL, Lienemann TO, Reid R, Epstein MH. A review of non-medication interventions to improve the academic performance of children and youth with ADHD. *Remedial and Special Education* 2007;**28**:207–26. <http://dx.doi.org/10.1177/07419325070280040201>
75. Reid R, Trout AL, Schartz M. Self-regulation interventions for children with attention deficit/hyperactivity disorder. *Except Child* 2005;**71**:361–77.
76. Murray DW, Rabiner DL, Hardy KK. Teacher management practices for first graders with attention problems. *J Atten Disord* 2011;**15**:638–45. <http://dx.doi.org/10.1177/1087054710378234>
77. Telford C, Green C, Logan S, Langley K, Thapar A, Ford T. Estimating the costs of ongoing care for adolescents with attention-deficit hyperactivity disorder. *Soc Psychiatry Psychiatr Epidemiol* 2013;**48**:337–44. <http://dx.doi.org/10.1007/s00127-012-0530-9>
78. Coalition for Evidence-Based Policy. *Identifying and implementing educational practices supported by rigorous evidence: A user-friendly guide*. Washington, DC: US Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance; 2003.
79. Cartwright N. RCTs, Evidence, and Predicting Policy Effectiveness. In Kincaid H, editor. *The Oxford Handbook of Philosophy of Social Science*. Oxford: Oxford University Press; 2012. pp. 298–318. <http://dx.doi.org/10.1093/oxfordhb/9780195392753.013.0013>
80. Cartwright N. A philosophers view of the long road from RCTs to effectiveness. *Lancet* 2011;**377**:1400–1. [http://dx.doi.org/10.1016/S0140-6736\(11\)60563-1](http://dx.doi.org/10.1016/S0140-6736(11)60563-1)
81. Hammersley M. On ‘systematic’ reviews of research literatures: a ‘narrative’ response to Evans & Benefield. *Br Educ Res J* 2013;**27**:553–4.
82. Elliott J. Making evidence-based practice educational. *Br Educ Res J* 2013;**27**:555–74. <http://dx.doi.org/10.1080/01411920120095735>
83. Conners CK, Sitarenios G, Parker JD, Epstein JN. Revision and restandardization of the Conners Teacher Rating Scale (CTRS-R): factor structure, reliability, and criterion validity. *J Abnorm Child Psychol* 1998;**26**:279–91. <http://dx.doi.org/10.1023/A:1022606501530>

84. Greenberg LM, Waldmant ID. Developmental normative data on the test of variables of attention (TOVA). *J Child Psychol Psychiatr* 1993;**34**:1019–30. <http://dx.doi.org/10.1111/j.1469-7610.1993.tb01105.x>
85. Wilkinson GS, Robertson GJ. *Wide Range Achievement Test (WRAT4)*. Lutz, FL: Psychological Assessment Resources; 2006.
86. Teddlie C, Tashakkori A. *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioural Sciences*. London: Sage; 2009.
87. Harden A, Thomas J. Methodological issues in combining diverse study types in systematic reviews. *Int J Soc Res Methodol* 2005;**8**:257–71. <http://dx.doi.org/10.1080/13645570500155078>
88. Noblit GW, Hare RD. *Meta-Ethnography: Synthesising Qualitative Studies*. Newbury Park, CA: Sage; 1988.
89. Fairclough N. *Language and Power*. 2nd edn. Harrow: Longman Publishers; 2001.
90. Garside R. *A Comparison of Methods for the Systematic Review of Qualitative Research: Two Examples Using Meta-Ethnography and Meta-Study*. Exeter: University of Exeter; 2008.
91. Gubrium J, Holstein J. *The New Language of Qualitative Method*. New York, NY: Oxford University Press; 1997.
92. Evidence for Policy and Practice Information and Co-ordinating Centre. *EPPI-Centre Methods for Conducting Systematic Reviews*. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London; 2010.
93. Rothman AJ. 'Is there nothing more practical than a good theory?': why innovations and advances in health behavior change will arise if interventions are used to test and refine. *Int J Behav Nutr Phys Activ* 2004;**1**:1–7. <http://dx.doi.org/10.1186/1479-5868-1-11>
94. Dombrowski SU, Sniehotta FF, Avenell A, Johnston M, MacLennan G, Araujo-Soares V. Identifying active ingredients in complex behavioural interventions for obese adults with obesity-related co-morbidities or additional risk factors for co-morbidities: a systematic review. *Health Psychol Rev* 2012;**6**:7–32. <http://dx.doi.org/10.1080/17437199.2010.513298>
95. Taylor N, Conner M, Lawton R. The impact of theory on the effectiveness of worksite physical activity interventions: a meta-analysis and meta-regression. *Health Psychol Rev* 2012;**6**:33–73. <http://dx.doi.org/10.1080/17437199.2010.533441>
96. Kamphaus RW, Reynolds CR. *Behavior Assessment System for Children Second Edition (BASC-2): Behavioral and Emotional Screening System (BESS)*. Bloomington, MN: Pearson; 2007.
97. Swanson JM. *School-Based Assessments and Interventions for ADD Students*. Irvine, CA: KC Publishing; 1992.
98. Conners CK. A teacher rating scale for use in drug studies with children. *Am J Psychiatr* 1969;**126**:884–8. <http://dx.doi.org/10.1176/ajp.126.6.884>
99. Pelham WE Jr, Gnagy EM, Greenslade KE, Milich R. Teacher ratings of DSM-III-R symptoms for the disruptive behavior disorders. *J Am Acad Child Adolesc Psychiatr* 1992;**31**:210–18. <http://dx.doi.org/10.1097/00004583-199203000-00006>
100. Achenbach TM. *Child Behavior Checklist/4–18*. Burlington, VT: University of Vermont; 1991.
101. Wolraich ML, Feurer ID, Hannah JN, Baumgaertel A. Vanderbilt ADHD teacher rating scale (VADTRS) and the Vanderbilt ADHD parent rating scale (VADPRS). *J Pediatr Psychol* 2003;**28**:559–67. <http://dx.doi.org/10.1093/jpepsy/jsg046>
102. Cocciarella A, Wood R, Low KG. Brief behavioral treatment for attention-deficit hyperactivity disorder. *Percept Mot Skills* 1995;**81**:225–6. <http://dx.doi.org/10.2466/pms.1995.81.1.225>

103. Cairns ED, Cammock T. Development of a more reliable version of the matching familiar figures test. *Dev Psychol* 1978;**14**:555. <http://dx.doi.org/10.1037/0012-1649.14.5.555>
104. Barkley RA, Shelton TL, Crosswait C, Moorehouse M, Fletcher K, Barrett S, *et al.* Multi-method psycho-educational intervention for preschool children with disruptive behavior: preliminary results at post-treatment. *J Child Psychol Psychiatry* 2000;**41**:319–32. <http://dx.doi.org/10.1111/1469-7610.00616>
105. DuPaul GJ, Rapport MD, Perriello LM. Teacher ratings of academic skills: the development of the Academic Performance Rating Scale. *Sch Psychol Rev* 1991;**20**:284–300.
106. Loney J. Hyperactivity, Inattention, and Aggression in Clinical Practice. In Wolraich M, editor. *Advances in Developmental and Behavioral Pediatrics*. Greenwich: CT: JAI Press; 1982. pp. 113–47.
107. Kendall PC, Wilcox LE. Self-control in children: development of a rating scale. *J Consult Clin Psychol* 1979;**47**:1020. <http://dx.doi.org/10.1037/0022-006X.47.6.1020>
108. Gordon M. *Tester For Measuring Impulsivity, Vigilance, and Distractibility*. U.S. Patent No. 4,730,253. Washington, DC: U.S. Patent and Trademark Office; 1988.
109. Sprafkin J, Gadow KD, Salisbury H, Schneider J, Loney J. Further evidence of reliability and validity of the Child Symptom Inventory-4: parent checklist in clinically referred boys. *J Clin Child Adolesc Psychol* 2002;**31**:513–24. http://dx.doi.org/10.1207/S15374424JCCP3104_10
110. Achenbach TM. *Integrative Guide for the 1991 CBCL/4–18, YSR, and TRF Profiles*. Burlington, VT: Department of Psychiatry, University of Vermont Burlington; 1991.
111. Reynolds CR. *Behavior Assessment System for Children*. Circle Pines, MN: American Guidance Service; 1992.
112. Barkley RA, Edelbrock CS. Assessing Situational Variation in Children’s Behavior Problems: The Home and School Situations Questionnaires. In Prinz R, editor. *Advances in Behavioural Assessment of Children and Families*. Greenwich, CT: JAI Press; 1987. pp. 157–76.
113. Gresham FM, Elliott SN. *Social Skills Rating System (SSRS)*. Circle Pines, MN: American Guidance Service; 1990.
114. Achenbach TM. Child Behavior Checklist and Related Instruments. In Maruish ME, editor. *The Use of Psychological Testing for Treatment Planning and Outcomes Assessment*. Hillsdale, NJ: Lawrence Erlbaum Associates Publishers; 1999.
115. Achenbach TM, Edelbrock CS. *Manual for the Teachers Report Form and Teacher Version of the Child Behavior Profile*. Burlington, VT: University of Vermont; 1986.
116. Pianta RC. *Manual and Scoring Guide for the Student–Teacher Relationship Scale*. Charlottesville, VA: University of Virginia; 1996.
117. Navarro AM, Peiró R, Llácer MD, y Silva F. Escala De Problemas De Conducta. In En Silva F, Martorell MC, editors. *Evaluacion Infanto Juvenil*. Madrid: MEPSA; 1993. pp. 31–81.
118. Achenbach TM, Edelbrock CS. *Manual for the Child Behavior Checklist and Child Behavior Profile*. Burlington, VT: University of Vermont; 1983.
119. Goyette CH, Conners CK, Ulrich RF. Normative data on revised Conners parent and teachers rating scales. *J Abnorm Child Psychol* 1978;**6**:221–36. <http://dx.doi.org/10.1007/BF00919127>
120. Piers EV. *Piers-Harris Children’s Self-Concept Scale: Revised Manual*. Los Angeles, CA: Western Psychological Services; 1984.
121. Merrell KW. *School Social Behavior Scales: Test Manual*. Brandon, VT: Clinical Psychology Publishing Company; 1993.

122. Walker HM, McConnell SR. *The Walker-McConnell Scale of Social Competence and School Adjustment: A Social Skills Rating Scale for Teachers*. Austin, TX: Pro-Ed; 1988.
123. Fabiano GA, Pelham J, Waschbusch DA, Gnagy EM, Lahey BB, Chronis AM, et al. A practical measure of impairment: psychometric properties of the impairment rating scale in samples of children with attention deficit hyperactivity disorder and two school-based samples. *J Clin Child Adolesc Psychol* 2006;**35**:369–85. http://dx.doi.org/10.1207/s15374424jccp3503_3
124. Coopersmith S. *Self-Esteem Inventories*. Palo Alto, CA: Consulting Psychologists Press; 1987.
125. Anesko KM, Schoiock G, Ramirez R, Levine FM. The homework problem checklist: assessing children's homework difficulties. *Behav Assess* 1987;**9**:179–85.
126. Abikoff HA, Gallagher R. Assessment and Remediation of Organizational Skills Deficits in Children with ADHD. In McBurnett K, Pfiffner L, editors. *Attention Deficit Hyperactivity Disorder: Concepts, Controversies, New Directions*. New York, NY: Information Healthcare USA; 2008. pp. 137–52.
127. Michael WB, Smith RA. The development and preliminary validation of three forms of a self-concept measure emphasizing school-related activities. *Educ Psychol Meas* 1976;**36**:521–8. <http://dx.doi.org/10.1177/001316447603600240>
128. Raven JC, Raven JC, Court JH. *Coloured Progressive Matrices*. Oxford: Oxford Psychologists Press; 1962.
129. Good RH, Kaminski RA. *DIBELS Oral Reading Fluency Passages for First Through Third Grades. Technical report*. Eugene, OR: University of Oregon; 2002.
130. Gates AI, MacGinitie WH. *Gates-MacGinitie Reading Tests*. New York, NY: Columbia University Teachers' College Press; 1965.
131. Wiederholt JL, Bryant BR. *GORT-4: Grey Oral Reading Tests*. 4th edn. Austin, TX: Pro-Ed; 2001.
132. Lindquist EF, Hieronymus AN. *Manual For Administrators, Supervisors, and Counselors: Iowa Tests of Basic Skills*. Iowa, IA: Iowa Testing Programs; 1964.
133. Berninger VW. *PAL: Process Assessment of the Learner, Test Battery for Reading and Writing*. San Antonio, TX: Psychological Corporation; 2001.
134. Wechsler D. *Wechsler Individual Achievement Test (WIAT-II UK)*. London: Harcourt Assessment; 2005.
135. Woodcock RW, McGrew KS, Mather N. *Woodcock–Johnson Tests of Achievement*. Itasca, IL: Riverside Publishing; 2001.
136. Abraham C, Michie S. A taxonomy of behavior change techniques used in interventions. *Health Psychol* 2008;**27**:379. <http://dx.doi.org/10.1037/0278-6133.27.3.379>
137. Michie S, Richardson M, Johnston M, Abraham C, Francis J, Eccles M. The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behavior change interventions. *Ann Behav Med* 2013;**46**:81–95. <http://dx.doi.org/10.1007/s12160-013-9486-6>
138. Skinner BF. Operant behavior. *Am Psychol* 1963;**18**:503. <http://dx.doi.org/10.1037/h0045185>
139. Kanfer FH, Karoly P. Self-Regulation and its Clinical Application: Some Additional Conceptualizations. In Johnson RC, Dokecki PR, Mowrer OH, editors. *Conscience, Contract and Social Reality*. New York, NY: Holt, Rinehart & Winston; 1972. pp. 428–38.
140. Borenstein M. Effect Sizes for Continuous Data. In Harris MC, Ledges LV, Valentine JC, editors. *The Handbook of Research Synthesis and Meta-Analysis*. New York, NY: Russell Sage Foundation; 2009. pp. 221–35.

141. Evans SW, Langberg J, Raggi V, Allen J, Buvinger EC. Development of a school-based treatment program for middle school youth with ADHD. *J Atten Disord* 2005;**9**:343–53. <http://dx.doi.org/10.1177/1087054705279305>
142. Rabiner DL, Murray DW, Skinner AT, Malone PS. A randomized trial of two promising computer-based interventions for students with attention difficulties. *J Abnorm Child Psychol* 2010;**38**:131–42. <http://dx.doi.org/10.1007/s10802-009-9353-x>
143. Dunson RM, Hughes JN, Jackson TW. Effect of behavioral consultation on student and teacher-behavior. *J Sch Psychol* 1994;**32**:247–66. [http://dx.doi.org/10.1016/0022-4405\(94\)90017-5](http://dx.doi.org/10.1016/0022-4405(94)90017-5)
144. Lipsey MW, Wilson DB. *Practical Meta-Analysis*. Thousand Oaks, CA: Sage; 2001.
145. Higgins J, Green S, Cochrane Collaboration. *Cochrane Handbook for Systematic Reviews of Interventions*. 5 edn. Chichester: The Cochrane Collaboration and John Wiley and Sons Ltd; 2008. <http://dx.doi.org/10.1002/9780470712184>
146. Miller WR, Wilbourne PL. Mesa Grande: a methodological analysis of clinical trials of treatments for alcohol use disorders. *Addiction* 2002;**97**:265–77. <http://dx.doi.org/10.1046/j.1360-0443.2002.00019.x>
147. Cochran WG. The combination of estimates from different experiments. *Biometrics* 1954;**10**:101–29. <http://dx.doi.org/10.2307/3001666>
148. Higgins J, Thompson SG, Deeks JJ, Altman DG. Measuring inconsistency in meta-analyses. *BMJ* 2003;**327**:557. <http://dx.doi.org/10.1136/bmj.327.7414.557>
149. Higgins J, Thompson SG. Quantifying heterogeneity in a meta-analysis. *Stat Med* 2002;**21**:1539–58. <http://dx.doi.org/10.1002/sim.1186>
150. Ahmed I, Sutton AJ, Riley RD. Assessment of publication bias, selection bias, and unavailable data in meta-analyses using individual participant data: a database survey. *BMJ* 2012;**344**:1–10. <http://dx.doi.org/10.1136/bmj.d7762>
151. Knapp G, Hartung J. Improved tests for a random effects meta-regression with a single covariate. *Stat Med* 2003;**22**:2693–710. <http://dx.doi.org/10.1002/sim.1482>
152. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred Reporting items for Systematic Reviews and Meta-Analyses: the PRISMA statement. *PLOS Med* 2009;**6**:1–6. <http://dx.doi.org/10.1371/journal.pmed.1000097>
153. Bloomquist ML, August GJ, Ostrander R. Effects of a school-based cognitive-behavioural intervention for ADHD children. *J Abnorm Child Psychol* 1991;**19**:591–605. <http://dx.doi.org/10.1007/BF00925822>
154. Cassar AG, Jang EE. Investigating the effects of a game-based approach in teaching word recognition and spelling to students with reading disabilities and attention deficits. *Aust J Learn Difficulties* 2010;**15**:193–211. <http://dx.doi.org/10.1080/19404151003796516>
155. Chacona SM. Effect of world music drumming on auditory and visual attention skills of ADHD elementary students. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2008;**68**:2817.
156. Cloward R. Self-monitoring increases time-on-task of attention deficit hyperactivity disordered students in the regular classroom. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2003;**64**:1524.
157. Denkowski KM, Denkowski GC. Is group progressive relaxation training as effective with hyperactive children as individual EMG biofeedback treatment? *Biofeedback Self Regul* 1984;**9**:353–64. <http://dx.doi.org/10.1007/BF00998978>

158. Denkowski KM, Denkowski GC, Omizo MM. The effects of EMG-assisted relaxation training on the academic performance, locus of control, and self-esteem of hyperactive boys. *Biofeedback Self Regul* 1983;**8**:363–75. <http://dx.doi.org/10.1007/BF00998746>
159. Evans SW, Schultz BK, Demars CE, Davis H. Effectiveness of the challenging horizons after-school program for young adolescents with ADHD. *Behav Ther* 2011;**42**:462–74. <http://dx.doi.org/10.1016/j.beth.2010.11.008>
160. Evans SW, Serpell ZN, Schultz BK, Pastor DA. Cumulative benefits of secondary school-based treatment of students with attention deficit hyperactivity disorder. *Sch Psychol Rev* 2007;**36**:256–73.
161. Fabiano GA, Vujnovic RK, Pelham WE, Waschbusch DA, Massetti GM, Pariseau ME, *et al*. Enhancing the effectiveness of special education programming for children with attention deficit hyperactivity disorder using a daily report card. *Sch Psychol Rev* 2010;**39**:219–39.
162. Frame K, Kelly L, Bayley E. Increasing perceptions of self-worth in preadolescents diagnosed with ADHD. *J Nurs Scholarsh* 2003;**35**:225–9. <http://dx.doi.org/10.1111/j.1547-5069.2003.00225.x>
163. Hoover VL. The effect of verbal self-instruction training on the cognitive styles of impulsive elementary school students. *Dissertation Abstracts International, Section A: The Humanities and Social Sciences* 1986;**47**:836.
164. Iseman JS, Naglieri JA. A cognitive strategy instruction to improve math calculation for children with ADHD and LD: a randomized controlled study. *J Learn Disabil* 2011;**44**:184–95. <http://dx.doi.org/10.1177/0022219410391190>
165. Jurbergs N, Palcic JL, Kelley ML. Daily behavior report cards with and without home-based consequences: improving classroom behavior in low income, African American children with ADHD. *Child Fam Behav Ther* 2010;**32**:177–95. <http://dx.doi.org/10.1080/07317107.2010.500501>
166. Khilnani S, Field T, Hernandez-Reif M, Schanberg S. Massage therapy improves mood and behavior of students with attention-deficit/hyperactivity disorder. *Adolescence* 2003;**38**:623–38.
167. Langberg JM, Epstein JN, Becker SP, Girio-Herrera E, Vaughn AJ. Evaluation of the homework, organization, and planning skills (HOPS) intervention for middle school students with attention deficit hyperactivity disorder as implemented by school mental health providers. *Sch Psychol Rev* 2012;**41**:342–64.
168. Langberg JM, Epstein JN, Urbanowicz CM, Simon JO, Graham AJ. Efficacy of an organization skills intervention to improve the academic functioning of students with attention-deficit/hyperactivity disorder. *Sch Psychol Q* 2008;**23**:407–17. <http://dx.doi.org/10.1037/1045-3830.23.3.407>
169. Lomas KM. Computer-assisted cognitive training with elementary school-age children diagnosed with attention-deficit/hyperactivity disorder and mild/moderate comorbidity: a short-term prospective study on attention, planning and behavior. *Dissertation Abstracts International: Section B: The Sciences and Engineering* 2002;**63**:535.
170. Looyeh MY, Kamali K, Shafieian R. An exploratory study of the effectiveness of group narrative therapy on the school behavior of girls with attention-deficit/hyperactivity symptoms. *Arch Psychiatr Nurs* 2012;**26**:404–10. <http://dx.doi.org/10.1016/j.apnu.2012.01.001>
171. McGraw TM, Burdette K, Chadwick K. *The Effects of a Consumer-Oriented Multimedia Game on the Reading Disorders of Children with ADHD*. Charleston, WV: AEL; 2004.
172. Molina BSG, Flory K, Bukstein OG, Greiner AR, Baker JL, Krug V, *et al*. Feasibility and preliminary efficacy of an after-school program for middle schoolers with ADHD: a randomised trial in a large public middle school. *J Atten Disord* 2008;**12**:207–17. <http://dx.doi.org/10.1177/1087054707311666>

173. Murray D, Rabiner D, Schulte A, Newitt K. Feasibility and integrity of a parent–teacher consultation intervention for ADHD students. *Child Youth Care Forum* 2008;**37**:111–26. <http://dx.doi.org/10.1007/s10566-008-9054-6>
174. Omizo MM. The effects of biofeedback-induced relaxation training in hyperactive adolescent boys. *J Psychol* 1980;**105**:131–8. <http://dx.doi.org/10.1080/00223980.1980.9915141>
175. Omizo MM. The effects of relaxation and biofeedback on dimensions of self concept (DOSC) among hyperactive male children. *Educ Res Q* 1980;**5**:22–30.
176. Omizo MM, Michael WB. Biofeedback-induced relaxation training and impulsivity, attention to task, and locus of control among hyperactive boys. *J Learn Disabil* 1982;**15**:414–16. <http://dx.doi.org/10.1177/002221948201500708>
177. Ostberg M, Rydell AM. An efficacy study of a combined parent and teacher management training programme for children with ADHD. *Nord J Psychiatr* 2012;**66**:123–30. <http://dx.doi.org/10.3109/08039488.2011.641587>
178. Poley JA. Effects of classroom cognitive behavioral training with elementary school ADHD students: a pilot study. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 1996;**56**:2616.
179. Reid MK, Borkowski JG. Causal attributions of hyperactive children: implications for teaching strategies and self-control. *J Educ Psychol* 1987;**79**:296. <http://dx.doi.org/10.1037/0022-0663.79.3.296>
180. Rickson DJ, Watkins WG. Music therapy to promote prosocial behaviors in aggressive adolescent boys – a pilot study. *J Music Ther* 2003;**40**:283–301. <http://dx.doi.org/10.1093/jmt/40.4.283>
181. Rivera E, Omizo MM. The effects of relaxation and biofeedback on attention to task and impulsivity among male hyperactive children. *Exceptional Child* 1980;**27**:41–51. <http://dx.doi.org/10.1080/0156655800270104>
182. Seeley JR, Small JW, Walker HM, Feil EG, Severson HH, Golly AM, *et al.* Efficacy of the first step to success intervention for students with attention-deficit/hyperactivity disorder. *Sch Ment Health* 2009;**1**:37–48. <http://dx.doi.org/10.1007/s12310-008-9003-4>
183. Steiner NJ, Sheldrick RC, Gotthelf D, Perrin EC. Computer-based attention training in the schools for children with attention deficit/hyperactivity disorder: a preliminary trial. *Clin Pediatr* 2011;**50**:615–22. <http://dx.doi.org/10.1177/0009922810397887>
184. Storer L. An evaluation of a cognitive–behavioural game therapy intervention on the self-efficacy of middle school students who exhibit behaviours associated with attention deficit hyperactivity disorder. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 1994;**55**:915.
185. van Lier PA, Muthén BO, van der Sar RM, Crijnen AA. Preventing disruptive behavior in elementary schoolchildren: impact of a universal classroom-based intervention. *J Consult Clin Psychol* 2004;**72**:467. <http://dx.doi.org/10.1037/0022-006X.72.3.467>
186. Van der Westhuizen B. *An Ecosystemic Approach to Addressing Attentional Difficulties and Heightened Motor Activity*. Pretoria, Gauteng: University of South Africa; 2007.
187. Zaghlawan HY, Ostrosky MM, Al-Khateeb JM. Decreasing the inattentive behavior of Jordanian children: a group experiment. *Educ Treat Child* 2007;**30**:49–64. <http://dx.doi.org/10.1353/etc.2007.0018>
188. Zentall SS, Lee J. A reading motivation intervention with differential outcomes for students at risk for reading disabilities, ADHD, and typical comparisons: 'clever is and clever does'. *Learn Disabil Q* 2012;**35**:248–59. <http://dx.doi.org/10.1177/0731948712438556>

189. Abikoff H. *Academic Cognitive Training and Stimulants in Hyperactivity: A Pilot Study*. Paper presented at the Annual Meeting of the American Psychological Association, Anaheim, CA, August 1983.
190. Bornas X, Servera M. Cognitive training programs to reduce impulsivity-related achievement problems: The need of in-classroom interventions. *Learn Instruct* 1992;**2**:89–100. [http://dx.doi.org/10.1016/0959-4752\(92\)90025-H](http://dx.doi.org/10.1016/0959-4752(92)90025-H)
191. Eastman BG, Rasbury WC. Cognitive self-instruction for the control of impulsive classroom behavior: ensuring the treatment package. *J Abnorm Child Psychol* 1981;**9**:381–7. <http://dx.doi.org/10.1007/BF00916842>
192. Harper K. *ADHD: Social Skills Effects on Impulsivity and Depression*. PhD thesis. Santa Barbara, CA: Fielding Institute; 1996.
193. Kapalka GM. Avoiding repetitions reduces ADHD children's management problems in the classroom. *Emot Behav Difficulties* 2005;**10**:269–79. <http://dx.doi.org/10.1177/1363275205058999>
194. Kendrick CP. A quasi-experimental study of the effect of feedback on the social behavior of school children with attention deficit hyperactivity disorder. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 1995;**55**:2275.
195. Miranda A, Jarque S, Rosel J. Treatment of children with ADHD: psychopedagogical program at school versus psychostimulant medication. *Psicothema* 2006;**18**:335–41.
196. Miranda A, Presentacion MJ, Soriano M. Effectiveness of a school-based multicomponent program for the treatment of children with ADHD. *J Learn Disabil* 2002;**35**:546–62. <http://dx.doi.org/10.1177/00222194020350060601>
197. Owens JS, Richerson L, Beilstein EA, Crane A, Murphy CE, Vancouver JB. School-based mental health programming for children with inattentive and disruptive behavior problems: first-year treatment outcome. *J Atten Disord* 2005;**9**:261–74. <http://dx.doi.org/10.1177/1087054705279299>
198. Poillion MJ. Effects of teacher training on the alteration of teacher instructional style and the academic success of students identified with attention-deficit hyperactivity disorder. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 1993;**54**:2121.
199. Re AM, Cornoldi C. ADHD at Five: A Diagnosis-Intervention Program. In Cook BG, Tankersley M, Landrum TJ, editors. *Advances in Learning and Behavioural Disabilities*. Bradford: Emerald Group Publishing Limited; 2007. pp. 223–40. [http://dx.doi.org/10.1016/S0735-004X\(07\)20009-6](http://dx.doi.org/10.1016/S0735-004X(07)20009-6)
200. Semrud-Clikeman M, Nielsen KH, Clinton A, Sylvester L, Parle N, Connor RT. An intervention approach for children with teacher- and parent-identified attentional difficulties. *J Learn Disabil* 1999;**32**:581–90. <http://dx.doi.org/10.1177/002221949903200609>
201. Verret C, Guay MC, Berthiaume C, Gardiner P, Beliveau L. A physical activity program improves behavior and cognitive functions in children with ADHD: an exploratory study. *J Atten Disord* 2012;**16**:71–80. <http://dx.doi.org/10.1177/1087054710379735>
202. Webber JA. Is there a relationship between the play attention program and improved student achievement? *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2012;**72**:4396.
203. Schwandt TA, Lincoln YS, Guba EG. Judging interpretations: but is it rigorous? trustworthiness and authenticity in naturalistic evaluation. *New Dir Eval* 2007;**114**:11–25. <http://dx.doi.org/10.1002/ev.223>
204. Collishaw S, Goodman R, Ford T, Rabe-Hesketh S, Pickles A. How far are associations between child, family and community factors and child psychopathology informant-specific and informant-general? *J Child Psychol Psychiatr* 2009;**50**:571–80. <http://dx.doi.org/10.1111/j.1469-7610.2008.02026.x>

205. Weisz JR, Jensen-Doss A, Hawley KM. Evidence-based youth psychotherapies versus usual clinical care: a meta-analysis of direct comparisons. *Am Psychol* 2006;**61**:671. <http://dx.doi.org/10.1037/0003-066X.61.7.671>
206. Kazdin AE. Evidence-based treatment and practice: new opportunities to bridge clinical research and practice, enhance the knowledge base, and improve patient care. *Am Psychol* 2008;**63**:146. <http://dx.doi.org/10.1037/0003-066X.63.3.146>
207. Michie S, Johnston M, Francis J, Hardeman W, Eccles M. From theory to intervention: mapping theoretically derived behavioural determinants to behaviour change techniques. *Appl Psychol* 2008;**57**:660–80 <http://dx.doi.org/10.1111/j.1464-0597.2008.00341.x>
208. Abraham C. Mapping Change Mechanisms onto Behaviour Change Techniques: A Systematic Approach to Promoting Behaviour Change through Text. In Abraham C, Kools M, editors. *Writing Health Communication: An Evidence-Based Guide*. London: Sage; 2011. pp. 99–116.
209. Bartholomew LK, Parcel GS, Kok G, Gottlieb NH, Fernandez ME. *Planning Health Promotion Programs: An Intervention Mapping Approach*. San Francisco, CA: Jossey-Bass; 2011.
210. Bandura A. Social cognitive theory of self-regulation. *Organ Behav Hum Decis Process* 1991;**50**:248–87. [http://dx.doi.org/10.1016/0749-5978\(91\)90022-L](http://dx.doi.org/10.1016/0749-5978(91)90022-L)
211. Michie S, Richardson M, Johnston M, Abraham C, Francis J, Eccles MP, et al. The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behavior change interventions. *Ann Behav Med* 2013;**46**:1–15. <http://dx.doi.org/10.1007/s12160-013-9486-6>
212. Centre for Reviews and Dissemination. *Systematic Reviews: CRD's Guidance for Undertaking Reviews in Health Care*. York: University of York; 2009.
213. Eckert TL, Hintze JM. Behavioral conceptions and applications of acceptability: issues related to service delivery and research methodology. *Sch Psychol Q* 2000;**15**:123. <http://dx.doi.org/10.1037/h0088782>
214. Fairbanks LD, Stinnett TA. Effects of professional group membership, intervention type, and diagnostic label on treatment acceptability. *Psychol Schools* 1997;**34**:329–35. [http://dx.doi.org/10.1002/\(SICI\)1520-6807\(199710\)34:4<329::AID-PITS4>3.0.CO;2-G](http://dx.doi.org/10.1002/(SICI)1520-6807(199710)34:4<329::AID-PITS4>3.0.CO;2-G)
215. Coles EK, Slavec J, Bernstein M, Baroni E. Exploring the gender gap in referrals for children with ADHD and other disruptive behavior disorders. *J Atten Disord* 2012;**16**:101–8. <http://dx.doi.org/10.1177/1087054710381481>
216. Kos JM. *Primary School Teachers' Knowledge, Attitudes and Behaviours Toward Children with Attention-Deficit/hyperactivity Disorder*. PhD thesis. Melbourne, VIC: RMIT University; 2004.
217. Graczyk PA, Atkins MS, Jackson MM, Letendre JA, Kim-Cohen J, Baumann BL, et al. Urban educators' perceptions of interventions for students with attention deficit hyperactivity disorder: a preliminary investigation. *Behav Disord* 2005;**30**:95–104.
218. Liu Y, Norman IJ, While AE. Nurses attitudes towards older people: a systematic review. *Int J Nurs Stud* 2013;**50**:1271–82. <http://dx.doi.org/10.1016/j.ijnurstu.2012.11.021>
219. Walburn J, Gray R, Gournay K, Quraishi S, David AS. Systematic review of patient and nurse attitudes to depot antipsychotic medication. *Br J Psychiatr* 2001;**179**:300–7. <http://dx.doi.org/10.1192/bjp.179.4.300>
220. Saunders KE, Hawton K, Fortune S, Farrell S. Attitudes and knowledge of clinical staff regarding people who self-harm: a systematic review. *J Affect Disord* 2012;**139**:205–16. <http://dx.doi.org/10.1016/j.jad.2011.08.024>

221. Waddell L, Taylor M. Attitudes of patients and mental health staff to antipsychotic long-acting injections: systematic review. *Br J Psychiatr* 2009;**195**:S43–S50. <http://dx.doi.org/10.1192/bjp.195.52.s43>
222. Curtis DF, Pisecco S, Hamilton RJ, Moore DW. Teacher perceptions of classroom interventions for children with ADHD: a cross-cultural comparison of teachers in the United States and New Zealand. *Sch Psychol Q* 2006;**21**:171–96. <http://dx.doi.org/10.1521/scpq.2006.21.2.171>
223. Eng RV. Improving treatment acceptability among teachers by increasing knowledge of ADHD. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2008;**68**:2807.
224. Girio EL, Owens JS. Teacher acceptability of evidence-based and promising treatments for children with attention-deficit/hyperactivity disorder. *School Ment Health* 2009;**1**:16–25. <http://dx.doi.org/10.1007/s12310-008-9001-6>
225. Pisecco S, Huzinec C, Curtis D. The effect of child characteristics on teachers' acceptability of classroom-based behavioral strategies and psychostimulant medication for the treatment of ADHD. *J Clin Child Psychol* 2001;**30**:413–21. http://dx.doi.org/10.1207/S15374424JCCP3003_12
226. Rowan LA. The effects of child diagnosis on teachers' judgements of treatment acceptability of classroom interventions. PhD thesis. Grand Forks, ND: University of North Dakota; 2000.
227. Schmalzer SN. *Teachers' Perceptions of Self-Management Interventions for ADHD: An Initial Investigation*. PsyD Dissertation. Chester, PA: Widener University; 2006.
228. Stinnett TA, Crawford SA, Gillespie MD, Cruce MK, Langford C. Factors affecting treatment acceptability for psychostimulant medication versus psychoeducational intervention. *Psychol Schools* 2001;**38**:585–91. <http://dx.doi.org/10.1002/pits.1045>
229. Stinson AM. *Teacher Beliefs About Children with Attention and Behavioral Difficulties*. PhD thesis. Oklahoma, OK: Oklahoma State University; 2009
230. Doak JS. The effect of teachers' beliefs, perceived stress, and student characteristics on teachers' acceptance of treatment interventions for attention deficit hyperactivity disorder. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2003;**64**:395.
231. Whitworth JE, Fossler T, Harbin G. Teachers' perceptions regarding educational services to students with attention deficit disorder. *Rural Educat* 1997;**19**:1–5.
232. Curtis DF. A cross-cultural comparison between United States and New Zealand teacher acceptability of interventions for children with attention deficit hyperactive disorder. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2003;**64**:394.
233. Alongi LM. School psychologists' perceived effectiveness of social skills training: a comparison across diagnosed populations. *Dissertation Abstracts International: Section B: The Sciences and Engineering* 2005;**66**:3393.
234. Askew BL. *Practices of Special Education Teachers for Dealing with Students with ADD/ADHD*. MA thesis. Chicago, IL: Saint Xavier University; 1993.
235. Bain SK, Brown KS, Jordan KR. Teacher candidates' accuracy of beliefs regarding childhood interventions. *Teach Educat* 2009;**44**:71–89. <http://dx.doi.org/10.1080/08878730902755523>
236. Conforti D. *Perceived Effectiveness of Classroom Management Interventions with Attention Deficit/Hyperactivity Disorder (ADHD) Students*. PhD thesis. Minneapolis, MN: Walden University; 2012.
237. Cornell-Swanson LV, Irwin M, Johnson K, Bowman K, Frankenberger W. The use of stimulant medication for treatment of attention-deficit/hyperactivity disorder: A survey of school social workers' knowledge, opinions/attitudes, and experience. *Sch Soc Work J* 2005;**29**:62–82.

238. Dryer R, Kiernan MJ, Tyson GA. Parental and professional beliefs on the treatment and management of ADHD. *J Atten Disord* 2012;**16**:398–405. <http://dx.doi.org/10.1177/1087054710392540>
239. Groenewald C, Emond A, Sayal K. Recognition and referral of girls with attention deficit hyperactivity disorder: case vignette study. *Child Care Health Dev* 2009;**35**:767–72. <http://dx.doi.org/10.1111/j.1365-2214.2009.00984.x>
240. Higgins MM. *Perceptions of 'Reasonable' Accommodations in General Education for Secondary School Students with ADHD: Treatment Acceptability Ratings of Teachers*. PhD thesis. Michigan, MI: Michigan State University; 1999.
241. Krowski KF. ADHD: Urban teachers' knowledge, beliefs and classroom practice. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2009;**70**:1555.
242. Nietfeld JL, Hunt AA. Elementary and pre-service teachers' strategies for working with students with hyperactivity. *Curr Issues Educ* 2005;**8**:16.
243. Ohan JL, Cormier N, Hepp SL, Visser TA, Strain MC. Does knowledge about attention-deficit/hyperactivity disorder impact teachers' reported behaviors and perceptions? *Sch Psychol Q* 2008;**23**:436–49. <http://dx.doi.org/10.1037/1045-3830.23.3.436>
244. Saddler ML. *Teacher Knowledge and Use of Effective Classroom Interventions For Managing Students with Educational Manifestations of Attention Deficit Hyperactivity Disorder*. Saint Louis, MO: Saint Louis University; 2007.
245. Stormont M, Stebbins MS. Teachers' comfort and importance ratings for interventions for preschoolers with AD/HD. *Psychol Schools* 2001;**38**:259–67. <http://dx.doi.org/10.1002/pits.1016>
246. Subramony R. Acceptability of treatment strategies for hyperactivity and attention problems of elementary grade students: a study of kindergarten, third, and fifth grade teachers. *Dissertation Abstracts International: Section B: The Sciences and Engineering* 2006;**67**:1184.
247. Vereb RL, DiPerna JC. Research brief: teachers' knowledge of ADHD, treatments for ADHD, and treatment acceptability: an initial investigation. *Sch Psychol Rev* 2004;**33**:421–8.
248. Whitworth JE. Classroom teachers' perceptions regarding educational services to students with attention deficit disorders. *Spec Serv Schools* 1998;**14**:41–50. http://dx.doi.org/10.1300/J008v14n01_03
249. Elliott SN, von Brock Treuting M. The behavior intervention rating scale: development and validation of a pretreatment acceptability and effectiveness measure. *J Sch Psychol* 1991;**29**:43–51. [http://dx.doi.org/10.1016/0022-4405\(91\)90014-I](http://dx.doi.org/10.1016/0022-4405(91)90014-I)
250. Dryer R, Kiernan MJ, Tyson GA. Implicit theories of the characteristics and causes of attention-deficit hyperactivity disorder held by parents and professionals in the psychological, educational, medical and allied health fields. *Aust J Psychol* 2006;**58**:79–92. <http://dx.doi.org/10.1080/00049530600730443>
251. Martens BK, Witt JC, Elliott SN, Darveaux DX. Teacher judgments concerning the acceptability of school-based interventions. *Prof Psychol Res Pract* 1985;**16**:191. <http://dx.doi.org/10.1037/0735-7028.16.2.191>
252. Osgood CE. *The Measurement of Meaning*. Champaign, IL: University of Illinois Press; 1957.
253. Power TJ, Hess LE, Bennett DS. The acceptability of interventions for attention-deficit hyperactivity disorder among elementary and middle school teachers. *J Dev Behav Pediatr* 1995;**16**:238–43. <http://dx.doi.org/10.1097/00004703-199508000-00005>
254. Kelley ML, Heffer RW, Gresham FM, Elliott SN. Development of a modified treatment evaluation inventory. *J Psychopathol Behav Assess* 1989;**11**:235–47. <http://dx.doi.org/10.1007/BF00960495>

255. Tarnowski KJ, Simonian SJ. Assessing treatment acceptance: the abbreviated acceptability rating profile. *J Behav Ther Exp Psychiatr* 1992;**23**:101–6. [http://dx.doi.org/10.1016/0005-7916\(92\)90007-6](http://dx.doi.org/10.1016/0005-7916(92)90007-6)
256. Zentall SS, Stormont-Spurgin M. Educator preferences of accommodations for students with attention deficit hyperactivity disorder. *Teach Educ Spec Educ* 1995;**18**:115–23. <http://dx.doi.org/10.1177/088840649501800205>
257. Miltenberger RG. Assessment of treatment acceptability a review of the literature. *Top Early Child Spec Educ* 1990;**10**:24–38. <http://dx.doi.org/10.1177/027112149001000304>
258. Husk K, Lovell R, Cooper C, Garside R. Participation in environmental enhancement and conservation activities for health and well-being in adults (protocol). *Cochrane Database Syst Rev* 2013;**2**:1–30.
259. Wiebe J, Nicol JJ. Juxtaposition: ADHD and music at school. *Can J Music Ther* 2007;**13**:171–3.
260. Hughes LA. The reality of living with AD/HD: children's concern about educational and medical support. *Emot Behav Difficult* 2007;**12**:69–80. <http://dx.doi.org/10.1080/13632750601135915>
261. Cooper P, Shea T. Pupils' perceptions of AD/HD. *Emot Behav Difficult* 1998;**3**:36–48. <http://dx.doi.org/10.1080/1363275980030306>
262. Carpenter L, Austin H. How to be recognized enough to be included? *Int J Inclusive Educ* 2008;**12**:35–48 <http://dx.doi.org/10.1080/13603110701683170>
263. McMahon SE. Doctors diagnose, teachers label: the unexpected in pre-service teachers' talk about labelling children with ADHD.? *Int J Inclusive Educ* 2012;**16**:249–64. <http://dx.doi.org/10.1080/13603116.2010.481799>
264. Hong Y. Teachers' perceptions of young children with ADHD in Korea. *Early Child Dev Care* 2008;**178**:399–414. <http://dx.doi.org/10.1080/03004430701321829>
265. Ljusberg AL. The structured classroom. *Int J Inclusive Educ* 2011;**15**:195–210. <http://dx.doi.org/10.1080/13603110902763433>
266. Malacrida C. Motherhood, resistance and attention deficit disorder: strategies and limits. *Can Rev Sociol Anthropol* 2001;**38**:141–65. <http://dx.doi.org/10.1111/j.1755-618X.2001.tb00968.x>
267. Wallace A, Croucher K, Quilgars D, Baldwin S. Meeting the challenge: developing systematic reviewing in social policy. *Pol Polit* 2004;**32**:455–70. <http://dx.doi.org/10.1332/0305573042009444>
268. Dixon-Woods M, Shaw RL, Agarwal S, Smith JA. The problem of appraising qualitative research. *Qual Safe Health Care* 2004;**13**:223–5. <http://dx.doi.org/10.1136/qshc.2003.008714>
269. Munro SA, Lewin SA, Smith HJ, Engel ME, Fretheim A, Vomink J. Patient adherence to tuberculosis treatment: a systematic review of qualitative research. *PLOS Med* 2007;**4**:1230–45. <http://dx.doi.org/10.1371/journal.pmed.0040238>
270. Smithson J, Garside R, Pearson M. Barriers to, and facilitators of, the prevention of unintentional injury in children in the home: a systematic review and synthesis of qualitative research. *Inj Prev* 2011;**17**:119–26. <http://dx.doi.org/10.1136/ip.2010.026989>
271. Atkins S, Lewin S, Smith H, Engel ME, Fretheim A, Vomink J. Conducting a meta-ethnography of qualitative literature: lessons learnt. *BMC Med Res Methodol* 2008;**8**:1–10. <http://dx.doi.org/10.1186/1471-2288-8-21>
272. Campbell R, Pound P, Morgan M, Daker-White G, Britten N, Pill R, et al. Evaluating meta-ethnography: systematic analysis and synthesis of qualitative research. *Health Technol Assess* 2011;**15**(43). <http://dx.doi.org/10.3310/hta15430>

273. Garside R. Should we appraise the quality of qualitative research reports for systematic reviews, and if so, how? *Innovat Eur J Soc Sci Res* 2014;**27**:67–79. <http://dx.doi.org/10.1080/13511610.2013.777270>
274. Schutz A. *Collected Papers*. The Hague: Martinus Nijhoff; 1971.
275. Popay J, Roberts H, Sowden A, Petticrew M, Arai L, Rodgers M, *et al*. *Guidance on the conduct of narrative synthesis in systematic reviews*. Lancaster: Institute for Health Research, Lancaster University; 2006.
276. Hibbitts P. We do this for the next child: s mother’s phenomenological auto narrative inquiry into experiencing her children’s schools. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2010;**71**:1152.
277. Pound P, Britten N, Morgan M, Yardley L, Pope C, Daker-White G, *et al*. Resisting medicines: a synthesis of qualitative studies of medicine taking. *Soc Sci Med* 2005;**61**:133–55. <http://dx.doi.org/10.1016/j.socscimed.2004.11.063>
278. Smagorinsky P, Cameron T, O’Donnell-Allen C. ‘Achtung’ maybe: a case study of the role of personal connection and art in the literary engagement of students with attentional difficulties. *Read Writ Q* 2007;**23**:333–58. <http://dx.doi.org/10.1080/10573560701501552>
279. Partridge L. *Teaching Adolescent AD/HD Boys Through ‘Self-Sufficient Reward Control’: A Sociological Investigation*. Lewiston, NY: Edwin Mellen Press; 2009.
280. Wong W. *An Investigation to Describe and Enhance the Metacognitive Processes of High School Students with Attention Deficit Hyperactivity Disorder and Learning Disability who Were Studying for an Examination*. PhD thesis. Calgary, AB: University of Calgary; 2004.
281. Koro-Ljungberg M, Bussing R, Williamson P, Wilder J, Mills T. African-American teenagers’ stories of attention deficit/hyperactivity disorder. *J Child Fam Stud* 2008;**17**:467–85. <http://dx.doi.org/10.1007/s10826-007-9168-8>
282. Williamson P, Koro-Ljungberg M, Bussing R. Analysis of critical incidents and shifting perspectives: transitions in illness careers among adolescents with ADHD. *Qual Health Res* 2009;**19**:352. <http://dx.doi.org/10.1177/1049732308329683>
283. Davison JC, Ford DY. Perceptions of attention deficit hyperactivity disorder in one African American community. *J Negro Educ* 2001;**70**:264–74. <http://dx.doi.org/10.2307/3211279>
284. Taylor M, Houghton S. Examination-related anxiety in students diagnosed with AD/HD and the case for an allocation of extra time: perspectives of teachers, mothers and students. *Emot Behav Difficult* 2008;**13**:111–25. <http://dx.doi.org/10.1080/13632750802027663>
285. Saldana J. *The Coding Manual for Qualitative Researchers*. London: Sage; 2009.
286. Arcia E, Frank R, Sanchez-LaCay A, Fernandez MC. Teacher understanding of ADHD as reflected in attributions and classroom strategies. *J Atten Disord* 2000;**4**:91–101. <http://dx.doi.org/10.1177/108705470000400203>
287. Bartlett TR, Rowe T, Shattell M. Perspectives of college students with childhood AD/HD. *MCN Am J Matern Child Nurs* 2010;**35**:226–31. <http://dx.doi.org/10.1097/NMC.0b013e3181de3bb3>
288. Bos CS, Nahmias ML, Urban MA. Implementing interactive professional development in a workshop course on educating students with AD/HD. *Teach Educ Spec Educ* 1997;**20**:132–45. <http://dx.doi.org/10.1177/088840649702000207>
289. Ducharme S. *Parents’ Perceptions of Raising a Child with Attention Deficit Hyperactivity Disorder*. PhD thesis. Tuscaloosa, AL: The University of Alabama; 1996.

290. Edwards K. The learning experiences and preferred educational strategies of children who have been identified as gifted with ADHD. *Australas J Gifted Educ* 2008;**17**:15–22.
291. Einarsdottir J. Teaching children with ADHD: Icelandic early childhood teachers' perspectives. *Early Child Dev Care* 2008;**178**:375–97. <http://dx.doi.org/10.1080/03004430701321696>
292. Furtick KC. *Successful Strategies Used with ADHD Students: Is an ADHD Classroom a Possibility?* PhD thesis. Minneapolis, MN: Capella University; 2010.
293. Hands RE. The phenomenon of underachievement: listening to the voice of a twice exceptional adolescent. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2009;**70**:3351.
294. Hillman MK. An examination of teachers' recommendations for children with ADHD. *Dissertation Abstracts International: Section B: The Sciences and Engineering* 2011;**72**:535.
295. Hjörne E. Pedagogy in the 'ADHD Classroom': An Exploration of 'The Little group'. In Lloyd G, Stead J, Cohen D, editors. *Critical New Perspectives on ADHD*. London: Routledge; 2006. pp. 176–97.
296. Houghton S, Carroll A, Taylor M, O'Donoghue T. *From Traditional to Ecological: Understanding Attention Deficit Disorders Through Quantitative and Qualitative Research*. New York, NY: Nova Science Publishers; 2006.
297. Isaksson J, Lindqvist R, Bergstrom E. Struggling for recognition and inclusion-parents' and pupils' experiences of special support measures in school. *Int J Qual Stud Health Well-Being* 2010;**5**:10. <http://dx.doi.org/10.3402/qhw.v5i1.4646>
298. Jones DB. Phenomenological study: what are pre-kindergarten teachers' lived experiences with children identified with conduct disorder, oppositional defiance disorder, and attention-deficit hyperactivity disorder in the southeastern United States? *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2008;**69**:1663.
299. Kendall J, Hatton D, Beckett A, Leo M. Children's accounts of attention-deficit/hyperactivity disorder. *Adv Nurs Sci* 2003;**26**:114–30. <http://dx.doi.org/10.1097/00012272-200304000-00004>
300. Kreiss DS. *Case Studies of the Experiences of Students Referred for Problems of Disruptive and/or Aggressive Behavior to an Alternative High School Program*. PsyD dissertation. New Brunswick, NJ: Rutgers University; 2003.
301. Langberg JM, Vaughn AJ, Williamson P, Epstein JN, Girio-Herrera E, Becker SP. Refinement of an organizational skills intervention for adolescents with ADHD for implementation by school mental health providers. *School Ment Health* 2011;**3**:143–55. <http://dx.doi.org/10.1007/s12310-011-9055-8>
302. Ljusberg A. Children's views on attending a remedial class – because of concentration difficulties. *Child Care Health Dev* 2011;**37**:440–5. <http://dx.doi.org/10.1111/j.1365-2214.2010.01178.x>
303. McNeil KN. Through our eyes: the shared lived experiences of growing up attention deficit hyperactive disorder. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2005;**66**:2049.
304. Mulligan S. Classroom strategies used by teachers of students with attention deficit hyperactivity disorder. *Phys Occup Ther Pediatr* 2001;**20**:25–44. http://dx.doi.org/10.1080/J006v20n04_03
305. Nowacek EJ, Mamlin N. General Education Teachers and Students with ADHD: What Modifications Are Made? *Prev Sch Fail* 2007;**51**:28–35. <http://dx.doi.org/10.3200/PSFL.51.3.28-35>
306. Ozdemir S. The first step to success program: implementation effectiveness with Turkish children with attention deficit hyperactivity disorder. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2006;**67**:2115.

307. Prosser BJ. Beyond ADHD: A consideration of attention deficit hyperactivity disorder and pedagogy in Australian schools. *Int J Inclusive Educ* 2008;**12**:81–97. <http://dx.doi.org/10.1080/13603110701683147>
308. Rafalovich A. *Framing ADHD Children: A Critical Examination of the History, Discourse, and Everyday Experience of Attention Deficit*. Lanham, MD: Lexington Books; 2004.
309. Santamaria M. School counselors' strategies supporting Vygotsky's theory and affecting behavior of Hispanic English Language Learners (ELL) with ADHD in second grade. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2009;**70**:448.
310. Taylor Wilcoxson JL. *Attention Deficit Hyperactivity Disorder and Creative Potential of Children: A Multiple Case Study*. PhD thesis. Oakland, CA: Saybrook University; 2005.
311. Wiebe JE. *ADHD, The Classroom and Music: A Case Study*. Master of Education (M.Ed.). Saskatchewan: University of Saskatchewan; 2007.
312. Young S, Chesney S, Sperlinger D, Misch P, Collins P. A qualitative study exploring the life-course experiences of young offenders with symptoms and signs of ADHD who were detained in a residential care setting. *Crim Behav Ment Health* 2009;**19**:54–63. <http://dx.doi.org/10.1002/cbm.721>
313. Zimmermann SH. *Portrait of Success: A Situational Analysis Case Study of Students Challenged by Attention-Deficit/Hyperactivity Disorder*. PhD thesis. Minneapolis, MN: Walden University; 1998.
314. Prosser BJ. *Seeing Red: A Case of Critical Narrative in ADHD Research*. Teneriffe, QLD: Post Pressed; 2006.
315. Miles MB, Huberman AM. *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, CA: Sage; 1994.
316. Moustakas C. *Heuristic Research: Design, Methodology, and Applications*. Newbury Park, CA: Sage; 1990.
317. Kvale S. *Interviews: An Introduction to Qualitative Research Interviewing*. Thousand Oaks, CA: Sage; 1996.
318. Stake RE. *The Art of Case Study Research*. Thousand Oaks, CA: Sage Publications; 1995.
319. Campbell R, Pound P, Pope C, Britten N, Pill R, Morgan M, et al. Evaluating meta-ethnography: a synthesis of qualitative research on lay experiences of diabetes and diabetes care. *Soc Sci Med* 2003;**56**:671–84. [http://dx.doi.org/10.1016/S0277-9536\(02\)00064-3](http://dx.doi.org/10.1016/S0277-9536(02)00064-3)
320. Smith LK, Pope C, Botha JL. Patients' help-seeking experiences and delay in cancer presentation: a qualitative synthesis. *Lancet* 2005;**366**:825–31. [http://dx.doi.org/10.1016/S0140-6736\(05\)67030-4](http://dx.doi.org/10.1016/S0140-6736(05)67030-4)
321. Hooper S, Rieber LP. Teaching With Technology. In Ornstein AC, editor. *Teaching: Theory into Practice*. Needham Heights, MA: Allyn and Bacon; 1995. pp. 154–70.
322. Goffman E. *Stigma: Notes on the Management of Spoiled Identity*. Englewood Cliffs, NJ: Prentice-Hall Inc.; 1963.
323. Galinsky AD, Hugenberg K, Groom C, Bodenhausen GV. The reappropriation of stigmatizing labels: Implications for social identity. *Res Manag Group Team* 2003;**5**:221–56. [http://dx.doi.org/10.1016/S1534-0856\(02\)05009-0](http://dx.doi.org/10.1016/S1534-0856(02)05009-0)
324. Lee K. ADHD in American early schooling: from a cultural psychological perspective. *Early Child Dev Care* 2008;**178**:415–39. <http://dx.doi.org/10.1080/03004430701321852>
325. Malcolm H, Wilson V, Davidson J, Kirk S. *Absence From Schools: A Study of its Causes and Effects in Seven LEAs*. Nottingham: Department for Education and Skills; 2003.

326. Hardre PL, Sullivan DW, Crowson HM. Student characteristics and motivation in rural high schools. *J Res Rural Educ* 2009;**24**:1–19.
327. Goldstein S, Naglieri JA. The school neuropsychology of ADHD: theory, assessment, and intervention. *Psychol School* 2008;**45**:859–74. <http://dx.doi.org/10.1002/pits.20331>
328. Barbour RS. Checklists for improving rigour in qualitative research: a case of the tail wagging the dog? *BMJ* 2001;**322**:1115. <http://dx.doi.org/10.1136/bmj.322.7294.1115>
329. Patton MQ. *Qualitative Research*. Chichester: Wiley Online Library; 2005. <http://dx.doi.org/10.1002/0470013192.bsa514>
330. Hartnett DN, Nelson JM, Rinn AN. Gifted or ADHD? The possibilities of misdiagnosis. *Roeper Review* 2004;**26**:73–6. <http://dx.doi.org/10.1080/02783190409554245>
331. Brice PJ. The experience of learning for youth diagnosed with attention deficit hyperactivity disorder. *Dissertation Abstracts International: Section B: The Sciences and Engineering* 1998;**58**:6801.
332. Exley B. 'Staying in class so no one can get to him': a case for the institutional reproduction of ADHD categories and behaviours. *Int J Inclusive Educ* 2008;**12**:65–80. <http://dx.doi.org/10.1080/13603110701683196>
333. Friio SS. The experiences of adolescents with ADHD: a phenomenological study. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 1999;**59**:4357.
334. McDannel RP. Classroom occupations from the perspectives of three high school students with attention deficit disorder. *Dissertation Abstracts International: Section A: Humanities and Social Sciences* 2005;**65**:2550.
335. Taylor M, Houghton SJ. Difficulties in initiating and sustaining peer friendships: perspectives on students diagnosed with AD/HD. *Br J Spec Educ* 2008;**35**:209–19. <http://dx.doi.org/10.1111/j.1467-8578.2008.00398.x>
336. Wolfberg PJ, Zercher C, Lieber J, Capell K, Matias S, Hanson M, et al. 'Can I play with you?' Peer culture in inclusive preschool programs. *J Assoc Pers Sev Handicaps* 1999;**24**:69–84. <http://dx.doi.org/10.2511/rpsd.24.2.69>
337. Exley B. *The Behaviour 'Crisis': Young Children's Mis/Understandings of the Identities of ADHD*. Paper presented at the Australian Association for Research in Education 'Creative Dissent: Constructive Solutions' Conference, 27 November to 1 December 2005, University of Western Sydney, Sydney, Australia.
338. Exley B. Young children's mis/understandings of the ADHD label. *Educ Young Child* 2007;**13**:38–40.
339. Fairclough N. *Analysing Discourse: Textual Analysis for Social Research*. London: Routledge; 2003.
340. Clandinin D, Connelly F. Personal Experience Methods. In Denzin N, Lincoln Y, editors. *Handbook of Qualitative Research*. 1st edn. Newbury Park, CA: Sage; 1994. pp. 413–27.
341. Wakefield J. The concept of mental disorder: on the boundary between biological facts and social values. *Am Psychol* 1992;**47**:373–88. <http://dx.doi.org/10.1037/0003-066X.47.3.373>
342. Haimes E. What can the social sciences contribute to the study of ethics? Theoretical, empirical and substantive considerations. *Bioethics* 2002;**16**:89–113. <http://dx.doi.org/10.1111/1467-8519.00273>
343. Bronfenbrenner U. *The Ecology of Human Development*. Cambridge, MA: Harvard University Press; 1979.
344. Kidd AC. *Sleep Disorders in Children: A Qualitative Research Study on the Comparison of Behavioral Symptoms Associated With Poor Quality Sleep and ADHD*. San Diego, CA: Alliant International University; 2009.

345. Gross C, Rinn AN, Jamieson KM. Gifted adolescents' overexcitabilities and self-concepts: an analysis of gender and grade level. *Roeper Review* 2007;**29**:240–8. <http://dx.doi.org/10.1080/02783190709554418>
346. Nelson JM, Rinn AN, Hartnett DN. The possibility of misdiagnosis of giftedness and ADHD still exists: a response to Mika. *Roeper Review* 2006;**28**:243–8. <http://dx.doi.org/10.1080/02783190609554371>
347. Rafalovich A. Relational troubles and semiofficial suspicion: educators and the medicalization of 'unruly' children. *Symbolic Interact* 2005;**28**:25–46. <http://dx.doi.org/10.1525/si.2005.28.1.25>
348. Thornicroft G. *Shunned: Discrimination Against People with Mental Illness*. Oxford: Oxford University Press; 2006.
349. Bruner JL. *Acts of Meaning*. Cambridge, MA: University of Harvard Press; 1990.
350. Erikson E. *Identity and the Life Cycle*. New York, NY: InterVarsity Press; 1959.
351. Rogers C. *Client-Centred Therapy*. Boston, MA: Houghton Mifflin; 1951.
352. Rapaport J, Buschbaum M. Dextroamphetamine: its cognitive and behavioural effects in normal and hyperactive boys and normal men. *Arch Gen Psychiatr* 1980;**37**:933–43. <http://dx.doi.org/10.1001/archpsyc.1980.01780210091010>
353. Elia J, Rapaport J, Kirby J. Pharmacological treatment of attention deficit hyperactivity disorder. *Psychiatr Res* 1991;**36**:141–55. [http://dx.doi.org/10.1016/0165-1781\(91\)90126-A](http://dx.doi.org/10.1016/0165-1781(91)90126-A)
354. Braun V, Clarke V. Using thematic analysis in psychology. *Res Psychol* 2006;**3**:77–101. <http://dx.doi.org/10.1191/1478088706qp063oa>
355. Moustakas C. *Phenomenological Research Methods*. Thousand Oaks, CA: Sage; 1994.
356. Watson C. Home–school partnership and the construction of deviance: being and becoming the Goldfish family. *J Res Spec Educ Needs* 2011;**11**:20–9. <http://dx.doi.org/10.1111/j.1471-3802.2010.01183.x>
357. Nourot PM. Historical Perspectives on Early Childhood Education. In Roopnarine JL, Johnson JE, editors. *Approaches to Early Childhood Education*. Upper Saddle River, NJ: Prentice Hall; 2003. pp. 3–43.
358. O'Farrell C. *Michel Foucault*. London: Sage; 2005.
359. Margalit M, Raskind MH, Higgins EL, Russo-Netzer P. Mothers' voices on the internet: stress, support and perceptions of mothers of children with learning disabilities and attention deficit/hyperactivity disorder. *J Learn Disabil* 2010;**16**:3–14.
360. Reid R, Hertzog M, Snyder M. Educating every teacher, every year: the public schools and parents of children with ADHD. *Semin Speech Lang* 1996;**17**:73–90. <http://dx.doi.org/10.1055/s-2008-1064089>
361. Singh I. Doing their jobs: mothering with Ritalin in a culture of mother-blame. *Soc Sci Med* 2004;**59**:1193–205. <http://dx.doi.org/10.1016/j.socscimed.2004.01.011>
362. Butler J. *Excitable Speech: A Politics of the Performative*. New York, NY: Routledge; 1997.
363. Butler J. *Precarious Life: The Powers of Mourning and Violence*. London: Verso; 2004.
364. Fraser N. *Justice Interruptus: Critical Reflections on the 'Postsocialist Condition'*. New York, NY: Routledge; 1997.
365. Fraser N. Rethinking recognition. *NLR* 2000;**3**:107–20.

366. Fraser N. Social Justice in the Age of Identity Politics: Redistribution, Recognition and Participation. In Fraser N, Honneth A, editors. *Redistribution or Recognition? A Political–Philosophical Exchange*. New York, NY: Verso; 2003. pp. 7–109.
367. Graham L. Caught in the net: a Foucaultian interrogation of the incidental effects of limited notions of inclusion. *Int J Inclusive Educ* 2006;**10**:3–25. <http://dx.doi.org/10.1080/13603110500173217>
368. Graham L. From ABCs to ADHD: the role of schooling in the construction of behaviour disorder and production of disorderly updates. *Int J Inclusive Educ* 2008;**12**:7–33. <http://dx.doi.org/10.1080/13603110701683311>
369. van Manen M. *Researching Lived Experience*. London, ON: The Althouse Press; 1990.
370. van Manen M. *Writing in the Dark: Phenomenological Studies Interpretive Inquiry*. London, ON: Althouse Press; 2002.
371. Porter R. *A Social History of Madness: Stories of the Insane*. London: Phoenix; 1987.
372. Miller WL, Crabtree BL. Clinical Research. In Denzin NK, Lincoln YS, editors. *Strategies of Qualitative Research*. Thousand Oaks, CA: Sage; 1998. pp. 292–314.
373. Fleischmann A. Narratives published on the internet by parents of children with autism: what do they reveal and why is it important? *Focus Autism Other Dev Disabil* 2004;**19**:35–43. <http://dx.doi.org/10.1177/10883576040190010501>
374. Hinshaw SP. The stigmatization of mental illness in children and parents: developmental issues, family concerns, and research needs. *J Child Psychol Psychiatr* 2005;**46**:714. <http://dx.doi.org/10.1111/j.1469-7610.2005.01456.x>
375. Bronowski J, Mazlish B. *The Western Intellectual Tradition from Leonardo to Hegel*. London: Hutchinson; 1960.
376. MacLure M. A demented form of the familiar: postmodernism and educational research. *J Philos Educ* 2006;**40**:223–39. <http://dx.doi.org/10.1111/j.1467-9752.2006.00505.x>
377. Eisner EW. The promise and perils of alternative forms of data representation. *Educ Res* 2013;**26**:4–10. <http://dx.doi.org/10.3102/0013189X026006004>
378. Barone T. A return to the gold standard? Questioning the future of narrative construction as educational research. *Qual Inq* 2007;**13**:454–70. <http://dx.doi.org/10.1177/1077800406297667>
379. Clough P. *Narratives and Fictions in Educational Research*. Buckinghamshire: Open University Press; 2002.
380. Margalit M, Raskind MH. Mothers of Children with LD and ADHD: empowerment through online communication. *J Spec Educ Tech* 2009;**24**:2.
381. Hooks b. *Yearning: Race, Gender, and Cultural Politics*. Boston, MA: South End Press; 1990.
382. Maréchal G. Autoethnography. In Mills AJ, Durepos G, Wiebe E, editors. *Encyclopedia of Case Study Research*. 2nd edn. Thousand Oaks, CA: Sage; 2010. pp. 43–5. <http://dx.doi.org/10.4135/9781412957397.n19>
383. Carpenter L, Austin H. Silenced, silence, silent: motherhood in the margins. *Qual Inq* 2007;**13**:660–74. <http://dx.doi.org/10.1177/1077800407301179>
384. Singh I. ADHD, culture and education. *Early Child Dev Care* 2008;**178**:347–61. <http://dx.doi.org/10.1080/03004430701321555>
385. Heller J. *Catch-22*. London: Corgi Books; 1955.

386. Watson SMR, Richels C, Michalek AP, Raymer A. Psychosocial treatments for ADHD: a systematic appraisal of the evidence. *J Atten Disord* 2012;**19**:3–10. <http://dx.doi.org/10.1177/1087054712447857>
387. Fuemmeler BF, Østbye T, Yang C, McClernon FJ, Kollins SH. Association between attention-deficit/hyperactivity disorder symptoms and obesity and hypertension in early adulthood: a population-based study. *Int J Obes* 2011;**35**:852–62. <http://dx.doi.org/10.1038/ijo.2010.214>
388. Blaine B. *Understanding the Psychology of Diversity*. Thousand Oaks, CA: Sage; 2007.
389. Scott JC. *Weapons of the Weak: Everyday Forms of Peasant Resistance*. New Haven, CT: Yale University Press; 1985.
390. Guevara JP, Feudtner C, Romer D, Power T, Eiraldi R, Nihtianova S, et al. Fragmented care for inner-city minority children with attention-deficit/hyperactivity disorder. *Pediatrics* 2005;**116**:e512–e517. <http://dx.doi.org/10.1542/peds.2005-0243>
391. Koro-Ljungberg M, Bussing R, Wilder J, Gary F. Role of communication in the context of educating children with attention-deficit/hyperactivity disorder: parents' and teachers' perspectives. *J Sch Publ Relat* 2011;**32**:41–75.
392. Shea B, Wiener J. Social exile: the cycle of peer victimization for boys with ADHD. *Can J Sch Psychol* 2003;**18**:55–90. <http://dx.doi.org/10.1177/082957350301800104>
393. Silverman LK. *Counseling the Gifted & Talented*. Denver, CO: LOVE Publishing; 1993.
394. Tolan S. Special problems of young highly gifted children. *Understanding Our Gifted* 1989;**1**:7–10.
395. Lovecky DV. *Different Minds: Gifted Children with AD/HD, Asperger's Syndrome, and Other Learning Deficits*. Philadelphia, PA: Jessica Kingsley Publishers; 2004.
396. Snyder CR. *The Psychology of Hope: You Can There From Here*. New York, NY: Free Press; 1994.
397. Snyder CR, Shorey HS, Cheavens J, Pulvers KM, Adams VH, Wiklund C. Hope and academic success in college. *J Educ Psychol* 2002;**94**:820–33. <http://dx.doi.org/10.1037/0022-0663.94.4.820>
398. LeCompte M, Schensul J. *Analyzing and Interpreting Ethnographic Data*. Walnut Creek, CA: AltaMira Press; 1999.
399. Spradley J. *You Owe Yourself A Drunk: An Ethnography of Urban Nomads*. Boston, MA: Little, Brown; 1970.
400. Spradley J. *The Ethnographic Interview*. New York, NY: Hold, Rinehart and Winston; 1979.
401. Blommaert J, Bulcaen C. Critical discourse analysis. *Annu Rev Anthropol* 2000;**29**:447–66. <http://dx.doi.org/10.1146/annurev.anthro.29.1.447>
402. Wodak R. Critical Discourse Analysis and the Study of Doctor–Patient Interaction. In Gunnarsson BL, Linell P, Nordberg B, editors. *The Construction of Professional Discourse*. London: Longman; 1997.
403. Becker HS. *Outsiders: Studies in the Sociology of Deviance*. New York, NY: Free Press; 1963.
404. Emerson RM, Messinger SL. The micro-politics of trouble. *Soc Probl* 1977;**38**:198–212. <http://dx.doi.org/10.2307/800529>
405. Conrad P. *Identifying Hyperactive Children: The Medicalization of Deviant Behavior*. Lexington, MA: Lexington Books; 1976.
406. Conrad P, Schneider JW. *Deviance and Medicalization: From Badness to Sickness*. Philadelphia, PA: Temple University Press; 1992.
407. Olweus D. *Bullying At School: What We Know and What We Can Do*. Oxford: Blackwell; 1993.

408. Olweus D. Peer Harassment: A Critical Analysis and Some Important Issues. In Juvonen J, Graham S, editors. *Peer Harassment in School: The Plight of the Vulnerable and Victimized*. New York, NY: The Guildford Press; 2001. pp. 3–20.
409. Swann W. *'Dyslexia', Unit 25 Block 4 E206 of Personality, Development and Learning*. Milton Keynes: Open University Press; 1985.
410. Singer E. The strategies adopted by Dutch children with dyslexia to maintain their self-esteem when teased at school. *J Learn Disabil* 2005;**38**:411–23. <http://dx.doi.org/10.1177/00222194050380050401>
411. Noyes J, Lewin S, Hannes K, Harden A, Harris J, Lewin S, et al. Supplemental Guidance on Selecting a Method of Qualitative Evidence Synthesis, and Integrating Qualitative Evidence with Cochrane Intervention Reviews. In Noyes J, Booth AH, editors. *Supplementary Guidance for Inclusion of Qualitative Research in Cochrane Systematic Reviews of Interventions*. Cochrane Collaboration Qualitative Methods Group; 2011.
412. Thomas J, Harden A, Oakley A, Oliver S, Sutcliffe K, Rees R, et al. Integrating qualitative research with trials in systematic reviews. *BMJ* 2004;**328**:1010. <http://dx.doi.org/10.1136/bmj.328.7446.1010>
413. Noyes J, Popay J. Directly observed therapy and tuberculosis: how can a systematic review of qualitative research contribute to improving services? A qualitative meta-synthesis. *J Adv Nurs* 2007;**57**:227–43. <http://dx.doi.org/10.1111/j.1365-2648.2006.04092.x>
414. Montuori A. The complexity of transdisciplinary literature reviews. *Complicity: Int J Complex Educ* 2013;**10**:45–55.
415. Anderson LM, Oliver SR, Michie S, Rehfues E, Noyes J, Shemilt I. Investigating complexity in systematic reviews of interventions by using a spectrum of methods. *J Clin Epidemiol* 2013;**66**:1223–9. <http://dx.doi.org/10.1016/j.jclinepi.2013.06.014>
416. Pigott T, Shepperd S. Identifying, documenting, and examining heterogeneity in systematic reviews of complex interventions. *J Clin Epidemiol* 2013;**66**:1244–50. <http://dx.doi.org/10.1016/j.jclinepi.2013.06.013>
417. Chronis AM, Fabiano GA, Gnagy EM, Onyango AN, Pelham WE Jr, Lopez-Williams A, et al. An evaluation of the summer treatment program for children with attention-deficit/hyperactivity disorder using a treatment withdrawal design. *Behav Ther* 2004;**35**:561–85. [http://dx.doi.org/10.1016/S0005-7894\(04\)80032-7](http://dx.doi.org/10.1016/S0005-7894(04)80032-7)
418. Wampold BE. *The Great Psychotherapy Debate: Models, Methods and Findings*. Mahway, NJ: Lawrence Erlbaum Associates; 2001.
419. Arcia E, Fernandez MC. Cuban mothers' schemas of ADHD: development, characteristics and help seeking behavior. *J Child Fam Stud* 1998;**7**:333–7. <http://dx.doi.org/10.1023/A:1022945628866>
420. Conners CK. *Conners' Rating Scales*. Toronto, ON: Multi-Health Systems; 1989.
421. Danckaerts M, Sonuga-Barke EJS, Banaschewski T, Buitelaar J, Döpfner M, Hollis C, et al. The quality of life of children with attention deficit/hyperactivity disorder: a systematic review. *Eur Child Adolesc Psychiatr* 2009;**19**:83–105. <http://dx.doi.org/10.1007/s00787-009-0046-3>
422. Conrad P, Schneider J. *Deviance and Medicalization: From Badness to Sickness*. St. Louis, MO: The CV Mosby Company; 1980.
423. Armstrong D. *Political Anatomy of the Body: Medical Knowledge in Britain in the Twentieth Century*. Cambridge: Cambridge University Press; 1983.
424. Castel R, Castel F, Lovell A. *The Psychiatric Society*. New York, NY: Columbia University Press; 1982.

425. Slee R. Finding a student voice in school reform: student disaffection, pathologies of disruption and educational control. *Int Stud Sociol Educ* 1994;**4**:147–72. <http://dx.doi.org/10.1080/0962021940040202>
426. Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD). *It's a Neurobiological Thing*. Calgary, Alberta: CHADD; 1995.
427. Chisholm P. The ADD dilemma: is ritalin the best way to treat attention deficit disorder? *MacLean's Magazine* 1996:46–7.
428. Singh I. Bad boys, good mothers, and the miracle of Ritalin. *Sci Context* 2002;**15**:577–603. <http://dx.doi.org/10.1017/S0269889702000650>
429. Strauss A, Corbin J. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage; 1990.
430. Knight CA. *The Literature of Satire*. Cambridge: Cambridge University Press; 2004. <http://dx.doi.org/10.1017/CBO9780511485428>

Appendix 1 Search strategy used for review 1

PsycINFO (via OvidSP)

URL: <http://0-ovidsp.tx.ovid.com.lib.exeter.ac.uk/sp-3.14.0b/ovidweb.cgi>.

Searched: 1967 to May Week 2 2012.

Search strategy

1. exp attention deficit disorder with hyperactivity/ (11,098)
2. ADHD.ti,ab. (14,279)
3. ADHS.ti,ab. (46)
4. ADDH.ti,ab. (129)
5. attention deficit.ti,ab. (16,587)
6. hyperactiv*.ti,ab. (23,610)
7. (hyper adj1 activ*).ti,ab. (69)
8. (Conduct adj3 (problem* or difficult* or disorder* or issue*)).ti,ab. (7625)
9. (Attention adj3 (problem* or difficult* or disorder* or issue*)).ti,ab. (20,840)
10. hyperk*.ti,ab. (1471)
11. minimal brain.ti,ab. (686)
12. inattenti*.ti,ab. (4334)
13. impulsiv*.ti,ab. (13,115)
14. restless*.ti,ab. (2497)
15. overactiv*.ti,ab. (1461)
16. or/1-15 (54,049)
17. school*.ti,ab. (220,799)
18. college*.ti,ab. (85,771)
19. nurser*.ti,ab. (2859)
20. preschool*.ti,ab. (26,400)
21. kindergarten*.ti,ab. (10,621)
22. classroom*.ti,ab. (50,276)
23. elementary.ti,ab. (29,135)
24. education* setting*.ti,ab. (3690)
25. ((education* or behavior*) adj unit*).ti,ab. (311)
26. education* establishment*.ti,ab. (112)
27. education* system*.ti,ab. (4486)
28. learning environment*.ti,ab. (7200)
29. learning establishment*.ti,ab. (4)
30. teaching environment*.ti,ab. (210)
31. teaching establishment*.ti,ab. (6)
32. teacher*.ti,ab. (105288)
33. early years.ti,ab. (2190)
34. foundation stage.ti,ab. (67)
35. summer treatment program*.ti,ab. (48)
36. breakfast club*.ti,ab. (13)
37. holiday club*.ti,ab. (2)
38. pupil*.ti,ab. (13,914)
39. student*.ti,ab. (306,201)
40. or/17-39 (519,640)
41. intervention*.ti,ab. (187,941)

42. strateg*.ti,ab. (185,305)
43. program*.ti,ab. (234,366)
44. project*.ti,ab. (82,197)
45. train*.ti,ab. (185,259)
46. support*.ti,ab. (360,119)
47. therap*.ti,ab. (235,922)
48. (Behavio?r* adj2 (management or modification* or medicine or treatment*)).ti,ab. (19,574)
49. (education* adj2 (management or modification* or treatment*)).ti,ab. (2943)
50. (classroom adj2 (management or modification* or treatment*)).ti,ab. (1537)
51. (playground adj2 (management or modification*)).ti,ab. (1)
52. (psychosocial adj2 (management or modification* or treatment*)).ti,ab. (2405)
53. (cognitive adj2 (management or modification* or treatment*)).ti,ab. (5790)
54. behavio?r change technique*.ti,ab. (75)
55. bct*.ti,ab. (195)
56. exercise*.ti,ab. (34,126)
57. (social adj2 play).ti,ab. (1451)
58. (free adj2 play).ti,ab. (2026)
59. (physical adj2 (education or activit*)).ti,ab. (16,433)
60. meditat*.ti,ab. (4434)
61. class* size*.ti,ab. (854)
62. seating.ti,ab. (596)
63. incredible years.ti,ab. (106)
64. Triple P.ti,ab. (141)
65. good behavio?r game.ti,ab. (62)
66. 123 magic.ti,ab. (0)
67. place2be.ti,ab. (3)
68. reinforcement.ti,ab. (27,920)
69. punishment*.ti,ab. (10,232)
70. response cost.ti,ab. (449)
71. time out.ti,ab. (1242)
72. reward*.ti,ab. (30,548)
73. prize*.ti,ab. (1481)
74. privilege*.ti,ab. (6354)
75. teacher pupil relationship*.ti,ab. (66)
76. teacher student relationship*.ti,ab. (445)
77. (Family adj2 school adj (partnership* or relationship* or involvement)).ti,ab. (221)
78. (Parent adj2 school adj (partnership* or relationship* or involvement)).ti,ab. (118)
79. (school adj2 parent adj (partnership* or relationship* or involvement)).ti,ab. (118)
80. (home adj2 school adj (partnership* or relationship* or involvement)).ti,ab. (201)
81. rule*.ti,ab. (36,823)
82. (routine or routines).ti,ab. (18,697)
83. contingent attention.ti,ab. (34)
84. daily report*.ti,ab. (248)
85. think* time.ti,ab. (44)
86. extra time.ti,ab. (201)
87. quiet.ti,ab. (3201)
88. indoor pass.ti,ab. (0)
89. verbal correction*.ti,ab. (14)
90. instruct*.ti,ab. (82,292)
91. clear commands.ti,ab. (3)
92. social stor*.ti,ab. (142)
93. (weigh* adj2 (jacket* or vest* or belt*)).ti,ab. (31)
94. (lesson adj2 structure*).ti,ab. (50)

95. (goal* adj3 setting).ti,ab. (4304)
96. (target* adj3 setting).ti,ab. (231)
97. behavio?r book.ti,ab. (2)
98. (peer adj2 (support or tutor*)).ti,ab. (2862)
99. champion*.ti,ab. (1581)
100. mentor*.ti,ab. (8142)
101. counsell*.ti,ab. (8376)
102. coach*.ti,ab. (7875)
103. cwpt.ti,ab. (47)
104. computer*.ti,ab. (59,337)
105. ICT.ti,ab. (1444)
106. (information adj2 technology).ti,ab. (3789)
107. social skills.ti,ab. (8876)
108. social problem solving.ti,ab. (1149)
109. life skills.ti,ab. (1179)
110. (anger adj2 (strateg* or manag* or modification*)).ti,ab. (1099)
111. CBT.ti,ab. (5834)
112. cognitive behavio?r*.ti,ab. (23,399)
113. worksheet*.ti,ab. (815)
114. timer*.ti,ab. (499)
115. break*.ti,ab. (20,036)
116. headphone*.ti,ab. (453)
117. music.ti,ab. (15,813)
118. timetable*.ti,ab. (425)
119. ((individual or screen*) adj3 (desk* or table*)).ti,ab. (60)
120. traffic light*.ti,ab. (119)
121. whole class.ti,ab. (512)
122. breakfast club*.ti,ab. (13)
123. holiday club*.ti,ab. (2)
124. workshop*.ti,ab. (9658)
125. ((self or personal) adj2 organis*).ti,ab. (309)
126. selfmanage.ti,ab. (0)
127. self manage.ti,ab. (141)
128. role play.ti,ab. (1841)
129. roleplay.ti,ab. (39)
130. multimodal.ti,ab. (4515)
131. multi agency.ti,ab. (394)
132. (chunk* or chunking).ti,ab. (1068)
133. brain gym.ti,ab. (15)
134. (stress adj2 (toy* or ball*)).ti,ab. (4)
135. circle time.ti,ab. (69)
136. transition.ti,ab. (26,001)
137. cube box.ti,ab. (1)
138. curriculum.ti,ab. (26,474)
139. remedial teaching.ti,ab. (89)
140. or/41-139 (1,296,528)
141. 16 and 40 and 140 (6584)
142. limit 141 to yr="1980 –Current" (6235)

Appendix 2 Websites and supplemental electronic resources

ADHD in Practice. URL: www.haywardpublishing.co.uk/adhd.aspx (accessed 27 November 2013).

The Association for Child and Adolescent Mental Health. URL: www.acamh.org.uk/ (accessed 27 November 2013).

The British Library. URL: www.bl.uk/ (accessed 27 November 2013).

ClinicalTrials.gov. URL: www.clinicaltrials.gov/ (accessed 27 November 2013).

CERUK Plus. URL: www.ceruk.ac.uk/ (accessed 27 November 2013).

Educational Evidence Portal. URL: www.eep.ac.uk/DNN2/ (accessed 27 November 2013).

Eppi-Centre. URL: <http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=185> (accessed 27 November 2013).

US National Library of Medicine. *Health Services Research Projects in Progress*. URL: www.nlm.nih.gov/pubs/factsheets/hsrproj.html (accessed 27 November 2013).

University College London. *Institute of Education*. URL: www.ioe.ac.uk/research.html (accessed 27 November 2013).

ISRCTN Registry. *metaRegister of Controlled Trials (mRCT)*. URL: www.controlled-trials.com/mrct/ (accessed 27 November 2013).

National Foundation for Educational Research. URL: www.nfer.ac.uk/ (accessed 27 November 2013).

National Institute for Health Research. URL: www.nihr.ac.uk/Pages/default.aspx (accessed 27 November 2013).

National Institute for Health and Care Excellence. URL: www.nice.org.uk/ (accessed 27 November 2013).

Teaching and Learning Research Programme. URL: www.tlrp.org/ (accessed 27 November 2013).

ADDISS: ADHD Information Services. URL: www.addiss.co.uk/index.html (accessed 27 November 2013).

ADHD Foundation. URL: www.adhdfoundation.org.uk/index.php (accessed 27 November 2013).

American Psychological Association. *ADHD*. URL: www.apa.org/topics/adhd/index.aspx (accessed 27 November 2013).

Centers for Disease Control and Prevention. *Attention-Deficit/Hyperactivity Disorder (ADHD)*. URL: www.cdc.gov/ncbddd/adhd/ (accessed 27 November 2013).

Centre for Excellence and Outcomes in Children and Young People's Services (C4EO). URL: www.c4eo.org.uk/library.aspx (accessed 27 November 2013).

National Child and Maternal Health Intelligence Network. *Mental Health and Psychological Wellbeing*. URL: www.chimat.org.uk/camhs (accessed 27 November 2013).

Centre for the Use of Research & Evidence in Education. URL: www.curee-paccts.com/ (accessed 27 November 2013).

Department for Education. URL: www.education.gov.uk/ (accessed 27 November 2013).

Economic and Social Research Council. URL: www.esrc.ac.uk/ (accessed 27 November 2013).

George Still Forum National Paediatric ADHD Network Group. URL: www.georgestillforum.co.uk/ (accessed 27 November 2013).

The Hyperactive Children's Support Group. URL: www.hacsg.org.uk/ (accessed 27 November 2013).

Learning Assessment & Neurocare Centre Ltd. URL: www.lanc.uk.com/ (accessed 27 November 2013).

National Children's Bureau. URL: www.ncb.org.uk/default.aspx (accessed 27 November 2013).

University of York, Centre for Reviews and Dissemination. *PROSPERO, An International Database of Prospectively Registered Systematic Reviews*. URL: www.crd.york.ac.uk/PROSPERO (accessed 27 November 2013).

Royal College of Paediatrics and Child Health. URL: www.rcpch.ac.uk/ (accessed 27 November 2013).

Social Care Institute for Excellence. URL: www.scie.org.uk/ (accessed 27 November 2013).

The British Psychological Society. URL: www.bps.org.uk/home-page.cfm (accessed 27 November 2013).

ADHD World Federation. URL: www.adhd-federation.org/ (accessed 27 November 2013).

YoungMinds. URL: www.youngminds.org.uk/ (accessed 27 November 2013).

Appendix 3 Studies excluded at full text from review 1, with reasons

Reference	Reason for exclusion
Abel R. The relationship between academic achievement and social skill development in students with attention deficit disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> . 2005; 66 :1631	Not a controlled trial/design not reported
Aberson BD. An intervention for improving executive functioning and social/emotional adjustment of ADHD children: three single case design studies. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> . 1997; 57 :6553	Not a controlled trial/design not reported
Abikoff H, Courtney ME, Szeibel PJ, Koplewicz HS. The effects of auditory stimulation on the arithmetic performance of children with ADHD and nondisabled children. <i>J Learn Disabil</i> 1996; 29 :238–46	Irrelevant study population(s), intervention context(s) or outcome(s)
Abikoff H, Ganeles D, Reiter G, Blum C, Foley C, Klein RG. Cognitive training in academically deficient ADDH boys receiving stimulant medication. <i>J Abnorm Child Psychol</i> 1988; 16 :411–32	Irrelevant study population(s), intervention context(s) or outcome(s)
Abikoff H, Gittelman R. Hyperactive children treated with stimulants: is cognitive training a useful adjunct? <i>Arch Gen Psychiatr</i> 1985; 42 :953–61	Irrelevant study population(s), intervention context(s) or outcome(s)
Abikoff H, Gittelman R. Does behavior therapy normalize the classroom behavior of hyperactive children? <i>Arch Gen Psychiatr</i> 1984; 41 :449–54	Irrelevant study population(s), intervention context(s) or outcome(s)
Abikoff H, Hechtman L, Klein RG, Gallagher R, Fleiss K, Etcovitch J, et al. Social functioning in children with ADHD treated with long-term methylphenidate and multimodal psychosocial treatment. <i>J Am Acad Child Adolesc Psychiatr</i> 2004; 43 :820–9	Irrelevant study population(s), intervention context(s) or outcome(s)
Abikoff H, Hechtman L, Klein RG, Weiss G, Fleiss K, Etcovitch J, et al. Symptomatic improvement in children with ADHD treated with long-term methylphenidate and multimodal psychosocial treatment. <i>J Am Acad Child Adolesc Psychiatr</i> 2004; 43 :802–11	Irrelevant study population(s), intervention context(s) or outcome(s)
Abramowitz AJ, Eckstrand D, O'Leary SG, Dulcan MK. ADHD children's responses to stimulant medication and two intensities of a behavioral intervention. <i>Behav Modif</i> 1992; 16 :193–203	Irrelevant study population(s), intervention context(s) or outcome(s)
Abramowitz AJ, O'Leary SG. Effectiveness of delayed punishment in an applied setting. <i>Behav Ther</i> 1990; 21 :231–9	Irrelevant study population(s), intervention context(s) or outcome(s)
Ahonen T. Multimodal intervention in children with attention-deficit hyperactivity disorder. <i>Eur J Spec Needs Educ</i> 1994; 9 :168–81	Irrelevant study population(s), intervention context(s) or outcome(s)
Ajibola O, Clement PW. Differential effects of methylphenidate and self-reinforcement on attention-deficit hyperactivity disorder. <i>Behav Modif</i> 1995; 19 :211–23	Not a controlled trial/design not reported
Almeraisi MJ. Effectiveness of cognitive-behavioral play therapy with children who have symptoms of attention deficit hyperactivity disorder (ADHD). <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2010; 71 :3926	Not a controlled trial/design not reported
Alvarez L, Gonzalez-Castro P, Nunez JC, Gonzalez-Pienda JA, Alvarez D, Bernardo AB. Multimodal intervention programme for the improvement of attention deficits. <i>Psychology in Spain</i> 2008; 12 :81–7	Irrelevant study population(s), intervention context(s) or outcome(s)
Ammer JJ. Self-management strategies to increase the performance of hyperactive, underachieving, sixth, seventh and eighth grade students on selective attention tasks. <i>Diss Abstr Int</i> 1980; 41 :2548–9	Not retrievable

Reference	Reason for exclusion
Anastopoulos AD, Shelton TL, Barkley RA. Family-Based Psychosocial Treatments for Children and Adolescents With Attention-Deficit/ Hyperactivity Disorder. In Hibbs ED, Jensen PS, editors. <i>Psychosocial Treatments for Child and Adolescent Disorders: Empirically Based Strategies for Clinical Practice</i> . 2nd edn. Washington, DC: American Psychological Association; 2005. pp. 327–50	Not retrievable
Anhalt K, McNeil CB, Bahl AB. The ADHD classroom kit: a whole-classroom approach for managing disruptive behavior. <i>Psychol Schools</i> 1998; 35 :67–79	Not a controlled trial/design not reported
Aro T, Ahonen T, Tolvanen A, Lyytinen H, de Barra HT. Contribution of ADHD characteristics to the academic treatment outcome of children with learning difficulties. <i>Dev Neuropsychol</i> 1999; 15 :291–305	Irrelevant study population(s), intervention context(s) and outcome(s)
Artesani AJ, Mallar L. Positive behavior supports in general education settings: combining person-centered planning and functional analysis. <i>Intervention Sch Clin</i> 1998; 34 :33–8	Not a controlled trial/design not reported
Asher MJ. Self-instructional training for teachers and other professionals working with attention deficit-hyperactive disorder children. <i>Diss Abstr Int</i> 1991; 51 :3552	Irrelevant study population(s), intervention context(s) and outcome(s)
Atamanoff Gambert T. The effect of comorbid anxiety and comorbid oppositional defiant disorder on behavioral group training outcomes for children with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2008; 68 :4808	Irrelevant study population(s), intervention context(s) and outcome(s)
Atkinson B. Learning disabled students and LOGO. <i>J Learn Disabil</i> 1984; 17 :500–1	Irrelevant study population(s), intervention context(s) and outcome(s)
Austin HM. Use of self-management techniques for the treatment of students diagnosed with ADHD: An empirical investigation of the self-regulation of behavior. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2003; 64 :2904	Not a controlled trial/design not reported
Azrin NH, Vinas V, Ehle CT. Physical activity as reinforcement for classroom calmness of ADHD children: a preliminary study. <i>Child Fam Behav Ther</i> 2007; 29 :1–8	Irrelevant study population(s), intervention context(s) and outcome(s)
Baeza Hernandez MC, Martinez Selva J. Intrasubject designs and school behavior changes: an application to two hyperactive subjects. <i>Analisis y Modificacion de Conducta</i> 1984; 10 :535–50	Not retrievable
Baker K. <i>Compensating for the Impact of Attention Deficit Hyperactivity Disorder on Reading Achievement: Michael's Story</i> . Conference proceedings, AATE/ALEA National Conference 1–4 July 2005 Broadbeach, Queensland	Not retrievable
Baker K. Managing the Impact of Attention Deficit Hyperactivity Disorder on Reading Achievement: Initial Findings on the Efficacy of a New Reading Intervention. Paper presented at the AARE Annual Conference, Brisbane, 2002	Not a controlled trial/design not reported
Baker K. Results of a Study into the Efficacy of a Reading Intervention for Students with Attention Deficit Hyperactivity Disorder. In Knight BA, Walker-Gibbs B, Harrison AG, editors. <i>Researching Educational Capital in a Technological Age</i> . Teneriffe, QLD: Post Pressed; 2002. pp. 75–100	Not retrievable
Baker KB. <i>Compensating for Cognitive Deficits in Students with Attention Deficit Hyperactivity Disorder</i> . PhD thesis. North Rockhampton, QLD: Central Queensland University; 2003	Not a controlled trial/design not reported
Baker TC. The use of mini-exercise breaks in the classroom management of ADHD-type behaviors. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 66 :2098	Not retrievable
Barkley RA, Copeland AP, Sivage C. A self-control classroom for hyperactive children. <i>J Autism Dev Disord</i> 1980; 10 :75–89	Irrelevant study population(s), intervention context(s) and outcome(s)
Barkley RA, Shelton TL, Crosswait C, Moorehouse M, Fletcher K, Barrett S, et al. <i>Preliminary Findings of an Early Intervention Program with Aggressive Hyperactive Children. Understanding Aggressive Behavior in Children</i> . New York, NY: New York Academy of Sciences; 1996. pp. 277–89	Not retrievable

Reference	Reason for exclusion
Barry LM, Messer JJ. A practical application of self-management for students diagnosed with attention- deficit/hyperactivity disorder. <i>J Posit Behav Interv</i> 2003; 5 :238–48	Not a controlled trial/design not reported
Beaumont M. Making good the deficit: a therapeutic approach to ADHD. <i>Educ Ther Teach</i> 2001;7–20	Irrelevant study population(s), intervention context(s) and outcome(s)
Beck SJ, Hanson CA, Puffenberger SS, Benninger KL, Benninger WB. A controlled trial of working memory training for children and adolescents with ADHD. <i>J Clin Child Adolesc Psychol</i> 2010; 39 :825–36	Irrelevant study population(s), intervention context(s) and outcome(s)
Bennett DE, Zentall SS, French BF, Giorgetti-Borucki K. The effects of computer-administered choice on students with and without characteristics of attention-deficit/hyperactivity disorder. <i>Behav Disord</i> 2006; 31 :189–203	Irrelevant study population(s), intervention context(s) and outcome(s)
Bensted EA, Bachor DG. The academic effects of low-achieving or inattentive students providing peer support to students with moderate to severe disabilities in general education classrooms. <i>Exceptionality Educ Can</i> 2002; 12 :51–73	Irrelevant study population(s), intervention context(s) and outcome(s)
Berger M. Remediating hyperkinetic behavior with impulse control procedures. <i>Sch Psychol Rev</i> 1981; 10 :405–7	Not a controlled trial/design not reported
Bicard DF, Neef NA. Effects of strategic versus tactical instructions on adaptation to changing contingencies in children with ADHD. <i>J Appl Behav Anal</i> 2002; 35 :375–89	Irrelevant study population(s), intervention context(s) and outcome(s)
Bice JE. <i>Instructional Software and Attention Disorders: A Tool for Teachers</i> . Oakland, MI: Oakland Schools; 1995	Not retrievable
Billings DC, Wasik BH. Self-instructional training with preschoolers: an attempt to replicate. <i>J Appl Behav Anal</i> 1985; 18 :61–7	Not a controlled trial/design not reported
Blanton J, Johnson LJ. Using computer assisted biofeedback to help children with attention-deficit hyperactivity disorder to gain self-control. <i>J Spec Educ Tech</i> 1991; 11 :49–56	Not a controlled trial/design not reported
Bogle KE. Evaluation of a brief group parent training intervention in the context of an after-school program for middle-school students. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2008; 69 :665	Irrelevant study population(s), intervention context(s) and outcome(s)
Bolich B, Kavon N, McLaughlin TF, Williams RL, Urlacher S. The effects of a copy, cover, compare procedure and a token economy on the retention of basic multiplication facts by two middle school students with ADD and ADHD. <i>BC J Spec Educ</i> 1995; 19 :1–10	Not a controlled trial/design not reported
Book RM. Management of the Child with an Attention Disorder in the School Setting. Paper presented at the Annual Convention of the American Psychological Association, Anaheim, CA, 26–30 August 1983	Not retrievable
Bowers AJ. An educational management approach to hyperactive behaviour in the classroom. <i>Remedial Educ</i> 1980; 15 :28–31	Irrelevant study population(s), intervention context(s) and outcome(s)
Bowers DS, Clement PW, Fantuzzo JW, Sorensen DA. Effects of teacher-administered and self-administered reinforcers on learning disabled children. <i>Behav Ther</i> 1985; 16 :357–69	Not a controlled trial/design not reported
Boyajian AE, DuPaul GJ, Handler MW, Eckert TL, McGoey KE. The use of classroom-based brief functional analyses with preschoolers at-risk for attention deficit hyperactivity disorder. <i>Sch Psychol Rev</i> 2001; 30 :278–93	Not a controlled trial/design not reported
Boyd WD, Campbell SE. EEG biofeedback in the schools: the use of EEG biofeedback to treat ADHD in a school setting. <i>J Neurotherapy</i> 1998; 2 :65–71	Not a controlled trial/design not reported
Boyer B, Kuin M, Prins P, Geurts HM, Van Der Oord S. A cognitive behavioral planning and organization treatment for adolescents with ADHD: a pilot study investigating short-term effects. <i>Eur Child Adolesc Psychiatr</i> 2010; 19 :S69	Irrelevant study population(s), intervention context(s) and outcome(s)
Bradley-Klug KL. The effects of a self-management intervention on the classroom behavior of young adolescents with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1997; 58 :1576	Not a controlled trial/design not reported

Reference	Reason for exclusion
Brasch TL, Williams RL, McLaughlin TF. The effects of a direct instruction flashcard system on multiplication fact mastery by two high school students with ADHD and ODD. <i>Child Fam Behav Ther</i> 2008; 30 :51–9	Not a controlled trial/design not reported
Bright R. Kids who can't sit still. <i>NEA Today</i> . 2011:32–3	Irrelevant study population(s), intervention context(s) and outcome(s)
Brown C-SE. The aftermath of Hurricane Iniki: development of a school-based intervention. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1997; 57 :6564	Irrelevant study population(s), intervention context(s) and outcome(s)
Brown LL. Using a computer cognitive rehabilitation program with typical and ADHD junior high students to improve learning skills. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1995; 56 :3434	Not retrievable
Brown RT, Conrad KJ. Remediation Efforts for Hyperactivity: Training in Attention or Inhibitory Control. Paper presented at the Annual Convention of the American Psychological Association, Los Angeles, CA, August 1981	Irrelevant study population(s), intervention context(s) and outcome(s)
Brown RT, Conrad KJ. Remediation Efforts for Hyperactivity: Training in Attention or Inhibitory Control. Paper presented at the Annual Convention of the American Psychological Association, Los Angeles, CA, August 1981	Duplicate
Brown RT, Wynne ME, Borden KA, Clingerman SR, Geniesse R, Spunt AL. Methylphenidate and cognitive therapy in children with attention deficit disorder: a double-blind trial. <i>J Dev Behav Pediatr</i> 1986; 7 :163–70	Irrelevant study population(s), intervention context(s) and outcome(s)
Brown RT, Wynne ME, Medenis R. Methylphenidate and cognitive therapy: a comparison of treatment approaches with hyperactive boys. <i>J Abnorm Child Psychol</i> 1985; 13 :69–87	Irrelevant study population(s), intervention context(s) or outcome(s)
Brown University. Integrated home-school behavioral treatment for ADHD, inattentive subtype. <i>Brown Univ Child Adolesc Behav Lett</i> 2007; 23 :3–4	Irrelevant study population(s), intervention context(s) or outcome(s)
Bryant LE, Budd KS. Self-instructional training to increase independent work performance in preschoolers. <i>J Appl Behav Anal</i> 1982; 15 :259–71	Irrelevant study population(s), intervention context(s) and outcome(s)
Bullock GR. Cognitive rehabilitation: a method for improving sustained and selective attention in adolescents with attentional deficits. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 64 :1597	Not a controlled trial/design not reported
Burns MK, Dean VJ. Effect of drill ratios on recall and on-task behavior for children with learning and attention difficulties. <i>J Instr Psychol</i> 2005; 32 :118–26	Irrelevant study population(s), intervention context(s) and outcome(s)
Bussing R. Early school-based screening and intervention programmes for ADHD did not improve children's outcomes at age 10. <i>Evid Based Ment Health</i> 2010; 13 :118	Irrelevant study population(s), intervention context(s) and outcome(s)
Cameron MI, Robinson VM. Effects of cognitive training on academic and on-task behavior of hyperactive children. <i>J Abnorm Child Psychol</i> 1980; 8 :405–19	Not a controlled trial/design not reported
Campbell DS. <i>Adolescent Impulsivity and Self-Instruction Training: A Pilot Study</i> . Toronto, ON: Ministry of Colleges and Universities; 1983	Irrelevant study population(s), intervention context(s) and outcome(s)
Campbell DS, Neill J, Dudley P. Computer-aided self-instruction training with hearing-impaired impulsive students. <i>Am Annals of the Deaf</i> 1989; 134 :227–31	Irrelevant study population(s), intervention context(s) and outcome(s)
Campbell DS. Television feedback in self-instruction training for the impulsive student. <i>BC J Spec Educ</i> 1985; 9 :163–8	Irrelevant study population(s), intervention context(s) and outcome(s)
Carlson CL, Mann M, Alexander DK. Effects of reward and response cost on the performance and motivation of children with ADHD. <i>Cogn Ther Res</i> 2000; 24 :87–98	Irrelevant study population(s), intervention context(s) and outcome(s)
Carlson CL, Pelham WE Jr, Milich R, Dixon J. Single and combined effects of methylphenidate and behavior therapy on the classroom performance of children with attention-deficit hyperactivity disorder. <i>J Abnorm Child Psychol</i> 1992; 20 :213–32	Irrelevant study population(s), intervention context(s) and outcome(s)

Reference	Reason for exclusion
Carmody DP, Radvanski DC, Wadhvani S, Sabo MJ, Vergara L. EEG biofeedback training and attention-deficit/hyperactivity disorder in an elementary school setting. <i>J Neurotherapy</i> 2001; 4 :5–27	Irrelevant study population(s), intervention context(s) and outcome(s)
Carpenter T. <i>Teaching High School Students with Attention Deficit Hyperactivity Disorder Self Advocacy Skills and Strategies for Coping with their Disability in School</i> . Ed.D thesis. Fort Lauderdale, FL: Nova Southeastern University; 1995	Not a controlled trial/design not reported
Carrol A, Bain A, Houghton S. The effects of interactive versus linear video on the levels of attention and comprehension of social-behavior by children with attention disorders. <i>Sch Psychol Rev</i> 1994; 23 :29–43	Irrelevant study population(s), intervention context(s) and outcome(s)
Caudle SE. Efficacy study of the Brief Evaluation and Intervention Program (BEIP) with four treatment groups. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2002; 62 :5956	Irrelevant study population(s), intervention context(s) and outcome(s)
Chaban P. ADHD: from intervention to implementation. <i>Educ Can</i> 2010; 50 :32–5	Irrelevant study population(s), intervention context(s) and outcome(s)
Chang H-H, Chang C-S, Shih Y-L. The process of assisting behavior modification in a child with attention-deficit hyperactivity disorder. <i>J Nurs Res</i> 2007; 15 :147–55	Irrelevant study population(s), intervention context(s) and outcome(s)
Chang JJ, Cheon SM, Kim BK. The effects of free token response cost on disruptive behavior of hyperactive children. <i>Kor J Counsel Psychother</i> 1998; 10 :121–41	Not retrievable
Chase SN, Clement PW. Effects of self-reinforcement and stimulants on academic performance in children with attention deficit disorder. <i>J Clin Child Psychol</i> 1985; 14 :323–33	Not a controlled trial/design not reported
Chevalier N, Poissant H, Bergeron H, Girard-Lajoie A. The effect of visual-motor imagery training on CPT performance in children with attention deficit hyperactivity disorder. <i>J Cognit Educ Psychol</i> 2003; 3 :120–36	Not a controlled trial/design not reported
Christie DJ, Dewitt RA, Kaltenbach P, Reed D. Using EMG biofeedback to signal hyperactive children when to relax. <i>Except Child</i> 1984; 50 :547–8	Irrelevant study population(s), intervention context(s) or outcome(s)
Christie DJ, Hiss M, Lozanoff B. Modification of inattentive classroom behavior. Hyperactive children's use of self-recording with teacher guidance. <i>Behav Modif</i> 1984; 8 :391–406	Not a controlled trial/design not reported
Chronis AM, Fabiano GA, Gnagy EM, Onyango AN, Pelham WE Jr, Lopez-Williams A, et al. An evaluation of the summer treatment program for children with attention deficit/hyperactivity disorder using a treatment withdrawal design. <i>Behav Ther</i> 2004; 35 :561–85	Irrelevant study population(s), intervention context(s) or outcome(s)
Chudimov VF, Kulikov VP, Kuropiatnik NI, Boiko EA, Shadrina EN, Voronkova EI. [The use of hypoxically hypercapnic training for children with the attention deficit syndrome and hyperactivity for the correction of school disadaptation problems.] <i>Vopr Kurortol Fizioter Lech Fiz Kult</i> 2011; 36 –9	Not retrievable
Cihak DF, Kirk ER, Boon RT. Effects of classwide positive peer 'tootling' to reduce the disruptive classroom behaviors of elementary students with and without disabilities. <i>J Behav Educ</i> 2009; 18 :267–78	Not a controlled trial/design not reported
Clarfield J, Stoner G. Research brief: the effects of computerized reading instruction on the academic performance of students identified with ADHD. <i>Sch Psychol Rev</i> 2005; 34 :246–54	Not a controlled trial/design not reported
Clark BJ. 'The fun kids club': developing an effective school-based program for children at risk. <i>J Psychologist</i> 1997; 24 :361–9	Irrelevant study population(s), intervention context(s) or outcome(s)
Cocciarella A, Wood R, Low KG. Brief behavioral treatment for attention-deficit hyperactivity disorder. <i>Percept Mot Skills</i> 1995; 81 :225–6	Not retrievable
Codding RS, Lewandowski L, Eckert T. Examining the efficacy of performance feedback and goal-setting interventions in children with ADHD: a comparison of two methods of goal setting. <i>J Evid Base Pract Sch</i> 2005; 6 :42–58	Not a controlled trial/design not reported

Reference	Reason for exclusion
Cohen NJ, Sullivan J, Minde K, Novak C, Helwig C. Evaluation of the relative effectiveness of methylphenidate and cognitive behavior modification in the treatment of kindergarten-aged hyperactive children. <i>J Abnorm Child Psychol</i> 1981; 9 :43–54	Irrelevant study population(s), intervention context(s) or outcome(s)
Cohen SY. The effect of school based cognitive behavioral group therapy with a specific component of socialization, and self esteem, on the self esteem of ADHD children. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1999; 59 :4052	Irrelevant study population(s), intervention context(s) or outcome(s)
Cole PL. The effects of taped relaxation training on physiological events and home and classroom behavior of hyperactive children. <i>Diss Abstr Int</i> 1981; 42 :1583	Not retrievable
Coles EK, Pelham WE, Gnagy EM, Burrows-MacLean L, Fabiano GA, Chacko A, et al. A controlled evaluation of behavioral treatment with children with ADHD attending a summer treatment program. <i>J Emot Behav Disord</i> 2005; 13 :99–112	Irrelevant study population(s), intervention context(s) or outcome(s)
Colton DL, Sheridan SM. Conjoint behavioral consultation and social skills training: enhancing the play behaviors of boys with attention deficit hyperactivity disorder. <i>J Educ Psychol Consult</i> 1998; 9 :3–28	Not a controlled trial/design not reported
Corkum P, Corbin N, Pike M. Evaluation of a school-based social skills program for children with attention-deficit/hyperactivity disorder. <i>Child Fam Behav Ther</i> 2010; 32 :139–51	Not a controlled trial/design not reported
Corkum PV, McKinnon M, Mullane JC. The effect of involving classroom teachers in a parent training program for families of children with ADHD. <i>Child Fam Behav Ther</i> 2005; 27 :29–49	Not a controlled trial/design not reported
Cornish C, Carroll A. A cognitive-behavioural treatment for a child with attention-deficit disorder/without hyperactivity and comorbid anxiety. <i>Aust Educ Dev Psychol</i> 1998; 15 :6–22	Not retrievable
Crabtree T, Alber-Morgan SR, Konrad M. The effects of self-monitoring of story elements on the reading comprehension of high school seniors with learning disabilities. <i>Educ Treat Child</i> 2010; 33 :187–203	Not a controlled trial/design not reported
Creel C, Fore C, Boon RT, Bender WN. Effects of self-monitoring on classroom preparedness skills of middle school students with attention deficit hyperactivity disorder. <i>Learn Disabil</i> 2006; 14 :105–13	Not a controlled trial/design not reported
Csilla S. Monitoring the effects of cognitive intervention on children with attention deficit and hyperactivity. <i>Erdelyi Pszichologiai Szemle</i> 2004; 5 :163–84	Not retrievable
Cucu-Ciuhan G, Vasile AS. Efficiency of experiential psychotherapy in the treatment of children with attention deficit hyperactivity disorder. <i>Procedia Soc Behav Sci</i> 2010; 5 :920–5	Irrelevant study population(s), intervention context(s) or outcome(s)
Cunningham CE, Clark M, Heaven RK, Durrant J, Cunningham LJ. The effects of coping-modelling problem solving and contingency management procedures on the positive and negative interactions of learning disabled and attention deficit disordered children with an autistic peer. <i>Child Fam Behav Ther</i> 1989; 11 :89–106	Irrelevant study population(s), intervention context(s) or outcome(s)
Curtis K, Gladman P, Hampton K, Chambers J. Report on a Pilot Program: Strategies for Managing Students with Attentional Difficulties and/or Attention Deficit (Hyperactivity) Disorder. In International School Psychology Colloquium, Australian Guidance & Counselling Association, International School Psychology Association, editors. <i>International School Psychology 20th Annual Colloquium</i> . Melbourne, Australia: Australian Guidance and Counselling Association Ltd; 1997	Not retrievable
Dansinger S. Academic Coaching for the Gifted Learner. In Walker B, Kutrumbus B, Hafenstein N, Rainey F, editors. <i>Perspectives in Gifted Education: Twice-Exceptional Children</i> . Denver, CO: University of Denver; 2001. pp. 108–13	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Davies S, Witte R. Self-management and peer-monitoring within a group contingency to decrease uncontrolled verbalizations of children with attention-deficit/hyperactivity disorder. <i>Psychol Schools</i> 2000; 37 :135–47	Not a controlled trial/design not reported
Davis R, Hajicek JO. Effects of self-instructional training and strategy training on a mathematics task with severely behaviorally disordered students. <i>Behav Disord</i> 1985; 10 :275–82	Irrelevant study population(s), intervention context(s) or outcome(s)
De La Paz S. Teaching writing to students with attention deficit disorders and specific language impairment. <i>J Educ Res</i> 2001; 95 :37–47	Not a controlled trial/design not reported
DiCesare EJ. An evaluation of live relaxation training as a treatment for primary aged school children described as hyperactive impulsive. <i>Diss Abstr Int</i> 1982; 42 :4927	Irrelevant study population(s), intervention context(s) or outcome(s)
Diliberto JA, Beattie JR, Flowers CP, Algozzine RF. Effects of teaching syllable skills instruction on reading achievement in struggling middle school readers. <i>Literacy Res Instruct</i> 2009; 48 :14–27	Irrelevant study population(s), intervention context(s) or outcome(s)
Dolyniuk CA. Using narrative to promote the conceptual development of adolescents with learning disability and attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1999; 59 :3346	Not a controlled trial/design not reported
Dopfner M, Breuer D, Schurmann S, Metternich TW, Rademacher C, Lehmkuhl G. Effectiveness of an adaptive multimodal treatment in children with attention-deficit hyperactivity disorder – global outcome. <i>Eur Child Adolesc Psychiatr</i> 2004; 13 :I/117–I/29	Active comparator
Drechsler R, Straub M, Doehner M, Heinrich H, Steinhausen H-C, Brandeis D. Controlled evaluation of a neurofeedback training of slow cortical potentials in children with attention deficit/hyperactivity disorder (ADHD). <i>Behav Brain Funct</i> 2007; 3 :35	Irrelevant study population(s), intervention context(s) or outcome(s)
Duckham-Shoor LA. <i>Behavioral Alternatives to Stimulant Medication in Treating Childhood Hyperactivity: Effects on School and Home Behavior</i> . Stanford, CA: Center for Educational Research at Stanford University; 1980	Irrelevant study population(s), intervention context(s) or outcome(s)
Dunn FM, Howell RJ. Relaxation training and its relationship to hyperactivity in boys. <i>J Clin Psychol</i> 1982; 38 :92–100	Irrelevant study population(s), intervention context(s) or outcome(s)
DuPaul GJ, Eckert TL. The effects of school-based interventions for attention deficit hyperactivity disorder: a meta-analysis. <i>Sch Psychol Rev</i> 1997; 26 :5–27	Irrelevant study population(s), intervention context(s) or outcome(s)
DuPaul GJ, Ervin RA, Hook CL, McGoey KE. Peer tutoring for children with attention deficit hyperactivity disorder: effects on classroom behavior and academic performance. <i>J Appl Behav Anal</i> 1998; 31 :579–92	Not a controlled trial/design not reported
DuPaul GJ, Guevremont DC, Barkley RA. Behavioral treatment of attention-deficit hyperactivity disorder in the classroom. The use of the attention training system. <i>Behav Modif</i> 1992; 16 :204–25	Not a controlled trial/design not reported
DuPaul GJ, Helwig JR, Slay PM. Classroom Interventions for Attention and Hyperactivity. In Bray MA, Kehle TJ, editors. <i>The Oxford Handbook of School Psychology</i> . New York, NY: Oxford University Press; 2011. pp. 428–41	Irrelevant study population(s), intervention context(s) or outcome(s)
DuPaul GJ, Henningson PN. Peer tutoring effects on the classroom performance of children with attention deficit hyperactivity disorder. <i>Sch Psychol Rev</i> 1993; 22 :134–43	Not a controlled trial/design not reported
DuPaul GJ, Jitendra AK, Volpe RJ, Tresco KE, Lutz JG, Vile Junod RE, et al. Consultation-based academic interventions for children with ADHD: effects on reading and mathematics achievement. <i>J Abnorm Child Psychol</i> 2006; 34 :635–48	Duplicate
DuPaul GJ, Kern L, Gormley MJ, Volpe RJ. Early intervention for young children with ADHD: academic outcomes for responders to behavioral treatment. <i>Sch Ment Health</i> 2011; 3 :117–26	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Eber L, Rolf K, Sullivan MP. School-Based Systems of Care: Early Intervention and Day Treatment Examples from Illinois. Proceedings of the Annual Research Conference, A System of Care for Children's Mental Health: Expanding the Research Base, Tampa, FL, 8–11 March 1998	Irrelevant study population(s), intervention context(s) or outcome(s)
Edleston C. <i>A Program of Games and Activities to Increase Listening and Attentional Skills in Kindergarten Children</i> . Ed.D thesis. Fort Lauderdale, FL: Nova Southeastern University; 1987	Not retrievable
Edwards L, Salant V, Howard VF, Brouger J, McLaughlin TF. Effectiveness of self-management on attentional behavior and reading comprehension for children with attention deficit disorder. <i>Child Fam Behav Ther</i> 1995; 17 :1–17	Not a controlled trial/design not reported
Egeland B, Rutner M. Modifying Response Latency and Error Rate of Impulsive Children. Paper presented at the annual meeting at the American Educational Research Association, New York, NY, 4–7 February 1971	Irrelevant study population(s), intervention context(s) or outcome(s)
Eisenhower AS. Improving student-teacher relationships and school adjustment for children with disruptive behavior problems during the transition to kindergarten. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009; 69 :6409	Irrelevant study population(s), intervention context(s) or outcome(s)
Eisert HG, Eisert M, Schmidt MH. [Stimulant drug treatment and cognitive behavioral intervention in hyperactive children.] <i>Z Kinder Jugendpsychiatr Psychother</i> 1982; 10 :196–215	Not retrievable
Elias MJ, Tobias SE, Friedlander BS. Enhancing skills for everyday problem solving, decision making, and conflict resolution in special needs students with the support of computer-based technology. <i>Spec Serv Schools</i> 1994; 8 :33–52	Not retrievable
Elliot J, Prior M, Merrigan C, Ballinger K. Evaluation of a community intervention programme for preschool behavior problems. <i>J Paediatr Child Health</i> 2002; 38 :41–50	Irrelevant study population(s), intervention context(s) or outcome(s)
Epstein JN, Willis MG, Conners CK, Johnson DE. Use of a technological prompting device to aid a student with attention deficit hyperactivity disorder to initiate and complete daily tasks: an exploratory study. <i>J Spec Educ Tech</i> 2001; 16 :19–28	Irrelevant study population(s), intervention context(s) or outcome(s)
Erbey R, McLaughlin TF, Derby KM, Everson M. The effects of using flashcards with reading racetrack to teach letter sounds, sight words, and math facts to elementary students with learning disabilities. <i>Int Electron J Elementary Educ</i> 2011; 3 :213–26	Not a controlled trial/design not reported
Eresund P. Psychodynamic psychotherapy for children with disruptive disorders. <i>Int J Child Psychother</i> 2007; 33 :161–80	Irrelevant study population(s), intervention context(s) or outcome(s)
Ervin RA, DuPaul GJ, Kern L, Friman PC. Classroom-based functional and adjunctive assessments: proactive approaches to intervention selection for adolescents with attention deficit hyperactivity disorder. <i>J Appl Behav Anal</i> 1998; 31 :65–78	Not a controlled trial/design not reported
Ervin RA, Kern L, Clarke S, DuPaul GJ, Dunlap G, Friman PC. Evaluating assessment-based intervention strategies for students with ADHD and comorbid disorders within the natural classroom context. <i>Behav Disord</i> 2000; 25 :344–58	Not a controlled trial/design not reported
Ervin RA. A functional assessment of the variables related to the occurrence and nonoccurrence of classroom problem behaviors for students with ADHD and comorbid ODD: toward a proactive approach to classroom management. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1996; 57 :1958	Not retrievable
Evans JH, Ferre L, Ford LA, Green JL. Decreasing attention deficit hyperactivity disorder symptoms utilizing an automated classroom reinforcement device. <i>Psychol Schools</i> 1995; 32 :210–19	Not a controlled trial/design not reported
Evans S. An investigation of the effects of behavioral and pharmacological interventions on the academic performance of students with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2008; 68 :8384	Not a controlled trial/design not reported

Reference	Reason for exclusion
Evans SW, Axelrod J, Langberg JM. Efficacy of a school-based treatment program for middle school youth with ADHD: pilot data. <i>Behav Modif</i> 2004; 28 :528–47	Not a controlled trial/design not reported
Evans SW, Pelham W, Grudberg MV. The efficacy of note taking to improve behavior and comprehension of adolescents with attention deficit hyperactivity disorder. <i>Exceptionality</i> 1994; 5 :1	Irrelevant study population(s), intervention context(s) or outcome(s)
Fabiano GA, Pelham WE Jr, Manos MJ, Gnagy EM, Chronis AM, Onyango AN, <i>et al.</i> An evaluation of three time-out procedures for children with attention-deficit/hyperactivity disorder. <i>Behav Ther</i> 2004; 35 :449–69	Irrelevant study population(s), intervention context(s) or outcome(s)
Fabiano GA, Pelham WE Jr. Improving the effectiveness of behavioral classroom interventions for attention-deficit/hyperactivity disorder: a case study. <i>J Emot Behav Disord</i> 2003; 11 :124–30	Not a controlled trial/design not reported
Fabiano GA, Pelham WE Jr, Gnagy EM, Burrows-MacLean L, Coles EK, Chacko A, <i>et al.</i> The single and combined effects of multiple intensities of behavior modification and methylphenidate for children with attention deficit hyperactivity disorder in a classroom setting. <i>Sch Psychol Rev</i> 2007; 36 :195–216	Irrelevant study population(s), intervention context(s) or outcome(s)
Farmery V. Attention deficit disorder, anxiety disorder, and learning disabilities: preliminary results of an object-relational/psychoeducational treatment approach with an eight-year-old girl. <i>Psychoanal Soc Work</i> 2001; 8 :169–92	Irrelevant study population(s), intervention context(s) or outcome(s)
Fasko SN, Leach R. A Math Fact Fluency Intervention with Scaffolding. Paper presented at the annual meeting of the Association for Behavior Analysis, Atlanta, GA, May 2006	Irrelevant study population(s), intervention context(s) or outcome(s)
Fedewa AL, Erwin HE. Stability balls and students with attention and hyperactivity concerns: implications for on-task and in-seat behavior. <i>Am J Occup Ther</i> 2011; 65 :393–9	Not a controlled trial/design not reported
Fenstermacher K, Olympia D, Sheridan SM. Effectiveness of a computer-facilitated, interactive social skills training program for boys with attention deficit hyperactivity disorder. <i>Sch Psychol Q</i> 2006; 21 :197–224	Irrelevant study population(s), intervention context(s) or outcome(s)
Field TM, Quintino O, Hernandez-Reif M, Koslovsky G. Adolescents with attention deficit hyperactivity disorder benefit from massage therapy. <i>Adolescence</i> 1998; 33 :103–8	Not a controlled trial/design not reported
Figarola PM, Gunter PL, Reffel JM, Worth SR, Hummel J, Gerber BL. Effects of self-graphing and goal setting on the math fact fluency of students with disabilities. <i>Behav Anal Pract</i> 2008; 1 :36–41	Not a controlled trial/design not reported
Fine CT. Training children with attentional deficits to recruit reinforcement from teachers. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1996; 57 :1013	Not retrievable
Fisher K, Haufe T. <i>Developing Social Skills in Children Who Have Disabilities through the Use of Social Stories and Visual Supports</i> . Chicago, IL: St Xavier University; 2009	Irrelevant study population(s), intervention context(s) or outcome(s)
Fitzgerald G, Fick L, Milich R. Computer-assisted instruction for students with attentional difficulties. <i>J Learn Disabil</i> 1986; 19 :376–9	Not a controlled trial/design not reported
Flem A, Moen T, Gudmundsdottir S. Towards Inclusive Schools: A Study of How a Teacher Facilitates Differentiated Instruction. Paper presented at the ECER Conference, Edinburgh, 2000	Irrelevant study population(s), intervention context(s) or outcome(s)
Flood WA, Wilder DA, Flood AL, Masuda A. Peer-mediated reinforcement plus prompting as treatment for off-task behavior in children with attention deficit hyperactivity disorder. <i>J Appl Behav Anal</i> 2002; 35 :199–204	Irrelevant study population(s), intervention context(s) or outcome(s)
Flood WA, Wilder DA. Antecedent assessment and assessment-based treatment of off-task behavior in a child diagnosed with attention deficit-hyperactivity disorder (ADHD). <i>Educ Treat Child</i> 2002; 25 :331–8	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Foks M. Neurofeedback training as an educational intervention in a school setting: how the regulation of arousal states can lead to improved attention and behaviour in children with special needs. <i>Educ Child Psychol</i> 2005; 22 :67–77	Irrelevant study population(s), intervention context(s) or outcome(s)
Folk DK. Stress management and attention-deficit disorder intervention by teachers in the classroom for ADHD and non-ADHD children. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1994; 55 :1996	Irrelevant study population(s), intervention context(s) or outcome(s)
Ford MJ, Poe V, Cox J. Attending behaviors of ADHD children in math and reading using various types of software. <i>J Comput Child Educ</i> 1993; 4 :183–96	Not a controlled trial/design not reported
Forness SR, Freeman SF, Paparella T. Recent randomized clinical trials comparing behavioral interventions and psychopharmacologic treatments for students with EBD. <i>Behav Disord</i> 2006; 31 :284–96	Irrelevant study population(s), intervention context(s) or outcome(s)
Forster P, Doyle BA. Teaching listening skills to students with attention deficit disorders. <i>Teach Except Child</i> 1989; 21 :20–2	Irrelevant study population(s), intervention context(s) or outcome(s)
Foster EM, Jensen PS, Schlander M, Pelham WE, Hechtman L, Arnold LE, et al. Treatment for ADHD: is more complex treatment cost-effective for more complex cases? <i>Health Serv Res</i> 2007; 42 :165–82	Irrelevant study population(s), intervention context(s) or outcome(s)
Frame K. The STARS program: social empowerment training for preadolescents with attention deficit hyperactivity disorder (ADHD). <i>J Sch Nurs</i> 2004; 20 :257–61	Irrelevant study population(s), intervention context(s) or outcome(s)
Frame KR. The effect of a support group on perceptions of scholastic competence, social acceptance and behavioral conduct in preadolescents diagnosed with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2002; 63 :737	Duplicate
Fraser C, Belzner R, Conte R. Attention deficit hyperactivity disorder and self-control: a single case study of the use of a timing device in the development of self-monitoring. <i>Sch Psychol Int</i> 1992; 13 :339–45	Irrelevant study population(s), intervention context(s) or outcome(s)
Friedman F. <i>An Evaluation of the Integrated Cognitive-Behavioral Model for Improving Mathematics Performance and Attentional Behavior of Adolescents with Learning Disabilities and Attention-Deficit Hyperactivity Disorders</i> . New York, NY: Columbia University Teachers College; 1992	Not retrievable
Frost P. 'Like Switching the Light On' – The Raviv Method and its Contribution to Overcoming Learning Difficulties. Paper presented at the British Educational Research Association Annual Conference. Institute of Education, University of London, London, 5–8 September 2007	Irrelevant study population(s), intervention context(s) or outcome(s)
Furtick KC. <i>Successful Strategies Used with ADHD Students: Is an ADHD Classroom a Possibility?</i> Minnesota, MN: Capella University; 2010	Irrelevant study population(s), intervention context(s) or outcome(s)
Galen GC. The emotional and behavioral effects of hatha yoga used as an adjunct to traditional mental health treatment for adolescents with a range of psychiatric disorders. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009; 69 :4419	Irrelevant study population(s), intervention context(s) or outcome(s)
Gannon P. Is There a Functional Relationship Between Neurofeedback Training and the Behaviours Associated with ADHD? Paper Presented at Making Meaning: Creating Connections that Value Diversity: 30 Annual Conference of the Australian Association of Special Education, Brisbane, Australia, 23–25 September 2005	Not retrievable
Garagouni-Areou F, Solomonidou C. Towards the Design of Educational Environments Suitable to the Needs of Pupils with Attention Deficit Hyperactivity Disorder (ADHD) Symptoms. In Cantoni L, McLoughlin C, editors. <i>Proceedings of World Conference on Educational Media and Technology 2004</i> . Norfolk: Assoc Advancement Computing Education; 2004. pp. 4446–51	Irrelevant study population(s), intervention context(s) or outcome(s)
Garcia JA. The cost-effectiveness of treatments for attention-deficit/hyperactivity disorder in children. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2004; 65 :436	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Garcia Medina P. Treatment of hyperkinetic behaviors in a child through an experimental design of incompatible responses. <i>Analisis y Modificacion de Conducta</i> 1987; 13 :97–109	Not retrievable
Garcia Soto XR, Munoz Garcia JJ, Navas Collado E. [Importance of the educational context in the diagnosis and treatment of hyperactivity disorder.] <i>Anales de Psiquiatria</i> 2004; 20 :236–45	Not retrievable
Germer KA, Kaplan LM, Giroux LN, Markham EH, Ferris GJ, Oakes WP, <i>et al.</i> A function-based intervention to increase a second-grade student's on-task behavior in a general education classroom. <i>Beyond Behav</i> 2011; 20 :19–30	Not a controlled trial/design not reported
Gevensleben H, Holl B, Albrecht B, Vogel C, Schlamp D, Kratz O, <i>et al.</i> Is neurofeedback an efficacious treatment for ADHD? A randomised controlled clinical trial. <i>J Child Psychol Psychiatr</i> 2009; 50 :780–9	Irrelevant study population(s), intervention context(s) or outcome(s)
Ghasabi S, Tajrishi MP, Zamani SMM. The effect of verbal self-instruction training on decreasing impulsivity symptoms in ADHD children. <i>J Iranian Psychol</i> 2009; 5 :209–20	Not retrievable
Gittelman RH, Abikoff E, Pollack DF, Klein S, Katz S, Mattes J. A Controlled Trial of Behavior Modification and Methylphenidate in Hyperactive Children. In Walen CK, Henket B, editors <i>Hyperactive Children: The Social Ecology of Identification and Treatment</i> . New York, NY: Academic Press; 1980. pp. 221–43	Duplicate
Glaaser DJ. The effects of improved classroom acoustics on the educational performance of students with attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2008; 69 :1326	Not a controlled trial/design not reported
Gooding LF. The effect of a music therapy-based social skills training program on social competence in children and adolescents with social skills deficits. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 71 :2818	Irrelevant study population(s), intervention context(s) or outcome(s)
Goodison-Farnsworth E. <i>A Multimodal and Systemic Intervention for Children with Attention Deficit Hyperactivity Disorder</i> . Wollongong, NSW: University of Wollongong; 2001	Not retrievable
Gordon M, Thomason D, Cooper S, Ivers CL. Nonmedical treatment of ADHD/hyperactivity: the attention training system. <i>J Sch Psychol</i> 1991; 29 :151–9	Irrelevant study population(s), intervention context(s) or outcome(s)
Graff RB, Green G, Libby ME. Effects of two levels of treatment intensity on a young child with severe disabilities. <i>Behav Interv</i> 1998; 13 :21–41	Not a controlled trial/design not reported
Graham-Day KJ, Gardner R III, Hsin Y-W. Increasing on-task behaviors of high school students with attention deficit hyperactivity disorder: is it enough? <i>Educ Treat Child</i> 2010; 33 :205–21	Not a controlled trial/design not reported
Granger DA, Whalen CK, Henker B, Cantwell C. ADHD boys' behavior during structured classroom social activities: effects of social demands, teacher proximity, and methylphenidate. <i>J Attention Disord</i> 1996; 1 :16–30	Irrelevant study population(s), intervention context(s) or outcome(s)
Grauvogel-MacAleese AN, Wallace MD. Use of peer-mediated intervention in children with attention deficit hyperactivity disorder. <i>J Appl Behav Anal</i> 2010; 43 :547–51	Not a controlled trial/design not reported
Gray SA, Chaban P, Martinussen R, Goldberg R, Gotlieb H, Kronitz R, <i>et al.</i> Effects of a computerized working memory training program on working memory, attention, and academics in adolescents with severe LD and comorbid ADHD; a randomized controlled trial. <i>J Child Psychol Psychiatry</i> 2012; 53 :1277–84	Active comparator
Graybill D, Jamison M, Swerdlik ME. Remediation of impulsivity in learning disabled children by special education resource teachers using verbal self-instruction. <i>Psychol Schools</i> 1984; 21 :252–4	Not a controlled trial/design not reported

Reference	Reason for exclusion
Greenberg L. A multi-informant evaluation of a summer therapeutic camp for children with special needs: Parent and counselor ratings and child self-report. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2011; 71 :5123	Irrelevant study population(s), intervention context(s) or outcome(s)
Greenwald MJ, Walsh C. The Effect of Environmental Accommodations on Attending Behavior of an ADHD Chapter I Student: An Action Research Study. Paper presented at the Annual Meeting of the American Educational Research Association, New York, NY, 8–12 April 1996	Not a controlled trial/design not reported
Grin-Yatsenko V, Kropotov Y, Ponomarev V, Chutko L, Yakovenko E. Effect of biofeedback training of sensorimotor and beta 1 EEG rhythms on attention parameters. <i>Hum Physiol</i> 2001; 27 :259–66	Irrelevant study population(s), intervention context(s) or outcome(s)
Grisanzio WR. Evaluation of the effectiveness of an attention enhancement program for children diagnosed with ADHD administered in the school setting. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2001; 61 :5043	Not a controlled trial/design not reported
Grizenko N, Zappitelli M, Langevin J-P, Hrychko S, El-Messidi A, Kaminester D, et al. Effectiveness of a social skills training program using self/other perspective-taking: a nine-month follow-up. <i>Am J Orthopsychiatry</i> 2000; 70 :501–9	Irrelevant study population(s), intervention context(s) or outcome(s)
Grossman AC. Facilitating appropriate classroom behaviours through physical exercise. Melbourne, VIC: Monash University; 1987	Not retrievable
Grosswald SJ, Stixrud WR, Travis F, Bateh MA. Use of the transcendental meditation technique to reduce symptoms of attention deficit hyperactivity disorder (ADHD) by reducing stress and anxiety: an exploratory study. <i>Curr Issues Educ</i> 2008; 10 :14	Not a controlled trial/design not reported
Guderjahn L, Gold A, Stadler G, Gawrilow C. Self-regulation strategies support children with ADHD to overcome symptom-related behavior in the classroom. <i>Atten Defic Hyperact Disord</i> 2013; 5 :397–407	Active comparator
Guli LA. The effects of creative drama-based intervention for children with deficits in social perception. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 65 :3690	Not a controlled trial/design not reported
Gulley V, Northup J, Hupp S, Spera S, LeVelle J, Ridgway A. Sequential evaluation of behavioral treatments and methylphenidate dosage for children with attention deficit hyperactivity disorder. <i>J Appl Behav Anal</i> 2003; 36 :375–8	Irrelevant study population(s), intervention context(s) or outcome(s)
Gulley VS. A brief method for evaluating the effects of stimulant medication and behavioral interventions on the classroom performance of children with attention deficit hyperactivity disorder (ADHD). <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1999; 60 :1290	Irrelevant study population(s), intervention context(s) or outcome(s)
Gureasko-Moore S, Dupaul GJ, White GP. The effects of self-management in general education classrooms on the organizational skills of adolescents with ADHD. <i>Behav Modif</i> 2006; 30 :159–83	Not a controlled trial/design not reported
Gureasko-Moore S, DuPaul GJ, White GP. Self-management of classroom preparedness and homework: effects on school functioning of adolescents with attention deficit hyperactivity disorder. <i>Sch Psychol Rev</i> 2007; 36 :647–64	Not a controlled trial/design not reported
Gureasko-Moore SP. The effects of self-management on organizational skills of adolescents with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2004; 65 :1534	Not a controlled trial/design not reported
Habboushe DF, Daniel-Crotty S, Karustis JL, Leff SS, Costigan TE, Goldstein SG, et al. A family-school homework intervention program for children with attention-deficit/hyperactivity disorder. <i>Cogn Behav Pract</i> 2001; 8 :123–36	Irrelevant study population(s), intervention context(s) or outcome(s)
Hall TF. Early intervention multimodal treatment program for children with attention deficit hyperactivity disorder: an outcome study. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2003; 63 :3474	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Hamre BK, Pianta RC. Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? <i>Child Dev</i> 2005; 76 :949–67	Irrelevant study population(s), intervention context(s) or outcome(s)
Harbeitner MH. The effects of social skills and peer/parent facilitation generalization training on the impulsive, aggressive, and noncompliant behavior of peer-rejected students diagnosed with attention deficit disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1997; 57 :4647	Not a controlled trial/design not reported
Harris KR, Friedlander BD, Saddler B, Frizzelle R, Graham S. Self-monitoring of attention versus self-monitoring of academic performance: effects among students with ADHD in the general education classroom. <i>J Spec Educ</i> 2005; 39 :145–56	Irrelevant study population(s), intervention context(s) or outcome(s)
Harris KR. Self-monitoring of attentional behavior versus self-monitoring of productivity: effects on on-task behavior and academic response rate among learning disabled children. <i>J Appl Behav Anal</i> 1986; 19 :417–23	Not a controlled trial/design not reported
Hauch Y. A multimodal treatment program for children with ADHD: A 16-month follow-up. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 66 :1719	Irrelevant study population(s), intervention context(s) or outcome(s)
Hechtman L, Abikoff H, Klein RG, Weiss G, Resnitz C, Kouri J, et al. Academic achievement and emotional status of children with ADHD treated with long-term methylphenidate and multimodal psychosocial treatment. <i>J Am Acad Child Adolesc Psychiatr</i> 2004; 43 :812–19	Irrelevant study population(s), intervention context(s) or outcome(s)
Hedin LR, Mason LH, Gaffney JS. Comprehension strategy instruction for two students with attention-related disabilities. <i>Prev Sch Fail</i> 2011; 55 :148–57	Not a controlled trial/design not reported
Helms KS. A study of the impact of sensory integration strategies for reducing negative behaviors of ADHD students. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 71 :4276	Irrelevant study population(s), intervention context(s) or outcome(s)
Herman B. <i>Treating Cognitively Impulsive Children Using Academic Materials and Peer Models</i> . Indiana, IN: Indiana State University; 1982	Not retrievable
Heuchert CM. Can teachers change behavior? <i>Acad Ther</i> 1983; 18 :321–8	Irrelevant study population(s), intervention context(s) or outcome(s)
Hill LJB, Williams JHG, Aucott L, Thomson J, Mon-Williams M. How does exercise benefit performance on cognitive tests in primary-school pupils? <i>Dev Med Child Neurol</i> 2011; 53 :630–5	Irrelevant study population(s), intervention context(s) or outcome(s)
Hilton-Prillhart AN, Hopkins MB, Skinner CH, McCane-Bowling S. Enhancing sight word reading in second-grade students using a computer-based sight word reading system. <i>J Evid Base Pract Sch</i> 2011; 12 :205–18	Not retrievable
Hinshaw SP, Henker B, Whalen CK. Cognitive-behavioral and pharmacological interventions for hyperactive boys: comparative and combined effects. <i>J Consult Clin Psychol</i> 1984; 52 :739–49	Irrelevant study population(s), intervention context(s) or outcome(s)
Hoff KE, DuPaul GJ. Reducing disruptive behavior in general education classrooms: the use of self-management strategies. <i>Sch Psychol Rev</i> 1998; 27 :290–303	Irrelevant study population(s), intervention context(s) or outcome(s)
Hoff KE, Ervin RA, Friman PC. Refining functional behavioral assessment: analyzing the separate and combined effects of hypothesized controlling variables during ongoing classroom routines. <i>Sch Psychol Rev</i> 2005; 34 :45–57	Not a controlled trial/design not reported
Hogg C, Callias M, Pellegrini D. Treatment of a 7-year-old hyperactive boy with educational problems. <i>Behav Psychother</i> 1986; 14 :145–61	Irrelevant study population(s), intervention context(s) or outcome(s)
Holly PM, Trower TL, Chance DR. Wall-to-wall hugging and counseling. <i>Elementary Sch Guid Counsel</i> 1984; 19 :147–51	Irrelevant study population(s), intervention context(s) or outcome(s)
Houck GM, King MC, Tomlinson B, Vrabel A, Wecks K. Small group intervention for children with attention disorders. <i>J Sch Nurs</i> 2002; 18 :196–200	Not a controlled trial/design not reported

Reference	Reason for exclusion
Hovik, Kjell Tore. <i>Can PC-Based Training Boost Working Memory in ADHD Preadolescents on Medication? A Clinical Intervention Study</i> . Oslo: University of Oslo; 2010	Active comparator
Hovik KT, Aarli AK, Saunes BK, Egeland J. Effects of working memory training on medicated ADHD preadolescents (10–12 years). <i>Eur Child Adolesc Psychiatr</i> 2010; 19 :S73	Irrelevant study population(s), intervention context(s) or outcome(s)
Hoza B, Mrug S, Pelham WE Jr, Greiner AR, Gnagy EM. A friendship intervention for children with attention-deficit/hyperactivity disorder: preliminary findings. <i>J Attention Disord</i> 2003; 6 :87–98	Irrelevant study population(s), intervention context(s) or outcome(s)
Hoza B, Pelham WE Jr, Sams SE, Carlson C. An examination of the 'dosage' effects of both behavior therapy and methylphenidate on the classroom performance of two ADHD children. <i>Behav Modif</i> 1992; 16 :164–92	Irrelevant study population(s), intervention context(s) or outcome(s)
Hubler SF. An instructional strategy designed to improve the problem solving abilities of students having an impulsive cognitive style. <i>Diss Abstr Int</i> 1990; 50 :3477–8	Irrelevant study population(s), intervention context(s) or outcome(s)
Hughes JN. Parents and cotherapists in think aloud. <i>Psychol Schools</i> 1985; 22 :436–43	Irrelevant study population(s), intervention context(s) or outcome(s)
Hutchinson SW, Murdock JY, Williamson RD, Cronin ME. Self-recording PLUS encouragement equals improved behavior. <i>Teach Except Child</i> 2000; 32 :54–8	Irrelevant study population(s), intervention context(s) or outcome(s)
Imhof M. Effects of color stimulation on handwriting performance of children with ADHD without and with additional learning disabilities. <i>Eur Child Adolesc Psychiatr</i> 2004; 13 :191–8	Irrelevant study population(s), intervention context(s) or outcome(s)
Iovino I, Fletcher JM, Breitmeyer BG, Foorman BR. Colored overlays for visual perceptual deficits in children with reading disability and attention deficit/hyperactivity disorder: are they differentially effective? <i>J Clin Exp Neuropsychol</i> 1998; 20 :791–806	Irrelevant study population(s), intervention context(s) or outcome(s)
Iseman JS. A cognitive instructional approach to improving math calculation of children with ADHD: application of the pass theory. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 66 :6274	Duplicate
Isler L. Effects of gender on treatment outcome in young children with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2008; 69 :659	Irrelevant study population(s), intervention context(s) or outcome(s)
Jacklyn HQ, Ravichandran S. Motivating Children with Attention Deficiency Disorder Using Certain Behavior Modification Strategies. In Lim CT, Goh JCH, editors. <i>13th International Conference on Biomedical Engineering, Vols 1–3</i> . New York, NY: Springer; 2009. pp. 1057–60	Irrelevant study population(s), intervention context(s) or outcome(s)
Jacobson LT, Reid R. Improving the persuasive essay writing of high school students with ADHD. <i>Except Child</i> 2010; 76 :157–74	Not a controlled trial/design not reported
Jacobson LT. Improving the writing performance of high school students with attention deficit/hyperactivity disorder and writing difficulties. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2010; 70 :2954	Not a controlled trial/design not reported
Jafarova O, Grebneva O, Lazareva O, Mazhirina K, Shtark M. <i>The Use of the Neurofeedback Technology in the Correction of Attention Disorders in ADHD Risk Groups</i> . Liverpool: World Academic Union/World Academic Press; 2010	Not a controlled trial/design not reported
Jarrett OS, Maxwell DM, Dickerson C, Hoge P, Davies G, Yetley A. Impact of recess on classroom behavior: group effects and individual differences. <i>J Educ Res</i> 1998; 92 :121–6	Irrelevant study population(s), intervention context(s) or outcome(s)
Jensen PS. A 14-month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder. <i>Arch Gen Psychiatr</i> 1999; 56 :1073–86	Irrelevant study population(s), intervention context(s) or outcome(s)
Jensen PS, Arnold LE, Swanson JM, Vitiello B, Abikoff HB, Greenhill LL, et al. 3-year follow-up of the NIMH MTA study. <i>J Am Acad Child Adolesc Psychiatr</i> 2007; 46 :989–1002	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Jensen PS, Garcia JA, Glied S, Crowe M, Foster M, Schlander M, <i>et al.</i> Cost-effectiveness of ADHD treatments: findings from the multimodal treatment study of children with ADHD. <i>Am J Psychiatr</i> 2005; 162 :1628–36	Irrelevant study population(s), intervention context(s) or outcome(s)
Jensen PS, Kenny DT. The effects of yoga on the attention and behavior of boys with attention-deficit/hyperactivity disorder (ADHD). <i>J Attention Disord</i> 2004; 7 :205–16	Irrelevant study population(s), intervention context(s) or outcome(s)
Jitendra AK, DuPaul GJ, Volpe RJ, Tresco KE, Junod RE, Lutz J, <i>et al.</i> Consultation-based academic intervention for children with attention deficit hyperactivity disorder: school functioning outcomes. <i>Sch Psychol Rev</i> 2007; 36 :217–36	Duplicate
Jitendra AK, DuPaul GJ. Enhancing academic performance in children with ADHD. <i>ADHD Report</i> 2007; 15 :1–5	Duplicate
Jitendra AK, Edwards LL, Starosta K, Sacks G, Jacobson LA, Choutka CM. Early reading instruction for children with reading difficulties: meeting the needs of diverse learners. <i>J Learn Disabil</i> 2004; 37 :421–39	Not a controlled trial/design not reported
Johnson JW. The effect of strategy instruction on the reading comprehension of high school students with ADHD. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 72 :1958	Not a controlled trial/design not reported
Johnson K. Morningside academy. <i>Behav Soc Issues</i> 1997; 7 :31–5	Irrelevant study population(s), intervention context(s) or outcome(s)
Johnson L, Sinnott J. The Effect of Acupressure for Moderating Behavior of Attention-Deficit/Hyperactivity Disorder Adolescents. Self-published 1998	Not a controlled trial/design not reported
Johnson NP. The effect of the corrective reading program on junior high students with learning disabilities and attention deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2009; 70 :1234	Not a controlled trial/design not reported
Johnson SE. The effects of a silent signaling device on math performance for children rated as inattentive by teacher or parent. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2007; 68 :1914	Not a controlled trial/design not reported
Johnson TL. Using Conjoint Behavioral Consultation To Enhance the Generalization of Behavioral Parent Training Effects to School Settings for Children with ADHD. Paper presented at the Annual Meeting of the National Association of School Psychologists, Seattle, WA, 4–5 March 1994	Not a controlled trial/design not reported
Johnson WF. Working memory and ADHD: Can students with ADHD benefit from being taught strategies? <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2001; 61 :3847	Not retrievable
Johnson-Glenberg MC. <i>Web-Based Reading Comprehension Instruction: Three Studies of 3D-Readers. Reading Comprehension Strategies: Theories, Interventions, and Technologies</i> . Mahwah, NJ: Lawrence Erlbaum Associates Publishers; 2007	Not retrievable
Jolivet K, Lingo AS, Houchins DE, Barton-Arwood SM, Shippen ME. Building math fluency for students with developmental disabilities and attentional difficulties using 'great leaps math'. <i>Educ Train Dev Disabil</i> 2006; 41 :392–400	Not a controlled trial/design not reported
Jones KM, Drew HA, Weber NL. Noncontingent peer attention as treatment for disruptive classroom behavior. <i>J Appl Behav Anal</i> 2000; 33 :343–6	Irrelevant study population(s), intervention context(s) or outcome(s)
Jones M, Boon RT, Fore C, Bender WN. 'Our mystery hero!' A group contingency intervention for reducing verbally disrespectful behaviors. <i>Learn Disabil</i> 2008; 15 :61–9	Not a controlled trial/design not reported
Jones TS, Bodtker AM. Conflict education in a special needs population. <i>Mediation Q</i> 1999; 17 :109–24	Irrelevant study population(s), intervention context(s) or outcome(s)
Joyce M, Siever D. Audio-visual entrainment program as a treatment for behavior disorders in a school setting. <i>J Neurother</i> 2000; 4 :9–25	Irrelevant study population(s), intervention context(s) or outcome(s)
Juiliano F. The effects of goal-setting and self-charting on the academic performance of students with attention problems. <i>Diss Abstr Int</i> 1991; 51 :3698	Not retrievable

Reference	Reason for exclusion
Jurbergs AN. Relative efficacy of school-home notes and teacher feedback in minority elementary students with attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 66 :6276	Duplicate
Jurbergs N, Palcic J, Kelley ML. School-home notes with and without response cost: Increasing attention and academic performance in low-income children with attention-deficit/hyperactivity disorder. <i>Sch Psychol Q</i> 2007; 22 :358–79	Not a controlled trial/design not reported
Jurecska DE, Hamilton EB, Peterson MA. Effectiveness of the coping power program in middle-school children with disruptive behaviours and hyperactivity difficulties. <i>Support Learn</i> 2011; 26 :16–72	Irrelevant study population(s), intervention context(s) or outcome(s)
Kahraman H, Akgun S. The effects of empathy training on preschoolers empathic skills and conduct problems. <i>Cocuk ve Genclik Ruh Sagligi Dergisi</i> 2008; 15 :15–23	Not retrievable
Kaiser M. Effect of behavior modification in the classroom on academic functioning and self-esteem in hyperactive children. <i>Diss Abstr Int</i> 1993; 53 :6534	Irrelevant study population(s), intervention context(s) or outcome(s)
Kang HW. The effectiveness of spatial visualization training for children with and without attention deficit hyperactivity disorder (ADHD). <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 71 :3108	Irrelevant study population(s), intervention context(s) or outcome(s)
Kantavong P, Sivabaedya S. A professional learning program for enhancing the competency of students with special needs. <i>Int J Whole Sch</i> 2010; 6 :53–62	Irrelevant study population(s), intervention context(s) or outcome(s)
Kantner R, Tocco AM. Comparison of vestibular stimulation effects on classroom-behavior of 2 hyperactive-children with different hyperactive characteristics. <i>Percept Mot Skills</i> 1980; 50 :766	Irrelevant study population(s), intervention context(s) or outcome(s)
Kapalka GM. Managing students with ADHD in out-of-class settings. <i>Emot Behav Difficult</i> 2008; 13 :22–30	Active comparator
Karper WB. Effects of gross motor training on attention-deficit behavior in one learning-disabled child. <i>Percept Mot Skills</i> 1986; 63 :219–25	Irrelevant study population(s), intervention context(s) or outcome(s)
Katcher A, Teumer S. A 4-year Trial of Animal-Assisted Therapy With Public School Special Education Students. In Fine AH, editor. <i>Handbook on Animal-Assisted Therapy: Theoretical Foundations and Guidelines for Practice</i> . San Diego, CA: Academic Press; 2006. pp. 227–42	Not retrievable
Katcher AH, Wilkins GG. The Centaur's Lessons: Therapeutic Education Through Care of Animals and Nature Study. In Fine AH, editor. <i>Handbook on Animal-Assisted Therapy: Theoretical Foundations and Guidelines for Practice</i> . San Diego, CA: Academic Press; 2000. pp. 153–77	Irrelevant study population(s), intervention context(s) or outcome(s)
Kaufman L, McLaughlin TF, Derby KM, Waco T. Employing reading racetracks and DI flashcards with and without cover, copy, and compare and rewards to teach of sight words to three students with learning disabilities in reading. <i>Educ Res Q</i> 2011; 34 :27–50	Not a controlled trial/design not reported
Kayser KH, Wacker DP, Derby KM, Andelman MS, Golonka Z, Stoner EA. A rapid method for evaluating the necessity for both a behavioral intervention and methylphenidate. <i>J Appl Behav Anal</i> 1997; 30 :177–80	Irrelevant study population(s), intervention context(s) or outcome(s)
Keeler KM. Fresh start: treatment effectiveness in a collaborative setting for behavioral-disordered children. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2000; 60 :6368	Irrelevant study population(s), intervention context(s) or outcome(s)
Kehle TJ, Clark E, Jenson WR, Wampold BE. Effectiveness of self-observation with behavior disordered elementary school children. <i>Sch Psychol Rev</i> 1986; 15 :289–95	Not a controlled trial/design not reported
Kelley ML, McCain AP. Promoting academic performance in inattentive children. The relative efficacy of school-home notes with and without response cost. <i>Behav Modif</i> 1995; 19 :357–75	Not a controlled trial/design not reported

Reference	Reason for exclusion
Kercood S, Grskovic JA, Lee DL, Emmert S. The effects of fine motor movement and tactile stimulation on the math problem solving of students with attention problems. <i>J Behav Educ</i> 2007; 16 :303–10	Not controlled trial/design not reported
Kercood S, Grskovic JA. The effects of highlighting on the math computation performance and off-task behavior of students with attention problems. <i>Educ Treat Child</i> 2009; 32 :231–41	Not a controlled trial/design not reported
Kercood S, Zentall SS, Vinh M, Tom-Wright K. Attentional cuing in math word problems for girls at-risk for ADHD and their peers in general education settings. <i>Contemp Educ Psychol</i> 2012; 37 :106–12	Irrelevant study population(s), intervention context(s) or outcome(s)
Kern L, Delaney B, Clarke S, Dunlap G, Childs K. Improving the classroom behavior of students with emotional and behavioral disorders using individualized curricular modifications. <i>J Emot Behav Disord</i> 2001; 9 :239–47	Not a controlled trial/design not reported
Kern L, DuPaul GJ, Volpe RJ, Sokol NG, Lutz J, Arbolino LA, et al. Multisetting assessment-based intervention for young children at risk for attention deficit hyperactivity disorder: Initial effects on academic and behavioral functioning. <i>Sch Psychol Rev</i> 2007; 36 :237–55	Irrelevant study population(s), intervention context(s) or outcome(s)
Kerns KA, Eso K, Thomson J. Investigation of a direct intervention for improving attention in young children with ADHD. <i>Dev Neuropsychol</i> 1999; 16 :273–95	Irrelevant study population(s), intervention context(s) or outcome(s)
Khachapuridze N, Bakhtadze S, Geladze N, Kapanadze N. Impact of pharmacological versus non-pharmacological treatment on cognitive shift in attention deficit hyperactivity disorder. <i>Eur Neuropsychopharmacol</i> 2011; 21 :S600	Irrelevant study population(s), intervention context(s) or outcome(s)
Kim NS. The behavioral-cognitive treatment for modification of children's impulsivity. <i>Kor J Counsel Psychother</i> 1997; 9 :19–34	Not retrievable
Kirby EA, Horne AM. <i>Cognitive-Behavioral Modification with Hyperactive/Attention Deficit Disorder Children</i> . Washington, DC: ERIC Clearinghouse; 1981	Irrelevant study population(s), intervention context(s) or outcome(s)
Kirby EA. <i>Durable and Generalized Effects of Cognitive-Behavior Modification with Attention Deficit Disorder Children</i> . Washington, DC: ERIC Clearinghouse; 1984	Not retrievable
Kleiman G, Linday P. Microcomputers and hyperactive children. <i>Creativ Comput</i> 1981; 7 :93–4	Irrelevant study population(s), intervention context(s) or outcome(s)
Klein RG, Abikoff H. Behavior therapy and methylphenidate in the treatment of children with ADHD. <i>J Attention Disord</i> 1997; 2 :89–114	Active comparator
Koscinski ST, Gast DL. Computer-assisted instruction with constant time delay to teach multiplication facts to students with learning disabilities. <i>Learn Disabil Res Pract</i> 1993; 8 :157–68	Not retrievable
Kotkin R. The Irvine Paraprofessional Program: promising practice for serving students with ADHD. <i>J Learn Disabil</i> 1998; 31 :556–64	Irrelevant study population(s), intervention context(s) or outcome(s)
Kraemer ES. Effectiveness of a home-school note procedure for increasing appropriate classroom behaviors exhibited by children diagnosed with attention-deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1995; 55 :3454	Not retrievable
Kratter J, Hogan JD. <i>The Use of Meditation in the Treatment of Attention Deficit Disorder with Hyperactivity</i> . Jamaica, NY: St Johns University; 1982	Irrelevant study population(s), intervention context(s) or outcome(s)
Krout R, Burnham A, Moorman S. Computer and electronic music applications with students in special education: from program proposal to progress evaluation. <i>Music Ther Perspect</i> 1993; 11 :28–31	Irrelevant study population(s), intervention context(s) or outcome(s)
Kuester DA, Zentall SS. Social interaction rules in cooperative learning groups for students at risk for ADHD. <i>J Exp Educ</i> 2012; 80 :69–95	Not a controlled trial/design not reported
Kurtz BE, Borkowski JG. Development of strategic skills in impulsive and reflective children: a longitudinal study of metacognition. <i>J Exp Child Psychol</i> 1987; 43 :129–48	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Kurtz BE, Borkowski JG. <i>Metacognition and the Development of Strategic Skills in Impulsive and Reflective Children</i> . Munich: Max Plank Institute for Psychological Research; 1985	Irrelevant study population(s), intervention context(s) or outcome(s)
Kwako R. Relaxation as therapy for hyperactive children. <i>Occup Ther Ment Health</i> 1980; 1 :29–45	Irrelevant study population(s), intervention context(s) or outcome(s)
Lane KL, O'Shaughnessy TE, Lambros KM, Gresham FM, Beebe-Frankenberger ME. The efficacy of phonological awareness training with first-grade students who have behavior problems and reading difficulties. <i>J Emot Behav Disord</i> 2001; 9 :219–31	Not a controlled trial/design not reported
Langberg JM, Arnold LE, Flowers AM, Epstein JN, Altaye M, Hinshaw SP, <i>et al</i> . Parent-reported homework problems in the MTA study: evidence for sustained improvement with behavioral treatment. <i>J Clin Child Adolesc Psychol</i> 2010; 39 :220–33	Irrelevant study population(s), intervention context(s) or outcome(s)
Langberg JM, Vaughn AJ, Williamson P, Epstein JN, Girio-Herrera E, Becker SP. Refinement of an organizational skills intervention for adolescents with ADHD for implementation by school mental health providers. <i>Sch Ment Health</i> 2011; 3 :143–55	Not a controlled trial/design not reported
Lantieri L. Teaching conflict resolution as an intervention for AD/HD. <i>Reaching Today's Youth</i> 1998; 2 :56–9	Not retrievable
Lauth GW, Fellner C. Course of therapy and long-term effects of a multimodal therapy program in ADHD. Single case studies. <i>Kindheit und Entwicklung</i> 2004; 13 :167–79	Not retrievable
Lee DL, Zentall SS. The effects of visual stimulation on the mathematics performance of children with attention deficit/hyperactivity disorder. <i>Behav Disord</i> 2002; 27 :272–88	Not a controlled trial/design not reported
Lee DL. The effects of stimulation on the operant responses of children with attention/deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1999; 60 :0703	Not a controlled trial/design not reported
Leigh L, Gersch I, Dix A, Haythorne D. <i>Dramatherapy with Children, Young People and Schools: Enabling Creativity, Sociability, Communication and Learning</i> . Oxford: Routledge, Taylor & Francis Group; 2012	Not retrievable
Leisman G, Melillo R, Thum S, Ransom MA, Orlando M, Tice C, <i>et al</i> . The effect of hemisphere specific remediation strategies on the academic performance outcome of children with ADD/ADHD. <i>Int J Adolesc Med Health</i> 2010; 22 :275–83	Irrelevant study population(s), intervention context(s) or outcome(s)
Lena G, Andreas G, Caterina G. Self-regulation in the schools: a teacher training to reduce ADHD symptoms in the classroom. <i>Psychol Health</i> 2011; 26 :261–2	Irrelevant study population(s), intervention context(s) or outcome(s)
Lerew CD. The use of a cognitive strategy as an academic and behavioral intervention for children with attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2004; 64 :3553	Not a controlled trial/design not reported
LeVan RR. Development and assessment of a teacher-implemented self-instructional program for management of hyperactivity and associated behavior in the classroom. <i>Dissertation Abstracts International</i> 1981; 41 :3896	Not retrievable
Levine ES, Anshel DJ. 'Nothing works!' A case study using cognitive-behavioral interventions to engage parents, educators, and children in the management of attention-deficit/hyperactivity disorder. <i>Psychol Schools</i> 2011; 48 :297–306	Irrelevant study population(s), intervention context(s) or outcome(s)
Lewandowski LJ, Lovett BJ, Parolin R, Gordon M, Coddling RS. Extended time accommodations and the mathematics performance of students with and without ADHD. <i>J Psychoeduc Assess</i> 2007; 25 :17–28	Irrelevant study population(s), intervention context(s) or outcome(s)
Lienemann TO, Reid R. Using self-regulated strategy development to improve expository writing with students with attention deficit hyperactivity disorder. <i>Except Child</i> 2008; 74 :471–86	Not a controlled trial/design not reported

Reference	Reason for exclusion
Little AM. Perceptions of Baldrige criteria implementation in middle school inclusive language arts classrooms. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 72 :887	Irrelevant study population(s), intervention context(s) or outcome(s)
Liu J. Is electro-acupuncture, in combination with behaviour therapy, effective in preschool children with attention deficit hyperactivity disorder? <i>Focus Alternative Compl Ther</i> 2011; 16 :227–8	Irrelevant study population(s), intervention context(s) or outcome(s)
Lloyd A, Brett D, Wesnes K. Coherence training in children with attention-deficit hyperactivity disorder: cognitive functions and behavioral changes. <i>Altern Ther Health Med</i> 2010; 16 :34–42	Active comparator
Loper AB, Hallahan DP, McKinney JD. The effect of reinforcement for global or analytic strategies on the performance of reflective and impulsive children. <i>J Exp Child Psychol</i> 1982; 33 :55–62	Irrelevant study population(s), intervention context(s) or outcome(s)
Lorah KS. Effects of peer tutoring on the reading performance and classroom behavior of students with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 64 :1208	Not a controlled trial/design not reported
Lorch EP, O'Neil K, Berthiaume KS, Milich R, Eastham D, Brooks T. Story comprehension and the impact of studying on recall in children with attention deficit hyperactivity disorder. <i>J Clin Child Adolesc Psychol</i> 2004; 33 :506–15	Irrelevant study population(s), intervention context(s) or outcome(s)
Luckey AJ. Cognitive and academic gains as a result of cognitive training. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2010; 71 :84	Irrelevant study population(s), intervention context(s) or outcome(s)
Luiselli JK, Steinman DL, Marholin D, Steinman WM. Evaluation of progressive muscle relaxation with conduct-problem, learning-disabled children. <i>Child Behav Ther</i> 1981; 3 :41–55	Irrelevant study population(s), intervention context(s) or outcome(s)
Maag JW, Anderson JM. Sound-field amplification to increase compliance to directions in students with ADHD. <i>Behav Disord</i> 2007; 32 :238–53	Not a controlled trial/design not reported
Macklem GL. No one wants to play with me. <i>Acad Ther</i> 1987; 22 :477–84	Irrelevant study population(s), intervention context(s) or outcome(s)
Mager WM. Effects of intervention group composition on young adolescents at-risk for externalizing behavior problems. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2004; 64 :4049	Irrelevant study population(s), intervention context(s) or outcome(s)
Majeika CE, Walder JP, Hubbard JP, Steeb KM, Ferris GJ, Oakes WP, et al. Improving on-task behavior using a functional assessment-based intervention in an inclusive high school setting. <i>Beyond Behav</i> 2011; 20 :55–66	Not a controlled trial/design not reported
Marley D. Meditation helps to calm hyperactive pupils in US. <i>Times Educ Suppl</i> 2009:15	Irrelevant study population(s), intervention context(s) or outcome(s)
Martin AJ. The role of personal best (PB) goals in the achievement and behavioral engagement of students with ADHD and students without ADHD. <i>Contemp Educ Psychol</i> . 2012; 37 :91–105	Irrelevant study population(s), intervention context(s) or outcome(s)
Martinez E. Neurotherapy as a treatment for attention deficit/hyperactivity disorder: a program design. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2011; 71 :6428	Irrelevant study population(s), intervention context(s) or outcome(s)
Mathes MY, Bender WN. The effects of self-monitoring on children with attention-deficit/hyperactivity disorder who are receiving pharmacological interventions. <i>Remedial Spec Educ</i> 1997; 18 :121	Not a controlled trial/design not reported
Mathes MY. Effects of self-monitoring on male children with attention deficit hyperactivity disorder who are receiving psychostimulant medication. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1997; 58 :0423	Not a controlled trial/design not reported
Matheson C. The effects of classwide peer tutoring on the academic achievement and classroom deportment of children with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1998; 58 :2533	Not a controlled trial/design not reported

Reference	Reason for exclusion
Matson GD. Modifying the impulsive cognitive learning style by instructional materials and teacher modeling. <i>Diss Abstr Int</i> 1980; 41 :1872	Irrelevant study population(s), intervention context(s) or outcome(s)
Matthews DB. <i>Biofeedback: Its Uses in Education</i> . Washington, DC: ERIC Clearinghouse; 1981	Not retrievable
Mautone JA, DuPaul GJ, Jitendra AK. The effects of computer-assisted instruction on the mathematics performance and classroom behavior of children with ADHD. <i>J Attention Disord</i> 2005; 9 :301–12	Not a controlled trial/design not reported
Maxwell V. Diagnosis and treatment of the gifted student with attention deficit disorder: a structure of intellect (SOI) approach. <i>J Read Writ Learn Disabil Int</i> 1989; 5 :247–52	Irrelevant study population(s), intervention context(s) or outcome(s)
Mazius MA. The educational impact of teacher-delivered self-instructional training on attention deficit hyperactivity disordered children. <i>Diss Abstr Int</i> 1991; 51 :4060	Not retrievable
McAllister DA, Cutcher CL. <i>Culminating Experience Action Research Projects</i> . Chattanooga, TN: The University of Tennessee at Chattanooga; 2008	Not a controlled trial/design not reported
McCain AP, Kelley ML. Managing the classroom behavior of an ADHD preschooler: the efficacy of a school-home note intervention. <i>Child Fam Behav Ther</i> 1993; 15 :33–44	Not a controlled trial/design not reported
McClanahan B, Williams K, Kennedy E, Tate S. A breakthrough for Josh: how use of an iPad facilitated reading improvement. <i>Tech Trends</i> 2012; 56 :20–8	Not a controlled trial/design not reported
McCord D. The effects of choice options on the reading performance of students with disabilities. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 72 :139	Irrelevant study population(s), intervention context(s) or outcome(s)
McDaid JL. <i>K-6 Early Intervention Project: Evaluation of the First Year of Implementation</i> . San Diego, CA: San Diego City School; 1987	Not retrievable
McGoey KE, DuPaul GJ, Eckert TL, Volpe RJ, Van Brakle J. Outcomes of a multi-component intervention for preschool children at-risk for attention-deficit/hyperactivity disorder. <i>Child Fam Behav Ther</i> 2005; 27 :33–56	Irrelevant study population(s), intervention context(s) or outcome(s)
McGoey KE, DuPaul GJ. Token reinforcement and response cost procedures: Reducing the disruptive behavior of preschool children with attention-deficit/hyperactivity disorder. <i>Sch Psychol Q</i> 2000; 15 :330–43	Not a controlled trial/design not reported
McGoey KE. Positive reinforcement and response cost procedures: reducing the disruptive behavior of preschool children with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1998; 58 :6222	Not a controlled trial/design not reported
Meftagh SD, Mohammadi N, Ghanizadeh A, Rahimi C, Najimi A. Comparison of the effectiveness of different treatment methods in children's attention deficit-hyperactivity disorders. <i>J Isfahan Med Sch</i> 2011; 29 :965–76	Not retrievable
Mehta S, Mehta V, Mehta S, Shah D, Motiwala A, Vardhan J, et al. Multimodal behavior program for ADHD incorporating yoga and implemented by high school volunteers: a pilot study. <i>ISRN Pediatr</i> 2011; 780745	Not a controlled trial/design not reported
Meisel V, Garcia-Banda G, Servera M, Cardo E, Amengual L, Arroyo A, et al. Is neurofeedback able to improve behaviour and academic performance in children with attention deficit/hyperactivity disorder? A comparison with pharmacological intervention. <i>Neurosci Lett</i> 2011; 500 :e46	Irrelevant study population(s), intervention context(s) or outcome(s)
Merrill MA. Captain's log: Effectiveness of computerized cognitive training on ADHD symptoms. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2008; 68 :5584	Irrelevant study population(s), intervention context(s) or outcome(s)
Merriman DE, Codding RS. The effects of coaching on mathematics homework completion and accuracy of high school students with attention-deficit/hyperactivity disorder. <i>J Behav Educ</i> 2008; 17 :339–55	Not a controlled trial/design not reported
Meyer K, Kelley ML. Improving homework in adolescents with attention-deficit/hyperactivity disorder: Self vs. parent monitoring of homework behavior and study skills. <i>Child Fam Behav Ther</i> 2007; 29 :25–42	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Mezzacappa E, Buckner JC. Working memory training for children with attention problems or hyperactivity: a school-based pilot study. <i>Sch Ment Health</i> 2010; 2 :202–8	Not a controlled trial/design not reported
Millard JL. Evaluation of an adolescent moral development, self-esteem, and conflict resolution skills program. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1995; 55 :3094	Irrelevant study population(s), intervention context(s) or outcome(s)
Miranda A, Llácer MD, García C. Increasing the effectiveness of self-control training for hyperactive children by involving parents and teachers. <i>Revista de Psicología de la Educación</i> 1989; 1 :3–18	Not retrievable
Miranda A, Llácer MD, García C. Does increase the efficacy of a training in auto-control for hyperactive children with the collaboration of parents and teachers? <i>Revista de Psicología de la Educación</i> 1989; 1 :3–18	Not retrievable
Miranda A, Presentación MJ. Effects of cognitive-behavioural treatment in aggressive and nonaggressive children with attention deficit hyperactivity disorder: significant clinical change. <i>Infancia y Aprendizaje</i> 2000; 92 :51–70	Not retrievable
Miranda A, Presentación MJ, Siegenthaler R, Jara P. Effects of a psychosocial intervention on the executive functioning in children With ADHD. <i>J Learn Disabil</i> 2013; 46 :363–76	Irrelevant study population(s), intervention context(s) or outcome(s)
Molina BSG, Hinshaw SP, Swanson JM, Arnold LE, Vitiello B, Jensen PS, et al. The MTA at 8 years: prospective follow-up of children treated for combined-type ADHD in a multisite study. <i>J Am Acad Child Adolesc Psychiatr</i> 2009; 48 :484–500	Irrelevant study population(s), intervention context(s) or outcome(s)
Molloy GN. Chemicals, exercise and hyperactivity: a short report. <i>Int J Disabil Dev Educ</i> 1989; 36 :57–61	Not a controlled trial/design not reported
Morand MK. The effects of mixed martial arts and exercise on behavior of boys with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2004; 65 :2609	Irrelevant study population(s), intervention context(s) or outcome(s)
Mosse LK, Hinojosa B. The use of EEG biofeedback in the treatment of ADD/ADHD in the school setting. Wheat Ridge, CO: The Association Applied Psychophysiology & Biofeedback; 1998	Irrelevant study population(s), intervention context(s) or outcome(s)
Mozo DAL. Effects of a brief family and school-centered program on children's psychological and academic behaviors. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2002; 63 :1261	Not retrievable
Munoz JAL, Garcia IM. Multi-modal intervention in a case of child's hyperactivity: content, results and troubles with treatment. <i>Clinica y Salud</i> 2001; 12 :405–27	Not retrievable
Muro J, Ray D, Schottelkorb A, Smith MR, Blanco PJ. Quantitative analysis of long-term child-centered play therapy. <i>Int J Play Ther</i> 2006; 15 :35–58	Irrelevant study population(s), intervention context(s) or outcome(s)
Murray LK. Self-control training in young children. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2002; 63 :3017	Irrelevant study population(s), intervention context(s) or outcome(s)
Najafi M, Mohammadi MR, Assari S, Basirnia A, Tehranidoost M, Alaghband-rad J. Improving the dictation in attention deficit hyperactivity disorder by using computer based interventions: a clinical trial. <i>Iran J Psychiatr</i> 2006; 1 :123–7	Irrelevant study population(s), intervention context(s) or outcome(s)
Najafi M. Improving the dictation in attention deficit hyperactivity disorder by using computer based interventions: A clinical trial. <i>Eur Psychiatr</i> 2010; 25	Irrelevant study population(s), intervention context(s) or outcome(s)
Narhi V. The effects of a short in-service training on teaching students with ADHD-symptoms: teacher's experiences and the behavior management techniques used. A pilot study. <i>Eur Child Adolesc Psychiatr</i> 2010; 19 :S74	Irrelevant study population(s), intervention context(s) or outcome(s)
Neef NA, Bicard DF, Endo S. Assessment of impulsivity and the development of self-control in students with attention deficit hyperactivity disorder. <i>J Appl Behav Anal</i> 2001; 34 :397–408	Irrelevant study population(s), intervention context(s) or outcome(s)
Neef NA, Lutz MN. Assessment of variables affecting choice and application to classroom interventions. <i>Sch Psychol Q</i> 2001; 16 :239–52	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Nguyen MT. A program design for ADHD students: assessment and classroom intervention. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2002; 63 :2597	Irrelevant study population(s), intervention context(s) or outcome(s)
Noell GH, Gansle KA, Witt JC, Whitmarsh EL, Freeland JT, LaFleur LH, <i>et al.</i> Effects of contingent reward and instruction on oral reading performance at differing levels of passage difficulty. <i>J Appl Behav Anal</i> 1998; 31 :659–63	Irrelevant study population(s), intervention context(s) or outcome(s)
Northup J, Fusilier I, Swanson V, Huete J, Bruce T, Freeland J, <i>et al.</i> Further analysis of the separate and interactive effects of methylphenidate and common classroom contingencies. <i>J Appl Behav Anal</i> 1999; 32 :35–50	Irrelevant study population(s), intervention context(s) or outcome(s)
Nyden A, Myren K-J, Gillberg C. Long-term psychosocial and health economy consequences of ADHD, autism, and reading-writing disorder: a prospective service evaluation project. <i>J Attention Disord</i> 2008; 12 :141–8	Irrelevant study population(s), intervention context(s) or outcome(s)
Omizo MM. Relaxation training and biofeedback with hyperactive elementary school children. <i>Elementary Sch Guid Counsel</i> 1981; 15 :329–32	Duplicate
Omizo MM, Cubberly WE, Semands SG, Omizo SA. The effects of biofeedback and relaxation training on memory tasks among hyperactive boys. <i>Exceptional Child</i> 1986; 33 :56–64	Irrelevant study population(s), intervention context(s) or outcome(s)
Ongchai JG. The use of metacognition to increase the attention, problem-solving skills, and learning performance of school-age children with attention deficit disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2000; 60 :4320	Not a controlled trial/design not reported
Orlando PC, Rivera RO. Neurofeedback for elementary students with identified learning problems. <i>J Neurother</i> 2004; 8 :5–19	Irrelevant study population(s), intervention context(s) or outcome(s)
O'Shea B, Hodes M, Down G, Bramley J. A school-based mental health service for refugee children. <i>Clin Child Psychol Psychiatr</i> 2000; 5 :189–201	Not a controlled trial/design not reported
Ota KR, DuPaul GJ. Task engagement and mathematics performance in children with attention-deficit hyperactivity disorder: effects of supplemental computer instruction. <i>Sch Psychol Q</i> 2002; 17 :242–57	Not a controlled trial/design not reported
Owens JS, Holdaway AS, Zoromski AK, Evans SW, Himawan LK, Girio-Herrera E, <i>et al.</i> Incremental benefits of a daily report card intervention over time for youth with disruptive behavior. <i>Behav Ther</i> 2012; 43 :848–61	Irrelevant study population(s), intervention context(s) or outcome(s)
Owens JS, Johannes LM, Karpenko V. The relation between change in symptoms and functioning in children with ADHD receiving school-based mental health services. <i>Sch Ment Health</i> 2009; 1 :183–95	Not a controlled trial/design not reported
Ozdemir S. The effects of the First Step to Success program on academic engagement behaviors of Turkish students with attention-deficit/hyperactivity disorder. <i>J Posit Behav Interv</i> 2011; 13 :168–77	Irrelevant study population(s), intervention context(s) or outcome(s)
Ozdemir S. The first step to success program: Implementation effectiveness with Turkish children with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2006; 67 :2115	Irrelevant study population(s), intervention context(s) or outcome(s)
Ozmen SK, Lauth GW. The effects of a combined training program on children with attention deficit hyperactivity disorder in the classroom activity. <i>Int J Psychol</i> 2008; 43 :760	Irrelevant study population(s), intervention context(s) or outcome(s)
Palcic JL, Jurbergs N, Kelley ML. A comparison of teacher and parent delivered consequences: improving classroom behavior in low-income children with ADHD. <i>Child Fam Behav Ther</i> 2009; 31 :117–33	Not a controlled trial/design not reported
Pang WC, Zhang KC. Reading intervention for secondary students with hyperactive behaviours in Hong Kong. <i>Emot Behav Difficult</i> 2011; 16 :69–85	Irrelevant study population(s), intervention context(s) or outcome(s)
Paniagua FA, Black SA. Correspondence training and observational-learning in the management of hyperactive-children – a preliminary-study. <i>Child Fam Behav Ther</i> 1992; 14 :1–19	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Paoni MF. The synthesis of a social information processing model of attention-deficit/hyperactivity disorder and social competence intervention. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2001; 61 :6144	Irrelevant study population(s), intervention context(s) or outcome(s)
Pariseau ME, Fabiano GA, Massetti GM, Hart KC, Pelham WE Jr. Extended time on academic assignments: Does increased time lead to improved performance for children with attention-deficit/hyperactivity disorder? <i>Sch Psychol Q</i> 2010; 25 :236–48	Irrelevant study population(s), intervention context(s) or outcome(s)
Parolin R. The effects of extended time on the mathematics performance of students with and without attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2007; 67 :6725	Irrelevant study population(s), intervention context(s) or outcome(s)
Peck HL, Kehle TJ, Bray MA, Theodore LA. Yoga as an intervention for children with attention problems. <i>Sch Psychol Rev</i> 2005; 34 :415–24	Irrelevant study population(s), intervention context(s) or outcome(s)
Pelham Jr WE, Carlson C. Separate and combined effects of methylphenidate and behavior modification on boys with attention. <i>J Consult Clin Psychol</i> 1993; 61 :506	Irrelevant study population(s), intervention context(s) or outcome(s)
Pelham JWE, Gnagy EM. Summer sports: a recreationally based program for building peer relations. <i>Reaching Today's Youth</i> 1998; 2 :52–5	Irrelevant study population(s), intervention context(s) or outcome(s)
Pelham WE, Burrows-Maclean L, Gnagy EM, Fabiano GA, Coles EK, Tresco KE, et al. Transdermal methylphenidate, behavioral, and combined treatment for children with ADHD. <i>Exp Clin Psychopharmacol</i> 2005; 13 :111–26	Irrelevant study population(s), intervention context(s) or outcome(s)
Pelham WE, Gnagy EM, Greiner AR, Hoza B, Hinshaw SP, Swanson JM, et al. Behavioral versus behavioral and pharmacological treatment in ADHD children attending a summer treatment program. <i>J Abnorm Child Psychol</i> 2000; 28 :507–25	Irrelevant study population(s), intervention context(s) or outcome(s)
Pelham WE Jr, Waschbusch DA, Hoza B, Gnagy EM, Greiner AR, Sams SE, et al. Music and video as distractors for boys with ADHD in the classroom: comparison with controls, individual differences, and medication effects. <i>J Abnorm Child Psychol</i> 2011; 39 :1085–98	Irrelevant study population(s), intervention context(s) or outcome(s)
Pelham WE, Schnedler RW, Bologna NC, Contreras JA. Behavioral and stimulant treatment of hyperactive children: a therapy study with methylphenidate probes in a within-subject design. <i>J Appl Behav Anal</i> 1980; 13 :221–36	Irrelevant study population(s), intervention context(s) or outcome(s)
Perry HW. <i>A Perceptual Training Program For Children With Learning Disorders</i> . Memphis, TN: Memphis Tennessee Public Schools; 1993	Irrelevant study population(s), intervention context(s) or outcome(s)
Pester J. An investigative assessment of the need for a Y9 pupil with learning difficulties and ADHD. <i>Emot Behav Difficult</i> 2002; 7 :215–27	Not retrievable
Pettai R. <i>Multidisciplinary Teamwork with Pre-School Children with Speech and Language Problems, Activity and Attention Problems</i> . Bologna: Medimond S R L; 2005	Irrelevant study population(s), intervention context(s) or outcome(s)
Pfeiffer B, Henry A, Miller S, Witherell S. Effectiveness of Disc 'O' Sit cushions on attention to task in second-grade students with attention difficulties. <i>Am J Occup Ther</i> 2008; 62 :274–81	Irrelevant study population(s), intervention context(s) or outcome(s)
Pfeiffer LJ. <i>Promoting Social Competency in Attention Deficit Hyperactivity Disordered Elementary-Aged Children</i> . Florida, FL: Nova Southeastern University; 1994	Not a controlled trial/design not reported
Pfiffner LJ, Kaiser NM, Burner C, Zalecki C, Rooney M, Setty P, et al. From clinic to school: translating a collaborative school-home behavioral intervention for ADHD. <i>Sch Ment Health</i> 2011; 3 :127–42	Not a controlled trial/design not reported
Piana M. A multi-dimensional intervention for students with attention-deficit/hyperactivity symptomatology and low math performance: Targeting motivation and math skill development. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 72 :1542	Not a controlled trial/design not reported

Reference	Reason for exclusion
Piscalkiene V. Experimental training of children with attention deficit/hyperactivity disorder. <i>US-China Educ Rev</i> 2009; 6 :17–30	Not a controlled trial/design not reported
Plumer PJ, Stoner G. The relative effects of classwide peer tutoring and peer coaching on the positive social behaviors of children with ADHD. <i>J Attention Disord</i> 2005; 9 :290–300	Not a controlled trial/design not reported
Plumer PJ. Using peers as intervention agents to improve the social behaviors of elementary-aged children with attention deficit hyperactivity disorder: Effects of a peer coaching package. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2008; 68 :2813	Not a controlled trial/design not reported
Poland A. The effects of cognitive behavior modification on the math achievement of reflective and impulsive second grade students. <i>Diss Abstr Int</i> 1982; 42 :3403	Not retrievable
Polirstok SR. Training handicapped students in the mainstream to use self-evaluation techniques. <i>Techniques</i> 1987; 3 :9–18	Irrelevant study population(s), intervention context(s) or outcome(s)
Pop-Jordanova N, Markovska-Simoska S, Zorcec T. Neurofeedback treatment of children with attention deficit hyperactivity disorder. <i>Prilozi</i> 2005; 26 :71–80	Not retrievable
Posavac HD, Sheridan SM, Posavac SS. A cueing procedure to control impulsivity in children with attention deficit hyperactivity disorder. <i>Behav Modif</i> 1999; 23 :234–53	Irrelevant study population(s), intervention context(s) or outcome(s)
Poushaneh K, Bonab BG, Namin FH. Effect of training impulse control on increase attention of children with attention deficit/hyperactivity disorder. <i>Procedia Soc Behav Sci</i> 2010; 5 :983–7	Not a controlled trial/design not reported
Powell LA, Potter L. Report on an intervention involving massage and yoga for male adolescents attending a school for disadvantaged male adolescents in the UK. <i>Int J Spec Educ</i> 2010; 25 :47–54	Irrelevant study population(s), intervention context(s) or outcome(s)
Powell S, Nelson B. Effects of choosing academic assignments on a student with attention deficit hyperactivity disorder. <i>J Appl Behav Anal</i> 1997; 30 :181–3	Not a controlled trial/design not reported
Power TJ, Karustus JL, Habboushe DF. Homework success for children with ADHD: a family-school intervention program. New York, NY: Guilford Press; 2001	Not retrievable
Power TJ, Mautone JA, Soffer SL, Clarke AT, Marshall SA, Sharman J, et al. A family-school intervention for children with ADHD: results of a randomized clinical trial. <i>J Consult Clin Psychol</i> 2012; 80 :611–23	Irrelevant study population(s), intervention context(s) or outcome(s)
Price AT, Martella RC, Marchand-Martella NE, Cleanthous CC. A comparison of immediate feedback delivered via an FM headset versus delayed feedback on the Inappropriate verbalization of a student with ADHD. <i>Educ Treat Child</i> 2002; 25 :159	Not a controlled trial/design not reported
Prince KC, Ho EA, Hansen SB. Effects of a school based program to improve adaptive school behavior and social competencies among elementary school youth: the living skills program. <i>J Res Character Educ</i> 2010; 8 :39–59	Irrelevant study population(s), intervention context(s) or outcome(s)
Prosser B. Beyond Deficit Views: Redesigning Pedagogies To Engage Students Identified With Attention Deficit Hyperactivity Disorder. Paper presented at the Culture, Knowledge and Understanding Conference, Singapore, May 2007	Irrelevant study population(s), intervention context(s) or outcome(s)
Pumpuang W, Phuphaibul R, Orathai P, Putdivarnichapong W. The effects of a collaborative management programme on managing parents and teachers for children with attention deficit hyperactivity disorder (ADHD). <i>Int J Nurs Pract</i> 2012; 18 :27	Irrelevant study population(s), intervention context(s) or outcome(s)
Rabiner DL, Malone PS, Conduct Problems Prevention Research Group. The impact of tutoring on early reading achievement for children with and without attention problems. <i>J Abnorm Child Psychol</i> 2004; 32 :273–84	Irrelevant study population(s), intervention context(s) or outcome(s)
Rabone H. 'Space for acupuncture' at Stanchester Community School. <i>Chin Med J</i> 2006; 41 –5	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Radford PM, Ervin RA. Employing descriptive functional assessment methods to assess low-rate, high-intensity behaviors: a case example. <i>J Posit Behav Interv</i> 2002; 4 :146–55	Not a controlled trial/design not reported
Rafferty LA, Arroyo J, Ginnane S, Wilczynski K. Self-monitoring during spelling practice: effects on spelling accuracy and on-task behavior of three students diagnosed with attention deficit hyperactivity disorder. <i>Behav Anal Pract</i> 2011; 4 :37–45	Not a controlled trial/design not reported
Raggi VL, Chronis-Tuscano A, Fishbein H, Grooms A. Development of a brief, behavioral homework intervention for middle school students with attention-deficit/hyperactivity disorder. <i>Sch Ment Health</i> 2009; 1 :61–77	Irrelevant study population(s), intervention context(s) or outcome(s)
Raggi VL. Development and preliminary testing of a brief, behavioral intervention to address the homework-related problems of middle school students with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009; 69 :5789	Irrelevant study population(s), intervention context(s) or outcome(s)
Rappaport GC, Ornoy A, Tenenbaum A. Is early intervention effective in preventing ADHD? <i>Isr J Psychiatry Relat Sci</i> 1998; 35 :271–9	Irrelevant study population(s), intervention context(s) or outcome(s)
Rapport MD, Murphy HA, Bailey JS. Ritalin vs. response cost in the control of hyperactive children: a within-subject comparison. <i>J Appl Behav Anal</i> 1982; 15 :205–16	Not a controlled trial/design not reported
Rapport MD, Murphy A, Bailey JS. The effects of a response cost treatment tactic on hyperactive children. <i>J Sch Psychol</i> 1980; 18 :98–111	Not a controlled trial/design not reported
Rapport MD. A comparison of attentional training utilizing a response cost procedure and methylphenidate (ritalin) on the classroom behaviors of hyperactive children. <i>Diss Abstr Int</i> 1981; 42 :389	Not a controlled trial/design not reported
Ray DC. Play Therapy With Children Exhibiting ADHD. In Baggerly JN, Ray DC, Bratton SC, editors. <i>Child-Centered Play Therapy Research: The Evidence Base for Effective Practice</i> . Hoboken, NJ: John Wiley & Sons Inc.; 2010. pp. 145–62	Not a controlled trial/design not reported
Ray DC, Schottelkorb A, Tsai M-H. Play therapy with children exhibiting symptoms of attention deficit hyperactivity disorder. <i>Int J Play Ther</i> 2007; 16 :95–111	Active comparator
Re AM, Cornoldi C. A treatment programme for preschool children with ADHD characteristics. <i>Eur Child Adolesc Psychiatr</i> 2010; 19 :574–55	Irrelevant study population(s), intervention context(s) or outcome(s)
Reddy L, Braunstein D, Springer C, Bartik C, Hauch Y, Hall T, et al. Randomized Trial of Three Child/Parent Training Groups for ADHD Children. Paper presented at the Annual Conference of the American Psychological Association, Chicago, IL, 22–25 August 2002	Not retrievable
Reid R, Lienemann TO. Self-regulated strategy development for written expression with students with attention deficit/hyperactivity disorder. <i>Except Child</i> 2006; 73 :53–68	Not a controlled trial/design not reported
Rerkjaree S. Home and School Based Intervention Model for Thai Children with Attention Deficit Hyperactivity Disorder. Paper Presented at the Proceedings of 2010 International Conference on Behavioral, Cognitive and Psychological Sciences, Singapore, 26–28 February 2010	Not retrievable
Resnick A, Reitman D. The use of homework success for a child with attention-deficit/hyperactivity disorder, predominantly inattentive type. <i>Clin Case Stud</i> 2011; 10 :23–36	Irrelevant study population(s), intervention context(s) or outcome(s)
Rich LP. Prompting self-monitoring with assistive technology to increase academic engagement in students with attention-deficit/hyperactivity disorder symptoms. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009; 70 :3158	Not a controlled trial/design not reported
Richardson E, Kupietz S, Maitinsky S. What is the role of academic intervention in the treatment of hyperactive children with reading disorders. <i>J Child Contemp Soc</i> 1986; 19 :153–67	Irrelevant study population(s), intervention context(s) or outcome(s)
Richter NC. Relaxation training with impulsive first grade students. <i>Diss Abstr Int</i> 1986; 46 :4413	Not retrievable

Reference	Reason for exclusion
Rickman D, Motzenbecker T. <i>The Effects of a Response-Cost Program on the Classroom Behavior of Two Children with Attention Deficit/Hyperactivity Disorder</i> . Warren, MI: Van Dyke Public Schools; 1996	Not a controlled trial/design not reported
Rickson DJ. Instructional and improvisational models of music therapy with adolescents who have attention deficit hyperactivity disorder (ADHD): a comparison of the effects on motor impulsivity. <i>J Music Ther</i> 2006; 43 :39–62	Irrelevant study population(s), intervention context(s) or outcome(s)
Ridgway A, Northup J, Pellegrin A, LaRue R, Hightshoe A. Effects of recess on the classroom behavior of children with and without attention-deficit hyperactivity disorder. <i>Sch Psychol Q</i> 2003; 18 :253–68	Not a controlled trial/design not reported
Ridgway A. The effects of a recess or break and stimulant medication on the classroom behavior of children with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 65 :3693	Irrelevant study population(s), intervention context(s) or outcome(s)
Riquelme Miralles MR, Baeza Hernandez MC, Martinez Selva J. Token economy application in a preschool classroom. <i>Analisis y Modificacion de Conducta</i> 1985; 11 :633–43	Not retrievable
Robinson PW, Newby TJ, Ganzell SL. A token system for a class of underachieving hyperactive children. <i>J Appl Behav Anal</i> 1981; 14 :307–15	Not a controlled trial/design not reported
Rogevich ME, Perin D. Effects on Science Summarization of a Reading Comprehension Intervention for Adolescents with Behavior and Attention Disorders. <i>Except Child</i> 2008; 74 :135–54	Not a controlled trial/design not reported
Rooney KJ, Hallahan DP, Lloyd JW. Self-recording of attention by learning disabled students in the regular classroom. <i>J Learn Disabil</i> 1984; 17 :360–4	Irrelevant study population(s), intervention context(s) or outcome(s)
Rooney KJ. Independent strategies for efficient study: a core approach. <i>Acad Ther</i> 1989; 24 :383–90	Irrelevant study population(s), intervention context(s) or outcome(s)
Rosen LA, O'Leary SG, Joyce SA, Conway G, Pfiffner LJ. The importance of prudent negative consequences for maintaining the appropriate behavior of hyperactive students. <i>J Abnorm Child Psychol</i> 1984; 12 :581–604	Irrelevant study population(s), intervention context(s) or outcome(s)
Rosenberg MS. Maximizing the effectiveness of structured classroom management programs: implementing rule-review procedures with disruptive and distractible students. <i>Behav Disord</i> 1986; 11 :239–48	Irrelevant study population(s), intervention context(s) or outcome(s)
Rudolph TC. The effects of a school-based social skills training program on children with ADHD: generalization to the school setting. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 66 :894	Not a controlled trial/design not reported
Rumain B. Efficacy of behavior management versus methylphenidate in a hyperactive child: the role of dynamics. <i>Am J Orthopsychiatry</i> 1988; 58 :466–9	Irrelevant study population(s), intervention context(s) or outcome(s)
Rutherford LE, DuPaul GJ, Jitendra AK. Examining the relationship between treatment outcomes for academic achievement and social skills in school-age children with attention-deficit hyperactivity disorder. <i>Psychol Schools</i> 2008; 45 :145–57	Not a controlled trial/design not reported
Saheban F, Amiri S, Kajbaf MB, Abedi A. The efficacy of short-term executive functions training on the reduction of symptoms of attention deficit and hyperactivity of elementary boy students in Esfahan metropolitan area. <i>Adv Cognit Sci</i> 2010; 12 :52–8	Not retrievable
Sakelaris TL. Effects of a self-managed study skills intervention on homework and academic performance of middle school students with attention deficit hyperactivity disorder (ADHD). <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1999; 60 :0337	Not a controlled trial/design not reported
Sams SE. The effects of functional intervention on the behavior of four students labeled ADHD. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1999; 60 :1081	Not a controlled trial/design not reported
Sante AD, McLaughlin T, Weber KP. The use and evaluation of a direct instruction flash card strategy on multiplication math facts mastery with two students with developmental disabilities and attention deficit hyperactivity disorder. <i>J Precis Teach Celeration</i> 2001; 17 :68–75	Not retrievable

Reference	Reason for exclusion
Sayal K, Owen V, White K, Merrell C, Tymms P, Taylor E. Impact of early school-based screening and intervention programs for ADHD on children's outcomes and access to services: follow-up of a school-based trial at age 10 years. <i>Arch Pediatr Adolesc Med</i> 2010; 164 :462–9	Irrelevant study population(s), intervention context(s) or outcome(s)
Schilling DL, Washington K, Billingsley FF, Deitz J. Classroom seating for children with attention deficit hyperactivity disorder: therapy balls versus chairs. <i>Am J Occup Ther</i> 2003; 57 :534–41	Not a controlled trial/design not reported
Shirduan V, Case KI. Mindful curriculum leadership for students with attention deficit hyperactivity disorder (ADHD): leading in elementary schools by using multiple intelligences theory (SUMIT). <i>Teachers Coll Rec</i> 2004; 106 :87–95	Irrelevant study population(s), intervention context(s) or outcome(s)
Schleser R, Armstrong KJ, Allen JS Jr. Attention Deficit Hyperactive Disorder: New Directions. In Morgan SB, Okwumabua TM, Morgan S, editors. <i>Child and Adolescent Disorders: Developmental and Health Psychology Perspectives</i> . Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.; 1990. pp. 105–33	Irrelevant study population(s), intervention context(s) or outcome(s)
Schmitt RCO. The effects of a self-monitoring and video self-modeling intervention to increase on-task behavior for children with attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2010; 70 :3758	Not a controlled trial/design not reported
Schnoes CJA. Conjoint behavioral consultation, ADHD, and homework: a combined intervention package for middle school youth with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2003; 63 :3461	Not a controlled trial/design not reported
Schottelkorb A. Effectiveness of Child-Centered Play Therapy and Person-Centered Teacher Consultation on ADHD: A Single-Case Study Design. In Baggerly JN, Ray DC, Bratton SC, editors. <i>Child-Centered Play Therapy Research: The Evidence Base for Effective Practice</i> . Hoboken, NJ: John Wiley & Sons Inc.; 2010. pp. 209–30	Not a controlled trial/design not reported
Schottelkorb AA, Ray DC. ADHD symptom reduction in elementary students: a single-case effectiveness design. <i>Prof Sch Counsel</i> 2009; 13 :11–22	Not a controlled trial/design not reported
Schultz BK. Behavioral consultation for adolescents with ADHD: lessons learned in the Challenging Horizons Program. <i>Emot Behav Disord Youth</i> 2005; 5 :91	Not retrievable
Schultz BK, Evans SW, Serpell ZN. Preventing failure among middle school students with attention deficit hyperactivity disorder: a survival analysis. <i>Sch Psychol Rev</i> 2009; 38 :14–27	Duplicate
Schweitzer JB, Sulzer-Azaroff B. Self-control: teaching tolerance for delay in impulsive children. <i>J Exp Anal Behav</i> 1988; 50 :173–86	Irrelevant study population(s), intervention context(s) or outcome(s)
Scope CR. The efficacy of conjoint behavioral consultation to reduce the off-task behavior of elementary school children diagnosed with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 64 :1975	Not a controlled trial/design not reported
Sealover IE. Counselor intervention using visual learning strategies for adolescent attention deficit disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2002; 62 :4076	Irrelevant study population(s), intervention context(s) or outcome(s)
Serpell ZN, Evans SW, Schultz BK, Pastor, Dena A. Incremental benefits of school-based treatment for adolescents with ADHD. <i>ADHD Report</i> 2008; 16 :1–7	Duplicate
Seth-Smith F, Levi N, Pratt R, Fonagy P, Jaffey D. Do nurture groups improve the social, emotional and behavioural functioning of at risk children? <i>Educ Child Psychol</i> 2010; 27 :21–34	Irrelevant study population(s), intervention context(s) or outcome(s)
Shapiro ES, DuPaul GJ, Bradley-Klug KL. Self-management as a strategy to improve the classroom behavior of adolescents with ADHD. <i>J Learn Disabil</i> 1998; 31 :545–55	Not a controlled trial/design not reported

Reference	Reason for exclusion
Shapiro ES. <i>A Regional Consulting Center To Assist School Personnel in Working with Early Adolescents with Attention Deficit Disorders</i> . Bethlehem, PA: Lehigh University; 1997	Irrelevant study population(s), intervention context(s) or outcome(s)
Shaw R, Lewis V. The impact of computer-mediated and traditional academic task presentation on the performance and behaviour of children with ADHD. <i>J Res Spec Educ Needs</i> 2005; 5 :47–54	Not a controlled trial/design not reported
Shechtman Z, Katz E. Therapeutic bonding in group as an explanatory variable of progress in the social competence of students with learning disabilities. <i>Group Dynam</i> 2007; 11 :117–28	Irrelevant study population(s), intervention context(s) or outcome(s)
Shelton TL, Barkley RA, Crosswait C, Moorehouse M, Fletcher K, Barrett S, et al. Multimethod psychoeducational intervention for preschool children with disruptive behavior: two-year post-treatment follow-up. <i>J Abnorm Child Psychol</i> 2000; 28 :253–66	Duplicate
Shepp MS, Jensen BF. A comparison of the treatment effects of an operant strategy, a cognitive strategy, and a combined approach with a hyperactive boy. <i>Sch Psychol Rev</i> 1983; 12 :199–204	Not a controlled trial/design not reported
Sheridan SM, Eagle JW, Cowan RJ, Mickelson W. The effects of conjoint behavioral consultation results of a 4-year investigation. <i>J Sch Psychol</i> 2001; 39 :361–85	Irrelevant study population(s), intervention context(s) or outcome(s)
Sheridan SM. Efficacy of conjoint behavioral consultation as a vehicle for inclusion. <i>Am Psychol</i> 1997; 52 :813–68	Not retrievable
Shillingford MA, Lambie GW, Walter SM. An integrative, cognitive-behavioral, systemic approach to working with students diagnosed with attention deficit hyperactive disorder. <i>Prof Sch Counsel</i> 2007; 11 :105–12	Irrelevant study population(s), intervention context(s) or outcome(s)
Shimabukuro SM, Prater MA, Jenkins A, Edelen-Smith P. The effects of self-monitoring of academic performance on students with learning disabilities and ADD/ADHD. <i>Educ Treat Child</i> 1999; 22 :397–414	Not a controlled trial/design not reported
Sibley MH, Pelham WE, Evans SW, Gnagy EM, Ross JM, Greiner AR. An evaluation of a summer treatment program for adolescents with ADHD. <i>Cogn Behav Pract</i> 2011; 18 :530–44	Irrelevant study population(s), intervention context(s) or outcome(s)
Silver AA. Children in classes for the severely emotionally handicapped. <i>J Dev Behav Pediatr</i> 1984; 5 :49–54	Irrelevant study population(s), intervention context(s) or outcome(s)
Silverstein LL. The role of ability and attention deficit-hyperactivity disorder in learning-disabled students' responses to verbal self-instruction training. <i>Diss Abstr Int</i> 1991; 51 :2687	Not retrievable
Simpkins LL. Effects of adjusted teaching strategies on reading achievement of impulsive third grade students. <i>Diss Abstr Int</i> 1981; 42 :2594	Not retrievable
Sims EL, McLaughlin TF. Classroom management for the hyperactive-child – an analysis. <i>Correct Soc Psych J Behav Tech Methods Ther</i> 1985; 31 :142–5	Irrelevant study population(s), intervention context(s) or outcome(s)
Skinner JN, Veerkamp MB, Kamps DM, Andra PR. Teacher and peer participation in functional analysis and intervention for a first grade student with attention deficit hyperactivity disorder. <i>Educ Treat Child</i> 2009; 32 :243–66	Not a controlled trial/design not reported
Slate SE, Meyer TL, Burns WJ, Montgomery DD. Computerized cognitive training for severely emotionally disturbed children with ADHD. <i>Behav Modif</i> 1998; 22 :415–37	Irrelevant study population(s), intervention context(s) or outcome(s)
Smitheman-Brown V, Church RP. Mandala drawing: facilitating creative growth in children with A.D.D. or A.D.H.D. <i>Art Ther J Am Art Ther Assoc</i> 1996; 13 :252–60	Not a controlled trial/design not reported
Smyth WD, Bebensee EL. The 'success' program and the A.D.D. child. <i>Read Improv</i> 1983; 20 :274–7	Irrelevant study population(s), intervention context(s) or outcome(s)
Solomonidou C, Garagouni-Areou F, Zafiropoulou M. Information and communication technologies (ICT) and pupils with attention deficit hyperactivity disorder (ADHD) symptoms: do the software and the instruction method affect their behavior? <i>J Educ Multimed Hypermed</i> 2004; 13 :109–28	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Solomonidou C, Garagouni-Areou F. A Research Method to Study the Behavior of Pupils with Attention Deficit Hyperactivity Disorder (ADHD) Symptoms Working on the Computer. Paper presented at World Conference on Educational Multimedia, Hypermedia and Telecommunications, Lugano, Switzerland, 21–26 June 2004	Not retrievable
Solovieva Y, Quintanar L. Methods of neuropsychological correction in Mexican preschoolers with attention deficit disorder. <i>Cult Hist Psychol</i> 2006; 3 :60–7	Not retrievable
Soyoung P. Self-monitoring for students with ADHD: a look at self-monitoring strategies and their effects on improving attention and behavior for children with ADHD. <i>Insight Learn Disabil</i> 2011; 8 :51–68	Not a controlled trial/design not reported
Sproull C. The impact of a digital role playing game on the executive functioning skills of students with ADHD. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2012; 73 :1381	Active comparator
Stahr B, Cushing D, Lane K, Fox J. Efficacy of a function-based intervention in decreasing off-task behavior exhibited by a student with ADHD. <i>J Posit Behav Interv</i> 2006; 8 :201–11	Not a controlled trial/design not reported
Stanutz AG. The effects of group relaxation training sessions utilizing the turtle technique upon the observed overactive behavior in preschool children. <i>Diss Abstr Int</i> 1983; 43 :3261	Not retrievable
Stein LEC, Goldman J. Beginning reading instruction for children with minimal brain dysfunction. <i>J Learn Disabil</i> 1980; 13 :219–22	Active comparator
Stein MT, Shafer M-A, Elliott GR, Levine S. An adolescent who abruptly stops his medication for attention-deficit hyperactivity disorder. <i>J Dev Behav Pediatr</i> 1999; 20 :106–10	Not a controlled trial/design not reported
Steiner N, Sidhu TK, Frenette EC, Mitchell K, Perrin EC. Preliminary Analysis of a Randomized Trial of Computer Attention Training in Children with Attention-Deficit/Hyperactivity Disorder: Society for Research on Educational Effectiveness. Paper presented at the Society for Research on Educational Effectiveness 2011 Spring Conference, Washington, DC, 3–6 March 2011	Duplicate
Steinhoff KW, Lerner M, Kapilinsky A, Kotkin R, Wigal S, Steinberg-Epstein R, et al. Attention-Deficit/Hyperactivity Disorder. In Luby JL editor. <i>Handbook of Preschool Mental Health: Development, Disorders, and Treatment</i> . New York, NY: Guilford Press; 2006. pp. 63–79	Not retrievable
Steinmann E, Gerber-von Muller G, Siniatchkin M, Stephani U, Petermann F, Gerber WD. Neuropsychological and clinical effects of a multimodal behavioral ADHD summer camp training. <i>Eur Child Adolesc Psychiatr</i> 2011; 20 :S128–S9	Irrelevant study population(s), intervention context(s) or outcome(s)
Sterling LA. An investigation of the effectiveness of an assessment-linked study skills intervention on homework completion and accuracy. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2006; 66 :2494	Not a controlled trial/design not reported
Stevens L, Van Werkhoven W, Stokking K, Castelijns J, Jager A. Interactive instruction to prevent attention problems in class. <i>Learn Environ Res</i> 2000; 3 :265–86	Irrelevant study population(s), intervention context(s) or outcome(s)
Stevens ML. Effects of classwide peer tutoring on the classroom behavior and academic performance of students with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1999; 59 :4487	Not a controlled trial/design not reported
Stewart KG, McLaughlin T. 'Self-recording: effects of reducing off-task behavior with a high school student with an attention deficit hyperactivity disorder': erratum. <i>Child Fam Behav Ther</i> 1993; 15 :106	Irrelevant study population(s), intervention context(s) or outcome(s)
Stewart KG, McLaughlin TF. Self-recording – effects on reducing off-task behavior with a high-school student with an attention-deficit hyperactivity disorder. <i>Child Fam Behav Ther</i> 1992; 14 :53–9	Not a controlled trial/design not reported

Reference	Reason for exclusion
Strayhorn JM Jr, Bickel DD. Reduction in children's symptoms of attention deficit hyperactivity disorder and oppositional defiant disorder during individual tutoring as compared with classroom instruction. <i>Psychol Rep</i> 2002; 91 :69–80	Not a controlled trial/design not reported
Strehl U, Leins U, Goth G, Klinger C, Hinterberger T, Birbaumer N. Self-regulation of slow cortical potentials: a new treatment for children with attention-deficit/hyperactivity disorder. <i>Pediatrics</i> 2006; 118 :e1530–40	Irrelevant study population(s), intervention context(s) or outcome(s)
Studer P, Gevensleben H, Wangler S, Rothenberger A, Moll GH, Heinrich H. Neurofeedback for children with attention-deficit/hyperactivity disorder: clinical and neurophysiological results of a randomised controlled trial. <i>Eur Child Adolesc Psychiatr</i> 2010; 19 :S15–S6	Irrelevant study population(s), intervention context(s) or outcome(s)
Sullivan MA, O'Leary SG. Maintenance following reward and cost token programs. <i>Behav Ther</i> 1990; 21 :139–49	Irrelevant study population(s), intervention context(s) or outcome(s)
Suzovic V, Marusic R, Simovic T. Voluntary work with ADHD children as psychosocial and psychoeducational intervention. <i>Eur Child Adolesc Psychiatr</i> 2011; 20 :S132	Irrelevant study population(s), intervention context(s) or outcome(s)
Swanson J, Simpson S, Agler D, Kotkin R, Piffner L, Bender M, et al. UCI-OCDE School-Based Treatment Program for Children with ADHD/ODD. In Stefanis CN, Rabavilas AD, Soldatos CR, editors. <i>Psychiatry: A World Perspective</i> . Vol. 1. Amsterdam: Elsevier Science Publishers B. V.; 1990. pp. 1107–12	Not retrievable
Swenson N, Lolich E, Williams RL, McLaughlin T. The effects of structured free-time on request compliance and on-task behavior of a preadolescent with ADHD. <i>Child Fam Behav Ther</i> 2000; 22 :51–9	Not a controlled trial/design not reported
Tabaeian SR, Amiri S, Kalantari M, Neshatdoost HT, Karahmadi M. The effect of social skills training (SST) on improving peer relationships in primary school boys with attention deficit/hyperactivity disorder (ADHD). <i>Int J Psychol</i> 2008; 43 :605	Irrelevant study population(s), intervention context(s) or outcome(s)
Tabassam W, Grainger J. Evaluation of effectiveness of a self-concept enhancement intervention for students with LD and LD/ADHD. Paper presented at the inaugural Self-concept Enhancement and Learning Facilitation (SELF) Research Centre International Conference, Sydney, Australia, 5–6 October 2000	Not retrievable
Tabassam W, Grainger J. Self-Concept Enhancement for Students With Learning Difficulties With and Without Attention Deficit Hyperactivity Disorder. In Marsh HW, Craven RG, McInerney DM, editors. <i>International Advances in Self Research</i> . Greenwich: Information Age Publishing; 2003. pp. 231–60	Not retrievable
Tabassam W. <i>Exploring and Enhancing the Self-Concept of Students With Learning Difficulties, With and Without Attention Deficit Hyperactivity Disorder</i> . Wollongong, NSW: University of Wollongong; 2001	Not a controlled trial/design not reported
Tate DRW. <i>Modification of Impulsivity in Young Children</i> . Texas: Texas Woman's University; 1975	Irrelevant study population(s), intervention context(s) or outcome(s)
Teeter PA, Rumsey R, Natoli L, Naylor D, Smith R. Therapeutic interventions to increase social competence in teens with impulse control deficits. <i>J Psychother Indepen Pract</i> 2000; 1 :49–70	Not retrievable
Terenzi CM, Ervin RA, Hoff KE. Classwide self-management of rule following. <i>J Evid Base Pract Sch</i> 2010; 11 :117–22	Not a controlled trial/design not reported
Teta AR. Increasing homework completion in children with ADHD using the mystery motivator intervention. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009; 70 :3190	Not a controlled trial/design not reported
Theodore LA, Kehle TJ, Bray MA. Homework success for children with ADHD: a family-school intervention program. <i>Psychol Schools</i> 2004; 41 :274	Irrelevant study population(s), intervention context(s) or outcome(s)
Thompson L, Thompson M. Neurofeedback combined with training in metacognitive strategies: effectiveness in students with ADD. <i>Appl Psychophysiol Biofeed</i> 1998; 23 :243–63	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Tolor B, Tolor A. An Attempted Modification of Impulsivity and Self-Esteem in Kindergartners. <i>Psychol Schools</i> 1982; 19 :526–31	Irrelevant study population(s), intervention context(s) or outcome(s)
Tormanen MR, Takala M, Sajaniemi N. Learning disabilities and the auditory and visual matching computer program. <i>Support Learn</i> 2008; 23 :80–8	Not a controlled trial/design not reported
Totland K. Children and youth with attention disorders. <i>Psykologisk Paedagogisk Radgivning</i> 1998; 35 :146–52	Not retrievable
Trahant DM. Behavioral improvement in children with ADHD: Independent and combined effects of behavioral treatment and medication. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 65 :5384	Not a controlled trial/design not reported
Trianes Torres MV, Rivas Moya T, Munoz A. Differential efficiency of a psychoeducational intervention on social abilities of inhibited and impulsive preschool children. <i>Analisis y Modificacion de Conducta</i> 1991; 17 :895–916	Not retrievable
Trice AD, Parker FC, Furrow F, Iwata MM. An analysis of home contingencies to improve school behavior with disruptive adolescents. <i>Educ Treat Child</i> 1983; 6 :389–99	Irrelevant study population(s), intervention context(s) or outcome(s)
Tryon WW, Tryon GS, Kazlauskis T, Gruen W, Swanson JM. Reducing hyperactivity with a feedback actigraph: initial findings. <i>Clin Child Psychol Psychiatry</i> 2006; 11 :607–17	Not a controlled trial/design not reported
Turner BLB. Effects of response cost, bibliotherapy and academic tutoring on attentional behavior, achievement, work productivity, accuracy, and self-esteem in children with Attention Deficit Hyperactivity Disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1996; 57 :1973	Not a controlled trial/design not reported
Tymms P, Merrell C. The impact of screening and advice on inattentive, hyperactive and impulsive children. <i>Eur J Spec Needs Educ</i> 2006; 21 :321–37	Irrelevant study population(s), intervention context(s) or outcome(s)
Umbreit J. Functional assessment and intervention in a regular classroom setting for the disruptive behavior of a student with attention deficit hyperactivity disorder. <i>Behav Disord</i> 1995; 20 :267–78	Not a controlled trial/design not reported
Vahali HO, Kapur M. Group intervention with hyperkinetic boys in the school setting. <i>Nimhans J</i> 1995; 13 :1230–1	Not a controlled trial/design not reported
van der Oord S, Bogels SM, Peijnenburg D. The effectiveness of mindfulness training for children with ADHD and mindful parenting for their parents. <i>J Child Fam Stud</i> 2012; 21 :139–47	Irrelevant study population(s), intervention context(s) or outcome(s)
van der Oord S, Prins PJM, Oosterlaan J, Emmelkamp PMG. Treatment of attention deficit hyperactivity disorder in children. Predictors of treatment outcome. <i>Eur Child Adolesc Psychiatr</i> 2008; 17 :73–81	Irrelevant study population(s), intervention context(s) or outcome(s)
VandenBerg NL. The use of a weighted vest to increase on-task behavior in children with attention difficulties. <i>Am J Occup Ther</i> 2001; 55 :621–8	Not a controlled trial/design not reported
Veenstra B, van Geert PL, van der Meulen BF. Computer versus human-based support: effect on computer game performances in (in)effectively learning pre-schoolers. <i>Educ Child Psychol</i> 2010; 27 :56–72	Irrelevant study population(s), intervention context(s) or outcome(s)
Vega LC, Dickey-Kurdziolek M, Shupp L, Perez-Quinones MA, Booker J, Congleton B. Taking Notes Together: Augmenting Note Taking. Paper presented at International Symposium on Collaborative Technologies and Systems, Orlando, FL, 21–25 May 2007	Irrelevant study population(s), intervention context(s) or outcome(s)
Viadero D. Computer training found to help those with ADHD. <i>Educ Week</i> 2007; 26 :8	Irrelevant study population(s), intervention context(s) or outcome(s)
Vio C, Offredi F, Marzocchi GM. Attention deficit hyperactivity disorder: experimentation with metacognitive training. <i>Psicologia Clinica dello Sviluppo</i> 1999; 3 :241–62	Not retrievable
Vitaro F, Tremblay RE. Impact of a prevention program on aggressive children's friendships and social adjustment. <i>J Abnorm Child Psychol</i> 1994; 22 :457–75	Not a controlled trial/design not reported

Reference	Reason for exclusion
Vogel MK. The effects of motor and cognitive training and ADHD students in the physical education environment. <i>Diss Abstr Int</i> 1992; 52 :2461	Not retrievable
Vogelmann-Peper M. <i>Teaching Elementary School Teachers Cognitive-Behavioral Techniques To Address ADDH Behaviors in the Classroom Setting</i> . Ed.D thesis. Fort Lauderdale, FL: Nova Southeastern University; 1989	Not retrievable
Voll CB. The effects of yoga on attention and self-concept in special education preschoolers. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009; 70 :719	Not a controlled trial/design not reported
Volpe RJ. Effects of two academic intervention protocols on the disruptive classroom behavior of children with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2003; 64 :1890	Irrelevant study population(s), intervention context(s) or outcome(s)
Volpe RJ, DuPaul GJ, Jitendra AK, Tresco KE. Consultation-based academic interventions for children with attention deficit hyperactivity disorder: effects on reading and mathematics outcomes at 1-year follow-up. <i>Sch Psychol Rev</i> 2009; 38 :5–13	Active comparator
Vujnovic RK. Examining the influence of treatment integrity: accuracy of daily report card intervention implementation and student outcome. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 71 :2420	Irrelevant study population(s), intervention context(s) or outcome(s)
Wadhvani S, Radvanski DC, Carmody DP. Neurofeedback training in a case of attention deficit hyperactivity disorder. <i>J Neurother</i> 1998; 3 :42–9	Not a controlled trial/design not reported
Wagner I. Attention training with individuals, groups and classes. <i>Sch Psychol Int</i> 1988; 9 :277–83	Irrelevant study population(s), intervention context(s) or outcome(s)
Walker BC. The relative effects of painting and gross-motor activities on the intrinsic locus-of-control of hyperactivity in learning disabled elementary school pupils. <i>Stud Art Educ</i> 1980; 21 :13–21	Not a controlled trial/design not reported
Walker P Jr. The effects of Ritalin and cognitive behavioral therapy on the academic functioning of African American children diagnosed with attention deficit hyperactivity disorder: a longitudinal study. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2011; 72 :561	Irrelevant study population(s), intervention context(s) or outcome(s)
Waller RJ, Albertini CL, Waller KS. Self-monitoring of performance to promote accurate work completion: a functional based intervention for a 4th grade student presenting challenging behavior. <i>Adv Sch Ment Health Promot</i> 2011; 4 :52–60	Not retrievable
Wang X-L, Bernas R, Eberhard P. Engaging ADHD students in tasks with hand gestures: a pedagogical possibility for teachers. <i>Educ Stud</i> 2004; 30 :217–29	Not a controlled trial/design not reported
Warnke MG. Self-monitoring procedures with elementary aged children of color with disruptive behaviors in an urban setting. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> . 2004; 64 :3958	Not retrievable
Waschbusch DA, Pelham WE Jr, Massetti G. The behavior education support and treatment (BEST) school intervention program: pilot project data examining schoolwide, targeted-school, and targeted-home approaches. <i>J Attention Disord</i> 2005; 9 :313–22	Irrelevant study population(s), intervention context(s) or outcome(s)
Watkins DE, Wentzel KR. Training boys with ADHD to work collaboratively: social and learning outcomes. <i>Contemp Educ Psychol</i> 2008; 33 :625–46	Not a controlled trial/design not reported
Watkins DE. Processes of social interaction and learning outcomes for attention deficit hyperactivity disordered males when collaborating with female peer partners trained to facilitate social interaction and strategic planning. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2001; 62 :81	Not a controlled trial/design not reported
Watson CM. A breakfast club for children with emotional and behavioural difficulties. <i>Education</i> 2003; 31 :15–18	Irrelevant study population(s), intervention context(s) or outcome(s)
Webb AD, McLaughlin TF. School intervention stressing positive classroom strategies with hyperactive students – some practical suggestions. <i>Correct Soc Psych J Behav Tech Methods Ther</i> 1985; 31 :77–82	Irrelevant study population(s), intervention context(s) or outcome(s)

Reference	Reason for exclusion
Webb LD, Myrick RD. A group counseling intervention for children with attention deficit hyperactivity disorder. <i>Prof Sch Counsel</i> 2003; 7 :108–15	Irrelevant study population(s), intervention context(s) or outcome(s)
Webster-Stratton CM, Reid J, Beauchaine TP. One-year follow-up of combined parent and child intervention for young children with ADHD. <i>J Clin Child Adolesc Psychol</i> 2013; 42 :251–61	Irrelevant study population(s), intervention context(s) or outcome(s)
Werry JS, Scaletti R, Mills F. Sensory integration and teacher-judged learning problems: a controlled intervention trial. <i>J Paediatr Child Health</i> 1990; 26 :31–5	Irrelevant study population(s), intervention context(s) or outcome(s)
Wigal T, Swanson JM, Douglas VI, Wigal SB, Wippler CM, Cavoto KF. Effect of reinforcement on facial responsivity and persistence in children with attention-deficit hyperactivity disorder. <i>Behav Modif</i> 1998; 22 :143–66	Not retrievable
Williams DC. The effects of structured exercise on the attention and mathematics achievement of hyperactive students. <i>Diss Abstr Int</i> 1991; 52 :431	Irrelevant study population(s), intervention context(s) or outcome(s)
Williams RA, Horn S, Daley SP, Nader PR. Evaluation of access to care and medical and behavioral outcomes in a school-based intervention program for attention-deficit hyperactivity disorder. <i>J Sch Health</i> 1993; 63 :294–7	Irrelevant study population(s), intervention context(s) or outcome(s)
Williamson BD, Campbell-Whatley GD, Lo YY. Using a random dependent group contingency to increase on-task behaviors of high school students with high incidence disabilities. <i>Psychol Schools</i> 2009; 46 :1074–83	Irrelevant study population(s), intervention context(s) or outcome(s)
Williamson DA, Calpin JP, DiLorenzo TM. Treating hyperactivity with dextedrine and activity feedback. <i>Behav Modif</i> 1981; 5 :399–416	Irrelevant study population(s), intervention context(s) or outcome(s)
Williford AP, Shelton TL. Using mental health consultation to decrease disruptive behaviors in preschoolers: adapting an empirically-supported intervention. <i>J Child Psychol Psychiatr</i> 2008; 49 :191–200	Irrelevant study population(s), intervention context(s) or outcome(s)
Windwer CM. An ascending music stimulus program and hyperactive children. <i>J Res Music Educ</i> 1981; 29 :173–81	Not a controlled trial/design not reported
Winklemolen D. Neurofeedback treatment in a patient with ADHD and ODD. <i>Neurosci Lett</i> 2011; 500 :e5	Irrelevant study population(s), intervention context(s) or outcome(s)
Woeppel P. <i>Facilitating Social Skills Development in Learning Disabled and/or Attention Deficit Disordered Second to Fifth Grade Children and Parents</i> . Fort Lauderdale, FL: Nova Southeastern University; 1990	Not retrievable
Wolfe DE. The effect of interrupted and continuous music on bodily movement and task performance of third grade students. <i>J Music Ther</i> 1982; 19 :74–85	Irrelevant study population(s), intervention context(s) or outcome(s)
Woods JM. The effects of cognitive-behavioral therapy on reduction of symptoms of attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1995; 55 :5053	Irrelevant study population(s), intervention context(s) or outcome(s)
Work PHL, Choi HS. Developing Classroom and Group Interventions Based on a Neuropsychological Paradigm. In D'Amato RC, Fletcher-Janze E, Reynolds CR, editors. <i>Handbook of School Neuropsychology</i> . Hoboken, NJ: John Wiley & Sons Inc.; 2005. pp. 663–83	Not retrievable
Wragg J. Disruption in Schools: Options for Change: the Talk Sense to Yourself Programs: Self Management Skills for Children and Adolescents in Schools and Clinics. Paper presented at Queensland Guidance and Counselling Association fifth guidance conference, Brisbane, Australia, September 1988	Not retrievable
Wyman PA, Cross W, Brown CH, Qin Y, Xin T, Eberly S. Intervention to strengthen emotional self-regulation in children with emerging mental health problems: proximal impact on school behavior. <i>J Abnorm Child Psychol</i> 2010; 38 :707–20	Irrelevant study population(s), intervention context(s) or outcome(s)
Yellin AM, Kendall PC, Greenberg LM. Cognitive-behavioral therapy and methylphenidate with hyperactive children: preliminary comparisons. <i>Res Comm Psychol Psychiatr Behav</i> 1981; 6 :213–27	Not a controlled trial/design not reported

Reference	Reason for exclusion
Young LM. An analysis of the effect of the LOGO computer programming environment upon the reflective and impulsive cognitive styles of second-grade students. <i>Diss Abstr Int</i> 1983; 44 :64	Not retrievable
Zakay D, Kreitler S, Bar-El Z. Cognitive orientation and changing impulsivity of children. <i>Br J Educ Psychol</i> 1984; 54 :40–50	Irrelevant study population(s), intervention context(s) or outcome(s)
Zanni CA. Attention and music: understanding young children's attention and the potential of music to increase attention. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 66 :5128	Irrelevant study population(s), intervention context(s) or outcome(s)
Zentall SSL. Structured tasks: effects on activity and performance of hyperactive and comparison children. <i>J Educ Res</i> 1985; 79 :91–5	Irrelevant study population(s), intervention context(s) or outcome(s)
Zentall SS, Hall AM, Lee DL. Attentional focus of students with hyperactivity during a word-search task. <i>J Abnorm Child Psychol</i> 1998; 26 :335–43	Irrelevant study population(s), intervention context(s) or outcome(s)
Zentall SS, Javorsky J. Professional development for teachers of students with ADHD and characteristics of ADHD. <i>Behav Disord</i> 2007; 32 :78–93	Not a controlled trial/design not reported
Zentall SS, Kuester DA, Craig BA. Social behavior in cooperative groups: students at risk for ADHD and their peers. <i>J Educ Res</i> 2011; 104 :28–41	Irrelevant study population(s), intervention context(s) or outcome(s)
Zentall SS, Shaw JH. Effects of classroom noise on performance and activity of 2nd-grade hyperactive and control children. <i>J Educ Psychol</i> 1980; 72 :830–40	Irrelevant study population(s), intervention context(s) or outcome(s)
Zitomer EA. Decreasing impulsivity in grade school children: self instructional training and imagery. <i>Diss Abstr Int</i> 1981; 42 :2093	Not retrievable

Appendix 4 Search strategy used for review 2

Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R)

(Also used for PsycINFO, EMBASE, Social Policy and Practice and HMIC.)

Searched 1946 to present.

Search strategy

1. exp attention deficit disorder with hyperactivity/ (19,987)
2. ADHD.ti,ab. (13,883)
3. ADHS.ti,ab. (408)
4. ADDH.ti,ab. (113)
5. (attention adj2 deficit*).ti,ab. (18,424)
6. hyperactiv*.ti,ab. (38,287)
7. (hyper adj1 activ*).ti,ab. (468)
8. (Attention adj3 (problem* or difficult* or disorder* or issue*)).ti,ab. (21,921)
9. hyperk*.ti,ab. (15,911)
10. minimal brain.ti,ab. (738)
11. damp.ti,ab. (2915)
12. or/1-11 (71,954)
13. intervention*.ti,ab. (547,560)
14. strateg*.ti,ab. (592,883)
15. program*.ti,ab. (569,124)
16. training.ti,ab. (238,506)
17. support*.ti,ab. (985,516)
18. therap*.ti,ab. (1,835,744)
19. treatment*.ti,ab. (3,043,703)
20. technique*.ti,ab. (1,061,597)
21. or/13-20 (6,545,507)
22. tool*.ti,ab. (395,415)
23. instrument*.ti,ab. (184,891)
24. scale*.ti,ab. (448,191)
25. questionnaire*.ti,ab. (297,807)
26. measure*.ti,ab. (2,243,280)
27. survey*.ti,ab. (396,075)
28. quantitative.ti,ab. (396,204)
29. (examine or examined).ti,ab. (1,409,286)
30. (assess or assessed).ti,ab. (1,200,125)
31. or/22-30 (5,217,344)
32. attitude*.ti,ab. (95,227)
33. belief*.ti,ab. (50,663)
34. stigma*.ti,ab. (17,884)
35. (perception or perceive*).ti,ab. (201,692)
36. (conception or conceive*).ti,ab. (32,338)
37. accept*.ti,ab. (296,395)

38. willing*.ti,ab. (22,934)
39. prefer*.ti,ab. (307,213)
40. or/32-39 (931,203)
41. 12 and 21 and 31 and 40 (1256)
42. limit 41 to yr="1980 – 2014" (1244)

Appendix 5 Studies excluded at full text from review 2, with reasons

Reference	Reason for exclusion
Anhalt K, McNeil CB, Bahl AB. The ADHD classroom kit: a whole-classroom approach for managing disruptive behavior. <i>Psychol Schools</i> 1998; 35 :67–79	Specific intervention only
Arcia E, Fernandez MC, Jaquez M. Latina mothers' stances on stimulant medication: complexity, conflict, and compromise. <i>J Dev Behav Pediatr</i> 2004; 25 :311–17	No school-based intervention
Atamanoff Gambert T. The effect of comorbid anxiety and comorbid oppositional defiant disorder on behavioral group training outcomes for children with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2008; 68 :4808	No school-based intervention
Bennett DS, Power TJ, Rostain AL, Carr DE. Parent acceptability and feasibility of ADHD interventions: assessment, correlates, and predictive validity. <i>J Pediatr Psychol</i> 1996; 21 :643–57	No school-based intervention
Bogle KE. Evaluation of a brief group parent training intervention in the context of an after-school program for middle-school students. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2008; 69 :665	Specific intervention only
Bradley-Klug KL. The effects of a self-management intervention on the classroom behavior of young adolescents with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1997; 58 :1576	Specific intervention only
Breteler R, Pesch W, Nadorp M, Best N, Tomaso X. Neurofeedback in residential children and adolescents with mild mental retardation and ADHD behavior. <i>J Neurother</i> 2012; 16 :172–82	No school-based intervention
Brown University. Integrated home-school behavioral treatment for ADHD, inattentive subtype. <i>Child Adol Behav Lett</i> 2007; 23 :1–8	No school-based intervention
Bussing R, Gary FA, Mills TL, Garvan CW. Parental explanatory models of ADHD – gender and cultural variations. <i>Soc Psychiatry Psychiatr Epidemiol</i> 2003; 38 :563–75	Qualitative measure
Bussing R, Koro-Ljungberg M, Noguchi K, Mason D, Mayerson G, Garvan CW. Willingness to use ADHD treatments: a mixed methods study of perceptions by adolescents, parents, health professionals and teachers. <i>Soc Sci Med</i> 2012; 74 :92–100	No school-based intervention
Bussing R, Schoenberg NE, Rogers KM, Zima BT, Angus S. Explanatory models of ADHD: do they differ by ethnicity, child gender, or treatment status? <i>J Emot Behav Disord</i> 1998; 6 :233–42	Qualitative measure
Bussing R, Zima BT, Mason DM, Porter PC, Garvan CW. Receiving treatment for attention-deficit hyperactivity disorder: do the perspectives of adolescents matter? <i>J Adolesc Health</i> 2011; 49 :7–14	No school-based intervention
Chaban P. ADHD: from intervention to implementation. <i>Educ Can</i> 2010; 50 :32–5	Attitude not measured or not reported for intervention
Chen M, Seipp CM, Johnston C. Mothers' and fathers' attributions and beliefs in families of girls and boys with attention-deficit/hyperactivity disorder. <i>Child Psychiatr Hum Dev</i> 2008; 39 :85–99	No school-based intervention
Cihak DF, Kirk ER, Boon RT. Effects of classwide positive peer 'tootling' to reduce the disruptive classroom behaviors of elementary students with and without disabilities. <i>J Behav Educ</i> 2009; 18 :267–78	Not ADHD focus
Colton DL, Sheridan SM. Conjoint behavioral consultation and social skills training: enhancing the play behaviors of boys with attention deficit hyperactivity disorder. <i>J Educ Psychol Consult</i> 1998; 9 :3–28	Specific intervention only
Concannon PE, Tang YP. Management of attention deficit hyperactivity disorder: a parental perspective. <i>J Paediatr Child Health</i> 2005; 41 :625–30	Attitude not measured or not reported for intervention

Reference	Reason for exclusion
Conners C, March JS, Frances A, Wells KC, Ross R. Treatment of attention-deficit/hyperactivity disorder: expert consensus guidelines. <i>J Attention Disord</i> 2001; 4 :S1–S128	Could not retrieve full text
Corkum P, Rimer P, Schachar R. Parental knowledge of attention-deficit hyperactivity disorder and opinions of treatment options: impact on enrolment and adherence to a 12-month treatment trial. <i>Can J Psychiatr</i> 1999; 44 :1043–8	No school-based intervention
Corkum PV, McKinnon M, Mullane JC. The effect of involving classroom teachers in a parent training program for families of children with ADHD. <i>Child Fam Behav Ther</i> 2005; 27 :29–49	No school-based intervention
Crabtree T, Alber-Morgan SR, Konrad M. The effects of self-monitoring of story elements on the reading comprehension of high school seniors with learning disabilities. <i>Educ Treat Child</i> 2010; 33 :187–203	Attitude not measured or not reported for intervention
Creel C, Fore C, Boon RT, Bender WN. Effects of self-monitoring on classroom preparedness skills of middle school students with attention deficit hyperactivity disorder. <i>Learn Disabil</i> 2006; 14 :105–13	Qualitative measure
Curtis DF. A cross-cultural comparison between United States and New Zealand teacher acceptability of interventions for children with attention deficit hyperactive disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 64 :394	Additional papers from included studies
Cushman T, LeBlanc M, Porter G. ADHD: results of a national survey of school psychologists. <i>Ethical Hum Psychol Psychiatry</i> 2004; 6 :183–91	Attitude not measured or not reported for intervention
DeOrio SJ. Factors associated with parental involvement in child's preschool day treatment program and treatment outcome. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2009; 70 :700	Not ADHD focus
Dielmann KB. Treatment acceptability and perceived time to implement interventions for children with ADHD moderated by general education teachers' training in ADHD and disability law, and eligibility for disabling conditions. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 66 :5709	Specific intervention only
Doak JS. The effect of teachers' beliefs, perceived stress, and student characteristics on teachers' acceptance of treatment interventions for attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 64 :395	Additional papers from included studies
DosReis S, Butz A, Lipkin PH, Anixt JS, Weiner CL, Chernoff R. Attitudes about stimulant medication for attention-deficit/hyperactivity disorder among African American families in an inner city community. <i>J Behav Health Serv Res</i> 2006; 33 :423–30	No school-based intervention
DosReis SC. Patterns of psychopharmacologic treatment for attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2000; 60 :3880	No school-based intervention
Dryer R, Kiernan MJ, Tyson GA. The effects of diagnostic labelling on the implicit theories of attention-deficit/hyperactivity disorder held by health professionals. <i>Behav Change</i> 2006; 23 :177–85	Participants not school-related
Dunne RP. The need for training teachers about childhood psychiatric disorders in rural Pennsylvania. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2008; 69 :2226	Attitude not measured or not reported for intervention
Dunson RM, Hughes JN, Jackson TW. Effect of behavioural consultation on student and teacher-behavior. <i>J Sch Psychol</i> 1994; 32 :247–66	Attitude not measured or not reported for intervention
DuPaul GJ, Kern L, Volpe R, Caskie GI, Sokol N, Arbolino L, et al. Comparison of parent education and functional assessment-based intervention across 24 months for young children with attention deficit hyperactivity disorder. <i>Sch Psychol Rev</i> 2013; 42 :56–75	No school-based intervention
DuPaul GJ, Ervin RA, Hook CL, McGoey KE. Peer tutoring for children with attention deficit hyperactivity disorder: effects on classroom behavior and academic performance. <i>J Appl Behav Anal</i> 1998; 31 :579–92	Specific intervention only
DuPaul GJ, Jitendra AK, Volpe RJ, Tresco KE, Lutz JG, Vile Junod RE, et al. Consultation-based academic interventions for children with ADHD: effects on reading and mathematics achievement. <i>J Abnorm Child Psychol</i> 2006; 34 :635–48	Specific intervention only

Reference	Reason for exclusion
Epstein JN, Willis MG, Conners CK, Johnson DE. Use of a technological prompting device to aid a student with attention deficit hyperactivity disorder to initiate and complete daily tasks: an exploratory study. <i>J Spec Educ Tech</i> 2001; 16 :19–28	No school-based intervention
Erchul WP, DuPaul GJ, Bennett MS, Grissom PF, Jitendra AK, Tresco KE, <i>et al.</i> A follow-up study of relational processes and consultation outcomes for students with attention deficit hyperactivity disorder. <i>Sch Psychol Rev</i> 2009; 38 :28–37	Specific intervention only
Ervin RA, DuPaul GJ, Kern L, Friman PC. Classroom-based functional and adjunctive assessments: proactive approaches to intervention selection for adolescents with attention deficit hyperactivity disorder. <i>J Appl Behav Anal</i> 1998; 31 :65–78	Specific intervention only
Fabiano GA, Pelham WE Jr. Improving the effectiveness of behavioral classroom interventions for attention-deficit/hyperactivity disorder: a case study. <i>J Emot Behav Disord</i> 2003; 11 :124–30	Specific intervention only
Fabiano GA, Vujnovic RK, Pelham WE, Waschbusch DA, Massetti GM, Pariseau ME, <i>et al.</i> Enhancing the effectiveness of special education programming for children with attention deficit hyperactivity disorder using a daily report card. <i>Sch Psychol Rev</i> 2010; 39 :219–39	Specific intervention only
Fedewa AL, Erwin HE. Stability balls and students with attention and hyperactivity concerns: implications for on-task and in-seat behavior. <i>Am J Occup Ther</i> 2011; 65 :393–9	Specific intervention only
Fegert JM, Slawik L, Nubling M, Muhlbacher A. Applying discrete choice experiments in mental health—an example on parents' preferences in attention deficit hyperactivity disorder (ADHD) treatment. <i>J Child Adolesc Psychopharmacol</i> 2010; 20 :528	Could not retrieve full text
Fegert JM, Slawik L, Wermelskirchen D, Nubling M, Muhlbacher A. Assessment of parents' preferences for the treatment of school-age children with ADHD: a discrete choice experiment. <i>Expert Rev</i> 2011; 11 :245–52	No school-based intervention
Fenstermacher K, Olympia D, Sheridan SM. Effectiveness of a computer-facilitated, interactive social skills training program for boys with attention deficit hyperactivity disorder. <i>Sch Psychol Q</i> 2006; 21 :197–224	No school-based intervention
Ferrin M, Ruiz-Veguilla M, Blanc-Betes M, Abd SE, Lax-Pericall T, Sinclair M, <i>et al.</i> Evaluation of attitudes towards treatment in adolescents with attention deficit hyperactivity disorder (ADHD). <i>Eur Child Adolesc Psychiatr</i> 2012; 21 :387–401	No school-based intervention
Fiks AG, Mayne S, Hughes CC, Debartolo E, Behrens C, Guevara JP, <i>et al.</i> Development of an instrument to measure parents' preferences and goals for the treatment of attention deficit-hyperactivity disorder. <i>Acad Pediatr</i> 2012; 12 :445–55	No school-based intervention
Fritz GK. Keep your eye on. <i>Brown Univ Child Adolesc Behav Lett</i> 2005; 21 : 2	No school-based intervention
Fuchs T, Birbaumer N, Lutzenberger W, Gruzelier JH, Kaiser J. Neurofeedback treatment for attention-deficit/hyperactivity disorder in children: a comparison with methylphenidate. <i>Appl Psychophysiol Biofeedback</i> 2003; 28	Attitude not measured or not reported for intervention
Furnham A, Sarwar T. Beliefs about attention-deficit hyperactivity disorder. <i>Counsell Psychol Q</i> 2011; 24 :301–11	Not ADHD focus
Furukawa E, Tripp G, Caparelli-Daquer E, Mattos P. Cross-cultural considerations in conducting research on reinforcement sensitivity and ADHD. <i>Eur Child Adolesc Psychiatr</i> 2010; 19 :S51	Not primary research
Gage JD, Wilson LJ. Acceptability of attention-deficit/hyperactivity disorder interventions: a comparison of parents. <i>J Attention Disord</i> 2000; 4 :174–82	No school-based intervention
Gal E, Schreur N, Engel-Yeger B. Inclusion of children with disabilities: teacher's attitudes and requirements for environmental accommodations. <i>Int J Spec Educ</i> 2010; 25 :89–99	No school-based intervention
Garrett TE. Psychiatrists' and psychologists' attitudes toward the psychosocial and medical models of attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2000; 61 :2758	Participants not school related
Germer KA, Kaplan LM, Giroux LN, Markham EH, Ferris GJ, Oakes WP, <i>et al.</i> A function-based intervention to increase a second-grade student's on-task behavior in a general education classroom. <i>Beyond Behav</i> 2011; 20 :19–30	Not ADHD focus

Reference	Reason for exclusion
Gevensleben H, Holl B, Albrecht B, Vogel C, Schlamp D, Kratz O, <i>et al.</i> Is neurofeedback an efficacious treatment for ADHD? A randomised controlled clinical trial. <i>J Child Psychol Psychiatry</i> 2009; 50 :780–9	No school-based intervention
Glass CS, Wegar K. Teacher perceptions of the incidence and management of attention deficit hyperactivity disorder. <i>Education</i> 2000; 121 :412	No school-based intervention
Gomes M, Palmmini A, Barbirato F, Rohde LA, Mattos P. Knowledge about attention-deficit hyperactivity disorder in Brazil. <i>J Brasileiro de Psiquiatria</i> 2007; 56 :94–101	Foreign Language
Graeper KD. ADHD in-service training: an examination of knowledge, efficacy, stress, teaching behavior, and irrational thoughts. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2011; 72 :1815	Attitude not measured or not reported for intervention
Graham-Day KJ, Gardner R, III, Hsin Y-W. Increasing on-task behaviors of high school students with attention deficit hyperactivity disorder: Is it enough? <i>Educ Treat Child</i> 2010; 33 :205–21	Specific intervention only
Grauvogel-MacAleese AN, Wallace MD. Use of peer-mediated intervention in children with attention deficit hyperactivity disorder. <i>J Appl Behav Anal</i> 2010; 43 :547–51	Specific intervention only
Gude RBS. Effects of collaborative-consultation-training on selected teacher opinions and perceptions regarding referral, intervention and teaching of at-risk students. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1996; 56 :4324	Could not retrieve full text
Gulley VS. A brief method for evaluating the effects of stimulant medication and behavioral interventions on the classroom performance of children with attention deficit hyperactivity disorder (ADHD). <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1999; 60 :1290	No school-based intervention
Gureasko-Moore S, Dupaul GJ, White GP. The effects of self-management in general education classrooms on the organizational skills of adolescents with ADHD. <i>Behav Modif</i> 2006; 30 :159–83	Specific intervention only
Gureasko-Moore S, DuPaul GJ, White GP. Self-management of classroom preparedness and homework: effects on school functioning of adolescents with attention deficit hyperactivity disorder. <i>Sch Psychol Rev</i> 2007; 36 :647–64	Specific intervention only
Gureasko-Moore SP. The effects of self-management on organizational skills of adolescents with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2004; 65 :1534	Specific intervention only
Habboushe DF, Daniel-Crotty S, Karustis JL, Leff SS, Costigan TE, Goldstein SG, <i>et al.</i> A family-school homework intervention program for children with attention-deficit/hyperactivity disorder. <i>Cogn Behav Pract</i> 2001; 8 :123–36	No school-based intervention
Hall TF. Early intervention multimodal treatment program for children with attention deficit hyperactivity disorder: an outcome study. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2003; 63 :3474	No school-based intervention
Hauch Y. A multimodal treatment program for children with ADHD: a 16-month follow-up. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> . 2005; 66 :1719	No school-based intervention
Havey J, Olson JM, McCormick C, Cates GL. Teachers' perceptions of the incidence and management of attention-deficit hyperactivity disorder. <i>Appl Neuropsychol</i> 2005; 12 :120–7	No school-based intervention
Hawkins J. Teacher perceptions, beliefs, and interventions regarding children with attention deficit disorders. <i>Action Teach Educ</i> 1991; 13 :52–9	Could not retrieve full text
Hill RD, Olympia D, Angelbuer K. A comparison of preference for familial, social and material rewards between hyperactive and non-hyperactive boys. <i>Sch Psychol Int</i> 1991; 12 :225–9	No school-based intervention
Hoff KE, DuPaul GJ. Reducing disruptive behavior in general education classrooms: the use of self-management strategies. <i>Sch Psychol Rev</i> 1998; 27 :290–303	Not ADHD focus
Hoff KE, Ervin RA, Friman PC. Refining functional behavioral assessment: analyzing the separate and combined effects of hypothesized controlling variables during ongoing classroom routines. <i>Sch Psychol Rev</i> 2005; 34 :45–57	Specific intervention only

Reference	Reason for exclusion
Hoff KE, Ervin RA. Extending self-management strategies: the use of a classwide approach. <i>Psychol Schools</i> 2013; 50 :151–64	Specific intervention only
Hukriede J, Miernicki SL. <i>Intervention Types and the Perceptions of Academic Success of Students with Attention Deficit Hyperactivity Disorder (ADHD)</i> . Minnesota, MN: University of Wisconsin-River Falls; 2006	No school-based intervention
Isberg E, Kjellman B. Multidisciplinary assessment of children with deficits relating to attention, motor activity and perception: evaluation of the ANSER model. <i>Child Care Health Dev</i> 1999; 25 :359–76	Specific intervention only
Isler L. Effects of gender on treatment outcome in young children with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2008; 69 :659	No school-based intervention
Jakobsen AN. Using implicit theories about ADHD to understand teacher participation in classroom-based intervention. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2007; 68 :3398	Attitude not measured or not reported for intervention
Jitendra AK, Edwards LL, Starosta K, Sacks G, Jacobson LA, Choutka CM. Early reading instruction for children with reading difficulties: meeting the needs of diverse learners. <i>J Learn Disabil</i> 2004; 37 :421–39	Specific intervention only
Johnson WF. Working memory and ADHD: can students with ADHD benefit from being taught strategies? <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2001; 61 :3847	Specific intervention only
Jones KM, Lungaro CJ. Teacher acceptability of functional assessment-derived treatments. <i>J Educ Psychol Consult</i> 2000; 11 :323–32	Not ADHD focus
Jurbergs N, Palcic J, Kelley ML. School-home notes with and without response cost: increasing attention and academic performance in low-income children with attention-deficit/hyperactivity disorder. <i>Sch Psychol Q</i> 2007; 22 :358–79	Qualitative measure
Jurbergs N, Palcic JL, Kelley ML. Daily behavior report cards with and without home-based consequences: improving classroom behavior in low income, African American children with ADHD. <i>Child Fam Behav Ther</i> 2010; 32 :177–95	Specific intervention only
Jurbergs AN. Relative efficacy of school-home notes and teacher feedback in minority elementary students with attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 66 :6276	Specific intervention only
Kelley ML, McCain AP. Promoting academic performance in inattentive children. The relative efficacy of school-home notes with and without response cost. <i>Behav Modif</i> 1995; 19 :357–75	No school-based intervention
Kendrick CP. A quasi-experimental study of the effect of feedback on the social behavior of school children with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1995; 55 :2275	Specific intervention only
Kothari J, Morgan S. Multi-agency training programmes for professionals and parents of children with ADHD. <i>Arch Dis Child</i> 2010; 95 :A97	Could not retrieve full text
Kraemer EE, Davies SC, Arndt KJ, Hunley S. A comparison of the mystery motivator and the get'em on task interventions for off-task behaviors. <i>Psychol Schools</i> 2012; 49 :163–75	Not ADHD focus
Kraemer ES. Effectiveness of a home-school note procedure for increasing appropriate classroom behaviors exhibited by children diagnosed with attention-deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1995; 55 :3454	Could not retrieve full text
Krain AL, Kendall PC, Power TJ. The role of treatment acceptability in the initiation of treatment for ADHD. <i>J Attention Disord</i> 2005; 9 :425–34	No school-based intervention
Krain AL. The role of parent and child perceptions of readiness for change, problem severity, and treatment acceptability in the pursuit of treatment for attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2004; 64 :3530	No school-based intervention
Lane KL, O'Shaughnessy TE, Lambros KM, Gresham FM, Beebe-Frankenberger ME. The efficacy of phonological awareness training with first-grade students who have behavior problems and reading difficulties. <i>J Emot Behav Disord</i> 2001; 9 :219–31	Specific intervention only

Reference	Reason for exclusion
Langberg JM, Vaughn AJ, Williamson P, Epstein JN, Girio-Herrera E, Becker SP. Refinement of an organizational skills intervention for adolescents with ADHD for implementation by school mental health providers. <i>Sch Ment Health</i> 2011; 3 :143–55	Specific intervention only
Layne AE. Factors affecting treatment acceptability in the classroom. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2002; 63 :533	Attitude not measured or not reported for intervention
Lorah KS. Effects of peer tutoring on the reading performance and classroom behavior of students with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 64 :1208	Specific intervention only
Losapio G. Children with attention-deficit/hyperactivity disorder: treatment methods and parental perceptions. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2011; 71 :7709	No school-based intervention
Mathes MY, Bender WN. The effects of self-monitoring on children with attention-deficit/hyperactivity disorder who are. <i>Remedial Spec Educ</i> 1997; 18 :121	Qualitative measure
Mathes MY. Effects of self-monitoring on male children with attention deficit hyperactivity disorder who are receiving psychostimulant medication. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1997; 58 :0423	Qualitative measure
Mautone JA, DuPaul GJ, Jitendra AK. The effects of computer-assisted instruction on the mathematics performance and classroom behavior of children with ADHD. <i>J Attention Disord</i> 2005; 9 :301–12	Specific intervention only
Mautone JA, Marshall SA, Sharman J, Eiraldi RB, Jawad AF, Power TJ. Development of a family-school intervention for young children with attention deficit hyperactivity disorder. <i>Sch Psychol Rev</i> 2012; 41 :447–66	Attitude not measured or not reported for intervention
Mautone JA. The relationship between treatment integrity and treatment acceptability across two consultation models. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 66 :1704	Specific intervention only
McGoey KE, DuPaul GJ. Token reinforcement and response cost procedures: reducing the disruptive behavior of preschool children with attention-deficit/hyperactivity disorder. <i>Sch Psychol Q</i> 2000; 15 :330–43	Specific intervention only
McGoey KE. Positive reinforcement and response cost procedures: reducing the disruptive behavior of preschool children with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1998; 58 :6222	Specific intervention only
Merriman DE, Codding RS. The effects of coaching on mathematics homework completion and accuracy of high school students with attention-deficit/hyperactivity disorder. <i>J Behav Educ</i> 2008; 17 :339–55	Specific intervention only
Meyer K, Kelley ML. Improving homework in adolescents with attention-deficit/hyperactivity disorder: Self vs. parent monitoring of homework behavior and study skills. <i>Child Fam Behav Ther</i> 2007; 29 :25–42	No school-based intervention
Micou LL. Social evaluations of children with ADHD participating in peer pairing interventions: disconfirming behavior versus peer association. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2003; 64 :2419	Attitude not measured or not reported for intervention
Molina BSG, Flory K, Bukstein OG, Greiner AR, Baker JL, Krug V, et al. Feasibility and preliminary efficacy of an after-school program for middle schoolers with ADHD: a randomized trial in a large public middle school. <i>J Attention Disord</i> 2008; 12 :207–17	Specific intervention only
Morris GE. A survey study of drug and non-drug managements for the hyperactive child: treatment preferences of parents, teachers, special education personnel and physicians. <i>Diss Abstr Int</i> 1986; 46 :2266	No school-based intervention
Murray DW, Rabiner D, Schulte A, Newitt K. Feasibility and integrity of a parent-teacher consultation intervention for ADHD students. <i>Child Youth Care Forum</i> 2008; 37 :111–12	Specific intervention only
Niznik ME. An exploratory study of the implementation and teacher outcomes of a program to train elementary educators about ADHD in the schools. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 65 :2899	Attitude not measured or not reported for intervention
Oberthur AP. <i>A Study of Parents' Perceptions of the Behaviour and Learning of their Children with Attention Deficit Disorder</i> . Brisbane, QLD: University of Queensland; 1996	Could not retrieve full text

Reference	Reason for exclusion
Ota KR, DuPaul GJ. Task engagement and mathematics performance in children with attention-deficit hyperactivity disorder: effects of supplemental computer instruction. <i>Sch Psychol Q</i> 2002; 17 :242–57	Specific intervention only
Owens JS, Richerson L, Beilstein EA, Crane A, Murphy CE, Vancouver JB. School-based mental health programming for children with inattentive and disruptive behavior problems: first-year treatment outcome. <i>J Attention Disord</i> 2005; 9 :261–74	Specific intervention only
Ozdemir S. The first step to success program: Implementation effectiveness with Turkish children with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2006; 67 :2115	Specific intervention only
Palacios-Cruz L, de la Pena F, Valderrama A, Patino R, Calle Portugal SP, Ulloa RE. Knowledge and beliefs in Mexican parents about attention deficit hyperactivity disorder (ADHD). <i>Salud Ment</i> 2011; 34 :149–55	Foreign Language
Peck HL, Kehle TJ, Bray MA, Theodore LA. Yoga as an intervention for children with attention problems. <i>Sch Psychol Rev</i> 2005; 34 :415–24	Specific intervention only
Pelham Jr WE, Carlson C. Separate and combined effects of methylphenidate and behavior modification on boys with attention. <i>J Consult Clin Psychol</i> 1993; 61 :506	No school-based intervention
Pelham WE, Gnagy EM, Greiner AR, Hoza B, Hinshaw SP, Swanson JM, et al. Behavioral versus behavioral and pharmacological treatment in ADHD children attending a summer treatment program. <i>J Abnorm Child Psychol</i> 2000; 28 :507–25	No school-based intervention
Pfiffner LJ, Kaiser NM, Burner C, Zalecki C, Rooney M, Setty P, et al. From clinic to school: translating a collaborative school-home behavioral intervention for ADHD. <i>Sch Ment Health</i> 2011; 3 :127–42	Specific intervention only
Pfiffner LJ, Mikami AY, Huang-Pollock C, Easterlin B, Zalecki C, McBurnett K. A randomized, controlled trial of integrated home-school behavioral treatment for ADHD, predominantly inattentive type. <i>J Am Acad Child Adolesc Psychiatr</i> 2007; 46 :1041–50	Attitude not measured or not reported for intervention
Pham AV, Carlson JS, Kosciulek JF. Ethnic differences in parental beliefs of attention-deficit/hyperactivity disorder and treatment. <i>J Attention Disord</i> 2010; 13 :584–91	No school-based intervention
Piana M. A multi-dimensional intervention for students with attention-deficit/hyperactivity symptomatology and low math performance: targeting motivation and math skill development. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 72 :1542	Specific intervention only
Plumer PJ, Stoner G. The relative effects of classwide peer tutoring and peer coaching on the positive social behaviors of children with ADHD. <i>J Attention Disord</i> 2005; 9 :290–300	Qualitative measure
Posavac HD, Sheridan SM, Posavac SS. A cueing procedure to control impulsivity in children with attention deficit hyperactivity disorder. <i>Behav Modif</i> 1999; 23 :234–53	No school-based intervention
Power TJ, Mautone JA, Soffer SL, Clarke AT, Marshall SA, Sharman J, et al. A family-school intervention for children with ADHD: results of a randomized clinical trial. <i>J Consult Clin Psychol</i> 2012; 8 :611–23	Specific intervention only
Rafferty LA, Arroyo J, Ginnane S, Wilczynski K. Self-monitoring during spelling practice: effects on spelling accuracy and on-task behavior of three students diagnosed with attention deficit hyperactivity disorder. <i>Behav Anal Pract</i> 2011; 4 :37–45	Qualitative measure
Raggi VL, Chronis-Tuscano A, Fishbein H, Grooms A. Development of a brief, behavioral homework intervention for middle school students with attention-deficit/hyperactivity disorder. <i>Sch Ment Health</i> 2009; 1 :61–77	No school-based intervention
Raggi VL. Development and preliminary testing of a brief, behavioral intervention to address the homework-related problems of middle school students with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009; 69 :5789	No school-based intervention
Rapport MD, Murphy A, Bailey JS. The effects of a response cost treatment tactic on hyperactive children. <i>J Sch Psychol</i> 1980; 18 :98–111	Attitude not measured or not reported for intervention
Rapport MD. A comparison of attentional training utilizing a response cost procedure and methylphenidate (ritalin) on the classroom behaviors of hyperactive children. <i>Diss Abstr Int</i> 1981; 42 :389	Attitude not measured or not reported for intervention

Reference	Reason for exclusion
Resnick A, Reitman D. The use of homework success for a child with attention-deficit/hyperactivity disorder, predominantly inattentive type. <i>Clin Case Stud</i> 2011; 10 :23–36	Specific intervention only
Resnick A. How successful is homework success for children with ADHD? <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2013; 74	No school-based intervention
Rich LP. Prompting self-monitoring with assistive technology to increase academic engagement in students with attention-deficit/hyperactivity disorder symptoms. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009; 70 :3158	Specific intervention only
Ridgway A, Northup J, Pellegrin A, LaRue R, Hightshoe A. Effects of recess on the classroom behavior of children with and without attention-deficit hyperactivity disorder. <i>Sch Psychol Q</i> 2003; 18 :253–68	Attitude not measured or not reported for intervention
Ridgway A. The effects of a recess or break and stimulant medication on the classroom behavior of children with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 65 :3693	No school-based intervention
Rodrigo MD, Perera D, Eranga VP, Williams SS, Kuruppuarachchi KA. The knowledge and attitude of primary school teachers in Sri Lanka towards childhood attention deficit hyperactivity disorder. <i>Ceylon Med J</i> 2011; 56 :51–4	Attitude not measured or not reported for intervention
Rosenberg RP, Beck S. Preferred assessment methods and treatment modalities for hyperactive children among clinical child and school psychologists. <i>J Clin Child Psychol</i> 1986; 15 :142–7	No school-based intervention
Sams SE. The effects of functional intervention on the behavior of four students labeled ADHD. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1999; 60 :1081	Specific intervention only
Schilling DL, Washington K, Billingsley FF, Deitz J. Classroom seating for children with attention deficit hyperactivity disorder: therapy balls versus chairs. <i>Am J Occup Ther</i> 2003; 57 :534–41	Qualitative measure
Schmitt RCO. The effects of a self-monitoring and video self-modeling intervention to increase on-task behavior for children with attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2010; 70 :3758	Specific intervention only
Schnoes CJA. Conjoint behavioral consultation, ADHD, and homework: a combined intervention package for middle school youth with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2003; 63 :3461	Specific intervention only
Scope CR. The efficacy of conjoint behavioral consultation to reduce the off-task behavior of elementary school children diagnosed with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 64 :1975	Specific intervention only
Seeley JR, Small JW, Walker HM, Feil EG, Severson HH, Golly AM, et al. Efficacy of the first step to success intervention for students with attention-deficit/hyperactivity disorder. <i>Sch Ment Health</i> 2009; 1 :37–48	Specific intervention only
Shapiro ES. <i>A Regional Consulting Center To Assist School Personnel in Working with Early Adolescents with Attention Deficit Disorders</i> . Bethlehem, PA: Lehigh University; 1997	Specific intervention only
Sheridan SM, Colton DL, Fenstermacher K, Lasecki K, Wilson K. Efficacy of Conjoint Behavioral Consultation as a Vehicle for Inclusion. Poster presented at the annual meeting of the American Psychological Association. Toronto, August 1996	Could not retrieve full text
Sheridan SM, Eagle JW, Cowan RJ, Mickelson W. The effects of conjoint behavioral consultation results of a 4-year investigation. <i>J Sch Psychol</i> 2001; 39 :361–85	Not ADHD focus
Sibley MH, Pelham WE, Evans SW, Gnagy EM, Ross JM, Greiner AR. An evaluation of a summer treatment program for adolescents with ADHD. <i>Cogn Behav Pract</i> 2011; 18 :530–44	No school-based intervention

Reference	Reason for exclusion
Sigelman CK, Shorokey JJ. Effects of treatments and their outcomes on peer perceptions of a hyperactive child. <i>J Abnorm Child Psychol</i> 1986; 14 :397–410	No school-based intervention
Skinner JN, Veerkamp MB, Kamps DM, Andra PR. Teacher and peer participation in functional analysis and intervention for a first grade student with attention deficit hyperactivity disorder. <i>Educ Treat Child</i> 2009; 32 :243–66	Specific intervention only
Stagg AM. Barriers to Attention-Deficit/Hyperactivity Disorder intervention implementation in the public school setting. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2011; 71 :6467	Attitude not measured or not reported for intervention
Stahr B, Cushing D, Lane K, Fox J. Efficacy of a function-based intervention in decreasing off-task behavior exhibited by a student with ADHD. <i>J Posit Behav Interv</i> 2006; 8 :201–11	Specific intervention only
Steiner NJ, Sheldrick RC, Gotthelf D, Perrin EC. Computer-based attention training in the schools for children with attention deficit/hyperactivity disorder: a preliminary trial. <i>Clin Pediatr</i> 2011; 50 :615–22	Qualitative measure
Sterling LA. An investigation of the effectiveness of an assessment-linked study skills intervention on homework completion and accuracy. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2006; 66 :2494	Specific intervention only
Stevens L, Van Werkhoven W, Stokking K, Castelijns J, Jager A. Interactive instruction to prevent attention problems in class. <i>Learn Environ Res</i> 2000; 3 :265–86	Attitude not measured or not reported for intervention
Stevens ML. Effects of classwide peer tutoring on the classroom behavior and academic performance of students with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1999; 59 :4487	Not ADHD focus
Stief EA. Parental perceptions of attention-deficit/hyperactivity disorder: etiology, diagnosis, and treatment. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2004; 64 :5236	Attitude not measured or not reported for intervention
Stroh J, Frankenberger W, Cornell-Swanson L, Wood C, Pahl S. The use of stimulant medication and behavioral interventions for the treatment of attention deficit hyperactivity disorder: a survey of parents' knowledge, attitudes, and experiences. <i>J Child Fam Stud</i> 2008; 17 :385–401	No school-based intervention
Stubbs JH. ADHD in young boys: a correlational study among early childhood educators in Louisiana. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2013; 73	Attitude not measured or not reported for intervention
Terenzi CM, Ervin RA, Hoff KE. Classwide self-management of rule following. <i>J Evid Base Pract Sch</i> 2010; 11 :117–22	Specific intervention only
Teta AR. Increasing homework completion in children with ADHD using the mystery motivator intervention. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009; 70 :3190	Specific intervention only
Trahan DM. Behavioral improvement in children with ADHD: Independent and combined effects of behavioral treatment and medication. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 65 :5384	Specific intervention only
Umbreit J. Functional assessment and intervention in a regular classroom setting for the disruptive behavior of a student with attention deficit hyperactivity disorder. <i>Behav Disord</i> 1995; 20 :267–78	Specific intervention only
Vilardo BA, DuPaul GJ, Kern L, Hojnoski RL. Cross-age peer coaching: enhancing the peer interactions of children exhibiting symptoms of ADHD. <i>Child Fam Behav Ther</i> 2013; 35 :63–81	Specific intervention only
Voll CB. The effects of yoga on attention and self-concept in special education preschoolers. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009; 70 :719	Specific intervention only
Walker HM, Seeley JR, Small J, Severson HH, Graham BA, Feil EG, et al. A randomized controlled trial of the first step to success early intervention—demonstration of program efficacy outcomes in a diverse, urban school district. <i>J Emot Behav Disord</i> 2009; 17 :197–212	Specific intervention only

Reference	Reason for exclusion
Warnke MG. Self-monitoring procedures with elementary aged children of color with disruptive behaviors in an urban setting. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2004; 64 :3958	Not ADHD focus
Whitworth JE, Fossler T, Harbin G. Teachers' perceptions regarding educational services to students with attention deficit disorder. <i>Rural Educat</i> 1997; 19 :1–5	Additional papers from included studies
Zentall SS, Javorsky J. Professional development for teachers of students with ADHD and characteristics of ADHD. <i>Behav Disord</i> 2007; 32 :78–93	Specific intervention only
Zentall SS, Stormont-Spurgin M. Educator preferences of accommodations for students with attention deficit hyperactivity disorder. <i>Teach Educ Spec Educ</i> 1995; 18 :115–23	Attitude not measured or not reported for intervention

Appendix 6 List of Organisation for Economic Co-operation and Development countries

Australia.

Austria.

Belgium.

Canada.

Czech Republic.

Denmark.

Finland.

France.

Germany.

Greece.

Hungary.

Iceland.

Ireland.

Italy.

Japan.

Luxembourg.

Mexico.

Netherlands.

New Zealand.

Norway.

Poland.

Portugal.

Slovak Republic.

Spain.

Sweden.

Switzerland.

The Republic of Korea.

Turkey.

UK.

Appendix 7 Search strategy used for reviews 3 and 4

PsycINFO

Searched 1987 to July week 3 2012.

Search strategy

1. exp attention deficit disorder with hyperactivity/ (10,891)
2. ADHD.ti,ab. (14,541)
3. ADHS.ti,ab. (46)
4. ADDH.ti,ab. (112)
5. attention deficit.ti,ab. (16,407)
6. hyperactiv*.ti,ab. (21,221)
7. (hyper adj1 activ*).ti,ab. (69)
8. (Attention adj3 (problem* or difficult* or disorder* or issue*).ti,ab. (20,290)
9. hyperk*.ti,ab. (770)
10. minimal brain.ti,ab. (139)
11. inattenti*.ti,ab. (4054)
12. impulsiv*.ti,ab. (11,381)
13. restless*.ti,ab. (2096)
14. overactiv*.ti,ab. (1258)
15. 1or/1-14 (42,945)
16. school*.ti,ab. (177,132)
17. college*.ti,ab. (63,398)
18. nurser*.ti,ab. (1623)
19. preschool*.ti,ab. (19,836)
20. kindergarten*.ti,ab. (7536)
21. classroom*.ti,ab. (41,078)
22. elementary.ti,ab. (21,900)
23. education* setting*.ti,ab. (3338)
24. ((education* or behavio?r*) adj unit*).ti,ab. (230)
25. education* establishment*.ti,ab. (104)
26. education* system*.ti,ab. (3942)
27. learning environment*.ti,ab. (6879)
28. learning establishment*.ti,ab. (4)
29. teaching environment*.ti,ab. (197)
30. teaching establishment*.ti,ab. (5)
31. teacher*.ti,ab. (82,798)
32. early years.ti,ab. (2037)
33. foundation stage.ti,ab. (68)
34. breakfast club*.ti,ab. (13)
35. holiday club*.ti,ab. (2)
36. pupil*.ti,ab. (8449)
37. student*.ti,ab. (243,861)
38. homework.ti,ab. (2538)
39. learning.ti,ab. (166,980)
40. (learning adj (problem* or difficult* or disab* or disorder*).ti,ab. (16,675)
41. 39 not 40 (150,305)

42. reading.ti,ab. (53,010)
43. writing.ti,ab. (25,424)
44. literacy.ti,ab. (14,165)
45. math*.ti,ab. (28,008)
46. numeracy.ti,ab. (634)
47. or/16-46 (545,332)
48. exp qualitative research/ (3244)
49. recount.ti,ab. (453)
50. recounts.ti,ab. (798)
51. experience.ti,ab. (173,514)
52. experiences.ti,ab. (109,687)
53. understanding.ti,ab. (178,890)
54. interview*.ti,ab. (163,162)
55. narrative*.ti,ab. (30,926)
56. qualitative.ti,ab. (68,320)
57. perceive*.ti,ab. (115,365)
58. perception*.ti,ab. (139,748)
59. (views or view or viewpoint*).ti,ab. (112,964)
60. focus group.ti,ab. (7757)
61. attitude*.ti,ab. (94,221)
62. beliefs.ti,ab. (49,178)
63. feelings.ti,ab. (33,776)
64. (meaning or meanings).ti,ab. (55,922)
65. phenomenon*.ti,ab. (33,877)
66. ethnograph*.ti,ab. (13,739)
67. grounded theory.ti,ab. (7322)
68. hermeneutic*.ti,ab. (3856)
69. (constant adj (comparative or comparison)).ti,ab. (2172)
70. interpret.ti,ab. (10,533)
71. theme*.ti,ab. (52,711)
72. thematic.ti,ab. (7855)
73. discourse.ti,ab. (23,715)
74. ((open or unstructured) adj questionnaire*).ti,ab. (94)
75. observation*.ti,ab. (71,090)
76. or/48-75 (940,245)
77. 15 and 47 and 76 (4389)
78. limit 77 to animal (68)
79. 77 not 78 (4321)
80. limit 79 to yr="1980 – Current" (4321)

Appendix 8 Qualitative title/abstract screening checklist

Q1	<ul style="list-style-type: none"> Are the population schoolchildren aged 4–18 years with, or at risk of, ADHD, their parents, peers and/or those who work with these children in school settings? Are the population adults with ADHD talking about experiences in school? 	Yes or unsure	Go to Q2
		No	Exclude Custom 3/5: 0
Q2	Are the population described as having intellectual disabilities/mental retardation (IQ < 70) or brain damage?	No or unsure	Go to Q3
		Yes	Exclude Custom 3/5: 0
Q3	Were pupils identified as being with, or at risk of, ADHD by a measured scale, and/or are they described as having core symptoms of ADHD (hyperactivity, impulsivity and/or inattention)?	Yes or unsure	Go to Q4
		No	Exclude Custom 3/5: 0
Q4	Are methods: <ul style="list-style-type: none"> interviews/focus groups (where analysis is qualitative) observations (where data collection and analysis is qualitative) questionnaires (where open-ended questions are reported and analysed qualitatively). written accounts (e.g. diaries; data from online forums) analysed qualitatively. reviews (systematic or non-systematic) of qualitative research of relevance to either focus 	Yes or unsure	Go to Q5
		No	Exclude Custom 3/5: 0
Q5	Is the paper written in English?	Yes	Go to Q6
		No	Exclude Custom 3/5: 0
Q6	Does the study include <i>primary qualitative data</i> about aspects of non-pharmacological interventions with at least some unique elements delivered in an educational setting?	Yes or unsure	Include as a treatment Custom 3/5: 1 Custom 4/6: treatment
		NO	Go to Q7
Q7	Does the study include <i>primary qualitative data</i> about the school-related experience of ADHD, and/or school-related attitudes, beliefs and/or meanings about ADHD?	Yes or Unsure	Include Custom 3/5: 1
		No	Exclude Custom 3/5: 0

Appendix 9 Example of a completed qualitative data extraction form for review 4

Study details²⁸⁶

Authors

Arcia E, Frank R, Sánchez-LaCay A, Fernández MC.

Year published

2000.

Year of research

Pre-1998.

Title

Teacher understanding of ADHD as reflected in attributions and classroom strategies.

Aims

Larger study: to describe maternal understanding of, attitudes about and strategies towards disruptive behaviours (Arcia and Fernandez⁴¹⁹). This study: to describe teacher understanding and strategies towards the same disruptive behaviours.

Funders

National Institute of Mental Health (U01 MH 50447) and the Leon Lowenstein Centre for the Study, Prevention and Treatment of Disruptive Behavior Disorders.

Research participant details

- Participant group: primary teachers.
- Original sample size: 21 teachers.
- Dropouts: 0.
- Range of ages: not reported.
- % female: 81%.
- Ethnicity: 14 Anglo-American; 7 Latino.
- Years' experience teaching (if teachers): not reported.
- SEN education/experience (if teachers): all teachers had at least one pupil with ADHD symptoms.
- Year taught during study (if teachers): kindergarten ($n = 3$), first grade ($n = 3$), second grade ($n = 2$), third grade ($n = 6$), fourth grade ($n = 5$), sixth grade ($n = 1$), SEN teacher ($n = 1$).
- Comorbidities (if ADHD youth): not applicable.
- % of ADHD youth on medication (if ADHD youth): not applicable.
- Diagnosis (if ADHD youth): not applicable.
- Measure/s of diagnoses (ADHD and at risk of ADHD): not applicable.
- Diagnosis rated by: not applicable.

School information

- Region: central North Carolina; Miami, Florida, New York.
- Type of region (urban/rural): not reported.
- Country: USA.
- Type of school: primary.
- Number of schools: not reported.
- Deprivation index/% receiving free school meals: not reported.
- Range of ages of children with ADHD: 5–11 years.
- Number of children with ADHD: 21.
- % female of children with ADHD: not reported.
- Ethnicity of children with ADHD: not reported – Latina mothers.
- Comorbidities: 2 also LD.
- % of ADHD children on medication: 14% (3 of 21).
- Diagnosis (diagnosed, at risk, core symptoms): nine pupils were formally diagnosed with ADHD; four were being assessed and were diagnosed by the end of the study; eight had ADHD symptoms but were not diagnosed by the end of the study. Of these eight, six received *t*-scores above 64 on the Hyperactivity Index or on the Daydreaming scale of the Conners' Teacher Rating Scales.

Other population notes

- Intervention description: not applicable.

Study design details

Data collection method

1. Completed Conners' Teacher's Rating Scale (CTRS-39; Conners⁴²⁰) on the target child in their classroom.
2. Telephone interview following a semistructured protocol. General questions were asked first with specific questions asked in a conversational style where necessary.

The interview questions covered:

1. class/grade taught
2. description of target child's behaviour and assessment of the way and extent to which the behaviour interfered with learning, completion of schoolwork, and classroom functioning
3. description of any support services received by the child
4. attributions regarding the child's behaviour
5. strategies used by the teacher to manage the child
6. nature and frequency of, and satisfaction with, parent–teacher communications
7. identification of other school or community resources that had been used to support the child
8. teacher's opinion of strategies and resources that would help the child
9. any particular need with regard to working with Latino children exhibiting behaviour problems.

Description of recruitment

Teachers were mailed a letter describing the study, what was being asked of them to do, and that the child's parents had given consent.

Sampling

All 24 teachers who taught the children of the Latino mothers in the Arcia and Fernandez⁴¹⁹ study were invited to take part.

Analytic approach

Transcribed narratives were coded and analysed according with standard practice for qualitative data (Miles and Huberman³¹⁵).

Researcher/reflexivity

None.

Ethical procedures

Permission for recording of telephone interview, anonymity of teacher gender.

Description of analysis process

Transcribed narratives were coded and analysed in accordance with standard practice for qualitative data (Miles and Huberman³¹⁵). Passages in the transcripts were coded according to the topic areas listed above and according to subtopics such as references to medication.

Folio Views (1994; Folio Corporation, Provo, UT) was used to create and manage a database of transcribed interviews. This software program indexes all text and allows for multiple coding and labelling of data.

The first author extracted all segments that addressed the interview topics. The subsequent 49 pages of single-spaced, small-font text were reviewed by all authors, who independently reported their preliminary conclusions and interpretations. These observations were compared with the extracted segments, and the database was queried again for emergent themes. For instance, one of the observations from the first round of analysis was that teachers seldom characterised the children as having ADHD. This finding was confirmed by searching the database for the term ADHD and for other similar terms to determine whether or not the terms were used as label or characterisations. The first and second authors then conducted further confirmatory analyses using matrices to identify patterns and to count the frequency of specific responses.

Theoretical underpinning (of research) identified by the authors

None.

How is this used?

Notes.

Limitations of study as identified by authors

Small number of participants makes it difficult to establish applicability to elementary school teachers in general; teachers did not describe strategies exhaustively; the validity of the strategy implementation and effectiveness could not be verified.

Limitations of study as identified by review team

Little reflexivity. Theoretical/ideological stance and impact on study not addressed by authors.

Few quotes so difficult to evaluate data–findings relationship.

Findings

Key themes

The teachers' report of things that might 'really help the child' was consistent with the environmental (poor parenting) attributions. According to teachers, the children would benefit most from a stable home environment; more reading and less television; a male role-model; family counselling; more discipline at home; extra attention; and active parental involvement in teaching and homework. School-related suggestions were much less frequent and consisted of (more) English classes; small group instruction; one-to-one instruction; and boosting the child's self-esteem by ensuring success with easy academic tasks. Three teachers, who had initially associated the children's behaviour with ADHD or with hyperactivity, suggested medication. One of these was the special education teacher. Two teachers suggested vision and/or speech and hearing tests. Strikingly, only the special education teacher suggested the continuation of a structured, behaviourally-based, educational setting such as the one in which the child was currently placed.

Reported techniques for classroom management

The teachers had numerous techniques for managing their students' behaviour. These could be grouped loosely into the following four categories: behavioural, instructional, environmental, and interpersonal. Techniques were classified as behavioural if they appeared to be aimed at increasing the occurrence of a behaviour (i.e. rewards – happy faces, stickers, praise, 'telling him when he is doing well'), if they appeared to be intended to decrease a behaviour (i.e. punishment – name on board, ignoring, sending a note home, sending the child to the office or home, losing a privilege such as recess, staying after school, and demonstrating disapproval), or if a management strategy such as a token economy was employed. Sixteen teachers described using at least one behavioural technique. However, it was evident that teacher did not have a clear understanding of the principles on which these techniques were based. With the exception of the special education teacher, who had a token economy with class-wide and individual behavioural targets, none of the other teachers had a fully coherent or systematic strategy. Regular education teachers did not appear cognisant of the feasibility of using a token economy to target-specific behaviours of children with ADHD.

Five teachers reported using token economies. These were generally referred to as 'point systems' possibly because, as one teacher pointed out, she did not use tokens. The economies tended to have long or random intervals and to reinforce behaviours that were not clearly specified. In these and other ways, economies were often implemented in manners that could be expected to diminish their effectiveness. For example, one teacher collected all individually-earned points at the end of the week and redistributed them evenly across all the children in the classroom. Another teacher, in an attempt to boost the child's self-esteem, provided rewards even when the criterion level of behaviour was approached but not achieved. Still, another teacher became unable to deliver a child's reward because of a change in schedule. In reporting the events, this teacher was puzzled as to why the child's behavior had deteriorated. Thus, the general lack of mention of token economies, the lack of individualised target behaviours, and the often faulty implementation indicated that teachers did not have a sufficiently in-depth understanding of behavioural principles that would allow them to use token economies most effectively for the typical child with ADHD.

Ten teachers mentioned use of rewards outside the context of token economy and eight teachers mentioned techniques that clearly fell under the subcategory of punishment. However, none of the teachers used the term 'punishment'. Teachers used techniques to reduce the frequency of undesirable behaviours but were unaware of these as punishment. Indeed, one teacher was careful to point out that punishment was unwarranted for non-volitional rule breaking. Perhaps owing to a lack of understanding of behavioural principles or stemming from a desire not to appear to use punishments, rewards and punishments were sometimes confused. For example, one teacher kept the target child after school as a

consequence for failing to complete his schoolwork, but hastened to add that the student enjoyed the individualised attention that this provided. Other opportunities for behavioural management were overlooked. For example, many parents were informed of the children's behaviours in parent-teacher conferences or in notes sent home with the child, but these were not tied to an integral school-home plan of rewards and punishment designed to improve the child's behaviour.

Instructional techniques were reported by 12 teachers as strategies for managing the target student's classroom functioning. These strategies included one-to-one instruction, peer tutoring, a decrease in workload to accommodate the child's ability and extra instruction after school or during the teacher's free periods.

Environmental techniques were similarly popular. Of these, preferential seating was the technique most frequently cited ($n = 8$). Children with behaviour problems were seated close to the teacher or with a well-behaved, high-achieving child (often a girl). This latter technique had the advantage of also increasing one-to-one instruction because the high-achieving child sometimes served as a peer tutor. However, structure, like punishment, was perceived negatively. One teacher, who by all accounts had made great strides with her student, hastened to add, 'I'm really not like a drill sergeant, kind of thing, but I feel like you have to have . . . [structure] . . . with so many kids in that room . . . We have a great time in my room, but my thing is too that there is a time and place for everything'. This teacher's tone was very apologetic.

Five teachers used techniques that, for lack of a better label, were designated as 'interpersonal'. These teachers talked with the children to convince them or pressure them into behaving appropriately. Also, one teacher included information on ADHD and a child-oriented film about it in her curriculum.

Generally, teachers described using multiple techniques across several categories. Regardless of the category of the techniques used, teachers did seem to have a strong preference for those techniques which do not demand a great deal of their time – thus, the frequent mention of interventions such as preferential seating, writing children's names on the board and using peer tutors. However, it was obvious that teachers did not have a plan of action for students with disruptive and/or inattentive behaviour. As one teacher said in response to the feedback letter that commented on the numerous techniques used by teachers, 'We do have numerous strategies, but not because all of us are very well-informed sometimes, you know. There's just things that you see and you make your own judgment and you say, well, this child needs this, they need that, that type of thing'. Other teachers echoed the sentiment that they approach problems in a case-by-case, trial-and-error approach. It is unfortunate that the provision of a label or diagnosis of ADHD did not seem to suggest to teachers a comprehensive strategy.

Salient by their absence were school- or community-based resources for teacher support. Aside from sending a disruptive child to another classroom or to the office, only a couple of teachers reported management strategies that involved other school personnel. In one case, a teacher rewarded the target child by allowing him to clean cafeteria tables with the school custodian. Whether or not teachers are as unsupported as their reports suggest, teachers felt notably isolated in meeting challenges:

But you know, you're also caught between a rock and a hard place, because you can't say to a mother – although you can try to start channelling it by having an evaluation – that 'I think your child has to be tested or evaluated, because his or her behaviour is not regular'. I mean, how do you say to a mother 'Something's wrong with your kid?'

Key concepts

Techniques adopted for behaviour management: behavioural, instructional, environmental and interpersonal approaches (only three teachers suggested medication).

Strong preference for techniques that did not demand a great deal of their time.

No comprehensive strategies.

From 'Conclusions and Implications':

Teachers' understanding of the condition, and of classroom management options, is very limited.

p. 98²⁸⁶

... the teachers in this study used a wide range of techniques ... However, the techniques they employed ... did not represent a comprehensive plan of action ... Thus, teachers were not well prepared to meet the demands they faced – demands that they met frequently with little institutional support.

p. 98²⁸⁶

Teachers are not sufficiently well versed in the behavioural principles needed to design and implement an effective behavioural intervention. This ability, although it cannot guarantee normalisation of the behaviour of children with ADHD, is critical to successful classroom functioning and to maximise student achievement irrespective of children's diagnostic status or teachers' causal attributions.

Interventions to increase the rate of appropriate behaviour require identifying and quantifying target behaviours, determining appropriate reinforcers, and delivering these reinforcers at sufficiently brief intervals for them to be effective. Given typical class sizes and the diverse types of need common in most classrooms, teachers need support to design and implement such interventions in a reliable and consistent manner.

The teachers demonstrated a negative attitude towards structure, punishment and labelling.

The teachers' negative attitude towards punishment was not a deterrent to this use, because according to teacher reports, they employed numerous techniques intended to decrease the rate of inappropriate behaviour. These techniques appeared to have been compromised in effectiveness by the teachers' lack of information about their appropriate use.

Relevant quotes

Most quotes in the paper are short and express category names rather than revealing information about the attitudes of the speaker, for example 'point systems' given as the term teachers use for token economies, 'telling him when he is doing well' categorised as a behaviour technique. Longer quotes include:

I'm really not like a drill sergeant, kind of thing, but I feel like you have to have ... [structure] ... with so many kids in that room ... We have a great time in my room, but my thing is too that there is a time and place for everything.

We do have numerous strategies, but not because all of us are very well-informed sometimes, you know. There's just things that you see and you make your own judgment and you say, well, this child needs this, they need that, that type of thing.

You're also caught between a rock and a hard place, because you can't say to a mother ... that 'I think your child has to be tested or evaluated ... ' I mean, how do you say to a mother 'Something's wrong with your kid'?

This last quote was not discussed by the authors but quoted in isolation at the end of the findings section.

Quality appraisal (adapted from Wallace *et al.*²⁶⁷)

1. Is the research question clear? Y N——CF
2. Is the theoretical or ideological perspective of the author (or funder) explicit? Y N CF
3. Has this influenced the study design, methods or research findings? Y——N CT
4. Is the study design appropriate to answer the question? Y N——CF
5. Is the context or setting adequately described? Y N——CF
6. Is the sample adequate to explore the range of subjects and settings, and has it been drawn from an appropriate population? Y N——CF
7. Was the data collection adequately described? Y N——CF
8. Was data collection rigorously conducted to ensure confidence in the findings? Y N——CF
9. Was there evidence that the data analysis was rigorously conducted to ensure confidence in the findings? Y N——CF
10. Are the findings substantiated by the data? Y——N CT
11. Has consideration been given to any limitations of the methods or data that may have affected the results? Y N——CF
12. Do any claims to generalisability follow logically and theoretically from the data? Y N——CF
13. Have ethical issues been addressed and confidentiality respected? Y N——CF
14. Is/are the author/s reflexive? Y N CF
15. Are the interventions of interest clearly described? Y——N N/A

Appendix 10 Example of a completed qualitative data extraction form for review 3

Study details²⁸⁸

Authors

Bos CS, Nahmias ML, Urban MA.

Year published

1997.

Title

Implementing interactive professional development in a workshop course on educating students with AD/HD.

Year of research

1993–4.

Aims

Explored the use of a workshop course on educating students with AD/HD that incorporated features of interactive professional development. Describing the effects of such workshops not only on educators' knowledge attitudes and perceived competence, but also on what aspects they deemed as valuable for their professional growth.

Funders

US Department of Education, Office of Special Education Programs to University of Arizona.

Research participant details

- Participant group: educators: teachers, teaching assistants, principals, counsellors, university students.
- Focus perspective: teacher evaluation of teacher training intervention.
- Original sample size: 89.
- Dropouts: 0.
- Range of ages: 18 aged 21–30 years; 34 aged 31–40 years; 31 aged 41–50 years; 6 aged \geq 50 years.
- % female: 95.5%.
- Ethnicity: not reported.
- Years' experience teaching (if teachers): not reported.
- SEN education/experience (if teachers): students taught with ADHD, teacher training on ADHD, in-services and TV programmes figures reported, table 2.²⁸⁸
- Year taught during study (if teachers): 71, kindergarten to fifth grade; 12, sixth grade to eighth grade; 1, ninth grade to twelfth grade; 5, postsecondary.
- Comorbidities (if ADHD youth): not applicable.
- % of ADHD youth on medication (if ADHD youth): not applicable.
- Diagnosis (if ADHD youth): not applicable.
- Measure/s of diagnoses (ADHD and at risk of ADHD): not applicable.
- Diagnosis rated by: not applicable.

School information

- Region: not reported.
- Type of region (urban/rural): not reported.
- Country: USA (assumed).
- Type of school: not reported.
- Number of schools: not reported.
- Deprivation index/% receiving free school meals: not reported.

Intervention description

Recruitment

Number of participants approached for intervention: 89.

Number of participants meeting eligibility criteria: not applicable, voluntary.

Number of participants who consented to participate: 89.

Number of participants there is qualitative data for: 89 + 19 interviewed.

Number of dropouts: 0.

Reason for dropout: 0.

Setting

Location of intervention (school, home, multi): not reported.

Type of setting (school): not reported.

Type of setting (class): general and special education.

Type of school (public, etc.): not reported.

Treatment

Active ingredients intervention described (yes/no): yes.

Control group active ingredients described (yes/no): not applicable.

Number of treatment conditions: 1.

Treatment group 1 label: interactive professional development workshop course.

Intervention treatment group 1 description

The workshop course was developed and implemented using interactive professional development. Topics for the workshop were developed to include those identified by national organisations and respected experts, and by participants in a needs survey conducted prior to the workshop.

The workshop was designed with an interactive format and incorporated presentations, discussions, videotapes and group activities. To interweave personal knowledge including attitudes and perceived competence with external knowledge, special emphasis was placed on interactive discussions and activities based on authentic learning experiences. Group activities, such as creating posters of classroom accommodations and teaching strategies for students at various grade levels, provided opportunities

for participants to interact, collaborate and construct knowledge. The workshop also incorporated guest presenters followed by interactive discussions to provide ways for teachers to explore their beliefs and construct knowledge. Guest presenters included a behavioural paediatrician on the medical and neurobiological aspects of AD/HD and the use of medication, a psychologist/psychiatrist on multidisciplinary assessment, a parent of a school-age student with AD/HD, an individual with AD/HD or a videotape of a student with AD/HD and a behaviour and educational specialist who taught students with AD/HD. During the workshop, participants wrote reflective journals and after the workshop completed action plans and other assignments, allowing time to reflect on and integrate new knowledge into their teaching plans.

The workshop course included 20 hours of instruction over 5 days with participants completing assignments for the course 1–3 weeks after completion of the workshop. The instructor was available during this time as requested. The participants had the option of taking the workshop course for one university credit.

Content outline for workshop course with time allocations

1 hour: overview of AD/HD.

1 hour: definition of AD/HD.

2 hours: characteristics of students with AD/HD.

30 minutes: historical trends and background of AD/HD.

2 hours: aetiology/medical aspects of AD/HD.

1.5 hours: laws and legal aspects of AD/HD, public laws, roles and responsibilities of school personnel.

2 hours: multidisciplinary assessment and identification.

8 hours: multimodal interventions for students with AD/HD:

3 hours educational

1 hours behavioural

2 hours medical

1 hours: psychological.

2 hours: communication and collaboration:

1 hour: parents

30 minutes: professionals

30 minutes: students.

Intervention treatment: theoretical underpinning intervention

Need for professional dialogues that allow for the examination of external knowledge and personal knowledge, and the interaction and synthesis of both knowledge bases. Interactive professional development allows both opportunities to discuss personal experiences and learning new knowledge and strategies for teaching.

Teachers' attitudes and knowledge both influence classroom practices, which in turn influence students' successes at school. The perceived relationship between beliefs and actions is interactive in that beliefs are thought to drive actions; however, experiences and reflection on actions may lead to changes in and additions to beliefs (reciprocal relationship between beliefs and actions).

Treatment

Type of intervention (categorical): teacher training.

Delivery

Intervention target group: teachers and other educators.

Was training to deliver intervention received: not reported.

Where school components delivered: not applicable.

When delivered: summer.

Who delivered: instructor, not specified.

Recipient population: educators: teachers, teaching assistants, principals, counsellors, university students.

Grouping: one group of 47 in 1993, 42 in 1994.

Number facilitators: not reported.

Intervention period: 20 hours of instruction over 5 days.

Contacts spaced: daily.

Number of sessions: 5.

Total dosage: 20 hours.

Intervention attendance: not reported.

Incentives: one university credit.

Intervention manual used: not reported.

Fidelity measured: no.

Tailored: no.

Study design details

- Data collection method: qualitative measures – reflective journal, workshop course evaluation questionnaires (open-ended questions), semistructured interview.
- Description of recruitment: voluntarily participated.
- Sampling: self-selected.
- Analytic approach: category and theme analysis.

Researcher/reflexivity

Not reported.

Ethical procedures

Not reported.

Description of analysis process

For the open-ended evaluation questions and journals, a sample of entries were read by two reviewers, who developed categories. Next, the text of the journals and the responses to the evaluation questions were coded for categories by two independent reviewers and inconsistencies in coding were resolved. The data in the categories of 'attitudes and beliefs about AD/HD' and 'attitudes and beliefs about the workshop course' were used in this study.

The interviews were analysed using category and theme analysis. First, a sample of interviews were read by three independent reviewers and categories were developed. Next, each interview was coded for categories by two independent reviewers and a reliability level for categories of 0.85 was established. Interview summaries by categories were generated to facilitate macro-analysis and the emergence of themes. Themes were aggregated across participants using constant comparative procedures. Data from the workshop evaluations, reflective journals and interviews were triangulated for emerging themes or trends across the data sources.

Theoretical underpinning (of research) identified by the authors

Not reported, see above for intervention theory.

How is this used?

Not applicable.

Notes**Limitations of study as identified by authors**

The current study is limited in that it did not directly address the question of change in classroom practice.

Limitations of study as identified by review team

Positivist description of analytical processing, with independent raters. No mention of ethics.

Findings**Key themes**

- (a) Importance of knowledge related to the neurobiological/medical aspects of ADHD including presumed aetiology, role of medications as part of therapeutic interventions, and teachers' roles in monitoring medication effects in school.
- (b) Importance of understanding ADHD from parents' and students' perspectives and importance of working collaboratively with parents' and students'.
- (c) Relevance of knowledge about educational and behavioural strategies for accommodating students in the classroom.
- (d) More positive attitudes and perceived competence in working with students with ADHD because of increased knowledge.
- (e) Value of interactive format including the balance of presentations with discussions, group activities and opportunities for reflection and application.

Some of the most valuable information discussed during the workshops was practical, neurobiological and medical knowledge about ADHD: 'Just knowing about ADD and knowing that this child can't necessarily control his behaviour has made all the difference in the way I see and interact with him in class. I'm more compassionate and have more ways to help this child since the class [intervention]'

About the second theme, participants consistently expressed the importance of their new knowledge and understanding of school and home challenges for parents and students with ADHD and the importance of home-school collaboration. One of the classroom teachers recounted:

The workshop reminded me that I do need to communicate with parents. But it seems like a lot of the interactions I have seen [with a student with ADHD whom the teacher will have next year] are kind of negative or nonexistent. I want to make sure that when I talk to her parents, it's in a way that is not that she's in trouble and then they'll go home and take it out on her. I've learned we need to do a very delicate job and some education.

Similarly, another teacher reported on her greater appreciation of home-school collaboration.

The third theme that emerged was the relevance of the information on effective teaching strategies. Participants consistently reported on the value of acquiring new knowledge about strategies for educational and behavioural accommodations for students with ADHD. One teacher stated that, 'I think that my knowledge is 20 times better than in the past' and that 'it is very useful to have a bigger bag of tricks'. Several teachers noted that the strategies were in many cases 'just good teaching strategies that would help all learners in my class'. In the interviews, teachers consistently reported incorporating the strategies into their teaching practices. For example, a classroom teacher noted, 'I now break things down into segments, use colour-coding, and make things visual'. Another teacher noted, 'Not only did I learn a lot of new strategies, I have integrated them into my teaching'.

The fourth theme that emerged from the data was increased perceived competence and more positive attitudes because of new knowledge. These outcomes were often coupled with a greater tolerance and empathy for students with ADHD. Another classroom teacher noted that 'it's been a real eye opening experience. I can now deal with the kids that I suspect have some attention deficit problems a lot more successfully than I did in the past'. Another teacher indicated, 'Before class [intervention], having students with ADHD meant trouble, but the class has increased my understanding, changed my attitude, and improved my tolerance and patience'. Both general and special education teachers spoke of how they redesigned their classrooms, daily schedules and methods of instruction based on what they learned. For example, one teacher commented during the interview, 'I learned that I need to be more clear in my instructions and expectations. This is something that I've improved on this year and continue to work on'. The same teacher also spoke of how she had changed the classroom environment for one student with ADHD, 'I've seated him in a place relatively free from distractions and away from traffic. I reduced what was up on the walls.' One special education teacher noted, 'this year I am more creative and patient because I have a better handle on what to do with ADD students with or without hyperactivity'.

The same teacher noted:

I have changed my approach toward tasks. Now I give students choices when they work on a given task. I used to think that was giving too much slack. It's new for me this year to realise the importance of just offering them a different colour [pen or pencil] . . . I don't think I realised how for some kids that might be really helpful.

One difference in the perceived competence for classroom teachers and special education teachers was the role that some of the special education teachers envisioned for this new competence and knowledge. Although classroom teachers generally spoke of their competence in relation to change in classroom practice and student outcomes, several special education teachers also envisioned sharing this competence and knowledge with others. For example, during her interview, one resource teacher stated that 'the workshop change my attitude towards kids with ADHD and gave me confidence to help my colleagues'.

Similarly, another special education teacher indicated, 'I went to the workshop and it encouraged me . . . a couple of times at lunch when teachers have been expressing distress over a student, I'd say, "Do you know what might be going on here?" It's a time to teach'.

The fifth theme focused on the interactive nature of the workshop course with its balance among presentation of knowledge, interactive discussions and activities, and opportunities for teacher integration of personal knowledge and external knowledge. With regard to external knowledge, a number of educators spoke or wrote about the style of the medical presentation. For example, one counsellor commented on the 'clarity of the explanation for the neurobiological basis for ADHD and the visuals that stand out in my mind'. They also commented on the importance of the discussions, knowledge sharing, collaboration and reflection for their learning. For example, one classroom teacher commented, 'the workshop was most helpful because of the variety of experiences: brainstorming ideas, videos, and all the information that was shared'. Another teacher noted, 'I appreciated the opportunities to discuss ideas with other teachers about kids and strategies'.

These interactive activities were intended to provide participants with opportunities to integrate their personal experiences with new knowledge. For example, after a presentation on characteristics and symptoms followed by an activity where participants developed large charts of ADHD characteristics and their affects on various aspects of a student's life, a classroom teacher wrote in her journal, 'it's amazing how diverse the symptoms are. I keep thinking of kids I've had who fit the mould perfectly in one way or another'.

Key concepts

Self-report information from the interviews conducted near the end of the following school year suggest that teachers retained their knowledge and positive attitudes towards educating students with ADHD.

The interview data would suggest that teachers perceived themselves as more knowledgeable and competent in assisting ADHD students in the classroom.

Participants valued the information on the neurobiological and medical aspects of ADHD. In contrast to information on teaching strategies, this content focused on the underlying bases for ADHD. Participants' comments indicated that this information assisted them in dealing with their misconceptions about the nature, existence and impact of ADHD on students. Teachers' regard for this information suggests one explanation for their increased positive attitudes toward educating students with ADHD. It also addresses the importance of including information about the underlying bases of a disability, particularly when the disability has a controversial history as in the case of ADHD.⁵

Relevant quotes

Just knowing about ADD and knowing that this child can't necessarily control his behavior made all the difference in the way I see and interact with him in class.

p. 140²⁸⁸

The workshop changed my attitude towards kids with ADHD and gave me confidence to help my colleagues.

p. 141²⁸⁸

Before class [workshop], having students with ADHD meant trouble, but the class has increased my understanding, changed my attitude, and improved my tolerance and patience.

p. 141²⁸⁸

I appreciated the opportunities to discuss ideas with other teachers about kids and strategies.

p. 142²⁸⁸

I think that my knowledge is 20 times better than in the past . . . it is very useful to have a bigger bag of tricks.

p. 141²⁸⁸

It's amazing how diverse the symptoms are.

p. 142²⁸⁸

Quality appraisal (adapted from Wallace et al.²⁶⁷)

1. Is the research question clear? Y ~~N~~ ~~CT~~
2. Is the theoretical or ideological perspective of the author (or funder) explicit? ~~Y~~ N ~~CT~~
3. Has this influenced the study design, methods or research findings? ~~Y~~ ~~N~~ CT
4. Is the study design appropriate to answer the question? Y ~~N~~ ~~CT~~
5. Is the context or setting adequately described? ~~Y~~ N ~~CT~~
6. Is the sample adequate to explore the range of subjects and settings, and has it been drawn from an appropriate population? Y ~~N~~ ~~CT~~
7. Was the data collection adequately described? Y ~~N~~ ~~CT~~
8. Was data collection rigorously conducted to ensure confidence in the findings? Y ~~N~~ ~~CT~~
9. Was there evidence that the data analysis was rigorously conducted to ensure confidence in the findings? Y ~~N~~ ~~CT~~
10. Are the findings substantiated by the data? Y ~~N~~ ~~CT~~
11. Has consideration been given to any limitations of the methods or data that may have affected the results? ~~Y~~ N ~~CT~~
12. Do any claims to generalisability follow logically and theoretically from the data? Y ~~N~~ ~~CT~~
13. Have ethical issues been addressed and confidentiality respected? ~~Y~~ ~~N~~ CT
14. Is/are the author/s reflexive? ~~Y~~ N ~~CT~~
15. Are the interventions of interest clearly described? Y ~~N~~ ~~CT~~

Appendix 11 Stakeholder involvement activities

Stakeholder involvement has been an important aspect of this project, from planning stages through to analysis stages and dissemination, with examples including:

- parent and teacher views were sought at the outset of this project to assist in refining the project aims in order to make them salient to the families of children with ADHD
- co-applicants and expert advisory board members included parents and teachers
- the mother of four children diagnosed with ADHD commented on the monograph at draft stage
- we conducted three events involving parents, practitioners and researchers
- we disseminated study findings to parents and practitioners through collaboration with a third-sector organisation
- we have plans for further dissemination to student teachers
- we have plans for writing lay literature in order to disseminate research findings to parents and practitioners through collaboration with a third-sector organisation.

The aim of stakeholder involvement is to work in collaboration with stakeholders in order to tailor the relevance of the reviews and their dissemination to parents, teachers, schools and policy-makers. In addition to the co-applicants and expert advisory board members, we recruited several other regional parents and practitioners with whom we engaged (including 10 parents and five practitioners). Over the course of the project we conducted a number of stakeholder involvement events that included not only dissemination but also feedback from those who attended, which informed the research process. These included:

June 2012: event 1 – a workshop for parents, practitioners and researchers; this included exploration of views for stakeholders who were unable to attend.

May 2013: event 2 – a seminar for behavioural support advisory teachers.

May 2013: event 3 – a seminar for parents of children or young people diagnosed with ASDs and/ or ADHD.

We also attended or will attend events with the purpose to disseminate research findings to parents and practitioners. The following are events that have been completed or are planned; however, we are likely to take up additional opportunities that arise for dissemination:

September 2013: day-long seminar held by a third-sector organisation; a mother of a son diagnosed with ADHD began the day by describing her experiences, and then DM and RGJ disseminated project findings; the day ended with a discussion session. This seminar was oversubscribed, and attended by parents and practitioners and policy-makers in psychology and education.

February 2014: two workshops involving 60 student teachers held by a local university. An hour-long session to be given about the experiences of ADHD in schools for pupils, parents and teachers, where findings from the project will be disseminated.

Following submission: in collaboration with a third-sector organisation, leaflets in lay language describing findings from the review will be written for distribution to parents and practitioners.

The events described above, where stakeholders contributed knowledge and experience, are detailed further to describe stakeholder contributions. During event 1 we explored the experiences of stakeholders to inform our knowledge of interventions for ADHD in schools and the kinds of outcomes that stakeholders thought were important. This contributed to the conceptual framework regarding interventions and outcomes developed in review 1 (for more information see the next section). During event 2 we disseminated interim results from reviews 1, 3 and 4 to behavioural support advisory teachers (for more detailed information see *Event 2*). During event 3, we disseminated interim results about parent experiences and perceptions from review 4 to parents of children and young people diagnosed with ASDs and/or ADHD. We asked them to comment on the relevancy of our findings. Overall, stakeholders recognised and supported these findings (for more information see *Event 3*).

Event 1

A central part of our planned patient/public involvement included a workshop involving members of the wider project group, school practitioners and parents of children with ADHD. This workshop was held on 11 June 2012 with 16 attendees. The purpose of event 1 was to share information about the aims of the project and to explore stakeholder knowledge and experience about non-pharmacological interventions and child outcomes in schools.

The agenda for this meeting included a presentation giving a broad overview of the project and two small group-based discussions. Discussion one sought to identify and discuss psychosocial (non-drug) interventions that are used to treat children with ADHD in school settings, whereas discussion two sought to identify and discuss outcomes that may be used to assess the effectiveness of such interventions. Notes were made during each discussion and fed back to the wider group. Feedback sessions were minuted and a summary of the workshop content was sent to attendees (including those unable to attend) asking for additional feedback. The group discussions and additional feedback led to the identification of over 40 named interventions and over 40 outcomes that could be used to evaluate the effectiveness of interventions. These intervention and outcome categories provided a starting point from which to begin the synthesis of outcomes and interventions in reviews 1 and 3. Other important issues were raised that warranted attention in the discussion of our study findings (including the role of context and the usefulness/relevance of outcomes used to assess effectiveness; liaison between home and school; and tension between managing behaviour and attainment, with different stakeholders perhaps having different priorities).

Summary of feedback from event 1

MR and DM presented on the background to the project and methods, then two discussions were held (a summary of their content is detailed below, together with e-mail feedback from those unable to attend the workshop in person).

Discussion 1

Groups were organised by participants' backgrounds: academics, practitioners and parents.

Participants identified and discussed (non-drug) interventions that have been used to treat children with ADHD in school settings.

Feedback

Over 40 interventions were named and have been categorised into nine groups:

1. Whole school initiatives:

- Nurture groups.
- Forest School.
- Social and emotional aspects of learning.
- Sherborne movement.
- Thrive.
- Incredible Years.
- Waves 1–3 intervention (provision mapping).
- Stepping Stones (inclusion).

2. Additional support:

- Private tutor.
- One-to-one support, teaching assistant.
- Extra time for exams, exams in separate room.
- Summer schools.
- Breakfast club, after-school club.
- ADHD champion.

3. Accommodations:

- Place 2 be.
- Smaller classes.
- Indoor pass.
- Weighted jacket.
- Stress toy.
- Vibration pads.
- Voice recognition software.
- Break time activities.

4. Behaviour management:

- Time out.
- Behavioural book.
- Praise, rewards, reward charts, token economies.

5. Parent support applied to classroom:

- 123 Magic.

6. Social interventions:

- Social skills groups.
- Social stories.
- The Incredible 5-Point Scale.
- Peer tutoring, coaching.
- Circle of friends.

7. Self-regulation:

- Computerised attention training.
- Neurofeedback.
- Biofeedback.

8. Alternative treatments:

- Massage.
- Meditation.

9. Miscellaneous:

- Training for teachers.
- Physical activity.

Other points raised

- Home–school liaison was considered very important to intervention effectiveness (e.g. what is done at school should complement what is done at home and vice versa).
- Training for teachers is often a prerequisite for many interventions, although some participants noted that psychoeducational interventions aimed at teachers can also be effective (e.g. improving awareness leads to better classroom management and child outcomes).
- It was highlighted that interventions that are used in schools locally rarely focus on ADHD; often universal interventions that target the whole school or class are preferred.
- It was noted that interventions are rarely used in isolation. Multimodal, that is, combination of interventions (e.g. parental + specific classroom strategies are usually implemented).
- A potential tension between managing behaviour and attainment was highlighted, with different stakeholders perhaps having different priorities.

Discussion 2

Two mixed groups identified and discussed outcomes that may be used to assess the effectiveness of interventions that are used to treat children with ADHD in school settings.

Feedback

Over 40 outcomes, primarily related to children with ADHD, were named and have been categorised into 10 groups:

1. Symptoms:

- Attention.
- Impulsivity.
- Hyperactivity.

2. School outcomes:

- Attainment, learning.
- Attitude, engagement.
- Exam preparedness.
- Exclusion.
- Detentions.
- Attendance.

3. Scholastic behaviours:

- Focus.
- Disruptiveness.
- On-taskness, concentration.
- Task completion.
- Reduction in 'out of seat' behaviour.

4. Social functioning/relationships:

- Social relationships, friends, intimate relationships.
- Relationships with adults and peers.
- Effect on peers, parents, siblings.
- Family functioning.
- Reduced stigmatisation.
- Increased communication with and between teacher and families.
- Co-operation.

5. Intrapersonal:

- Self-efficacy.
- Self-esteem.
- Self-awareness (especially of how ADHD affects others).
- Confidence.

6. Emotional functioning:

- Enjoyment/happiness at school.
- Depression.
- Patience.
- Empathy.

7. Behavioural issues:

- Risk.
- Antisocial.
- Crime.
- Bullying: bully and victim.
- Aggression.

8. General functioning:

- Quality of life (Danckaerts *et al.*⁴²¹).
- Personal and life skills.
- Activities, hobbies.
- Creativeness.

9. Health behaviours:

- Smoking.
- Alcohol.
- Drug use.

10. Miscellaneous:

- Driving (less school related).

Other issues raised

- It was suggested that differences between cultures, schools, classes, teachers and students (e.g. age) means that context plays a key role in the effectiveness of interventions and the usefulness/relevance of outcomes used to assess effectiveness (e.g. many European countries have children start school later than the UK). Practitioners mentioned how exclusion rates vary considerably in local schools. We need to assess variables that may impact the effectiveness of interventions.
- It was suggested that it would be useful to report how frequently different types of outcomes are reported, for example are some outcomes reported more often than others?
- It was suggested to consider the potential conflict regarding the importance of various outcomes to different stakeholders (e.g. parents, practitioners and students).
- The difficulty of using RCTs in schools was discussed.
- It was suggested that the qualitative reviews could consider the difficulty in overcoming labels (e.g. 'naughty boy').
- The following sources of potentially useful information were identified: The Sutton Trust, Children and Adults with Attention-Deficit/Hyperactivity Disorder and Attention Deficit Disorder Information and Support Service (grey literature here).
- It was suggested that we make contact with the Chief Inspector of Schools and Department of Education early to discuss dissemination activities.
- The following key authors were mentioned: Dopfner, Merrell, Tymms, Spence, Pelham, Meichenbaum and Coghill.

E-mail response by members of the expert advisory panel about the workshop summary of discussions included the following comments:

A wide range of sound interventions are mentioned, but as is often the case (in my view), there is not enough emphasis on pedagogy, and perhaps too much emphasis on pupil management. This is a pity, given that the school is a major site for the expression of ADHD, and one of the most useful ways of thinking about ADHD, from an educational viewpoint, is as reflecting psychological and behavioural differences, rather than a disorder to be in some way corrected. One of the striking things about ADHD is the way in which the diagnostic criteria (both APA [American Psychiatric Association] and WHO [World Health Organization]) can be seen to carry a subtext which depicts the classroom as a place where teachers lecture to passive students. However, when schools and teachers adopt approaches to teaching and learning which are flexible and student centered many of the problems associated with ADHD are rendered far less problematic than they are in the rigid teacher-centered approaches which are still too prevalent. In some cases, ADHD-type symptoms may even prove an educational asset (e.g. the tendency non sequential thinking can be reframed as a tendency to lateral thinking – cf Edward DeBono’s ideas about creative thinking).

It is good to see nurture groups in the list, because nurture groups (at their best) reflect many key features of an ADHD-friendly pedagogy, including:

- an emphasis on the emotional underpinnings of learning and the need for emotional security as a prerequisite for effective educational engagement (this involves the explicit application of insights from attachment theory in many nurture groups)
- a holistic curriculum, taking in social–emotional aspects of learning alongside the formal curriculum (e.g. National Curriculum) (i.e. staff and students often spend all of their time together during the nurture group day, including mealtimes, with minimal distinctions being drawn between ‘work’ and ‘play’, the view being that all experiences are learning experiences)
- a constructivist approach to learning which takes as its starting point the student’s developmental characteristics and then scaffolds an individualised learning programme from this
- provision of a wide range of opportunities for different forms of educational engagement (e.g. active/kinesthetic as well as reflective/abstract approaches) and encouragement for students to employ their preferred learning modes
- small group setting (usually 10-12 students) with two adults who are able to engage with individuals, as well model positive interpersonal behaviours through their interactions with one another
- regular and detailed consultation between nurture group staff and parents, enabling careful monitoring of progress and the sharing of information pertinent to the child’s functioning at home and school; sharing of strategies for supporting the child at home and school.

The reason why this is worth highlighting is the fact that there is a small but growing evidence base to support the efficacy of nurture groups for children and young people with a wide range of emotional and behavioural disorders, including those with ADHD-type symptoms. Furthermore, there is a growing interest in the so-called ‘nurturing school’, which adopts nurture group approaches and strategies and employs them throughout the school. In fact, one of the interesting findings from research has been the whole-school effect of nurture groups, whereby significant improvements in social–emotional and behavioural functioning have been detected in not only students attending the nurture groups but also students not attending nurture groups.

A related issue is strategies adopted by schools to address ‘recess deprivation’. AD Pellegrini has been a major figure in research in this area. His work has shown that behaviours associated with ADHD can be exacerbated and even induced by an overemphasis on sedentary behaviour in classrooms. There is strong evidence to show that the use of frequent short breaks for physical activity significantly reduce hyperactivity and increase productive educational engagement.

These examples highlight an important educational maxim: sometimes we have to change the child to fit the school, but more often we need to change the school to accommodate the child. The important thing is that we need to be aware of which one of these things we are doing and why. Management strategies of the type listed tend to be of the former type, whereas approaches such as nurture groups and recess deprivation strategies are more of the latter type. Of course, in practice it is often the case that we want to combine the two. Unfortunately, there is a tendency to neglect the latter and concentrate on the former.

Thanks for this. It was good to meet you when I came down and to have the opportunity to discuss this project. We are keen to support dissemination activity. Look forward to hearing from you in September.

Thanks for this very interesting summary and the outcomes from it about interventions and outcomes. This is a very broad approach to interventions and you note some of the important points about the complexity involved. I have little to add at this point except one point. I am not sure why you put.

Exclusion:

Detentions:

Attendance:

Under academic outcomes. They seem to be school behaviours (amended above).

Event 2

On 21 May 2013, MR, DM and RGJ gave a seminar to a group of approximately 20 behavioural support advisory teachers organised through one of the project's practitioner co-applicants. The seminar was structured so that each researcher disseminated interim findings from the review they had led, and then, following the presentation, practitioners worked in small groups to contribute information about their experiences relevant to that review. The worksheet given to teachers is shown in *Figure 10*. In this way the researchers spoke in turn about reviews 1, 3 and 4. In relation to review 1, we asked teachers what moderators they considered to be important in the implementation of interventions. In relation to review 3 we explored teachers' perceptions of the model representing experience of interventions for ADHD in schools, the relative importance of pupil engagement and achievement, issues related to withdrawing pupils for interventions from the classroom, and barriers to interventions that address relationships and attitudes. In relation to review 4 we asked stakeholders about their experiences of teacher attributions for ADHD, relationships with parents, and teacher knowledge of ADHD. With reference to the two qualitative reviews, reviews 3 and 4, we explored the extent to which our findings were recognisable by practitioners in order to establish levels of transferability. Transferability refers to the judgements made by those outside research about how relevant findings are to their own practice (see *Chapter 5, Applicability* and *Chapter 6, Applicability*). The practitioners confirmed the relevance of the interim themes of the reviews, in recognising the issues, confirming many as important, and being able to offer commentary and critique. This supported the transferability of the interim findings of reviews 3 and 4 with that group of teachers.

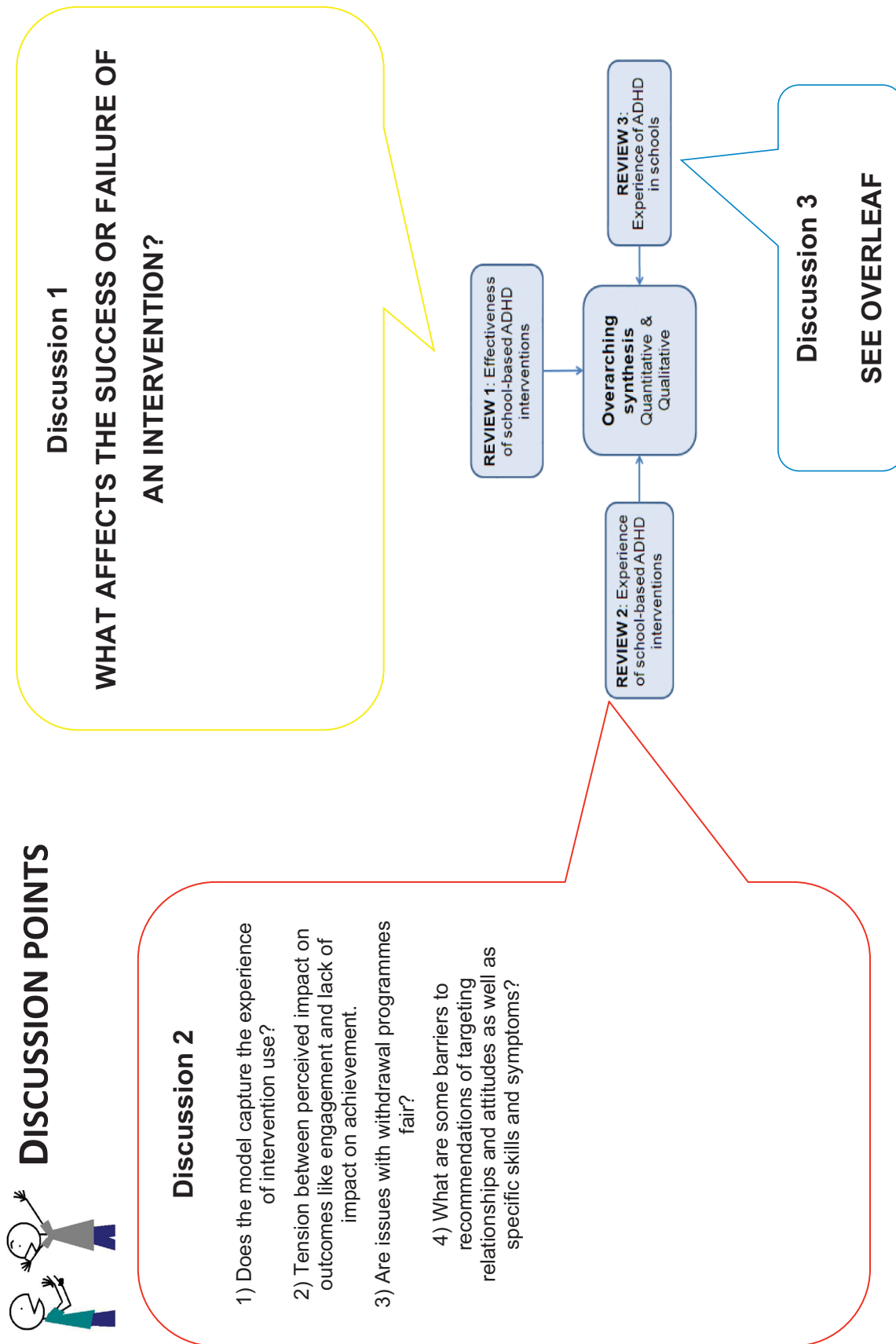


FIGURE 10 Discussion worksheet for event 2. (continued)

Please discuss and make notes about one or more themes :

- 1) Do you recognise these issues?
- 2) How does this theme relate to your own experience and practice?
- 3) Are there any issues related to these themes that are not addressed and if so what are they?

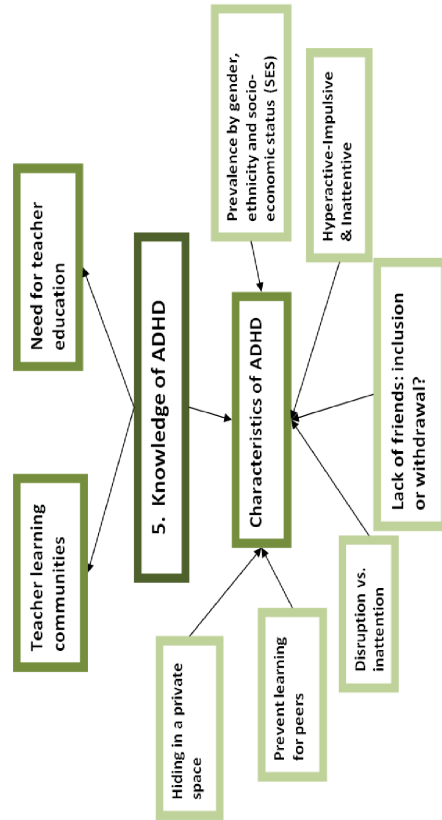
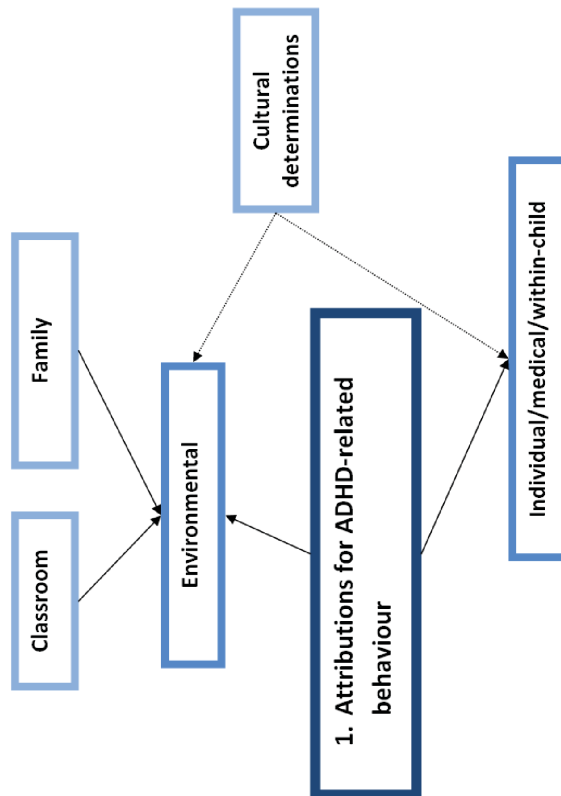
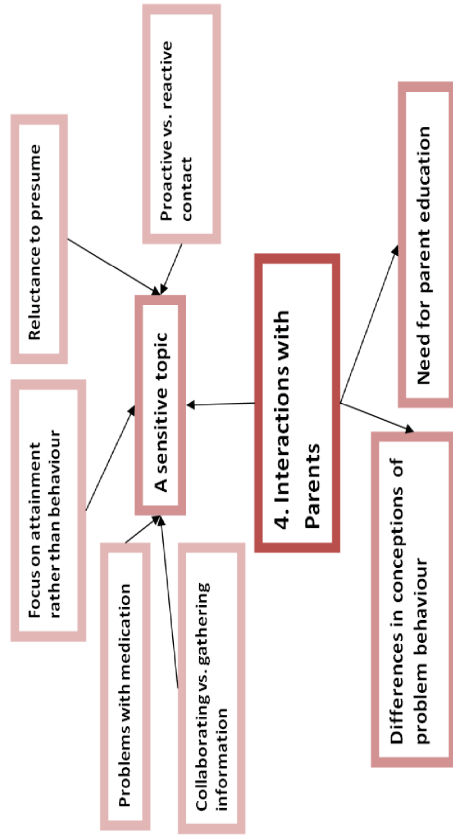


FIGURE 10 Discussion worksheet for event 2.

Feedback from teachers

Review 1

What affects the success or failure of an intervention?

- Environmental factors (more than one mention): sleep; food; water (basic needs); time of day; class size.
- Individual factors: other issues – emotional human needs; child's understanding of intervention; mood; differing behaviours from children with ADHD; differences over time; hundreds of differences.
- Relationships (adult and child): family break-up; bullying; change; bereavement loss; separation, etc.
- Context: gender; norms in classroom; socioeconomic; attitude/belief everyone needs to be on board; perception regarding intervention; transfer back to classroom; transition after; teacher involvement; ownership and understanding key (if feel cut off don't deliver).
- Consistency of intervention delivery, is it being implemented as planned?
- Wording regarding success/failure: look for good things and you find them; look for the bad and you find them.

Review 3

(1) Does the model capture the experience of intervention use?

Yes.

(2) Tension between perceived impact on outcomes like engagement and lack of impact on achievement:

- Agreed, teachers may favour achievement.
- Differences between enjoyment and achievement, may need more time to measure achievement (x 2).
- Difficulty measuring attainment.
- Parents more interested if child is happy, included gets on with others, communicates, not so much about what level at.
- Attainment as measured can miss things that are important: social, behavioural. These might impact academic attainment.
- Teachers responsible for attainment, blight on their record if child doesn't meet requirements.

(3) Are issues with withdrawal programmes presented fair?

Yes.

- Social and emotional impact of withdrawal recognised. Low expectations for SEN group, ADHD may be high achievers.
- Conflict between when children are out and back in classroom context.
- Transferable skills needed.
- Transferable context needed small group to large group (need to scaffold return).
- Primary National Strategy (UK) Waves model all (whole school) > small group > 1 : 1 less issues with withdrawal.
- Problem with withdrawal: teacher has no responsibility, despite any improvements, nothing changes in the classroom.

(4) What are some barriers to recommendations of targeting relationships and attitudes as well as specific skills and symptoms?

- Lack understanding ADHD.
- Teachers have perception that ADHD children are low achievement – not necessarily accurate.
- Differing practice – consistency.
- Age, choice of intervention differs with age.
- The only person we can change is ourselves – suggests increased responsibility needed.

Review 4

(1) Do you recognise these issues?

Attributions for ADHD symptoms: themes mentioned as being recognised –classroom, family, environmental, individual/medical/within-child.

Comments: in response to attributions to the classroom – get everybody out of the classroom more often. More time outside (forest school, beach school).

Interactions with parents

- Blame teachers–parents recognised, school and home views often differ.
- Teachers resistant to admitting it is hard. Protecting selves.
- Belief that problem with the child, not with the teacher.
- Family members with ADHD has an impact attitude, preconceptions, view of school.
- Parents used to Child and Adolescent Mental Health Services so often have more knowledge.

Knowledge of attention-deficit/hyperactivity disorder

- Networks and peer support for teachers, reflecting on experience important, teachers supported by mentoring and coaching.
- Teachers valuing learning communities rather than inset – less about knowledge of ADHD, more about the individual child, confidence, hear other experience.
- Knowledge of individual critical, as well as general knowledge gap.
- Need whole school inclusive approach, not in isolation.
- Issues regarding wrong diagnosis, lack understanding. Overdiagnosed, looking for a label.
- Cross-cultural differences.

Lack awareness of child development, treat as if ADHD child can choose, can talk about feelings.

Are there any issues related to these themes that are not addressed and if so what are they?

- Resources placed early years, preventive, parenting issues.
- Need more emphasis on being outside – forest school, etc.
- Increased testing gives stress for children with ADHD.

Event 3

On 23 May 2013, RGJ gave a seminar during a parent support group coffee morning to a group of approximately 25 parents of children and young people diagnosed with ASDs and/or ADHD. From responses during the talk, it was determined that parents of children diagnosed with ADHD were in the minority. The researcher asked parents to comment freely, but to specify the diagnosis of their child on their response sheets. Only comments related specifically to ADHD are detailed below.

The seminar was structured so that interim findings from review 4 relevant to parent experiences were disseminated, and then, following the presentation, parents working in small groups contributed responses about their own experiences in relation to these findings. We described the theme ‘mothers are silenced’, and deferential and assertive forms of resistance from reviewed studies. Parents did not necessarily use the conceptual terminology of researcher second-order concepts, but the experiences they described were mostly commensurate with those from review 4. Overall, this event supported the transferability of findings from review 4 to this group of parents.

Theme/quote	Comments from seven parents, denoted A–F
Attempts to refute criticism through assertive action	[F]tick <i>Assertiveness was misinterpreted by overly defensive staff as 'aggression'</i>
Lack of co-operation	[F]tick <i>The expression of concerns often causes an unwarranted over-reaction by school and over-defensiveness and as a result energies used attacking the compliant, RATHER than listening and using constructive criticism to adapt/change current practice ☹</i>
Bringing in the big guns	
Taking issues to a higher authority	[B]tick <i>Questioning official letters etc and passing details up the system to get action</i> [F]tick <i>Just experienced 'closing ranks' within LEA and Dept of Education and a Head now INTENT on defaming my character as a result of my legitimate concerns being expressed ☹ Has lead to my emotional mental health being affected (depression diagnosis) and treatment ongoing after original complaint nearly 2 yrs ago</i> [F] <i>Also let down by school Governors who acknowledged Head's inappropriate behaviour, but failed to anything to improve things (ie policy). Head=control freak and Governors unsure of their 'power' to bring change ☹ (closing ranks)</i>
Refusing to play	[A] <i>WARNING: home education offers no county support (written by LA practitioner)</i> [E] <i>I wanted to remove my children, THEY REFUSED to be home educated</i>
Attempts to refute criticism while remaining deferential/compliant to teachers	[F] <i>can still be respectful of staff, even though may not necessarily agree with every decision</i>
Strategic diffidence	
Presentation of the family as normal	
Bearing witness	
Taking on professional workloads	[F] <i>When school lacks understanding, you end up keyworking your own child literally</i>
Policy work and advocacy	[D] <i>I know I am my child's strongest advocate and I am constantly texting my [social?] and keyworkers information. Get very frustrated at meetings at lack of help and services. Meetings do not solve things</i> [F] <i>Frustrating when schools don't acknowledge their legislated responsibilities and often don't make any effort to accept parents' pointing out schools' legal responsibilities</i>
Issues not addressed	[A] <i>Key worker co-ordination to help to facilitate all the help that is available and how it can be disseminated and/or collated and then used usefully for the child with needs</i> [A] <i>Communication is key to all of it</i> [D] <i>I have asked for extra help/medication intervention but not offered in this area or too expensive</i> [E] <i>Lack of available services & waiting lists</i> [D] <i>School was a main trigger for my child</i>

Theme/quote	Comments from seven parents, denoted A–F
Additional quotes	<p>[B] <i>ADHD traits ignored and considered irrelevant by some teachers</i></p> <p>[B] <i>my child was diagnosed with Asperger's and ADHD. Positive experience with SENCO @ school – open relationship and clear communication line – been able to copy him in for all communications and has backed up our arguments if things not happening</i></p> <p>[C] <i>My daughter is undiagnosed but suspected ADHD. She has had 2 teachers that have taken extra time and effort to inform her educational and behaviours in early years (Yrs 1/2/3) that gave my daughter a good foundation on behaviour and attainment in class. The school uses a "thermometer" system for behaviour where the child's name is moved up the thermometer if behaviour is challenging – the child then loses time off "discover time" at the end of the week if they have been up the thermometer. This was effective for my daughter as she disliked the fact her name was moved up this and also that her peers could see this. However when my daughter moved into YR4 the teacher did not "person centre" her education to get my daughter to perform in class. Now she is in YR5 and due to the teaching style she received in YR4 is really struggling in all aspects of education</i></p> <p>[D] <i>ADHD/IAS child. After diagnosis the only option is medication. There doesn't seem to be any alternative help alongside like social skills, behaviour/langer management</i></p> <p><i>Star Charts DO NOT WORK!</i></p> <p><i>Late diagnosis. ADHD behaviour becomes learnt behaviour by that time. Ends up with diagnosis around same time as puberty</i></p> <p><i>Media needs educating</i></p> <p>[F] <i>Aspergers and diagnosis as ADD traits (not hyperactive). 13.5 yr old boy, now YR8 (may 2013)</i></p> <p><i>Because my son generally conformed with the school routine and we had the 'volcano effect' the minute he walked out of school, a Headteacher (at statutory annual review) said "What I'm wondering is, why you are getting this behaviour at home, but it's not evident at school" . . . a CLEAR criticism of my parenting and implication of parenting issues. Luckily the TA and YR 5 teacher (YR 5 teacher was amazing, Y2&6 was the problem) butted in and spoke in my defence about this behaviour being 'normal' in ASD kids</i></p> <p><i>In YR6 I spoke with the (very knowledgeable) TA about my son not being fully engaged by the teacher and asked would it be helpful to offer the teacher a book that includes "tips for teachers". She said yes, a good idea . . . I was labelled as undermining and pushy and it was taken as an insult and NOT an attempt to help and share information for the benefit of the child. Still feel bullied 2 yrs on by the Head for my criticism of management for not enough training opportunities for staff. Even the (relatively young and inexperienced) SENCo became overly defensive and was critical of my attempts to share good practice ideas, for my son's benefit</i></p>

Theme/quote	Comments from seven parents, denoted A–F
Quotes 'ticked'	
<i>'You brief the teacher. Boom, boom, boom. Nothing happens'</i>	[B] tick [F]tick <i>Worse than that ... you get labelled as "pushy" and "undermining staff" (by YR6 staff)</i>
<i>'The teacher we had was excellent... She has continued to have interest in attention deficit...'</i>	[B]tick (note: 'Good Senco!')
<i>'... dashed expectations... not as a result of the children's performance but as a result of the school's performance'</i>	[D]tick (note: 'schools need more training') [F]tick <i>And Heads understanding and apparent lack of importance put on ASD staff training, even SENCOs (Primary not Secondary, they are VERY impressive)</i>
<i>'I went to the school and said, 'You have a professional development day coming up ... I will pay the fee of having Dr P come to your school ... they refused...'</i>	[D]tick (note: 'more specialised help for ADHD kids in school – not colouring & chart management. Always put on parenting courses as a treatment)
<i>'Even when a child's diagnosed with ADD ... you're always told then 'Oh well it's bad parenting'...</i>	[D]tick (note: 'still seen as bad parenting incl. by teachers)

Conclusion

Service user/public involvement has been an important aspect of this project, with input from parents and teachers providing direction for research practice in event 1, assessment of interim research findings in events 2 and 3, and feedback about findings through draft manuscript comments from a parent of children diagnosed with ADHD in the final stages of the project. These activities supported the relevance of the research project to stakeholders, and parents and teachers contributed to the robustness of qualitative reviews through assessment of transferability of interim findings, when they endorsed the findings to be in keeping with their experiences. These inputs have provided a valuable 'reality check' which has demonstrated the pertinence and quality of the project.

Appendix 12 Example of a structured summary for review 4c

Structured summaries of papers that explore parent perspectives: seven papers, six studies.

Papers		Malacrida ²⁶⁶	Malacrida ²⁶
Information	Carpenter and Austin²⁶²	Hibbitts²⁷⁶	Malacrida²⁶
Authors, date, country, participants and setting (ages, how ADHD is identified, medication, school context, any other relevant information)	This is an Australian study with mothers of children diagnosed or with core symptoms of ADHD (number of participants not reported; 12 women quoted) Most of the children attended schools in Queensland, QLD	Hibbitts ²⁷⁶ is a Canadian EdD thesis. It is an auto-narrative of the experience of mothering three children with SEN, one of whom is diagnosed with ADHD at 26 months and receives medication which does not help, so is discontinued. The son with ADHD is followed from ages 5–18 years, over which time he attends six schools in Northern Ontario, Newfoundland, Northern BC and Lower Mainland Canada	Malacrida ²⁶ reports part of a Canadian PhD thesis (same study as Malacrida ²⁶⁶). The study is cross-cultural, carried out in Alberta, Canada and south-east England with 34 (17 from each country) mothers of children aged 5–18 years who had been diagnosed with ADHD. Some children were medicated but numbers were not reported
Study aims/research questions	The authors examine mother's perceptions of the role of schools in the decision-making process leading to diagnosis and medication	The over-riding research question of this thesis is 'what is the experience of a parent when interacting with her children's schools?'	The author described the aim of the study, 'this essay examines maternal narratives in order to understand the different ways that these mothers perceive educators' roles in the medicalisation of their children's behavior'

Papers		Hilbitts ^{27,6}	Malacrida ²⁶	Malacrida ²⁸
Information	Theoretical underpinnings and relevance to the study	Epistemology: constructionist; post structural Theory used to structure the study: Butler's ³⁶² and Fraser's ^{364,366} work on the concept of recognition ADHD beliefs: the authors approach ADHD primarily from a sociological standpoint, where disorderly behaviour is constructed and recognised through structures of education following Graham ³⁶⁸	Epistemology: constructionist; post structural Theory used to structure the study: the author uses Foucauldian notions of knowledge, power and resistance to inform the study ADHD beliefs: the author's stance on ADHD is about its contested nature – she cites authors who question the diagnosis (Conrad and Schneider, ⁴²² Kiger, ⁴⁴ Armstrong, ⁴²³ Castel et al., ⁴²⁴ Porter, ³⁷¹ Slee ⁴²⁵) rather than describing its definition and theories of cognitive deficit as is common. Her focus seems to be on sociological construction	Epistemology: constructionist; post structural Theory used to structure the study: the author draws on theory about medicalisation (Porter ³⁷¹) where trends for less tolerance of difference and greater psychiatric surveillance with medicalisation of society; where increasingly narrow ideas of normality mean behaviours that encompass most children one way or another, when extreme, are seen as abnormal ADHD beliefs: Malacrida ²⁸ applies the above theory to ADHD. She again discusses its contested nature – she cites the same authors who question the diagnosis (Conrad and Schneider, ⁴²² Kiger, ⁴⁴ Armstrong, ⁴²³ Castel et al., ⁴²⁴ Porter, ³⁷¹ Slee ⁴²⁵) and also those who champion it (CHADD, ⁴²⁶ Chisholm ⁴²⁷)
	Data collection process	The authors draw on transcripts of interviews and focus groups with mothers The author made a list of 48 incidences (vignettes) in which she could remember interacting with her children's schools. She then wrote on vignette per free evening from October 2005 to January 2006. These were complete for almost 3 years before the author wrote the rest of the thesis	The author conducted semistructured interviews with each participant, lasting ≥ 45 minutes. She 'asked mothers to tell me not only about how they felt their lives to be scrutinized and constrained by professional discursive practice, but also to tell me of the ways they struggled to be heard, to effect change, and to resist stigmatization'. Thus, the author's stance about ADHD structured her research questions	The author conducted semistructured interviews with each participant, lasting ≥ 45 minutes. '... mothers were asked to describe interactions with educators, with medical or psy sector professionals, with family and social networks and their encounters with ADD/ADHD-related discourse, as a way to examine the intersections of the personal and the social when dealing with disability'

Papers	
Information	Malacrida ²⁶²
Data analysis process	<p>The authors do not describe their process of analysis beyond citing the theoretical underpinnings of their approach (as described above)</p>
	<p>The author carried out hermeneutic phenomenology following van Manen.³⁶⁹ Her process of analysis involved phenomenological bracketing, selective reading and detailed reading in order to identify themes. These she compared with literature about the parent-school interface in order to validate or discard/develop them. She involved outsiders in the autonarrative to provide feedback</p>
Findings (key themes/concepts)	<p>The authors discuss findings but not structured through themes; they discuss:</p> <ul style="list-style-type: none"> the contradictory nature of theory vs. practice in inclusion the work mothers do to make their children recognisable the paradox of achieving recognition
	<p>Themes identified:</p> <ul style="list-style-type: none"> communications cultural dissonance expectations otherness professionalism rage silencing
	<p>The authors discuss findings but not structured through themes; they discuss:</p> <ul style="list-style-type: none"> bad children have bad mothers presentation of the family as emotionally normal bearing witness policy work and advocacy lack of cooperation: sweating the small stuff bringing in the big guns
	<p>Themes identified:</p> <ul style="list-style-type: none"> Canadian educators, identification and assessment Canadian educators and social control British educators, identification and assessment British educators and social control Canadian educators, treatment and collaboration British educators, treatment and collaboration
	<p>Analysis of the data was both inductive and deductive. In the initial data coding, inductive narrative analysis was used, starting with reflexive immersion in the mothers' narratives and the eventual crystallisation of themes emerging from the data (Miller and Crabtree³⁷²). In addition to this approach, the data were considered deductively against theoretical insights on medicalisation and social control</p>
	<p>Analysis of the data was both inductive and deductive. In the initial data coding, inductive narrative analysis was used, starting with reflexive immersion in the mothers' narratives and the eventual crystallisation of themes emerging from the data (Miller and Crabtree³⁷²). In addition to this approach, the data were considered deductively against theoretical insights on medicalisation and social control</p>
	<p>Analysis of the data was both inductive and deductive. In the initial data coding, inductive narrative analysis was used, starting with reflexive immersion in the mothers' narratives and the eventual crystallisation of themes emerging from the data (Miller and Crabtree³⁷²). In addition to this approach, the data were considered deductively against theoretical insights on medicalisation and social control</p>

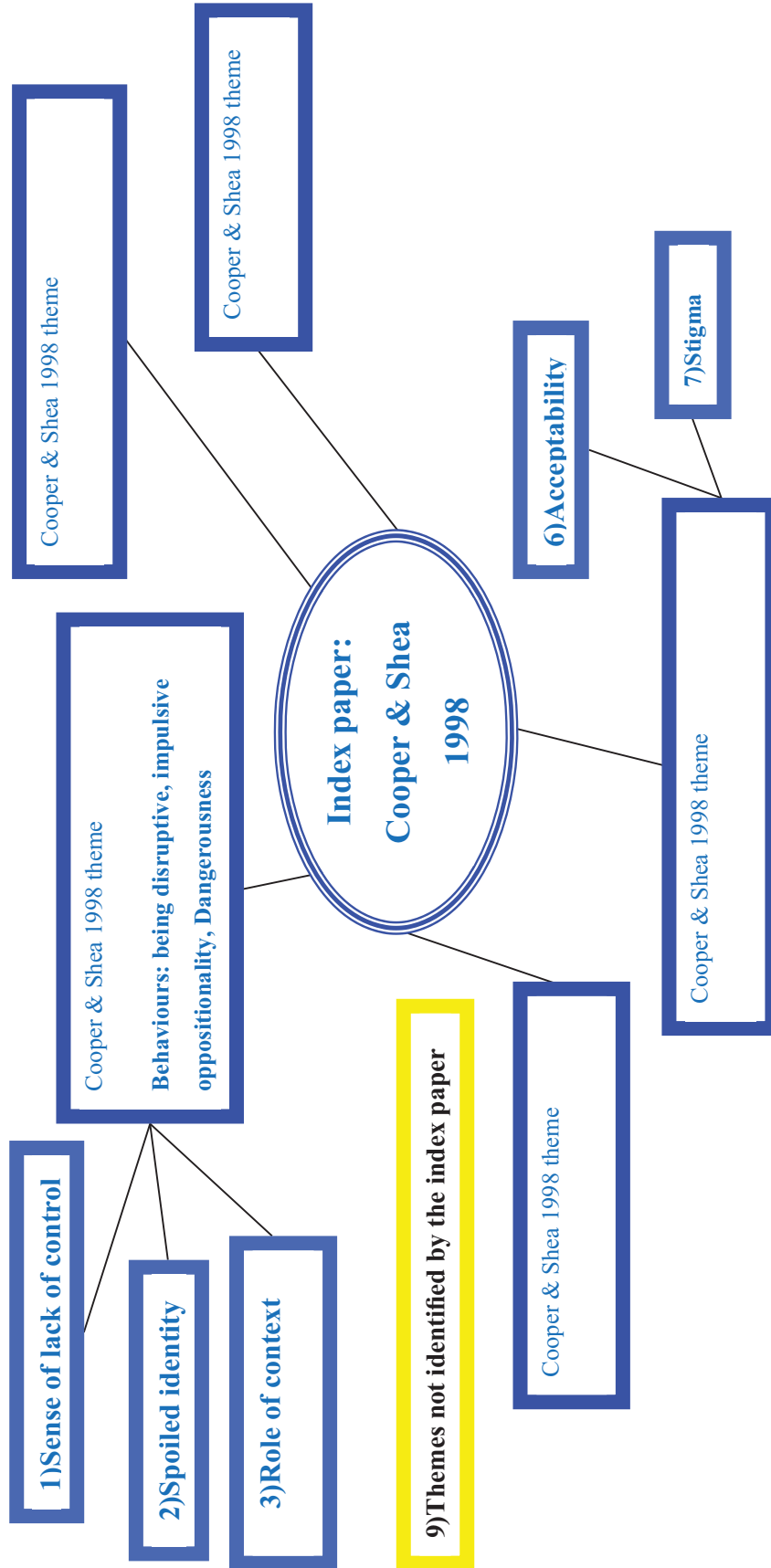
Papers		Watson ³⁵⁶
Information	Margalit <i>et al.</i> ³⁵⁹	Reid <i>et al.</i> ³⁶⁰
Authors, date, country, participants and setting (ages, how ADHD is identified, medication, school context, any other relevant information)	Margalit <i>et al.</i> ³⁵⁹ is a study using data collected from a US internet site; its participants, 316 mothers of children diagnosed with LD ($n = 148$), LD and ADHD ($n = 124$) and ADHD ($n = 44$) (mean age of children 10.99 years; SD 3.32 years) therefore come from a range of States, localities (urban, suburban, rural) and ethnicities. The sample was drawn from a population of 1308 people posting 42,811 messages on the website during a 12-month period (June 2005–6). Participants were those identified to have professionally diagnosed children	Reid <i>et al.</i> ³⁶⁰ is a US study with 20 parents (18 mothers, 2 fathers; 17 white, 2 Native American, 1 African American) of 22 children (males aged 5–18 years; 90% on medication; six also with LD and/or behavioural disorders) diagnosed with ADHD. The children attended schools in urban, suburban and rural areas of Mid-Western States
Study aims/research questions	The authors write, 'The current study aimed at identifying stressors, needs, supports and perceptions expressed by mothers of children with learning disabilities and ADHD through their messages on an Internet discussion board'	The author writes, 'This paper concerns the experiences of Jenny, a parent with a son diagnosed as having attention-deficit/hyperactivity disorder (ADHD). It explores Jenny's narrative concerning the events surrounding the diagnosis, in particular the part played by the school in this process'

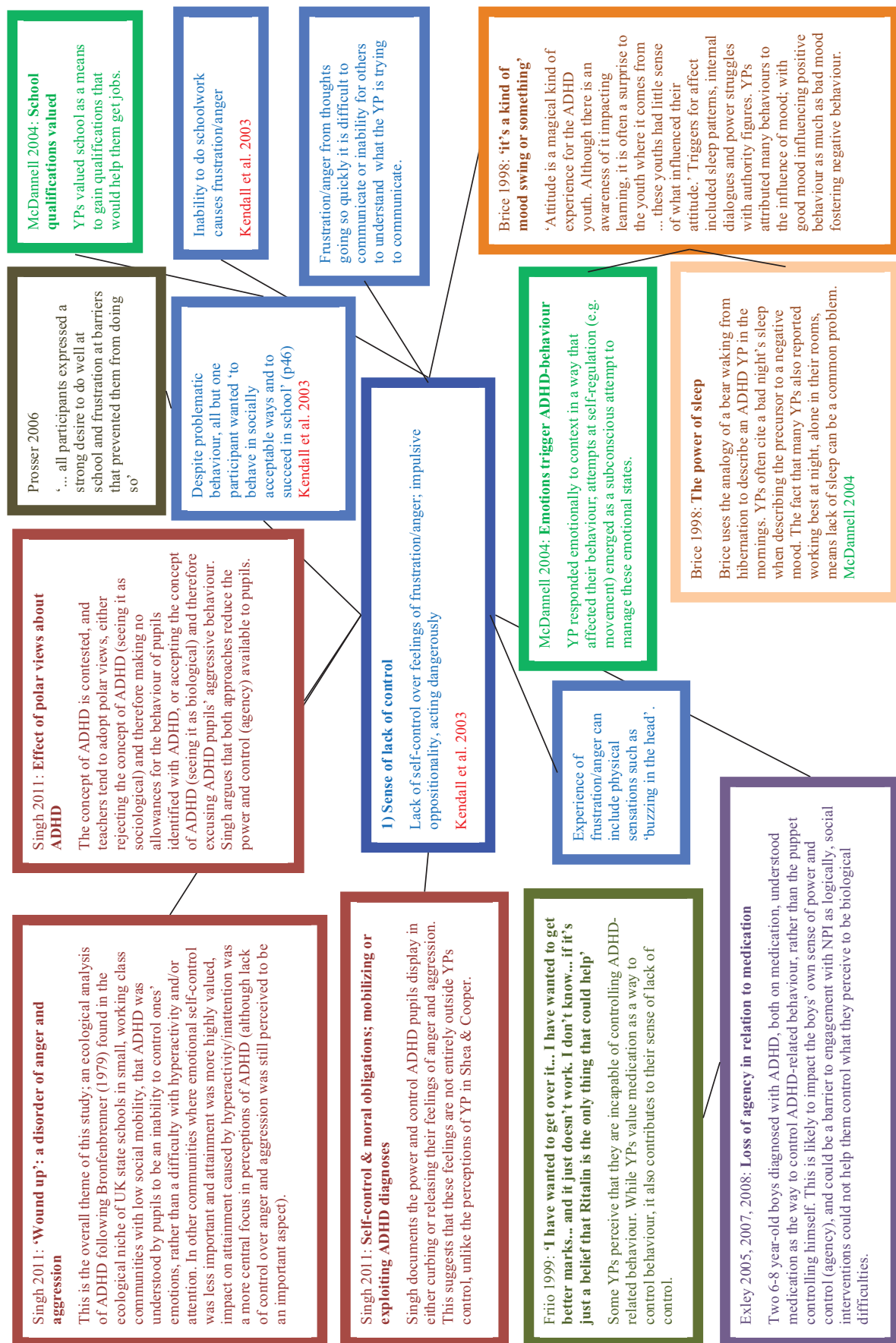
Information	Papers						
Theoretical underpinnings and relevance to the study	<table border="1"> <thead> <tr> <th>Margalit et al.³⁵⁹</th> <th>Reid et al.³⁶⁰</th> <th>Watson³⁵⁶</th> </tr> </thead> <tbody> <tr> <td> <p>Epistemology: the authors do not explicitly address the theoretical underpinnings of the study. From the literature review, discussion of a 'true self', reporting of inter-rater reliability and lack of reflexivity their beliefs are likely to be objectivist</p> <p>Theory used to structure the study: the authors draw on psychological and sociological literature on well-being and social support</p> <p>The authors do not problematise the construct of ADHD; presumably they hold medical/individual beliefs of cognitive impairment, or biopsychosocial beliefs</p> </td> <td> <p>Epistemology: the authors do not explicitly address theoretical underpinnings. Their aims are pragmatic; they wanted to explore and describe the perceptions of parents of children with ADHD about their experiences with the school system, particularly in order to establish what kind of treatment, if any, ADHD children were receiving in schools. They chose an interpretive approach in order to establish contextual information and to consider process as well as outcomes. The lead author has conducted surveys with teachers to explore practice with ADHD children. These factors suggest objectivist views</p> <p>ADHD beliefs: the authors treat ADHD as an established phenomenon as shown by their discussion of teachers' responses to it, so if teachers do not 'believe' in it, they are coded as having misconceptions or lack of knowledge. This suggests views of ADHD as individual/medical cognitive deficit, or biopsychosocial views</p> </td> <td> <p>Epistemology: constructionism; post structuralism</p> <p>Theory used to structure the study: theories related to stigma, including Hinshaw³⁷⁴ (stereotyping, prejudice and discrimination; internalisation of degradation). Goffman's³²² 'courtesy stigma' – stigma acquired by virtue of a connection with the stigmatised person</p> <p>Theory related to 'mother blame', where mental disturbances in a child are directly linked to faulty parenting [read mothering] (Hinshaw³⁷⁴)</p> <p>View of ADHD: the author cites Singh's⁴²⁸ comment 'The important question . . . is not about the reality of ADHD; rather it has to do with the desire for ADHD diagnosis', thus the author sidesteps this issue. However, the case study is couched in terms of the construction of ADHD by the school, which suggests sociological beliefs</p> </td> </tr> </tbody> </table>	Margalit et al. ³⁵⁹	Reid et al. ³⁶⁰	Watson ³⁵⁶	<p>Epistemology: the authors do not explicitly address the theoretical underpinnings of the study. From the literature review, discussion of a 'true self', reporting of inter-rater reliability and lack of reflexivity their beliefs are likely to be objectivist</p> <p>Theory used to structure the study: the authors draw on psychological and sociological literature on well-being and social support</p> <p>The authors do not problematise the construct of ADHD; presumably they hold medical/individual beliefs of cognitive impairment, or biopsychosocial beliefs</p>	<p>Epistemology: the authors do not explicitly address theoretical underpinnings. Their aims are pragmatic; they wanted to explore and describe the perceptions of parents of children with ADHD about their experiences with the school system, particularly in order to establish what kind of treatment, if any, ADHD children were receiving in schools. They chose an interpretive approach in order to establish contextual information and to consider process as well as outcomes. The lead author has conducted surveys with teachers to explore practice with ADHD children. These factors suggest objectivist views</p> <p>ADHD beliefs: the authors treat ADHD as an established phenomenon as shown by their discussion of teachers' responses to it, so if teachers do not 'believe' in it, they are coded as having misconceptions or lack of knowledge. This suggests views of ADHD as individual/medical cognitive deficit, or biopsychosocial views</p>	<p>Epistemology: constructionism; post structuralism</p> <p>Theory used to structure the study: theories related to stigma, including Hinshaw³⁷⁴ (stereotyping, prejudice and discrimination; internalisation of degradation). Goffman's³²² 'courtesy stigma' – stigma acquired by virtue of a connection with the stigmatised person</p> <p>Theory related to 'mother blame', where mental disturbances in a child are directly linked to faulty parenting [read mothering] (Hinshaw³⁷⁴)</p> <p>View of ADHD: the author cites Singh's⁴²⁸ comment 'The important question . . . is not about the reality of ADHD; rather it has to do with the desire for ADHD diagnosis', thus the author sidesteps this issue. However, the case study is couched in terms of the construction of ADHD by the school, which suggests sociological beliefs</p>
Margalit et al. ³⁵⁹	Reid et al. ³⁶⁰	Watson ³⁵⁶					
<p>Epistemology: the authors do not explicitly address the theoretical underpinnings of the study. From the literature review, discussion of a 'true self', reporting of inter-rater reliability and lack of reflexivity their beliefs are likely to be objectivist</p> <p>Theory used to structure the study: the authors draw on psychological and sociological literature on well-being and social support</p> <p>The authors do not problematise the construct of ADHD; presumably they hold medical/individual beliefs of cognitive impairment, or biopsychosocial beliefs</p>	<p>Epistemology: the authors do not explicitly address theoretical underpinnings. Their aims are pragmatic; they wanted to explore and describe the perceptions of parents of children with ADHD about their experiences with the school system, particularly in order to establish what kind of treatment, if any, ADHD children were receiving in schools. They chose an interpretive approach in order to establish contextual information and to consider process as well as outcomes. The lead author has conducted surveys with teachers to explore practice with ADHD children. These factors suggest objectivist views</p> <p>ADHD beliefs: the authors treat ADHD as an established phenomenon as shown by their discussion of teachers' responses to it, so if teachers do not 'believe' in it, they are coded as having misconceptions or lack of knowledge. This suggests views of ADHD as individual/medical cognitive deficit, or biopsychosocial views</p>	<p>Epistemology: constructionism; post structuralism</p> <p>Theory used to structure the study: theories related to stigma, including Hinshaw³⁷⁴ (stereotyping, prejudice and discrimination; internalisation of degradation). Goffman's³²² 'courtesy stigma' – stigma acquired by virtue of a connection with the stigmatised person</p> <p>Theory related to 'mother blame', where mental disturbances in a child are directly linked to faulty parenting [read mothering] (Hinshaw³⁷⁴)</p> <p>View of ADHD: the author cites Singh's⁴²⁸ comment 'The important question . . . is not about the reality of ADHD; rather it has to do with the desire for ADHD diagnosis', thus the author sidesteps this issue. However, the case study is couched in terms of the construction of ADHD by the school, which suggests sociological beliefs</p>					

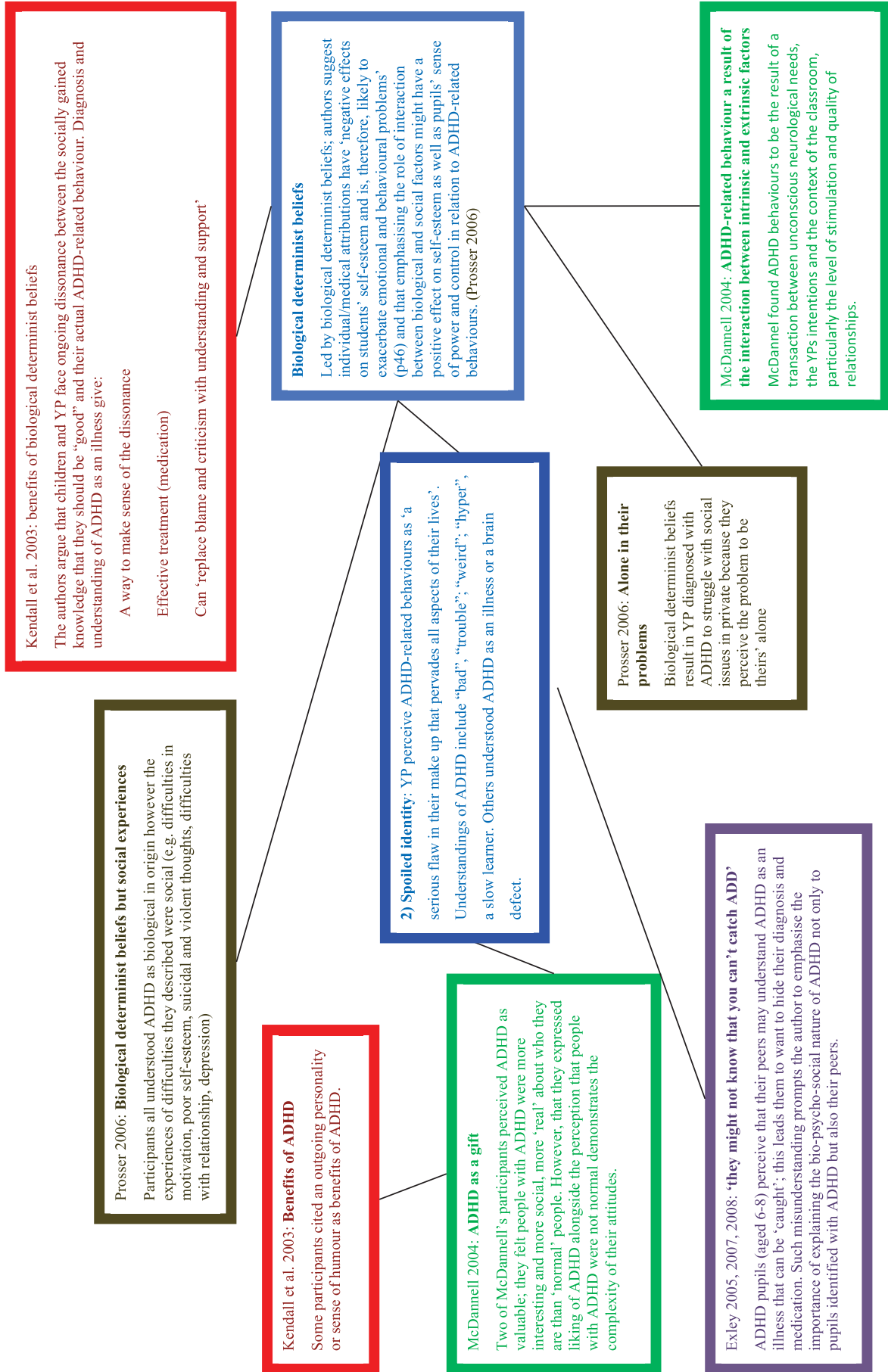
Papers		Watson ³⁵⁶
Information	Margalit <i>et al.</i> ³⁵⁹	Reid <i>et al.</i> ³⁶⁰
Data collection process	Participants wrote 1502 messages; between 1 and 69 each. The messages were copied and pasted into Word for analysis	The authors carried out one semistructured interview lasting 20–40 minutes with each participant. Two semistructured protocols were used; the first was used with 15 participants; after preliminary analysis the protocol was then revised to focus more narrowly on school services, and five more interviews were completed. Each participant also completed a short questionnaire gathering demographic data and information on the child, diagnosis, school and SEN services
Data analysis process	The authors describe their process of analysis as, '... content analysis was conducted to search for expressions of stress in the online messages. Using qualitative approaches that have previously been used to study the narratives on the internet (Fleischmann ³⁷³) three of the researchers read all messages from the first 30 (alphabetically) participants. In a case analysis meeting (Miles and Huberman ³¹⁵) among three of the researchers, lengthy discussions yielded three codes/themes, content domains: specific content/subject matter contained in messages; communication styles/structures: general structure-kind of information contained in messages; and parent perceptions—understandings: perceptions/views/understanding checking	The authors followed grounded theory analysis procedures (Strauss and Corbin ⁴²⁵). They completed open coding for three interviews; codes were grouped in 17 preliminary categories, then these were reapplied to the three interviews. They then began axial coding. Existing and additional codes were developed with the next 12 interviews, with use of relational and variational sampling in choice of participant to broaden understanding. The second interview protocol was based on analysis to this point. It was designed to gain insight on major transition points (i.e. diagnosis). Finally, a core category was developed with a tentative conceptual model about that category. The authors carried out member and professional checking
		The author analysed the manuscript, 'selecting scenes that were concerned with the positioning of the Goldfish family by various external agencies, since it is in and through this material positioning that deviance is constructed'. She fictionalised parts using satire (Bronowski and Mazlish, ³⁷⁵ Knight ⁴³⁰), following Barone ³⁷⁸ and Clough ³⁷⁹ as a means to 'raise significant questions' and 'speak to the heart of social consciousness'

Papers	Watson ³⁵⁶	Reid et al. ³⁶⁰	
<p>Information</p> <p>Margalit et al.³⁵⁹</p>			
<p>of self, child, and school. Several subcodes were added as discussions continued, and general themes were refined. In order to determine inter-rater reliability, the three researchers read and coded the first 30 participants' messages as to the presence of one or more of the above three master codes. Inter-rater reliability was 0.97.</p>			
<p>Findings (key themes/ concepts)</p>	<p>Themes identified:</p> <ul style="list-style-type: none"> ● sources of stress: <ul style="list-style-type: none"> ○ conflicts with school ○ children's academic difficulties ○ concerns related to behavior difficulties and social manifestations ● requests for alleviating stress: <ul style="list-style-type: none"> ○ requests for specific information ○ sharing of experience ○ support ○ general advice ● perceptions: <ul style="list-style-type: none"> ○ children ○ self ○ family 	<p>Themes identified:</p> <ul style="list-style-type: none"> ● contact with the school: <ul style="list-style-type: none"> ○ misconceptions ○ discounting ○ limited knowledge ○ understanding ● intervening factors: <ul style="list-style-type: none"> ○ negative incidents ○ no action ● strategy development: <ul style="list-style-type: none"> ○ handling the behaviour ○ working with the child ● parents' response to individuals ● parents' response to the organisation: <ul style="list-style-type: none"> ○ building a system ○ no action 	<p>Headings within the narrative:</p> <ul style="list-style-type: none"> ● Becoming the Goldfish family ● The Goldfish family's progress: home-school partnership ● The Goldfish family progress: medication ● An ending

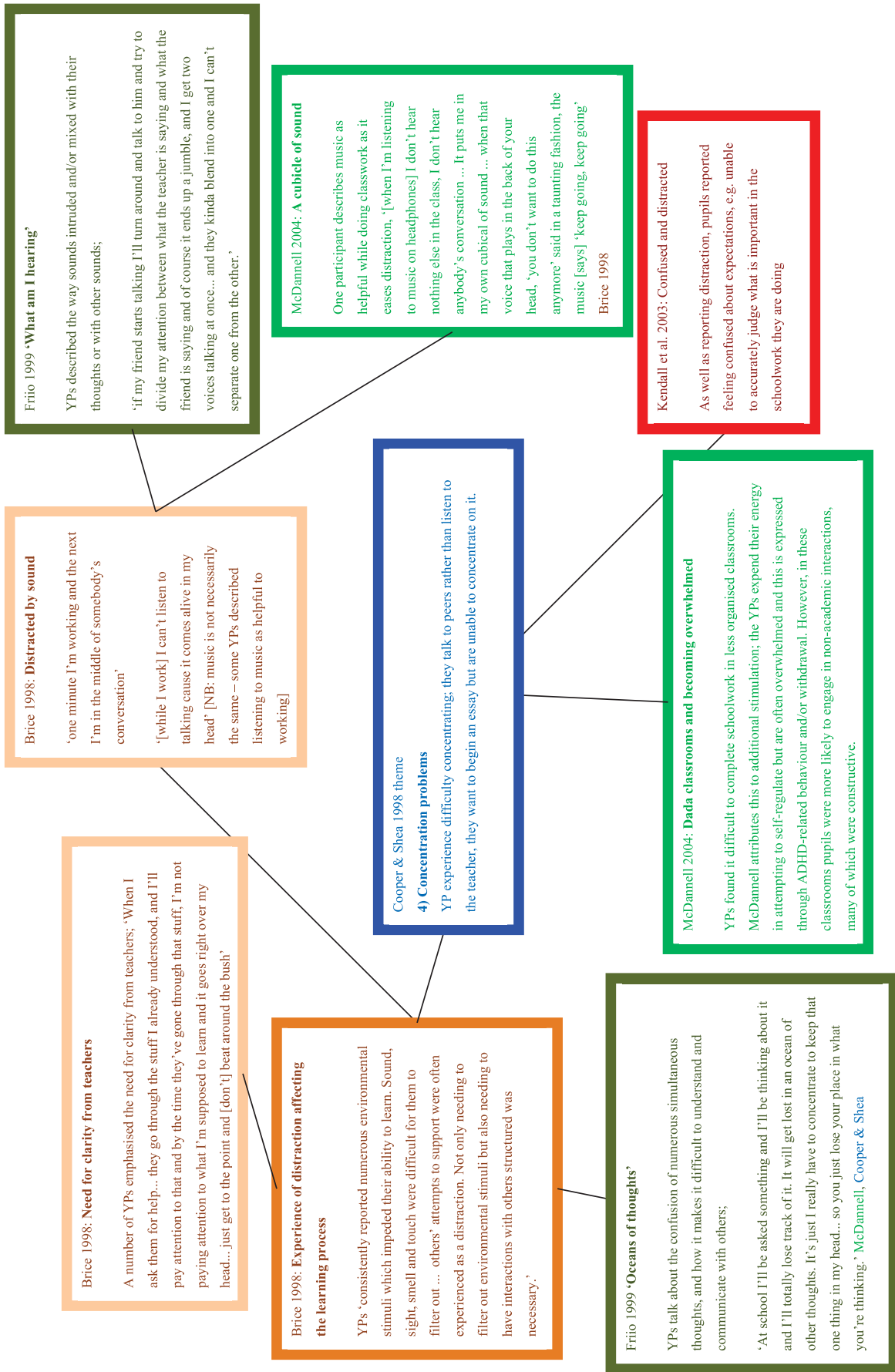
Appendix 13 Example of concept map (review 4a)

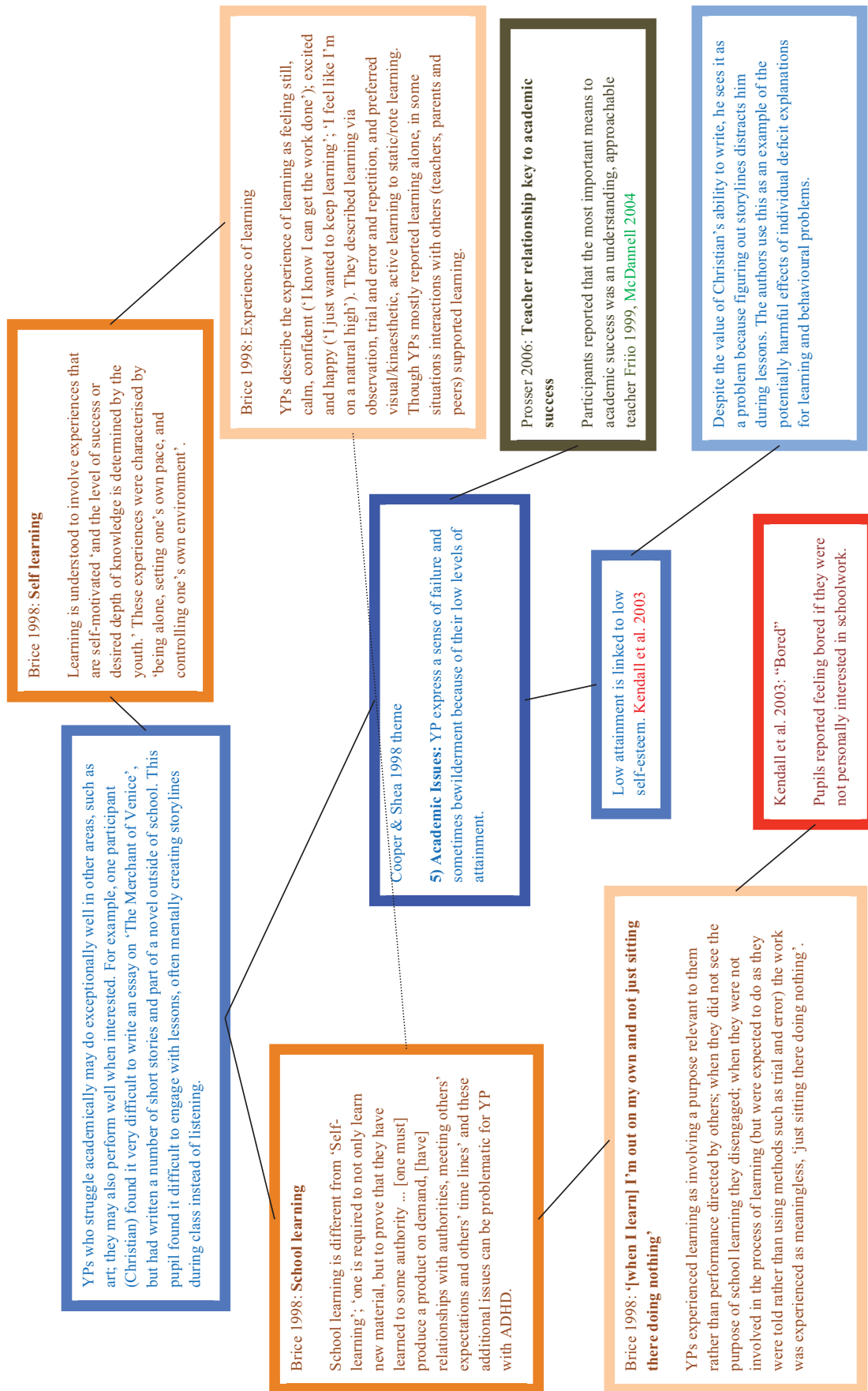


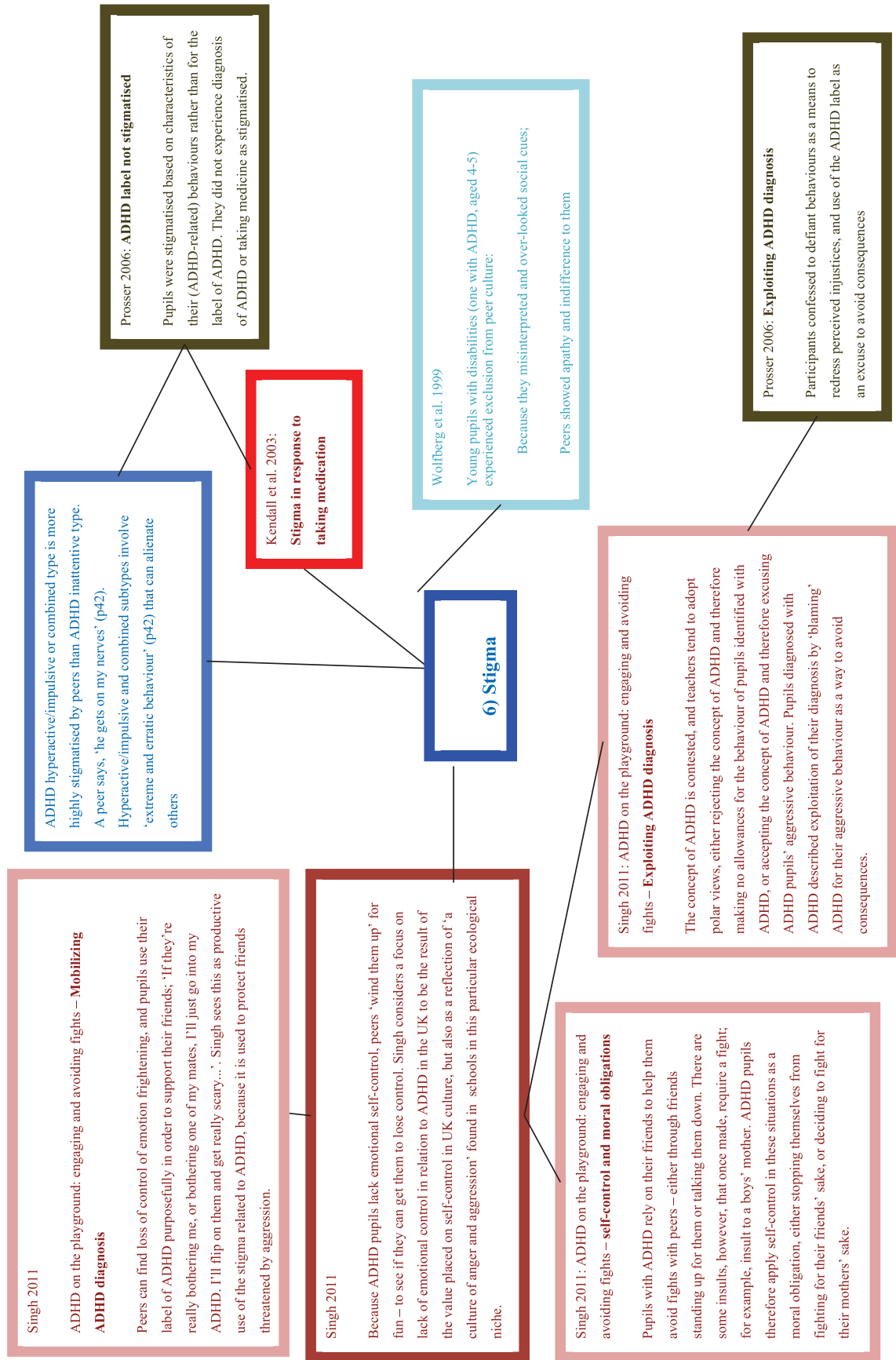


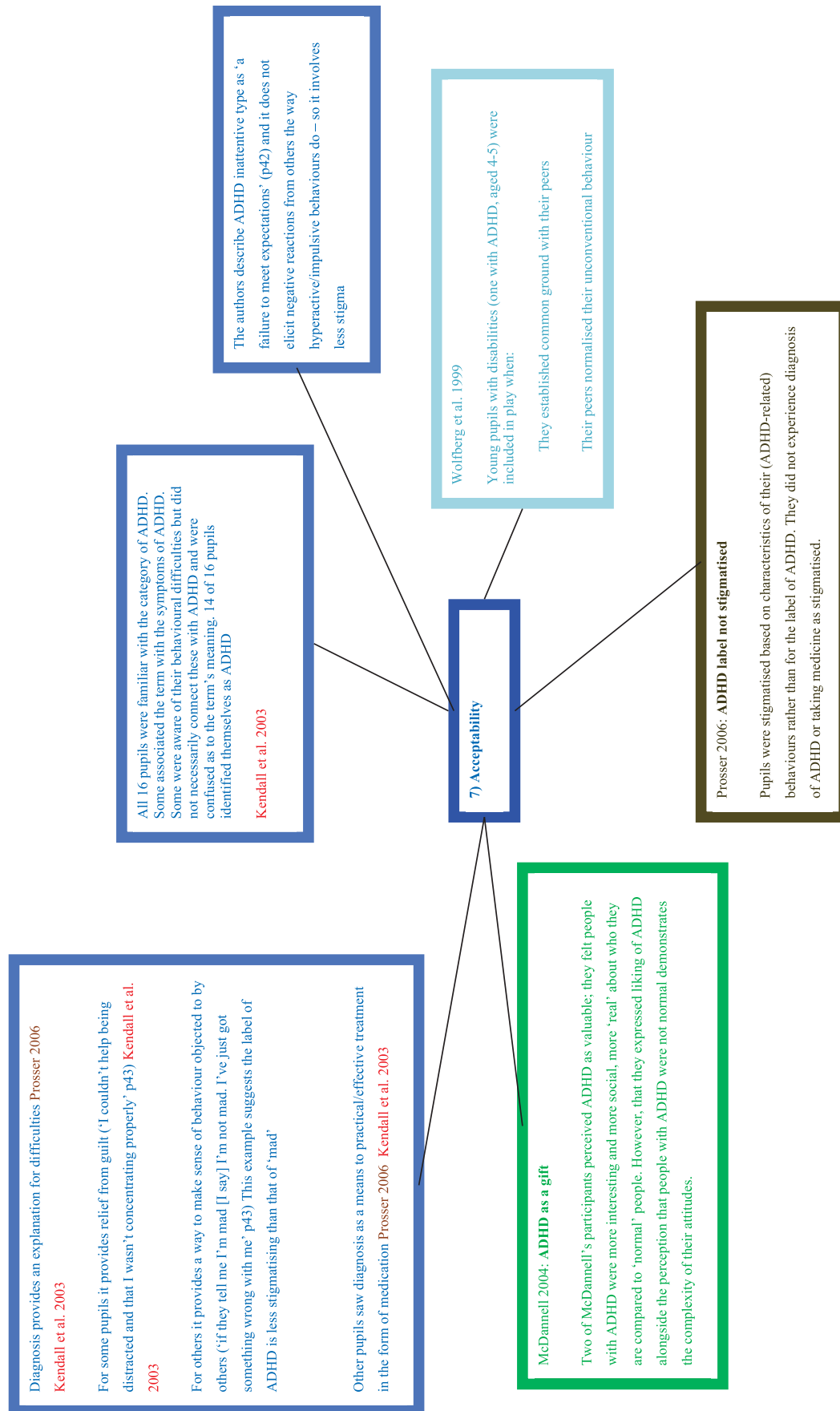


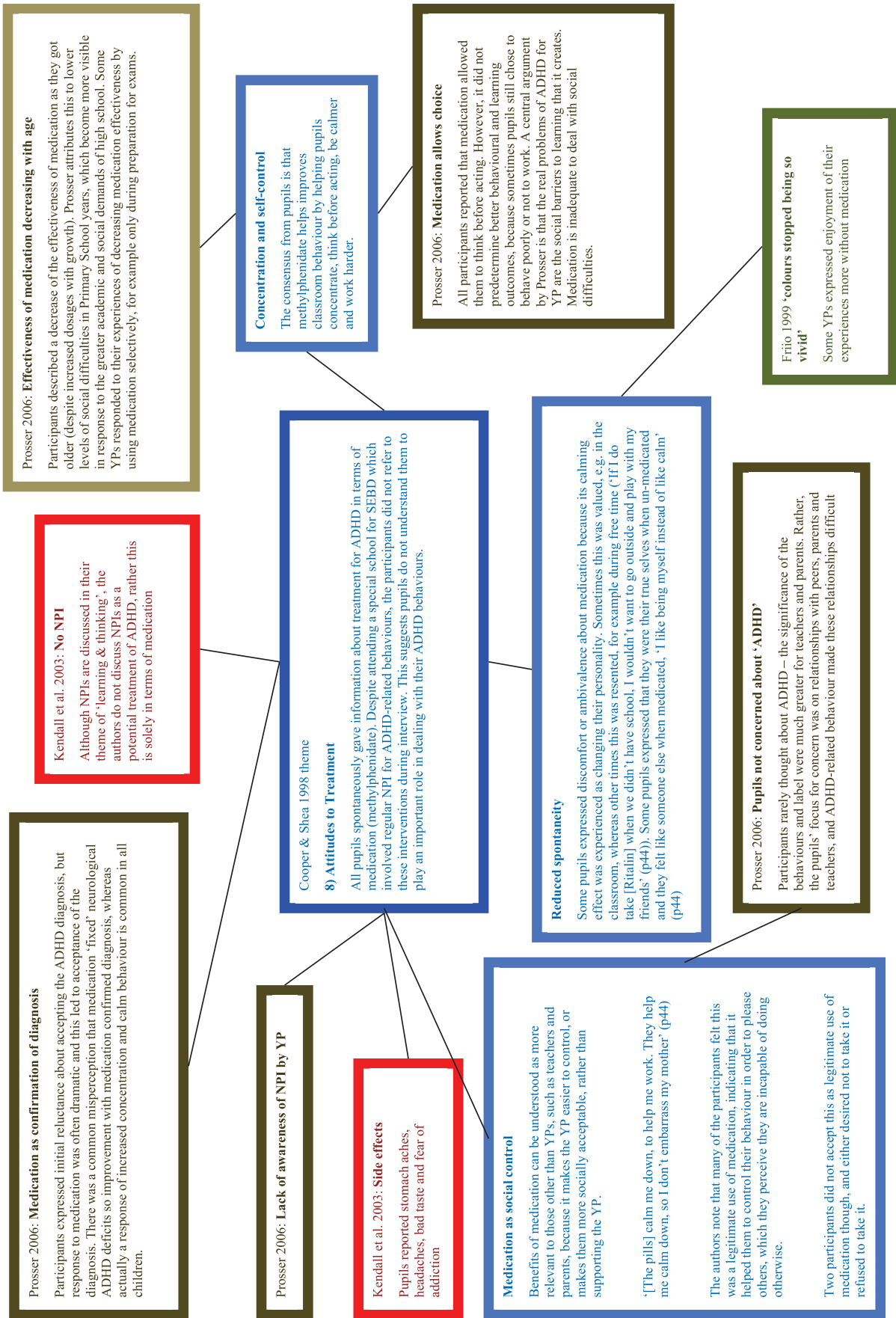


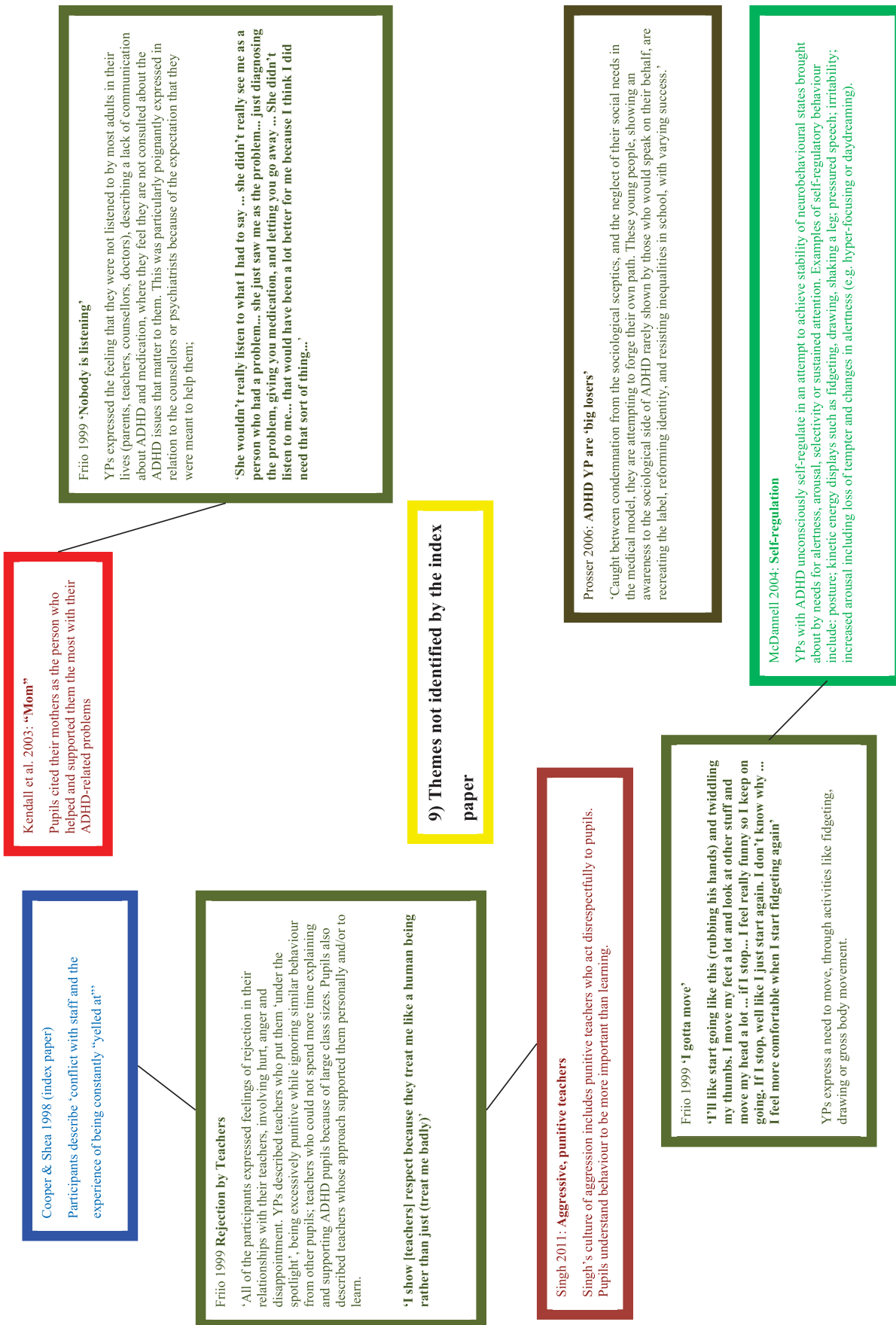












Appendix 14 Studies excluded at full text from review 3, with reasons

Aberson BD. An intervention for improving executive functioning and social/emotional adjustment of ADHD children: three single case design studies. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1997; 57 :6553	Lacking qualitative data and/or analysis
Allen T. Attention deficit hyperactive disorder ... a teacher's perspective. <i>Educ Today</i> 2005; 2 :12–13	First person account
Al-Sharbati M, Al-Sharbati Z, Al-Lawatiya S, Al-Jahwari S. Teachers' awareness about attention deficit hyperactivity disorder (ADHD) in Oman. <i>Asian J Psychiatr</i> 2012; 5 :277–8	Lacking qualitative data and/or analysis
Anonymous. AD/AD: two parents tell their personal stories. <i>Emot Behav Difficult</i> 1997; 2 :25–9	First person account
Artesani AJ, Mallar L. Positive behavior supports in general education settings: combining person-centered planning and functional analysis. <i>Interv Sch Clin</i> 1998; 34 :33–8	Lacking qualitative data and/or analysis
Askew BL. <i>Practices of Special Education Teachers for Dealing with Students with ADD/ADHD</i> . Chicago, IL: St Xavier University; 1993	Could not retrieve
Baba C, Tanaka-Matsumi J. Positive behavior support for a child with inattentive behavior in a Japanese regular classroom. <i>J Posit Behav Interv</i> 2011; 13 :250–3	Not primary research
Bailey S, Thomson P. Routine (dis)order in an infant school. <i>Ethnography Educ</i> 2009; 4 :211–27	Lacking qualitative data and/or analysis
Bailey S. Disordered experiences – beyond myth/reality. <i>Br Educ Res J</i> 2008; 34 :135–41	Not focused on school-age students with ADHD
Bain SK, Brown KS, Jordan KR. Teacher candidates' accuracy of beliefs regarding childhood interventions. <i>Teach Educ</i> 2009; 44 :71–89	Lacking qualitative data and/or analysis
Baker K. <i>Compensating for the Impact of Attention Deficit Hyperactivity Disorder on Reading Achievement: Michael's Story</i> . Adelaide, SA: Australian Literacy Educators' Association; 2005	Could not retrieve
Baker KB. <i>Compensating for cognitive deficits in students with attention deficit hyperactivity disorder</i> . North Rockhampton, QLD: Central Queensland University; 2003	Does not consider experience or attitude toward school-based interventions
Barbin-Daniels CM. Mainstreaming. <i>Learning</i> 1992; 20 :49	First person account
Bekle B. Review of research on teachers' knowledge and attitudes about attention-deficit hyperactivity disorder (ADHD). <i>Australas J Spec Educ</i> 2001; 25 :67–85	Not primary research
Bell PS. Jamaican teachers' attitudes toward children with oppositional defiant disorder, conduct disorder, and attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 67 :2214	Does not consider experience or attitude toward school-based interventions
Berger M. Remediating hyperkinetic behavior with impulse control procedures. <i>Sch Psychol Rev</i> 1981; 10 :405–7	Could not retrieve
Blahy TL. Understanding ADHD: our personal journey. <i>Reclaim Child Youth</i> 2004; 13 :56	Lacking qualitative data and/or analysis
Book RM. Management of the Child with an Attention Disorder in the School Setting. Paper presented at the Annual Convention of the American Psychological Association, Anaheim, CA, 26–30 August 1983	Could not retrieve
Bosco JJ, Robin SS. <i>Parent, Teacher and Physician in the Life of the Hyperactive Child: The Coherence of the Social Environment</i> . Springfield, IL: Charles C Thomas Pub Ltd; 1980	Could not retrieve

Brennan EM, Ama SM, Gordon LJ. Inclusion of Children with Emotional or Behavioral Challenges in Child Care Settings: An Observational Study. Paper presented at Head Start's Sixth National Research Conference: The First Eight Years – Pathways to the Future, Washington, DC, June 2002	Not focused on school-age students with ADHD
Breusch S. 'More a Lifestyle Than a Disorder': A Review of Attention-Deficit-Disorder and Social Relationships. Conference paper, 1992	Could not retrieve
Brice PJ. The experience of learning for youth diagnosed with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1998; 58 :6801	Does not consider experience or attitude toward school-based interventions
Brinkman WB, Sherman SN, Zmitrovich AR, Visscher MO, Crosby LE, Phelan KJ, <i>et al.</i> In their own words: adolescent views on ADHD and their evolving role managing medication. <i>Acad Pediatr Assoc</i> 2012; 12 :53–61	Focused on pharmacological interventions
Brodin J, Ljusberg AL. Teaching children with attention deficit hyperactivity disorder in remedial classes. <i>Int J Rehabil Res</i> 2008; 31 :351–5	Lacking qualitative data and/or analysis
Brook U, Boaz M. Attention deficit and hyperactivity disorder (ADHD) and learning disabilities (LD): adolescents perspective. <i>Patient Educ Counsel</i> 2005; 58 :187–91	Lacking qualitative data and/or analysis
Brook U, Boaz M. Attention deficit and hyperactivity disorder/learning disabilities (ADHD/LD): parental characterization and perception. <i>Patient Educ Counsel</i> 2005; 57 :96–100	Lacking qualitative data and/or analysis
Brook U, Geva D. Knowledge and attitudes of high school pupils towards peers' attention deficit and learning disabilities. <i>Patient Educ Counsel</i> 2001; 43 :31–6	Lacking qualitative data and/or analysis
Brook U, Watemberg N, Geva D. Attitude and knowledge of attention deficit hyperactivity disorder and learning disability among high school teachers. <i>Patient Educ Counsel</i> 2000; 40 :247–52	Lacking qualitative data and/or analysis
Brophy JE, Rohrkemper MM. <i>Motivational Factors in Teachers' Handling of Problem Students</i> . East Lansing, MI: Michigan State University; 1982	Could not retrieve
Brown D. Recollections. <i>Acad Ther</i> 1980; 15 :351–6	First person account
Brown PJ. Parents' perceptions and children's functioning: a combined scientific and phenomenological perspective. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2003; 64 :409	Not focused on school setting
Buck GH. Smoothing the rough edges of classroom transitions. <i>Interv Sch Clin</i> 1999; 34 :224–27,35	Lacking qualitative data and/or analysis
Bullard JA. Parent perceptions of the effect of ADHD child behavior on the family: the impact and coping strategies. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1996; 57 :7755	Not focused on school setting
Burcham B, Carlson L, Milich R. Promising school-based practices for students with attention deficit disorder. <i>Except Child</i> 1993; 60 :174–80	Lacking qualitative data and/or analysis
Burcham B, Carlson L. <i>Promising Practices in Identifying and Educating Children with Attention Deficit Disorder</i> . Education of Children with Attention Deficit Disorder. Lexington, KY: Federal Resource Center for Special Education; 1993	Could not retrieve
Burchfield CM. Exploring the meanings related to ADHD: a qualitative investigation. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 67 :532	Not focused on school setting
Burgess J. The impact of teaching thinking skills as habits of mind to young children with challenging behaviours. <i>Emot Behav Difficult</i> 2012; 17 :47–63	Not focused on school-age students with ADHD
Bussing R, Koro-Ljungberg M, Noguchi K, Mason D, Mayerson G, Garvan CW. Willingness to use ADHD treatments: a mixed methods study of perceptions by adolescents, parents, health professionals and teachers. <i>Soc Sci Med</i> 2012; 74 :92–100	Not focused on school setting
Bussing R, Koro-Ljungberg ME, Gary F, Mason DM, Garvan CW. Exploring help-seeking for ADHD symptoms: a mixed-methods approach. <i>Harv Rev Psychiatr</i> 2005; 13 :85–101	Not focused on school setting
Bussing R, Schoenberg NE, Rogers KM, Zima BT, Angus S. Explanatory models of ADHD: do they differ by ethnicity, child gender, or treatment status? <i>J Emot Behav Disord</i> 1998; 6 :233–42	Lacking qualitative data and/or analysis

Callwood-Brathwaite DJ. Co-occurrence of attention deficit/hyperactivity disorder in a school-identified sample of students with emotional and behavioral disorders: Implications for educational programming. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1998; 59 :0415	Lacking qualitative data and/or analysis
Canfield SK. The lonely journey: parental decision-making regarding stimulant therapy for ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2001; 61 :4647	Not focused on school setting
Carpenter L, Austin H. Silenced, silence, silent: motherhood in the margins. <i>Qual Inq</i> 2007; 13 :660–74	Not focused on school setting
Carpenter L, Austin H. How to be recognized enough to be included? <i>Int J Inclusive Educ</i> 2008; 12 :35–48	Does not consider experience or attitude toward school-based interventions
Carpenter L, Emerald E. <i>Stories From the Margin: Mothering A Child With ADHD or ASD</i> . Teneriffe, QLD: Post Pressed; 2009	Not focused on school setting
Carpenter LR. <i>The Effect of a Child's Attention Deficit Hyperactivity Disorder on a Mother: The Hidden Disability of Motherhood</i> . Nathan, QLD: Griffith University; 1999	Not focused on school setting
Carpenter T. <i>Teaching High School Students with Attention Deficit Hyperactivity Disorder Self Advocacy Skills and Strategies for Coping with Their Disability in School</i> . Florida, FL: Nova Southeastern University; 1995	Could not retrieve
Carpenter-Song E. Caught in the psychiatric net: meanings and experiences of ADHD, pediatric bipolar disorder and mental health treatment among a diverse group of families in the United States. <i>Cult Med Psychiatr</i> 2009; 33 :61–85	Not focused on school setting
Carragher G, Campbell-Evans G, Forlin C. The Voice of the Adolescent with Attention-Deficit/Hyperactivity Disorder (AD/HD) in Individual Case Conferences: How Adolescents with AD/HD Manage the Symptoms of their Disorder and the Treatment Strategies. Paper presented to the Australian Association for Research in Education Conference, University of Notre Dame, Western Australia, 2–6 December 2001	Not primary research
Carragher GL. <i>Life After Diagnosis: The Social Experience of Adolescents Diagnosed with Attention-Deficit/Hyperactivity Disorder and How They Manage their Lives</i> . Perth, WA: Edith Cowan University; 2003	Could not retrieve
Carragher GL. <i>Teachers' Conceptualisations Of, and Resistance To, The Inclusion of ADHD Students in Mainstream Classrooms</i> . Crawley, WA: University of Western Australia; 1999	Could not retrieve
Cassar AG, Jang EE. Investigating the effects of a game-based approach in teaching word recognition and spelling to students with reading disabilities and attention deficits. <i>Aust J Learn Disabil</i> 2010; 15 :193–211	Lacking qualitative data and/or analysis
Chang H-H, Chang C-S, Shih Y-L. The process of assisting behavior modification in a child with attention-deficit hyperactivity disorder. <i>J Nurs Res</i> 2007; 15 :147–55	Focused on pharmacological interventions
Chevreau LP. Neurofeedback and childhood ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 66 :2870	Not focused on school setting
Cline B. Raising Alan alone. <i>Except Parent</i> 1985; 15 :44–6	First person account
Coker K. School and family based treatment of children with attention-deficit hyperactivity disorder. <i>Fam Soc</i> 1990; 71 :276–82	Lacking qualitative data and/or analysis
Cook M. Attention deficit disorder: a teacher perspective. Melbourne, VIC: La Trobe University; 2000	Could not retrieve
Cooper P, Shea T. Pupils' perceptions of AD/HD. <i>Emot Behav Difficult</i> 1998; 3 :36–48	Does not consider experience or attitude toward school-based interventions
Cooper P. The Inner Life of Children With Emotional and Behavioural Difficulties. In Varma VP, editor. <i>The Inner Life of Children With Special Needs</i> . Philadelphia, PA: Whurr Publishers; 1996. pp. 95–111	Not focused on school-age students with ADHD
Copeland LA. Adaptive processes and the development of executive functions in preschoolers with ADHD in a head start early childhood program. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 63 :2452	Could not retrieve

Cosser CP. Raising a child with attention deficit hyperactivity disorder: a parents' perspective. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 68 :3391	Not focused on school setting
Couture C, Royer E, Dupuis FA, Potvin P. Comparison of Quebec and British teachers' beliefs about, training in and experience with attention deficit hyperactivity disorder. <i>Emot Behav Difficult</i> 2003; 8 :284–302	Lacking qualitative data and/or analysis
Currie D, Lee DL, Scheeler MC. Using PDAs to increase the homework completion of students with ADHD. <i>J Evid Base Pract Sch</i> 2005; 6 :151–62	Lacking qualitative data and/or analysis
Davis-Berman JL, Pestello FG. Medicating for ADD/ADHD: personal and social issues. <i>Int J Ment Health Addict</i> 2010; 8 :482–92	Not focused on school setting
Davison JC, Ford DY. Perceptions of attention deficit hyperactivity disorder in one African American community. <i>J Negro Educ</i> 2001; 70 :264–74	Focused on pharmacological interventions
Debonis DA. An evaluation of an executive function-based intervention program for adolescents with ADHD and their parents. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1998; 59 :1902	Lacking qualitative data and/or analysis
Diaz Y. Latino parents' perceptions of, and response to, child attention-deficit/hyperactivity disorder and oppositional defiant disorder: an ecological perspective. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2010; 71 :1339	Not focused on school setting
DiCesare EJ. An evaluation of live relaxation training as a treatment for primary aged school children described as hyperactive impulsive. <i>Diss Abstr Int</i> 1982; 42 :4927	Lacking qualitative data and/or analysis
Dielman MB, Franklin C. Brief solution-focused therapy with parent and adolescents with attention-deficit hyperactivity disorder. <i>Soc Work Educ</i> 1998; 20 :261–8	Lacking qualitative data and/or analysis
dosReis S, Barksdale CL, Sherman A, Maloney K, Charach A. Stigmatizing experiences of parents of children with a new diagnosis of ADHD. <i>Psychiatr Serv</i> 2010; 61 :811–16	Not focused on school setting
dosReis S, Mychailyszyn MP, Myers M, Riley AW. Coming to terms with ADHD: how urban African-American families come to seek care for their children. <i>Psychiatr Serv</i> 2007; 58 :636–41	Not focused on school setting
Duke University, NC Medical Center. <i>Symposium on Literacy and Disabilities</i> . Durham, NC: Duke University, Durham, NC Medical Center; 1997	Could not retrieve
Dunaway C. Attention deficit hyperactivity disorder: an authentic story in the schools and its implications. <i>Semin Speech Lang</i> 2004; 25 :271–5	First person account
Dunne L, Moore A. From boy to man: a personal story of ADHD. <i>Emot Behav Difficult</i> 2011; 16 :351–64	Not focused on school setting
Dyer-Wiley CM. Dealing with a disruptive child. <i>Principal</i> 1999; 78 :30–1	First person account
Edwards L, Salant V, Howard VF, Brouger J, McLaughlin TF. Effectiveness of self-management on attentional behavior and reading comprehension for children with attention deficit disorder. <i>Child Fam Behav Ther</i> 1995; 17 :1–17	Lacking qualitative data and/or analysis
Epstein JN, Willis MG, Conners CK, Johnson DE. Use of a technological prompting device to aid a student with attention deficit hyperactivity disorder to initiate and complete daily tasks: an exploratory study. <i>J Spec Educ Tech</i> 2001; 16 :19–28	Not focused on school setting
Exley B. 'Staying in class so no one can get to him': a case for the institutional reproduction of ADHD categories and behaviours. <i>Int J Inclusive Educ</i> 2008; 12 :65–8	Does not consider experience or attitude toward school-based interventions
Exley B. The Behaviour 'Crisis': Young Children's Mis/Understandings of the Identities of ADHD. Conference paper presented at the Australian Association for Research in Education 2005 International Education Research Conference, Parramatta, Australia, 28 November–1 December	Focused on pharmacological interventions
Exley B. Young children's misunderstandings of the ADHD label. <i>Educ Young Child</i> 2007; 13 :38–40	Focused on pharmacological interventions
Fachin K. Teaching Tommy: a second-grader with attention deficit hyperactivity disorder. <i>Phi Delta Kappan</i> 1996; 77 :437–41	Lacking qualitative data and/or analysis

Farmer JL. The development of the personal strengths intervention (PSI) to improve self-determination and social-emotional levels in postsecondary students with learning disabilities and/or ADHD: a multiple baseline study. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2012; 72 :3710	Not focused on school-age students with ADHD
Fiks AG, Gafen A, Hughes CC, Hunter KF, Barg FK. Using freelistings to understand shared decision making in ADHD: parents' and pediatricians' perspectives. <i>Patient Educ Counsel</i> 2011; 84 :236–44	Not focused on school setting
Filmer R. When Giftedness, Dyslexia and Attention Deficit Hyperactivity Disorder (ADHD) Meet: Two Case Studies of Educational Management. In Wormald C and Vialle W, editors. <i>Dual Exceptionality</i> . Sydney, NSW: Australian Association for the Education of the Gifted and Talented Ltd; 2011. pp. 127–31	Lacking qualitative data and/or analysis
Fiore TA, Becker EA. <i>Promising Classroom Interventions for Students with Attention Deficit Disorders</i> . Research Triangle Park, NC: Research Triangle Institution; 1994	Lacking qualitative data and/or analysis
Firmin MW, Phillips A. A qualitative study of families and children possessing diagnoses of ADHD. <i>J Fam Issues</i> 2009; 30 :1155–74	Not focused on school setting
Folk DK. Stress management and attention-deficit disorder intervention by teachers in the classroom for ADHD and non-ADHD children. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1994; 55 :1996	Not focused on school-age students with ADHD
Fournier CJ. Teacher perceptions of impact of hyperactivity on classroom situations and on ratings of intervention acceptability. <i>Diss Abstr Int</i> 1988; 48 :2832–3	Could not retrieve
Francis A. Stigma in an era of medicalisation and anxious parenting: how proximity and culpability shape middle-class parents' experiences of disgrace. <i>Social Health Illness</i> 2012; 34 :927–42	Not focused on school-age students with ADHD
Fraser C, Belzner R, Conte R. Attention deficit hyperactivity disorder and self-control: a single case study of the use of a timing device in the development of self-monitoring. <i>Sch Psychol Int</i> 1992; 13 :339–45	Lacking qualitative data and/or analysis
Fraser KM. Too young for attention deficit disorder? Views from preschool. <i>J Dev Behav Pediatr</i> 2002; 23 :S46–50	Lacking qualitative data and/or analysis
Friio SS. The experiences of adolescents with ADHD: a phenomenological study. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1999; 59 :4357	Does not consider experience or attitude toward school-based interventions
Frost P. 'Like Switching the Light On' – The Raviv Method and its Contribution to Overcoming Learning Difficulties. Presented at the British Educational Research Association Annual Conference. Institute of Education, University of London, London, 5–8 September 2007	Lacking qualitative data and/or analysis
Fuller PC. Stabilizing attention deficit disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 65 :4725	Not focused on school setting
Furtick J Jr. The impact of labeling on African American males diagnosed with attention deficit disorder (ADD) and attention deficit hyperactive disorder (ADHD): a social work perspective. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 66 :759	Could not retrieve
Gajaria A, Yeung E, Goodale T, Charach A. Beliefs about attention-deficit/hyperactivity disorder and response to stereotypes: youth postings in Facebook groups. <i>J Adolesc Health</i> 2011; 49 :15–20	Not focused on school setting
Gallo MP. College students diagnosed with ADHD: insights into their experiences. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2008; 68 :4999	Could not retrieve
Garro LC, Yarris KE. 'A massive long way': interconnecting histories, a 'special child', ADHD, and everyday family life. <i>Cult Med Psychiatr</i> 2009; 33 :559–607	Does not consider experience or attitude toward school-based interventions
Gharibi H, Gholizadeh Z. Phenomenology of Mothers' Experiences in Living with Children with AD/HD Disorder. Conference paper presented at 2nd World Conference on Psychology, Counselling and Guidance, Antalya, Turkey, 25–29 May 2011	Not focused on school setting

Ghiora WL. Investigation of information offered parents of ADD or ADHD elementary school students in San Diego county schools (California). <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 64 :34	Not focused on school setting
Gillies V. Review of parenting and inclusive education: discovering difference, experiencing difficulty. <i>Sociology</i> 2009; 43 :1205–6	Does not consider experience or attitude toward school-based interventions
Gleeson G. Experiences, Problems and 'Felt Needs' of Teachers Educating Students with Attentional Deficits. Paper presented at the National Conference on the Behaviour management and behavior Change of Children and Youth with emotional and/or behaviour problems, Melbourne, 1996	Could not retrieve
Golda Meir Mount Carmel International Centre. <i>Course on the Education of the Young Child with Special Needs</i> . Israel: Golda Meir Mount Carmel International Centre; 1993	Could not retrieve
Goldstein S. Bye bye Brady Bunch. <i>Fam Ther Network</i> 1986; 10 :31–2, 76–8	Not focused on school setting
Graham LG. Traditional martial arts and children with ADHD: self-perceptions of competence. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 68 :1407	Not focused on school setting
Graham-Day KJ, Gardner R, III, Hsin Y-W. Increasing on-task behaviors of high school students with attention deficit hyperactivity disorder: Is it enough? <i>Educ Treat Child</i> 2010; 33 :205–21	Lacking qualitative data and/or analysis
Grant WS, Flynn B. The hyperactive child: a pediatrician's program. A mother's point of view. <i>Except Parent</i> 1980; 10 :5–10	First person account
Gray GB. Career decision making for male students with attention deficit hyperactivity disorder: a model of critical factors aiding in transitional efforts. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2010; 70 :2396	Not focused on school setting
Griffin E, Pollak D. Student experiences of neurodiversity in higher education: insights from the BRAINHE project. <i>Dyslexia</i> 2009; 15 :23–41	Not focused on school-age students with ADHD
Griswold DS. Perceptions of elementary educators concerning ADDH in children. <i>Diss Abstr Int</i> 1991; 52 :472	Could not retrieve
Guevara JP, Feudtner C, Romer D, Power T, Eiraldi R, Nihtianova S, et al. Fragmented care for inner-city minority children with attention-deficit/hyperactivity disorder. <i>Pediatrics</i> 2005; 116 :e512–17	Not focused on school setting
Guli LA, Semrud-Clikeman M, Lerner MD, Britton N. Social competence intervention program (SCIP): a pilot study of a creative drama program for youth with social difficulties. <i>Arts Psychother</i> 2013; 40 :37–44	Not focused on school setting
Guli LA. The effects of creative drama-based intervention for children with deficits in social perception. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 65 :3690	Not focused on school-age students with ADHD
Hansen DL, Hansen EH. Caught in a balancing act: parents' dilemmas regarding their ADHD child's treatment with stimulant medication. <i>Qual Health Res</i> 2006; 16 :1267–85	Focused on pharmacological interventions
Harris KR, Friedlander BD, Saddler B, Frizzelle R, Graham S. Self-monitoring of attention versus self-monitoring of academic performance: effects among students with ADHD in the general education classroom. <i>J Spec Educ</i> 2005; 39 :145–56	Lacking qualitative data and/or analysis
Harris KR. Self-monitoring of attentional behavior versus self-monitoring of productivity: effects on on-task behavior and academic response rate among learning disabled children. <i>J Appl Behav Anal</i> 1986; 19 :417–23	Lacking qualitative data and/or analysis
Harvey WJ, Reid G, Bloom GA, Staples K, Grizenko N, Mbekou V, et al. Physical activity experiences of boys with and without ADHD. <i>Adapt Phys Activ Q</i> 2009; 26 :131–50	Not focused on school setting
Hervey-Jumper H, Douyon K, Falcone T, Franco KN. Identifying, evaluating, diagnosing, and treating ADHD in minority youth. <i>J Attention Disord</i> 2008; 11 :522–8	Not primary research
Hibbitts P. We do this for the next child: a mother's phenomenological auto narrative inquiry into experiencing her children's schools. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2010; 71 :1152	Does not consider experience or attitude toward school-based interventions

Hjörne E, Säljö R. 'There is something about Julia': symptoms, categories, and the process of invoking attention deficit hyperactivity disorder in the Swedish school: a case study. <i>J Lang Ident Educ</i> 2004; 3 :1–24	Lacking qualitative data and/or analysis
Hogg CM. <i>Hyperactive Children and Their Social Relationships</i> . Cambridge: University of Cambridge; 1986	Could not retrieve
Hollwey S. A demon in the nursery. <i>Montessori Courier</i> 1991; 2 :18–19	Could not retrieve
Holmes KD. An exploration of attention deficit hyperactivity disorder in adults. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 66 :3968	Not focused on school-age students with ADHD
Holst J. Danish teachers' conception of challenging behaviour and DAMP/ADHD. <i>Early Child Dev Care</i> 2008; 178 :363–74	Not focused on school-age students with ADHD
Holthouse D. Speak out for understanding. <i>Teach Tolerance</i> 2009:30–3	Not focused on school-age students with ADHD
Huber JS. The mediating effect of sibling warmth on parental stress in families with children who have attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 71 :3053	Not focused on school setting
Hudyma SAM. <i>Teacher's Knowledge of Attention Deficit Hyperactivity Disorder (ADHD) and How Students with ADHD are Supported in Western Australian schools</i> . Crawley, WA: University of Western Australia; 2007	Could not retrieve
Hughes LA. The reality of living with AD/HD: children's concern about educational and medical support. <i>Emot Behav Difficult</i> 2007; 12 :69–80	Lacking qualitative data and/or analysis
Innes C. Integration or separation? Catering for students with special needs. <i>Christ Teach J</i> 2008; 16 :22–5	Not focused on school-age students with ADHD
Jamieson H. Social Outcomes: A Whole School Approach. Paper presented at National Educators Conference, Perth, Australia, 2004	Could not retrieve
Jennings RG. <i>Parental Aspirations for Children and Children's Aspirations: A Longitudinal Study of Educational and Career Aspirations among Hyperactive and Non-Hyperactive Children</i> . Macomb, IL: Western Illinois University; 1992	Could not retrieve
Jefferson County School District R-1. <i>Kids Explore the Gifts of Children with Special Needs. Westridge Young Writers Workshops</i> . Sante Fe, NM: John Muir Publications; 1994	Lacking qualitative data and/or analysis
Jerome L. Teaching Children to Ignore Teasing: A Cognitive Behavioural Family Strategy for Dealing with Teasing and Reactive Bullying. <i>J Can Acad Child Adolesc Psychiatry</i> 2006; 15 :91	Lacking qualitative data and/or analysis
Johnsen SK, Kendrick J. <i>Teaching Gifted Students with Disabilities</i> . Waco, TX: Prufrock Press; 2005	First person account
Johnson KK. Teaching Shakespeare to learning disabled students. <i>Engl J</i> 1998; 87 :45	Not focused on school-age students with ADHD
Jones E. A parent's experience of schooling for a child with ADHD. <i>Reach</i> 2006; 20 :55–9	First person account
Jones MM. Chapter Four: Two Sides of Isis. In Jones MM, editor. <i>Whisper Writing: Teenage Girls Talk about Ableism and Sexism in School</i> . Oxford: Peter Lang Publishing Inc.; 2004. pp. 59–79	First person account
Kaidar I, Wiener J, Tannock R. The attributions of children with attention-deficit/hyperactivity disorder for their problem behaviors. <i>J Attention Disord</i> 2003; 6 :99–109	Lacking qualitative data and/or analysis
Kakouros E, Maniadaki K, Papaeliou C. How Greek teachers perceive school functioning of pupils with ADHD. <i>Emot Behav Difficult</i> 2004; 9 :41–53	Lacking qualitative data and/or analysis
Kamras J. A trip to the rose garden. <i>Education Next</i> 2006; 6 :88	Not focused on school-age students with ADHD
Kaplan M. Review of framing ADHD children: a critical examination of the history, discourse, and everyday experience of attention deficit/hyperactivity disorder. <i>Psychiatr Serv</i> 2006; 57 :586–7	Not focused on school setting
Kaplan ME. Improving reading performance in inattentive children through mediated learning experience. <i>Diss Abstr Int</i> 1991; 51 :3018	Could not retrieve

Karnik NS. Categories of control: foster children and ADHD. <i>Child Youth Serv Rev</i> 2001; 23 :761–80	Not focused on school setting
Kean B. The Risk Society and attention deficit hyperactivity disorder (ADHD): a critical social research analysis concerning the development and social impact of the ADHD diagnosis. <i>Ethical Hum Psychol Psychiatry</i> 2005; 7 :131–42	Focused on pharmacological interventions
Kellner RN. Attention-deficit/hyperactivity disorder children's social self-perceptions of their peer-related personal and interpersonal problems. Crawley: University of Western Australia; 2000	Could not retrieve
Kennedy TK. A case of an UGLDS: unidentified gifted/learning disabled student. <i>Australas J Gift Educ</i> 2004; 13 :24–34	Could not retrieve
Khan UU. <i>Emotional Reactivity of Children and Adolescents Diagnosed with an Attention-Deficit Disorder: Teachers' Perspectives</i> . Crawley, WA: University of Western Australia; 2003	Could not retrieve
Kidd AC. Sleep disorders in children: A qualitative research study on the comparison of behavioral symptoms associated with poor quality sleep and ADHD. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2009; 70 :1555	Not focused on school-age students with ADHD
Kidder RM. When don't you tell the teacher? <i>Educ Can</i> 2009; 49 :35	First person account
Kildea S, Wright J, Davies J. Making sense of ADHD in practice: a stakeholder review. <i>Clin Child Psychol Psychiatr</i> 2011; 16 :599–619	Not focused on school setting
King GA, Brown EG, Smith LK. <i>Resilience: Learning from People with Disabilities and the Turning Points in their Lives</i> . Westport, CT: Praeger Publishers/Greenwood Publishing Group; 2003	First person account
King JL. Adults' descriptions of their lived experience taking methylphenidate in their school-aged years: a phenomenological investigation. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2010; 70 :5827	Not focused on school setting
Kingston AK. <i>Mothering Special Needs: A Different Maternal Journey</i> . London, England: Jessica Kingsley Publishers; England; 2007	Not focused on school setting
Knezevic-Florin O, Zukovic S, Ninkovic S. Case study: school experience of children with attention deficit hyperactivity disorder. <i>Health Med</i> 2012; 6 :3482–7	Other
Knipp DK. Teens' perceptions about attention deficit/hyperactivity disorder and medications. <i>J Sch Nurs</i> 2006; 22 :120–5	Focused on pharmacological interventions
Knippenberg CA, Ernewein P. The feeling de jour: a therapist's and teacher's perspective on the emotional impairments of exceptional children. <i>Educ Psychol J</i> 2010; 47 :22–6	First person account
Knowles T. The Kids behind the Label: Understanding ADHD. <i>Educ Digest</i> 2010; 76 :59–61	First person account
Konza D. <i>An Effective Teaching Model Based on Classroom Observations of Students with Attention Deficit Hyperactivity Disorder</i> . Wollongong, NSW: University of Wollongong; 1999	Could not retrieve
Konza D. Gifted? ADHD? Or Both? In Embracing Diversity. Proceeding of the 21st National Conference of the Australia Association of Special Education Inc., 20–28 September. Brisbane, QLD: Australian Association of Special Education; 1997	Could not retrieve
Koro-Ljungberg M, Bussing R, Wilder J, Gary F. Role of communication in the context of educating children with attention-deficit/hyperactivity disorder: parents' and teachers' perspectives. <i>J Sch Publ Relat</i> 2011; 32 :41–75	Does not consider experience or attitude toward school-based interventions
Koro-Ljungberg M, Bussing R, Williamson P, Wilder J, Mills T. African-American teenagers' stories of attention deficit/hyperactivity disorder. <i>J Child Fam Stud</i> 2008; 17 :467–85	Does not consider experience or attitude toward school-based interventions
Koro-Ljungberg M, Bussing R. The management of courtesy stigma in the lives of families with teenagers with ADHD. <i>J Fam Issues</i> 2009; 30 :1175–200	Not focused on school setting
Kos JM, Richdale AL, Hay DA. Children with attention deficit hyperactivity disorder and their teachers: a review of the literature. <i>Int J Disabil Dev Educ</i> 2006; 53 :147–60	Not primary research
Kostelnik MJ, Onaga E, Rohde B, Whiren A. Children with Special Needs: Lessons for Early Childhood Professionals. In Kostelnik MJ, editor. <i>Early Childhood Education Series</i> . Williston, VT: Teachers College Press; 2002. pp. 100–19	First person account

Kothari J, Morgan S. Multi-agency training programmes for professionals and parents of children with ADHD. <i>Arch Dis Child</i> 2010; 95 :A97	Lacking qualitative data and/or analysis
Krout R, Burnham A, Moorman S. Computer and electronic music applications with students in special education: From program proposal to progress evaluation. <i>Music Ther Perspect</i> 1993; 11 :28–31	Lacking qualitative data and/or analysis
Landwehr JM. Understanding youth with ADHD in the context of mother-child and father-child relationships: a mixed methods study. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2012; 73 :1294	Not focused on school setting
Laughlin C, Hall SB. When is ritalin the answer? <i>Learning</i> 1995; 24 :56–8	Lacking qualitative data and/or analysis
Laurell GC. ADHD and other stories from the forsaken garden. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 64 :412	Does not consider experience or attitude toward school-based interventions
Lavorata CM. Attention deficit hyperactivity disorder: families choosing alternate management approaches. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2001; 62 :1706	Focused on pharmacological interventions
Law J, Plunkett C, Taylor J, Gunning M. Developing policy in the provision of parenting programmes: integrating a review of reviews with the perspectives of both parents and professionals. <i>Child Care Health Dev</i> 2009; 35 :302–12	Not focused on school setting
Lee K. ADHD in American early schooling: from a cultural psychological perspective. <i>Early Child Dev Care</i> 2008; 178 :415–39	Does not consider experience or attitude toward school-based interventions
Lensch CR. Making sense of attention deficit/hyperactivity disorder. Westport, CT: Bergin & Garvey; 2000	Not primary research
Leslie LK, Plemmons D, Monn AR, Palinkas LA. Investigating ADHD treatment trajectories: listening to families' stories about medication use. <i>J Dev Behav Pediatr</i> 2007; 28 :179–88	Focused on pharmacological interventions
Levine ES, Anshel DJ. 'Nothing works!' A case study using cognitive-behavioral interventions to engage parents, educators, and children in the management of attention-deficit/hyperactivity disorder. <i>Psychol Schools</i> 2011; 48 :297–306	Lacking qualitative data and/or analysis
Levine JE. <i>Learning from Behavior: How to Understand and Help 'Challenging' Children in School</i> . Westport, CT: Praeger Publishers/Greenwood Publishing Group; 2007	Lacking qualitative data and/or analysis
Litt J. Women's carework in low-income households – the special case of children with attention deficit hyperactivity disorder. <i>GenD Soc</i> 2004; 18 :625–44	Not focused on school setting
Little AM. Perceptions of Baldrige criteria implementation in middle school inclusive language arts classrooms. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 72 :887	Lacking qualitative data and/or analysis
Ljusberg A-L, Brodin J. Self-concept in children with attention deficits. <i>Int J Rehabil Res</i> 2007; 30 :195–201	Lacking qualitative data and/or analysis
Lovey J. Dealing with AD/HD in the classroom: one teacher's experience. <i>Emot Behav Difficult</i> 1998; 3 :30–6	Lacking qualitative data and/or analysis
Maddern L, Franey J, McLaughlina V, Cox S. An evaluation of the impact of an inter-agency intervention programme to promote social skills in primary school children. <i>Educ Psychol Pract</i> 2004; 20 :135–55	Not focused on school-age students with ADHD
Magiati I, Dockrell JE, Logotheti AE. Young children's understanding of disabilities: the influence of development, context, and cognition. <i>J Appl Dev Psychol</i> 2002; 23 :409–30	Lacking qualitative data and/or analysis
Malacrida C. Medicalization, ambivalence and social control: mothers' descriptions of educators and ADD/ADHD. <i>Health (Lond)</i> 2004; 8 :61–80	Does not consider experience or attitude toward school-based interventions
Malacrida C. Motherhood, resistance and attention deficit disorder: strategies and limits. <i>Can Rev Sociol Anthropol</i> 2001; 38 :141–65	Not focused on school setting

Margalit M, Raskind MH, Higgins EL, Russo-Netzer P. Mothers' Voices on the internet: stress, support and perceptions of mothers of children with learning disabilities and attention deficit/hyperactivity disorder. <i>Learn Disabil</i> 2010; 16 :3–14	Does not consider experience or attitude toward school-based interventions
Margalit M, Raskind MH. Mothers of children with LD and ADHD: empowerment through online communication. <i>J Spec Educ Tech</i> 2009; 24 :2	Not focused on school setting
Marks SU, Schrader C, Levine M. Paraeducator experiences in inclusive settings: helping, hovering, or holding their own? <i>Except Child</i> 1999; 65 :315–28	Not focused on school-age students with ADHD
Mattingly G, Surman CB, Mao AR, Eagan CA, Onofrey M, Lerner M. Improving communication in ADHD care: results from in-office linguistic research. <i>CNS Spectrums</i> 2011; 16	Not focused on school setting
Mattison RE. Consultation interactions between special education teachers and child psychiatrists. <i>Child Adolesc Psychiatr Clin N Am</i> 2001; 10 :67–82	Lacking qualitative data and/or analysis
McDannel RP. Classroom occupations from the perspectives of three high school students with attention deficit disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 65 :2550	Does not consider experience or attitude toward school-based interventions
McFerran K. Quenching a desire for power: the role of music therapy for adolescents with ADHD. <i>Australas J Spec Educ</i> 2009; 33 :72–83	Other
McHoul A, Rapley M. A case of attention-deficit/hyperactivity disorder diagnosis: Sir Karl and Francis B. slug it out on the consulting room. <i>Discourse Soc</i> 2005; 16 :419–49	Not focused on school setting
McIntyre R, Hennessy E. 'He's just enthusiastic. Is that such a bad thing?' Experiences of parents of children with attention deficit hyperactivity disorder. <i>Emot Behav Difficult</i> 2012; 17 :65–82	Not primary research
McKinney JD, Feagans L. Adaptive classroom behavior of learning disabled students. <i>J Learn Disabil</i> 1983; 16 :360–7	Not primary research
McMahon SE. Doctors diagnose, teachers label: the unexpected in pre-service teachers' talk about labelling children with ADHD. <i>Int J Inclusive Educ</i> 2012; 16 :249–64	Does not consider experience or attitude toward school-based interventions
McMenamy JM, Perrin EC, Wisner M. Age-related differences in how children with ADHD understand their condition: biological or psychological causality? <i>J Appl Dev Psychol</i> 2005; 26 :111–31	Not focused on school setting
McMenamy JM, Perrin EC. The impact of experience on children's understanding of ADHD. <i>J Dev Behav Pediatr</i> 2008; 29 :483–92	Not focused on school setting
McMenamy JM. Children's understanding of psychological and physical conditions: an investigation of domain-specificity. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2001; 61 :5029	Not focused on school setting
McNeil KN. The Guardian of the Dream: A Journey through Attention Deficit Hyperactive Disorder to the Other Side of Me. In Pena RA, Guest K, Matsuda L, editors. <i>Community and Difference: Stories about Social Justice and Teaching</i> . New York, NY: Peter Lang Publishing Inc.; 2007. pp. 123–43	First person account
Meadows NB. Meeting the challenges of responsible inclusion. <i>Prev Sch Fail</i> 1996; 40 :139–42	First person account
Meaux JB, Hester C, Smith B, Shoptaw A. Stimulant medications: a trade-off? The lived experience of adolescents with ADHD. <i>J Spec Pediatr Nurs</i> 2006; 11 :214–26	Not focused on school setting
Mickelson J-R. Our sons were labeled behavior disordered: here are the stories of our lives. Troy, NY: Educator's International Press; 2000	Not focused on school-age students with ADHD
Miller AR, Condin CJ, McKellin WH, Shaw N, Klassen AF, Sheps S. Continuity of care for children with complex chronic health conditions: parents' perspectives. <i>BMC Health Serv Res</i> 2009; 9 :242	Not focused on school-age students with ADHD
Miller TW, Nigg JT, Miller RL. Attention deficit hyperactivity disorder in African American children: what can be concluded from the past ten years? <i>Clin Psychol Rev</i> 2009; 29 :77–86	Not primary research

Mills I. Understanding parent decision making for treatment of ADHD. <i>Sch Soc Work J</i> 2011; 36 :41–60	Focused on pharmacological interventions
Mintz J. Understanding of special educational needs terms by student teachers and student paediatric nurses. <i>Eur J Spec Needs Educ</i> 2010; 25 :225–38	Lacking qualitative data and/or analysis
Model SLF. Bear up early childhood teachers . . . accommodate attention deficit disorder children. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1995; 55 :3407	Not primary research
Moen OL, Hall-Lord ML, Hedelin B. Contending and adapting every day: Norwegian parents' lived experience of having a child with ADHD. <i>J Fam Nurs</i> 2011; 17 :441–62	Not focused on school setting
Monaco T, Eichenold D, Kasper V, Gonzales CV, Jackson S, Earle M, et al. Teachers identify and support at-risk gifted students. <i>Acad Leader</i> 2010; 8 :1–9	Lacking qualitative data and/or analysis
Montgomery CM. Discipline and love in African-Americans parenting children with attention deficit hyperactivity disorder: cultural dilemmas in becoming a 'good' parent. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 68 :1532	Not focused on school setting
Montgomery JK. Characteristics and development of male adolescent students who are gifted, gifted twice-exceptional, or attention deficit: a mixed-methods study. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 68 :2407	Lacking qualitative data and/or analysis
Moon SM, Zentall SS, Grskovic JA, Hall A, Stormont M. Emotional and social characteristics of boys with AD/HD and giftedness: a comparative case study. <i>J Educ Gift</i> 2001; 24 :207–47	Does not consider experience or attitude toward school-based interventions
Morrison R, Burgman I. Friendship experiences among children with disabilities who attend mainstream Australian schools. <i>Can J Occup Ther</i> 2009; 76 :145–52	Not focused on school-age students with ADHD
Morse E. Caretakers of children with ADHD: issues and experiences. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2003; 63 :3930	Could not retrieve
Morthel RD. A gender based comparative study of attention deficit hyperactivity disorder on behavior and achievement of elementary students. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2010; 70 :2387	Lacking qualitative data and/or analysis
Moses T. Being treated differently: stigma experiences with family, peers, and school staff among adolescents with mental health disorders. <i>Soc Sci Med</i> 2010; 70 :985–93	Not focused on school-age students with ADHD
Moss JJ. Biomedicalizing schoolroom performances. Constructions of attention deficit disorder and reading disability in the first grade. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2010; 70 :2756	Lacking qualitative data and/or analysis
Mueller TG. IEP facilitation: a promising approach to resolving conflicts between families and schools. <i>Teach Except Child</i> 2009; 41 :60–7	Lacking qualitative data and/or analysis
Murray E. 'Don't Give Up On Them': <i>Managing Attention Deficit Hyperactivity Disorder in Schools: What Teachers and Parents Believe and Know</i> . Perth, WA: Murdoch University; 2009	Lacking qualitative data and/or analysis
Naughton J. Disabilities from an insider's perspective. <i>Res Teach Dev Educ</i> 2011; 28 :43–9	First person account
Navarro V, Danforth S. A case study of ADHD diagnosis in middle school: perspectives and discourses. <i>Ethical Hum Psychol Psychiatry</i> 2004; 6 :111–24	Focused on pharmacological interventions
Neophytou K, Webber R. Attention deficit hyperactivity disorder: the family and social context. <i>Aust Soc Work</i> 2005; 58 :313–25	Not focused on school setting
Neophytou K. <i>ADHD, a Social Construct? The Experience of Families Who Have a Child Diagnosed with Attention Deficit Hyperactivity Disorder</i> . Melbourne: Australian Catholic University; 2004	Focused on pharmacological interventions
Nicholls CJ. Lessons learned in living with attention-deficit hyperactivity disorder. <i>J Child Neurol</i> 2004; 19 :828–30	First person account
Nielsen JA. Increasing awareness of learning disabilities. <i>Alberta J Educ Res</i> 1997; 43 :169–72	Not focused on school setting
Nilholm C, Alm B. An inclusive classroom? A case study of inclusiveness, teacher strategies, and children's experiences. <i>Eur J Spec Needs Educ</i> 2010; 25 :239–52	Not focused on school-age students with ADHD

Norgard L. A strength-based behavioral approach to reduce stimulant medication referrals in elementary schools. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 67 :3165	Not focused on school-age students with ADHD
Norris JA, Hoffman PR. Attaining, sustaining, and focusing attention: intervention for children with ADHD. <i>Semin Speech Lang</i> 1996; 17 :59–71	Not focused on school setting
Oberthur AP. <i>A Study of Parents' Perceptions of the Behaviour and Learning of their Children With Attention Deficit Disorder</i> . Brisbane, QLD: University of Queensland; 1996	Could not retrieve
Okafor MN. Narrating realities of Latino mothers of children with attention deficit hyperactivity disorder {ADHD} using ecological and cultural approach. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 67 :4595	Not focused on school setting
Olaniyan O, dosReis S, Garriett V, Mychailyszyn MP, Anixt J, Rowe PC, <i>et al</i> . Community perspectives of childhood behavioral problems and ADHD among African American parents. <i>Ambul Pediatr</i> 2007; 7 :226–31	Not focused on school setting
Olmeda RE, Thomas AR, Davis CP. An analysis of sociocultural factors in social skills training studies with students with attention deficit/hyperactivity disorder. <i>Multiple Voices</i> 2003; 6 :58–72	Could not retrieve
O'Regan F, Cooper P. Ruby Tuesday: a student with ADHD and learning difficulties. <i>Emot Behav Difficult</i> 2001; 6 :265–9	First person account
Oslington G. Our family's experience with the 'DORE' program. <i>Gifted</i> 2008:6–8	Could not retrieve
Pang WC, Zhang KC. Reading intervention for secondary students with hyperactive behaviours in Hong Kong. <i>Emot Behav Difficult</i> 2011; 16 :69–85	Lacking qualitative data and/or analysis
Paoni MF. The synthesis of a social information processing model of attention-deficit/hyperactivity disorder and social competence intervention. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2001; 61 :6144	Not focused on school setting
Papadopoulos TC, Mulcahy RF. Pedagogy of integration: interactions between children with and without special needs in early childhood and elementary integrated settings. <i>Can J Spec Educ</i> 1995; 10 :136–58	Lacking qualitative data and/or analysis
Partridge L, Williams N. What's In It For Me? New Perspectives on Motivating Students With AD/HD. In PL Jeffery, editor. <i>Proceedings of AARE 2007 International Education Research Conference. 2007 November 26-29; Fremantle, Australia</i> . Melbourne, VIC: Australian Association for Research in Education; 2008	Not primary research
Partridge RK. <i>Listening to the AD/HD-Diagnosed Schoolboy as 'Insider': A Grounded Theory Study</i> . Perth, WA: University of Western Australia; 2006	Could not retrieve
Pelham WE, Milich R. Peer relations in children with hyperactivity/attention deficit disorder. <i>J Learn Disabil</i> 1984; 17 :560–7	Not primary research
Pellegrini AD, Landers-Pott M. Children, classroom context and activity and attention to tasks. <i>Emot Behav Difficult</i> 1996; 1 :29–35	Not primary research
Perry SN, Franklin KK. An Analysis of College Students with AD/HD at a Private and Public Institution in Arkansas Using a Grounded Theory Approach. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, Chattanooga, TN, 6–8 November 2002	Could not retrieve
Pester J. An investigative assessment of the need for a Y9 pupil with learning difficulties and ADHD. <i>Emot Behav Difficult</i> 2002; 7 :215–27	Lacking qualitative data and/or analysis
Peters K, Jackson D. Mothers' experiences of parenting a child with attention deficit hyperactivity disorder. <i>J Adv Nurs</i> 2009; 65 :62–71	Not focused on school setting
Peterson D, Maddux CD. Rural regular and special education teachers' perceptions of teaching hyperactive students. <i>Rural Spec Educ Q</i> 1988; 9 :10–15	Lacking qualitative data and/or analysis
Petruzzi L. Attention deficit disorder: family physicians' perspective on diagnosis and treatment. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 66 :2806	Not focused on school setting
Plumer PJ. Using peers as intervention agents to improve the social behaviors of elementary-aged children with attention deficit hyperactivity disorder: effects of a peer coaching package. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2008; 68 :2813	Lacking qualitative data and/or analysis

Poillion MJ. Effects of teacher training on the alteration of teacher instructional style and the academic success of students identified with attention-deficit hyperactivity disorder. <i>Diss Abstr Int</i> 1993; 54 :2121	Lacking qualitative data and/or analysis
Poley JA. Effects of classroom cognitive behavioral training with elementary school ADHD students: a pilot study. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1996; 56 :2616	Lacking qualitative data and/or analysis
Porter L. Collaboration with parents. <i>Teach Learn Netw</i> 2009; 16 :23–5	Not focused on school-age students with ADHD
Pretorius D. <i>How Parents of Children Diagnosed with Attention-Deficit/Hyperactivity Disorder Manage their Children: Scaffolding in Chaos</i> . Perth, WA: University of Western Australia; 2005	Could not retrieve
Prigg A. Experiences and perceived roles of occupational therapists working with children with special learning needs during transition to school: a pilot study. <i>Aust Occup Ther J</i> 2002; 49 :100–11	Not focused on school-age students with ADHD
Prosser B. <i>Behaviour Management or Management Behaviour? A Sociological Study of Attention Deficit Hyperactivity Disorder (ADHA) in Australian and American Secondary Schools</i> . Perth, WA: Murdoch University; 2001	Not focused on school setting
Prosser B. Beyond Deficit Views: Redesigning Pedagogies To Engage Students Identified With Attention Deficit Hyperactivity Disorder. Paper presented at the Culture, Knowledge and Understanding Conference, Singapore, May 2007	Lacking qualitative data and/or analysis
Prosser B. Hearing silenced voices: using narrative research with marginalised youth. <i>Crit Pedagog Netw</i> 1998; 11 :1–11	Could not retrieve
Prosser B. Media and Pedagogical Exchange: Taking ADHD to Radio 2GB. In Jeffery PL, editor. <i>Proceedings of the AARE 2009 International Education Research Conference; 2009 December 2; Canberra, Australia</i> . Melbourne, VIC: Australian Association for Research in Education; 2010	Not focused on school setting
Prosser B. Weaving a Whole Cloth: Metaphor as a Response to Representational Challenges in Critical Narrative Research. In Jeffery PL, editor. <i>Proceedings of the AARE 2007 International Education Research Conference; 2007 November 28; Fremantle, Australia</i> . Melbourne, VIC: Australian Association For Research in Education; 2008	Lacking qualitative data and/or analysis
Prosser BJ. <i>Seeing Red: A Case of Critical Narrative in ADHD Research</i> . Teneriffe, QLD: Post Pressed; 2006	Does not consider experience or attitude toward school-based interventions
Anonymous. Pupils I'll never forget. <i>Times Educ Suppl</i> 2004; 7	Not focused on school-age students with ADHD
Quinn PO. <i>Adolescents and ADD: Gaining the Advantage</i> . Washington, DC: Magination Press/American Psychological Association; 1995	First person account
Radford PM, Ervin RA. Employing descriptive functional assessment methods to assess low-rate, high-intensity behaviors: a case example. <i>J Posit Behav Interv</i> 2002; 4 :146–55	Lacking qualitative data and/or analysis
Rafalovich A. Relational troubles and semiofficial suspicion: educators and the medicalization of 'unruly' children. <i>Symbolic Interact</i> 2005; 28 :25–46	Not focused on school-age students with ADHD
Rapport MD. A comparison of attentional training utilizing a response cost procedure and methylphenidate (ritalin) on the classroom behaviors of hyperactive children. <i>Diss Abstr Int</i> 1981; 42 :389	Lacking qualitative data and/or analysis
Raskind MH, Margalit M, Higgins EL. 'My LD': children's voices on the internet. <i>Learn Disabil Q</i> 2006; 29 :25–68	Not focused on school-age students with ADHD
Reiber C, McLaughlin TF. Classroom interventions: methods to improve academic performance and classroom behavior for students with attention-deficit/hyperactivity disorder. <i>Int J Spec Educ</i> 2004; 19 :1–13	Lacking qualitative data and/or analysis
Reid R, Hertzog M, Snyder M. Educating every teacher, every year: the public schools and parents of children with ADHD. <i>Semin Speech Lang</i> 1996; 17 :73–90	Not focused on school-age students with ADHD
Reis EM. Attention deficit hyperactivity disorder: implications for the classroom teacher. <i>J Instr Psychol</i> 2002; 29 :175–8	Not primary research

Risley J. Her grades fell. It was hard to watch. <i>Working Mother</i> 2003;50	Could not retrieve
Robbins KS. The social construction of attention deficit disorder: an ethnography and archaeology (Michel Foucault). <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2000;60:3534	Not focused on school setting
Robin SS, Bosco JJ. Creating an Approach for Understanding the Diagnosis and Treatment of Hyperkinetic Children. Paper presented at the Annual Meeting of the American Educational Research Association. Boston, MA, April 1980	Could not retrieve
Robins M, Gilbert RN. <i>Welcome to Our World: Realities of High School Students</i> . Thousand Oaks, CA: Corwin Press, Inc.; 1998	Not focused on school-age students with ADHD
Robinson K. Reflections on parenting a child with ADHD: exploring professional–client relationships. <i>J Fem Fam Ther</i> 2003;15:75–90	Not focused on school setting
Rosenzweig JM, Brennan EM, Ogilvie A. Work-family fit: voices of parents of children with emotional and behavioral disorders. <i>Soc Work</i> 2002;47:415–24	Not focused on school-age students with ADHD
Ross E, Ross EC. The identification of ADHD. <i>Infants Young Child</i> 2006;19:164–7	First person account
Rudnick P. My Billy. <i>New Yorker</i> 2006;82:40	First person account
Ruenzel D. Addicted. <i>Teach Mag</i> 1996;8:28–9,32,4–5	First person account
Rush C, Harrison P. Ascertaining teachers' perceptions of working with adolescents diagnosed with attention-deficit/hyperactivity disorder. <i>Educ Psychol Pract</i> 2008;24:207–23	Lacking qualitative data and/or analysis
Rush S, Wheeler J. Ascertaining disabling perceptions using perceptual mapping: applications to teachers' perceptions of adolescents with attention-deficit/hyperactivity disorder. <i>Disabil Soc</i> 2011;26:743–56	Lacking qualitative data and/or analysis
Rush S. Teachers' perceptions of working with adolescents with attention-deficit/hyperactivity disorder: a concept-mapping approach. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005;66:1223	Could not retrieve
Ryan S. 'I used to worry about what other people thought but now I just think . . . well I don't care': shifting accounts of learning difficulties in public places. <i>Health Place</i> 2008;14:730–9	Not focused on school setting
Salt N, Parkes E, Scammell A. GPs' perceptions of the management of ADHD in primary care: a study of Wandsworth GPs. <i>Prim Health Care Res Dev</i> 2005;6:162–71	Not focused on school setting
Sams SE. The effects of functional intervention on the behavior of four students labeled ADHD. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1999;60:1081	Lacking qualitative data and/or analysis
Schaedler JS. A phenomenological study of the developmental course and adult outcome of women with attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2000;60:4908	Could not retrieve
Schirduan V, Case K. Mindful curriculum leadership for students with attention deficit hyperactivity disorder: leading in elementary schools by using multiple intelligences theory (SUMIT). <i>Teachers Coll Rec</i> 2004;106:87–95	Lacking qualitative data and/or analysis
Schirduan V, Case KI. Mindful Curriculum Leadership for Students with Attention Deficit Hyperactivity Disorder (ADHD): Leading in Elementary Schools by Using Multiple Intelligences Theory (SUMIT[C]). Paper presented at the Annual Meeting of the American Education Research Association, Seattle, WA, 10–14 April 2001	Lacking qualitative data and/or analysis
Schirduan VM. Elementary students with attention deficit hyperactivity disorder (ADHD) in schools using multiple intelligences theory: Intelligences, self-concept, and achievement. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2000;61:891	Lacking qualitative data and/or analysis
Schmalzer SN. Teachers' perceptions of self-management interventions for ADHD: an initial investigation. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009;69:6435	Lacking qualitative data and/or analysis
Scope CR. The efficacy of conjoint behavioral consultation to reduce the off-task behavior of elementary school children diagnosed with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003;64:1975	Lacking qualitative data and/or analysis

Seabi J. Foundation phase educators' perceptions of attention deficit hyperactivity disorder at a mainstream primary school. <i>S Afr J High Educ</i> 2010; 24 :616–29	Does not consider experience or attitude toward school-based interventions
Segal E. Mothering a child with attention-deficit hyperactivity disorder: learned mothering. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1996; 56 :4950	Not focused on school setting
Segal R, Frank G. The extraordinary construction of ordinary experience: scheduling daily life in families with children with attention deficit hyperactivity disorder. <i>Scand J Occup Ther</i> 1998; 5 :141–7	Not focused on school setting
Segal R, Hinojosa J. The activity setting of homework: an analysis of three cases and implications for occupational therapy. <i>Am J Occup Ther</i> 2006; 60 :50–9	Not focused on school setting
Segal R. The construction of family occupations: a study of families with children who have attention deficit/hyperactivity disorder. <i>Can J Occup Ther</i> 1998; 65 :286–92	Not focused on school setting
Shattell MM, Bartlett R, Rowe T. 'I have always felt different': the experience of attention-deficit/hyperactivity disorder in childhood. <i>J Pediatr Nurs</i> 2008; 23 :49–57	Not focused on school setting
Shaw K, Wagner I, Eastwood H, Mitchell G. A qualitative study of Australian GPs' attitudes and practices in the diagnosis and management of attention-deficit/hyperactivity disorder (ADHD). <i>J Fam Pract</i> 2003; 20 :129–34	Not focused on school setting
Shea B, Wiener J. Social exile: the cycle of peer victimization for boys with ADHD. <i>Can J Sch Psychol</i> 2003; 18 :55–90	Not focused on school setting
Sheehan AD, Sheehan CM. Lost in a sea of ink: how I survived the storm. <i>J Adolesc Adult Literacy</i> 2000; 44 :20	Lacking qualitative data and/or analysis
Singer B. The psychological experience of siblings of children with ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1997; 58 :2700	Could not retrieve
Singh I. A disorder of anger and aggression: children's perspectives on attention deficit/hyperactivity disorder in the UK. <i>Soc Sci Med</i> 2011; 73 :889–96	Does not consider experience or attitude toward school-based interventions
Singh I. Boys will be boys: fathers' perspectives on ADHD symptoms, diagnosis, and drug treatment. <i>Harv Rev Psychiatr</i> 2003; 11 :308–16	Not focused on school setting
Singh I. Doing their jobs: mothering with Ritalin in a culture of mother-blame. <i>Soc Sci Med</i> 2004; 59 :1193–205	Not focused on school setting
Slee R. Finding a student voice in school reform: student disaffection, pathologies of disruption and educational control. <i>Int Stud Social Educ</i> 1994; 4 :147–72	Lacking qualitative data and/or analysis
Smith M, Tett L. New community schools and pupils with social, emotional and behavioural difficulties. <i>Scot Educ Rev</i> 2002; 34 :151–62	Not focused on school-age students with ADHD
Spicer CD. The Emotional Toll of Being a Twice Exceptional Adult : A Case Study. In Wormald C and Vialle W, editors. <i>Dual Exceptionality</i> . Sydney, NSW: Australian Association for the Education of the Gifted and Talented Ltd; 2011. pp. 33–6	Not focused on school setting
St James O'Connor T, Meakes E, Pickering M, Schuman M. On the right track: client experience of narrative therapy. <i>Contemp Fam Ther</i> 1997; 19 :479–95	Not focused on school-age students with ADHD
Stagg AM. Barriers to attention-deficit/hyperactivity disorder intervention implementation in the public school setting. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2011; 71 :6467	Lacking qualitative data and/or analysis
Stinnett TA, Crawford SA, Gillespie MD, Cruce MK, Langford CA. Factors affecting treatment acceptability for psychostimulant medication versus psychoeducational intervention. <i>Psychol Schools</i> 2001; 38 :585	Lacking qualitative data and/or analysis
Stolowitz MA. How to achieve academic and creative success in spite of the inflexible, unresponsive higher education system. <i>J Learn Disabil</i> 1995; 28 :4–7	First person account
Stone KL. An investigation of sibling relationships of children with AD/HD and their older siblings. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2000; 60 :4255	Lacking qualitative data and/or analysis

Stultz CH, Flannagan D. Talk about school between mothers and children with or without ADHD. <i>J Child Fam Stud</i> 1999; 8 :425–35	Lacking qualitative data and/or analysis
Tan TS, Cheung WS. Effects of computer collaborative group work on peer acceptance of a junior pupil with attention deficit hyperactivity disorder (ADHD). <i>Comput Educ</i> 2008; 50 :725–41	Lacking qualitative data and/or analysis
Taylor M, Houghton S, Durkin K. Getting children with attention deficit hyperactivity disorder to school on time. <i>J Fam Issues</i> 2008; 29 :918–43	Not focused on school setting
Taylor M, Houghton S. Examination-related anxiety in students diagnosed with AD/HD and the case for an allocation of extra time: perspectives of teachers, mothers and students. <i>Emot Behav Difficult</i> 2008; 13 :111–25	Does not consider experience or attitude toward school-based interventions
Taylor M, Houghton SJ. Difficulties in initiating and sustaining peer friendships: perspectives on students diagnosed with AD/HD. <i>Br J Spec Educ</i> 2008; 35 :209–19	Does not consider experience or attitude toward school-based interventions
Taylor M, O'Donoghue T, Houghton S. To medicate or not to medicate? The decision-making process of Western Australian parents following their child's diagnosis with an attention deficit hyperactivity disorder. <i>Int J Disabil Dev Educ</i> 2006; 53 :111–28	Not focused on school setting
Teasley M. Effective Interventions for Students with ADHD. In Franklin C, Harris MB, Allen-Meares P, editors. <i>The School Practitioner's Concise Companion to Mental Health</i> . New York, NY: Oxford University Press; US; 2008. pp. 19–34	Not primary research
Terenzi N. In my own words. <i>Reaching Today's Youth</i> 1999; 4 :4–7	Could not retrieve
Terry J. Coping with ADHD. <i>Child Educ</i> 1998; 75 :48–9	Could not retrieve
TES. Friday hero. <i>Times Educ Suppl</i> 2005:3	Not focused on school-age students with ADHD
Thompson D, Emira M. 'They say every child matters, but they don't': an investigation into parental and carer perceptions of access to leisure facilities and respite care for children and young people with autistic spectrum disorder (ASD) or attention deficit, hyperactivity disorder (ADHD). <i>Disabil Soc</i> 2011; 26 :65–78	Not focused on school setting
Thorlakson CE. The experiences that enhance and inhibit learning for post-secondary students diagnosed with ADHD: a qualitative study. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 72 :77	Not focused on school-age students with ADHD
Tidefors I, Strand J. Life history interviews with 11 boys diagnosed with attention-deficit/hyperactivity disorder who had sexually offended: a sad storyline. <i>J Trauma Dissociation</i> 2012; 13 :421–34	Not focused on school setting
Timmer DF. Group support for teenagers with attention deficit hyperactivity disorder. <i>Soc Work Educ</i> 1995; 17 :194–8	Not focused on school setting
Tracey DK, Gleeson G. Sense of coherence, loneliness and interpersonal concerns in adolescents with AD/HD: a comparison of adolescents' and mothers' perceptions. <i>Aust J Guid Counsell</i> 1998; 8 :49–58	Lacking qualitative data and/or analysis
Travell C, Visser J. 'ADHD does bad stuff to you': young people's and parents' experiences and perceptions of attention deficit hyperactivity disorder (ADHD). <i>Emot Behav Difficult</i> 2006; 11 :205–16	Focused on pharmacological interventions
Tsurumaki M. Self-esteem enhancement in children with attention-deficit/hyperactivity disorder. <i>Tohoku Psychol Folia</i> 2007; 66 :105–11	Lacking qualitative data and/or analysis
Turk TN, Campbell DA. What's wrong with Doug: the academic struggles of a gifted student with ADHD from preschool to college. <i>Gift Child Today</i> 2002; 25 :48	First person account
Tyler Junior College. <i>Tutor Training for Occupational Students with Learning Disabilities. PY95 Final Detailed Report</i> . Texas, TX: Tyler Junior College; 1995	Lacking qualitative data and/or analysis
Tyson K. Using the teacher-student relationship to help children diagnosed as hyperactive: an application of intrapsychic humanism. <i>Child Youth Care Forum</i> 2000; 29 :265–89	Lacking qualitative data and/or analysis
Underwood DJ, Kopels S. Complaints filed against schools by parents of children with AD/HD: implications for school social work practice. <i>Child Schools</i> 2004; 26 :221–33	Lacking qualitative data and/or analysis

Vail A, Mandiloff V. Cultivating Our Garden: Serving Students with Learning Disabilities in Family and Consumer Sciences. In Vail A, editor. <i>Family & Consumer Sciences Education Association</i> . Ellensburg, WA: Central Washington University; 1996	Could not retrieve
Van Der Westhuizen B. An ecosystemic approach to addressing attentional difficulties and heightened motor activity. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2009; 69 :4248	Lacking qualitative data and/or analysis
Vogl TA. Navigating the glass maze: towards a phenomenology-derived learning model of graduate students with attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 68 :438	Not focused on school-age students with ADHD
Volpe RJ, Anastasio RJ, DuPaul GJ. Classroom and Instructional Strategies. In Goldstein S, Nagliere JA, DeVries M, editors. <i>Learning and Attention Disorders in Adolescence and Adulthood: Assessment and Treatment</i> . 2nd edn. Hoboken, NJ: John Wiley & Sons Inc.; 2011. pp. 467–87	Could not retrieve
Waite R, Tran M. Explanatory models and help-seeking behavior for attention-deficit/hyperactivity disorder among a cohort of postsecondary students. <i>Arch Psychiatr Nurs</i> 2010; 24 :247–59	Not focused on school setting
Wallace N. The perceptions of mothers of sons with ADHD. <i>Aust New Zeal J Fam Ther</i> 2005; 26 :193–9	Not focused on school setting
Ware JN, Ohrt JH, Swank JM. A phenomenological exploration of children's experiences in a social skills group. <i>J Spec Group Work</i> 2012; 37 :133–51	Not focused on school-age students with ADHD
Watson C, Marr C. A breakfast club for children with emotional and behavioural difficulties. <i>Education</i> 2003; 31 :150–8	Not focused on school-age students with ADHD
Watson C. Home-school partnership and the construction of deviance: being and becoming the Goldfish family. <i>J Res Spec Educ Needs</i> 2011; 11 :20–9	Not focused on school setting
Weiss M, Hechtman L, Weiss G. ADHD in parents. <i>J Am Acad Child Adolesc Psychiatr</i> 2000; 39 :1059–61	Lacking qualitative data and/or analysis
Wheeler L, Pumfrey P, Wakefield P. Variability of ADHD symptoms across primary school contexts: an in-depth case study. <i>Emot Behav Difficult</i> 2009; 14 :69–84	Lacking qualitative data and/or analysis
Wheeler L. Mixed Method Research into the Variability of ADHD Symptoms in Educational Settings. Paper presented at the BERA conference 2011. London; Institution of Education; 2011	Lacking qualitative data and/or analysis
White-McMahon M. What you see is not what you get. <i>Reclaim Child Youth</i> 2010; 19 :58–61	First person account
Wiebe J, Nicol JJ. Juxtaposition: ADHD and music at school. <i>Can J Music Ther</i> 2007; 13 :171–3	Lacking qualitative data and/or analysis
Williams MA. Exploration of effect of diagnosis of high school girls with attention deficit disorder on their mothers and the mother-daughter relationship. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2011; 72 :1786	Not focused on school setting
Williams NJ. <i>Gaining Control: Perspectives Of Parents Of Children With AD/HD</i> . Perth, WA; University of Western Australia; 2009	Does not consider experience or attitude toward school-based interventions
Williams Orlando C. Parental explanatory models of children's attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2010; 71 :2277	Does not consider experience or attitude toward school-based interventions
Williamson P, Koro-Ljungberg ME, Bussing R. Analysis of critical incidents and shifting perspectives: transitions in illness careers among adolescents with ADHD. <i>Qual Health Res</i> 2009; 19 :352–65	Does not consider experience or attitude toward school-based interventions
Willis J. Using my neuroscience to treat the sickness in our classrooms. <i>Catalyst for Change</i> 2010; 36 :46–55	First person account
Wolfberg PJ, Zercher C, Lieber J, Capell K, Matias S, Hanson M, et al. 'Can I play with you?' Peer culture in inclusive preschool programs. <i>J Assoc Pers Sev Handicaps</i> 1999; 24 :69–84	Not focused on school-age students with ADHD

Woods C. My brave hyperactive son. <i>Times Educ Suppl</i> 2007; 23	First person account
Wright MS. <i>The Readiness of Adults with Attention Deficit Hyperactivity Disorder for Self-Directed Learning</i> . Mississippi, MS: University of Southern Mississippi; 2001	Could not retrieve
Wright SF. 'A little understood solution to a vaguely defined problem': parental perceptions of Ritalin. <i>Educ Child Psychol</i> 1997; 14 :50–9	Focused on pharmacological interventions
Yehle AK, Wambold C. An ADHD success story: strategies for teachers and students. <i>Teach Except Child</i> 1998; 30 :8–13	Lacking qualitative data and/or analysis
Yoon ML. An evaluation of the application of the suggestive-accelerative model of learning and teaching on high school students. Melbourne, VIC: RMIT University; 2005	Could not retrieve
Young-Loveridge J. A personal perspective on challenging behaviour: ADHD? <i>Aust J Early Child</i> 1997; 22 :1–6	First person account
Zentall SS, Moon SM, Hall AM, Grskovic JA. Learning Characteristics of Boys with Attention Deficit/Hyperactivity Disorder and/or Giftedness. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL, March 1997	Other
Zentall SS, Moon SM, Hall AM, Grskovic JA. Learning and motivational characteristics of boys with AD/HD and/or giftedness. <i>Except Child</i> 2001; 67 :499–519	Not focused on school-age students with ADHD
Ziesing-Clark S. Confusion, heartache and tears : some mother's experiences of children diagnosed with attention deficit hyperactive disorder. <i>Aust J Early Child</i> 1998; 23 :31–5	Lacking qualitative data and/or analysis

Appendix 15 Studies excluded during full-text screening for review 4, with reasons

Reference	Reason for exclusion
Aberson BD. An intervention for improving executive functioning and social/emotional adjustment of ADHD children: three single case design studies. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1997; 57 :6553	Lacking qualitative data and/or analysis
Allen T. Attention deficit hyperactive disorder . . . a teacher's perspective. <i>Educ Today</i> 2005; 2 :12–13	Lacking qualitative data and/or analysis
Al-Sharbati M, Al-Sharbati Z, Al-Lawatiya S, Al-Jahwari S. Teachers' awareness about attention deficit hyperactivity disorder (ADHD) in Oman. <i>Asian J Psychiatr</i> 2012; 5 :277–8	Lacking qualitative data and/or analysis
Anonymous. AH/AD: two parents tell their personal stories. <i>Emot Behav Difficult</i> 1997; 2 :25–9	Lacking qualitative data and/or analysis
Anonymous. Pupils I'll never forget. <i>Times Educ Suppl</i> 2004; 7	Lacking qualitative data and/or analysis
Artesani AJ, Mallar L. Positive behavior supports in general education settings: combining person-centered planning and functional analysis. <i>Interv Sch Clin</i> 1998; 34 :33–8	Lacking qualitative data and/or analysis
Askew BL. Practices of special education teachers for dealing with students with ADD/ADHD. Chicago, IL: St Xavier University; 1993	Could not retrieve
Baba C, Tanaka-Matsumi J. Positive behavior support for a child with inattentive behavior in a Japanese regular classroom. <i>J Posit Behav Interv</i> 2011; 13 :250–3	Lacking qualitative data and/or analysis
Bailey S. Disordered experiences – beyond myth/reality. <i>Br Educ Res J</i> 2008; 34 :135–41	Not primary research
Bain SK, Brown KS, Jordan KR. Teacher candidates' accuracy of beliefs regarding childhood interventions. <i>Teach Educat</i> 2009; 44 :71–89	Lacking qualitative data and/or analysis
Baker K. <i>Compensating for the Impact of Attention Deficit Hyperactivity Disorder on Reading Achievement: Michael's Story</i> . Adelaide, SA: Australian Literacy Educators' Association; 2005	Could not retrieve
Baker KB. <i>Compensating for Cognitive Deficits in Students with Attention Deficit Hyperactivity Disorder</i> . North Rockhampton, QLD: Central Queensland University; 2003	Lacking qualitative data and/or analysis
Barbin-Daniels CM. Mainstreaming. <i>Learning</i> 1992; 20 :49	Lacking qualitative data and/or analysis
Bartlett R, Rowe TS, Shattell MM. Perspectives of college students on their childhood ADHD. <i>MCN Am J Matern Child Nurs</i> 2010; 35 :226–31	Focused on school-based interventions
Bekle B. Review of research on teachers' knowledge and attitudes about attention-deficit hyperactivity disorder (ADHD). <i>Australas J Spec Educ</i> 2001; 25 :67–85	Not primary research
Bell PS. Jamaican teachers' attitudes toward children with oppositional defiant disorder, conduct disorder, and attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 67 :2214	Not focused on school-age students with ADHD
Berger M. Remediating hyperkinetic behavior with impulse control procedures. <i>Sch Psychol Rev</i> 1981; 10 :405–7	Could not retrieve
Blahy TL. Understanding ADHD: our personal journey. <i>Reclaim Child Youth</i> 2004; 13 :56	Lacking qualitative data and/or analysis
Book RM. Management of the Child with an Attention Disorder in the School Setting. Paper presented at the Annual Convention of the American Psychological Association, Anaheim, CA, 26–30 August 1983	Could not retrieve
Bos CS, Nahmias ML, Urban MA. Implementing interactive professional development in a workshop course on educating students with AD/HD. <i>Teach Educ Spec Educ</i> 1997; 20 :132–45	Focused on school-based interventions

Reference	Reason for exclusion
Bosco JJ, Robin SS. Parent, <i>Teacher and Physician in the Life of the Hyperactive Child: The Coherence of the Social Environment</i> . Springfield, IL: Charles C Thomas Pub Ltd; 1980	Could not retrieve
Brennan EM, Ama SM, Gordon LJ. Inclusion of Children with Emotional or Behavioral Challenges in Child Care Settings: An Observational Study. Paper presented at Head Start's Sixth National Research Conference: The First Eight Years – Pathways to the Future, Washington, DC, June 2002	Not focused on school-age students with ADHD
Breusch S. 'More a Lifestyle Than a Disorder': A Review of Attention-Deficit-Disorder and Social Relationships. Conference paper, 1992	Could not retrieve
Brinkman WB, Sherman SN, Zmitrovich AR, Visscher MO, Crosby LE, Phelan KJ, et al. In their own words: adolescent views on ADHD and their evolving role managing medication. <i>Acad Pediatr Assoc</i> 2012; 12 :53–61	Focused on pharmacological interventions
Brodin J, Ljusberg AL. Teaching children with attention deficit hyperactivity disorder in remedial classes. <i>Int J Rehabil Res</i> 2008; 31 :351–5	Lacking qualitative data and/or analysis
Brook U, Boaz M. Attention deficit and hyperactivity disorder (ADHD) and learning disabilities (LD): adolescents perspective. <i>Patient Educ Counsel</i> 2005; 58 :187–91	Lacking qualitative data and/or analysis
Brook U, Boaz M. Attention deficit and hyperactivity disorder/learning disabilities (ADHD/LD): parental characterization and perception. <i>Patient Educ Counsel</i> 2005; 57 :96–100	Lacking qualitative data and/or analysis
Brook U, Geva D. Knowledge and attitudes of high school pupils towards peers' attention deficit and learning disabilities. <i>Patient Educ Counsel</i> 2001; 43 :31–6	Lacking qualitative data and/or analysis
Brook U, Watemberg N, Geva D. Attitude and knowledge of attention deficit hyperactivity disorder and learning disability among high school teachers. <i>Patient Educ Counsel</i> 2000; 40 :247–52	Lacking qualitative data and/or analysis
Brophy JE, Rohrkemper MM. <i>Motivational Factors in Teachers' Handling of Problem Students</i> . Institute for Research on Teaching. East Lansing, MI: Michigan State University; 1982	Could not retrieve
Brown D. Recollections. <i>Acad Ther</i> 1980; 15 :351–6	Lacking qualitative data and/or analysis
Brown PJ. Parents' perceptions and children's functioning: a combined scientific and phenomenological perspective. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2003; 64 :409	Not focused on school setting
Buck GH. Smoothing the rough edges of classroom transitions. <i>Interv Sch Clin</i> 1999; 34 :224–35	Lacking qualitative data and/or analysis
Bullard JA. Parent perceptions of the effect of ADHD child behavior on the family: the impact and coping strategies. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1996; 57 :7755	Not focused on school setting
Burcham B, Carlson L, Milich R. Promising school-based practices for students with attention deficit disorder. <i>Except Child</i> 1993; 60 :174–80	Lacking qualitative data and/or analysis
Burcham B, Carlson L. <i>Promising Practices in Identifying and Educating Children with Attention Deficit Disorder</i> . Education of Children with Attention Deficit Disorder. Lexington, KY: Federal Resource Center for Special Education; 1993	Could not retrieve
Burchfield CM. Exploring the meanings related to ADHD: a qualitative investigation. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 67 :532	Not focused on school setting
Burgess J. The impact of teaching thinking skills as habits of mind to young children with challenging behaviours. <i>Emot Behav Difficult</i> 2012; 17 :47–63	Not focused on school-age students with ADHD
Bussing R, Koro-Ljungberg M, Noguchi K, Mason D, Mayerson G, Garvan CW. Willingness to use ADHD treatments: a mixed methods study of perceptions by adolescents, parents, health professionals and teachers. <i>Soc Sci Med</i> 2012; 74 :92–100	Other
Bussing R, Koro-Ljungberg ME, Gary F, Mason DM, Garvan CW. Exploring help-seeking for ADHD symptoms: a mixed-methods approach. <i>Harv Rev Psychiatr</i> 2005; 13 :85–101	Not focused on school setting
Bussing R, Schoenberg NE, Rogers KM, Zima BT, Angus S. Explanatory models of ADHD: Do they differ by ethnicity, child gender, or treatment status? <i>J Emot Behav Disord</i> 1998; 6 :233–42	Not focused on school setting

Reference	Reason for exclusion
Callwood-Brathwaite DJ. Co-occurrence of attention deficit/hyperactivity disorder in a school-identified sample of students with emotional and behavioral disorders: Implications for educational programming. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1998; 59 :0415	Other
Canfield SK. The lonely journey: parental decision-making regarding stimulant therapy for ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2001; 61 :4647	Lacking qualitative data and/or analysis
Carpenter L, Austin H. Silenced, silence, silent: motherhood in the margins. <i>Qual Inq</i> 2007; 13 :660–74	Not focused on school setting
Carpenter L, Emerald E. <i>Stories From the Margin: Mothering A Child With ADHD or ASD</i> . Teneriffe, QLD: Post Pressed; 2009	Lacking qualitative data and/or analysis
Carpenter LR. <i>The Effect of a Child's Attention Deficit Hyperactivity Disorder on a Mother: The Hidden Disability of Motherhood</i> . Nathan, QLD: Griffith University; 1999	Lacking qualitative data and/or analysis
Carpenter T. <i>Teaching High School Students with Attention Deficit Hyperactivity Disorder Self Advocacy Skills and Strategies for Coping with Their Disability in School</i> . Florida, FL: Nova Southeastern University; 1995	Could not retrieve
Carpenter-Song E. Caught in the psychiatric net: meanings and experiences of ADHD, pediatric bipolar disorder and mental health treatment among a diverse group of families in the United States. <i>Cult Med Psychiatr</i> 2009; 33 :61–85	Not focused on school setting
Carragher G, Campbell-Evans G, Forlin C. The Voice of the Adolescent with Attention-Deficit/Hyperactivity Disorder (AD/HD) in Individual Case Conferences: How Adolescents with AD/HD Manage the Symptoms of their Disorder and the Treatment Strategies. Paper presented to the Australian Association for Research in Education Conference, University of Notre Dame, Western Australia, 2–6 December 2001	Lacking qualitative data and/or analysis
Carragher GL. <i>Life After Diagnosis: The Social Experience of Adolescents Diagnosed with Attention-Deficit/Hyperactivity Disorder and How They Manage their Lives</i> . Perth, WA: Edith Cowan University; 2003	Could not retrieve
Carragher GL. <i>Teachers' Conceptualisations Of, and Resistance To, The Inclusion of ADHD Students in Mainstream Classrooms</i> . Crawley, WA: University of Western Australia; 1999	Could not retrieve
Cassar AG, Jang EE. Investigating the effects of a game-based approach in teaching word recognition and spelling to students with reading disabilities and attention deficits. <i>Aust J Learn Disabil</i> 2010; 15 :193–211	Lacking qualitative data and/or analysis
Chang H-H, Chang C-S, Shih Y-L. The process of assisting behavior modification in a child with attention-deficit hyperactivity disorder. <i>J Nurs Res</i> 2007; 15 :147–55	Focused on pharmacological interventions
Chevreau LP. Neurofeedback and childhood ADHD. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 66 :2870	Lacking qualitative data and/or analysis
Cline B. Raising Alan alone. <i>Except Parent</i> 1985; 15 :44–6	Lacking qualitative data and/or analysis
Coker K. School and family based treatment of children with attention-deficit hyperactivity disorder. <i>Fam Soc</i> 1990; 71 :276–82	Lacking qualitative data and/or analysis
Cook M. Attention deficit disorder: a teacher perspective. Victoria, VIC: La Trobe University; 2000	Could not retrieve
Cooper P. The Inner Life of Children With Emotional and Behavioural Difficulties. In Varma VP, editor. <i>The Inner Life of Children With Special Needs</i> . Philadelphia, PA: Whurr Publishers; 1996. pp. 95–111	Lacking qualitative data and/or analysis
Copeland LA. Adaptive processes and the development of executive functions in preschoolers with ADHD in a head start early childhood program. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 63 :2452	Could not retrieve
Cosser CP. Raising a child with attention deficit hyperactivity disorder: a parents' perspective. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 68 :3391	Not focused on school setting

Reference	Reason for exclusion
Couture C, Royer E, Dupuis FA, Potvin P. Comparison of Quebec and British teachers' beliefs about, training in and experience with attention deficit hyperactivity disorder. <i>Emot Behav Difficult</i> 2003; 8 :284–302	Lacking qualitative data and/or analysis
Currie D, Lee DL, Scheeler MC. Using PDAs to increase the homework completion of students with ADHD. <i>J Evid Base Pract Sch</i> 2005; 6 :151–62	Other
Davis-Berman JL, Pestello FG. Medicating for ADD/ADHD: personal and social issues. <i>Int J Ment Health Addict</i> 2010; 8 :482–92	Not focused on school setting
Davison JC, Ford DY. Perceptions of attention deficit hyperactivity disorder in one African American community. <i>J Negro Educ</i> 2001; 70 :264–74	Other
Debonis DA. An evaluation of an executive function-based intervention program for adolescents with ADHD and their parents. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1998; 59 :1902	Not focused on school setting
Diaz Y. Latino parents' perceptions of, and response to, child attention-deficit/hyperactivity disorder and oppositional defiant disorder: an ecological perspective. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2010; 71 :1339	Not focused on school setting
DiCesare EJ. An evaluation of live relaxation training as a treatment for primary aged school children described as hyperactive impulsive. <i>Diss Abstr Int</i> 1982; 42 :4927	Lacking qualitative data and/or analysis
Dielman MB, Franklin C. Brief solution-focused therapy with parent and adolescents with attention-deficit hyperactivity disorder. <i>Soc Work Educ</i> 1998; 20 :261–8	Lacking qualitative data and/or analysis
DosReis S, Barksdale CL, Sherman A, Maloney K, Charach A. Stigmatizing experiences of parents of children with a new diagnosis of ADHD. <i>Psychiatr Serv</i> 2010; 61 :811–16	Not focused on school setting
Dosreis S, Mychailyszyn MP, Myers M, Riley AW. Coming to terms with ADHD: how urban African-American families come to seek care for their children. <i>Psychiatr Serv</i> 2007; 58 :636–41	Not focused on school setting
Ducharme S. Parents' perceptions of raising a child with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1997; 57 :3887	Focused on school-based interventions
Duke University, NC Medical Center. <i>Symposium on Literacy and Disabilities</i> . Durham, NC: Duke University, Durham, NC Medical Center; 1997	Could not retrieve
Dunaway C. Attention deficit hyperactivity disorder: an authentic story in the schools and its implications. <i>Semin Speech Lang</i> 2004; 25 :271–5	Lacking qualitative data and/or analysis
Dunne L, Moore A. From boy to man: a personal story of ADHD. <i>Emot Behav Difficult</i> 2011; 16 :351–64	Lacking qualitative data and/or analysis
Dyer-Wiley CM. Dealing with a disruptive child. <i>Principal</i> 1999; 78 :30–1	Lacking qualitative data and/or analysis
Edwards L, Salant V, Howard VF, Brougher J, McLaughlin TF. Effectiveness of self-management on attentional behavior and reading comprehension for children with attention deficit disorder. <i>Child Fam Behav Ther</i> 1995; 17 :1–17	Lacking qualitative data and/or analysis
Epstein JN, Willis MG, Conners CK, Johnson DE. Use of a technological prompting device to aid a student with attention deficit hyperactivity disorder to initiate and complete daily tasks: an exploratory study. <i>J Spec Educ Tech</i> 2001; 16 :19–28	Lacking qualitative data and/or analysis
Fachin K. Teaching Tommy: a second-grader with attention deficit hyperactivity disorder. <i>Phi Delta Kappan</i> 1996; 77 :437–41	Lacking qualitative data and/or analysis
Farmer JL. The development of the personal strengths intervention (PSI) to improve self-determination and social-emotional levels in postsecondary students with learning disabilities and/or ADHD: a multiple baseline study. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2012; 72 :3710	Lacking qualitative data and/or analysis
Fiks AG, Gafen A, Hughes CC, Hunter KF, Barg FK. Using freelisting to understand shared decision making in ADHD: parents' and pediatricians' perspectives. <i>Patient Educ Counsel</i> 2011; 84 :236–44	Not focused on school setting

Reference	Reason for exclusion
Filmer R. When Giftedness, Dyslexia and Attention Deficit Hyperactivity Disorder (ADHD) Meet: Two Case Studies of Educational Management. In Wormald C and Vialle W, editors. <i>Dual Exceptionality</i> . Sydney, NSW: Australian Association for the Education of the Gifted and Talented Ltd; 2011. pp. 127–31	Lacking qualitative data and/or analysis
Fiore TA, Becker EA. <i>Promising Classroom Interventions for Students with Attention Deficit Disorders</i> . Research Triangle Park, NC: Research Triangle Institution; 1994	Lacking qualitative data and/or analysis
Firmin MW, Phillips A. A qualitative study of families and children possessing diagnoses of ADHD. <i>J Fam Issues</i> 2009; 30 :1155–74	Not focused on school setting
Folk DK. Stress management and attention-deficit disorder intervention by teachers in the classroom for ADHD and non-ADHD children. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1994; 55 :1996	Not focused on school-age students with ADHD
Fournier CJ. Teacher perceptions of impact of hyperactivity on classroom situations and on ratings of intervention acceptability. <i>Diss Abstr Int</i> 1988; 48 :2832–3	Could not retrieve
Francis A. Stigma in an era of medicalisation and anxious parenting: how proximity and culpability shape middle-class parents' experiences of disgrace. <i>Social Health Illness</i> 2012; 34 :927–42	Not focused on school setting
Fraser C, Belzner R, Conte R. Attention deficit hyperactivity disorder and self-control: a single case study of the use of a timing device in the development of self-monitoring. <i>Sch Psychol Int</i> 1992; 13 :339–45	Lacking qualitative data and/or analysis
Fraser KM. Too young for attention deficit disorder? Views from preschool. <i>J Dev Behav Pediatr</i> 2002; 23 :S46–50	Lacking qualitative data and/or analysis
Frost P. 'Like Switching the Light On' – The Raviv Method and its Contribution to Overcoming Learning Difficulties. Presented at the British Educational Research Association Annual Conference. Institute of Education, University of London, London, 5–8 September 2007	Other
Fuller PC. Stabilizing attention deficit disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 65 :4725	Not focused on school setting
Furtick J Jr. The impact of labeling on African American males diagnosed with attention deficit disorder (ADD) and attention deficit hyperactive disorder (ADHD): a social work perspective. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 66 :759	Could not retrieve
Furtick KC. <i>Successful Strategies Used with ADHD Students: Is an ADHD Classroom a Possibility?</i> Minnesota, MN: Capella University; 2010	Focused on school-based interventions
Gajaria A, Yeung E, Goodale T, Charach A. Beliefs about attention-deficit/hyperactivity disorder and response to stereotypes: youth postings in Facebook groups. <i>J Adolesc Health</i> 2011; 49 :15–20	Not focused on school setting
Gallo MP. College students diagnosed with ADHD: insights into their experiences. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2008; 68 :4999	Could not retrieve
Garro LC, Yarris KE. 'A massive long way': interconnecting histories, a 'special child', ADHD, and everyday family life. <i>Cult Med Psychiatr</i> 2009; 33 :559–607	Not focused on school setting
Gharibi H, Gholizadeh Z. Phenomenology of Mothers' Experiences in Living with Children with AD/HD Disorder. Conference paper presented at 2nd World Conference on Psychology, Counselling and Guidance, Antalya, Turkey, 25–29 May 2011	Other
Ghiora WL. Investigation of information offered parents of ADD or ADHD elementary school students in San Diego county schools (California). <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 64 :34	Other
Gillies V. Review of parenting and inclusive education: discovering difference, experiencing difficulty. <i>Sociology</i> 2009; 43 :1205–6	Other
Gleeson G. Experiences, Problems and 'Felt Needs' of Teachers Educating Students with Attentional Deficits. Paper presented at the National Conference on the Behaviour management and behavior Change of Children and Youth with emotional and/or behaviour problems, Melbourne, 1996	Could not retrieve

Reference	Reason for exclusion
Golda Meir Mount Carmel International Centre. <i>Course on the Education of the Young Child with Special Needs</i> . Israel: Golda Meir Mount Carmel International Centre; 1993	Could not retrieve
Goldstein S. Bye bye Brady Bunch. <i>Fam Ther Network</i> 1986; 10 :31–2,76–8	Lacking qualitative data and/or analysis
Graham LG. Traditional martial arts and children with ADHD: self-perceptions of competence. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 68 :1407	Lacking qualitative data and/or analysis
Graham-Day KJ, Gardner R, III, Hsin Y-W. Increasing on-task behaviors of high school students with attention deficit hyperactivity disorder: is it enough? <i>Educ Treat Child</i> 2010; 33 :205–21	Lacking qualitative data and/or analysis
Grant WS, Flynn B. The hyperactive child: a pediatrician's program. A mother's point of view. <i>Except Parent</i> 1980; 10 :5–10	Lacking qualitative data and/or analysis
Gray GB. Career decision making for male students with attention deficit hyperactivity disorder: a model of critical factors aiding in transitional efforts. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2010; 70 :2396	Not focused on school setting
Griffin E, Pollak D. Student experiences of neurodiversity in higher education: insights from the BRAINHE project. <i>Dyslexia</i> 2009; 15 :23–41	Lacking qualitative data and/or analysis
Griswold DS. Perceptions of elementary educators concerning ADDH in children. <i>Diss Abstr Int</i> 1991; 52 :472	Could not retrieve
Guli LA, Semrud-Clikeman M, Lerner MD, Britton N. Social competence intervention program (SCIP): a pilot study of a creative drama program for youth with social difficulties. <i>Arts Psychother</i> 2013; 40 :37–44	Lacking qualitative data and/or analysis
Guli LA. The effects of creative drama-based intervention for children with deficits in social perception. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 65 :3690	Lacking qualitative data and/or analysis
Hansen DL, Hansen EH. Caught in a balancing act: parents' dilemmas regarding their ADHD child's treatment with stimulant medication. <i>Qual Health Res</i> 2006; 16 :1267–85	Focused on pharmacological interventions
Harris KR, Friedlander BD, Saddler B, Frizzelle R, Graham S. Self-monitoring of attention versus self-monitoring of academic performance: effects among students with ADHD in the general education classroom. <i>J Spec Educ</i> 2005; 39 :145–56	Lacking qualitative data and/or analysis
Harris KR. Self-monitoring of attentional behavior versus self-monitoring of productivity: effects on on-task behavior and academic response rate among learning disabled children. <i>J Appl Behav Anal</i> 1986; 19 :417–23	Lacking qualitative data and/or analysis
Harvey WJ, Reid G, Bloom GA, Staples K, Grizenko N, Mbekou V, et al. Physical activity experiences of boys with and without ADHD. <i>Adapt Phys Activ Q</i> 2009; 26 :131–50	Other
Hervey-Jumper H, Douyon K, Falcone T, Franco KN. Identifying, evaluating, diagnosing, and treating ADHD in minority youth. <i>J Attention Disord</i> 2008; 11 :522–8	Not primary research
Hjörne E, Säljö R. There is something about Julia: symptoms, categories, and the process of invoking attention deficit hyperactivity disorder in the Swedish school: a case study. <i>J Lang Ident Educ</i> 2004; 3 :1–24	Lacking qualitative data and/or analysis
Hjörne E. Pedagogy in the 'ADHD Classroom': An exploration of 'The Little group'. In Lloyd G, Stead J and Cohen D editors. <i>Critical New Perspectives on Attention Deficit/Hyperactivity Disorder</i> . London: Routledge; 2006	Focused on school-based interventions
Hogg CM. <i>Hyperactive Children and their Social Relationships</i> . Cambridge: University of Cambridge; 1986	Could not retrieve
Hollwey S. A demon in the nursery. <i>Montessori Courier</i> 1991; 2 :18–19	Could not retrieve
Holmes KD. An exploration of attention deficit hyperactivity disorder in adults. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 66 :3968	Not focused on school setting
Holst J. Danish teachers' conception of challenging behaviour and DAMP/ADHD. <i>Early Child Dev Care</i> 2008; 178 :363–74	Not focused on school-age students with ADHD
Holthouse D. Speak out for understanding. <i>Teach Tolerance</i> 2009:30–3	Lacking qualitative data and/or analysis

Reference	Reason for exclusion
Huber JS. The mediating effect of sibling warmth on parental stress in families with children who have attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 71 :3053	Other
Hudyma SAM. <i>Teacher's Knowledge of Attention Deficit Hyperactivity Disorder (ADHD) and How Students with ADHD are Supported in Western Australian schools</i> . Crawley, WA: University of Western Australia; 2007	Could not retrieve
Innes C. Integration or separation? Catering for students with special needs. <i>Christ Teach J</i> 2008; 16 :22–5	Lacking qualitative data and/or analysis
Isaksson J, Lindqvist R, Bergstrom E. Struggling for recognition and inclusion-parents' and pupils' experiences of special support measures in school. <i>Int J Qual Stud Health Well-Being</i> 2010; 5 :10	Focused on school-based interventions
Jamieson H. Social Outcomes: A Whole School Approach. Paper presented at National Educators Conference, Perth, Australia, 2004	Could not retrieve
Jefferson County School District R-1. <i>Kids Explore the Gifts of Children with Special Needs. Westridge Young Writers Workshops</i> . Sante Fe, NM: John Muir Publications; 1994	Lacking qualitative data and/or analysis
Jennings RG. <i>Parental Aspirations for Children and Children's Aspirations: A Longitudinal Study of Educational and Career Aspirations among Hyperactive and Non-Hyperactive Children</i> . Macomb, IL: Western Illinois University; 1992	Could not retrieve
Jerome L. Teaching Children to Ignore Teasing: A Cognitive Behavioural Family Strategy for Dealing with Teasing and Reactive Bullying. <i>J Can Acad Child Adolesc Psychiatry</i> . 2006; 15 :91	Lacking qualitative data and/or analysis
Johnsen SK, Kendrick J. <i>Teaching Gifted Students with Disabilities</i> . Waco, TX: Prufrock Press; 2005	Lacking qualitative data and/or analysis
Johnson KK. Teaching Shakespeare to learning disabled students. <i>Engl J</i> 1998; 87 :45	Lacking qualitative data and/or analysis
Jones E. A parent's experience of schooling for a child with ADHD. <i>Reach</i> 2006; 20 :55–9	Lacking qualitative data and/or analysis
Jones MM. Chapter Four: Two Sides of Isis. In Jones MM, editor. <i>Whisper Writing: Teenage Girls Talk about Ableism and Sexism in School</i> . Oxford: Peter Lang Publishing Inc.; 2004. pp. 59–79	Lacking qualitative data and/or analysis
Kaidar I, Wiener J, Tannock R. The attributions of children with attention-deficit/hyperactivity disorder for their problem behaviors. <i>J Attention Disord</i> 2003; 6 :99–109	Lacking qualitative data and/or analysis
Kakouros E, Maniadaki K, Papaeliou C. How Greek teachers perceive school functioning of pupils with ADHD. <i>Emot Behav Difficult</i> 2004; 9 :41–53	Lacking qualitative data and/or analysis
Kamras J. A trip to the rose garden. <i>Education Next</i> 2006; 6 :88	Lacking qualitative data and/or analysis
Kaplan M. Review of framing ADHD children: a critical examination of the history, discourse, and everyday experience of attention deficit/hyperactivity disorder. <i>Psychiatr Serv</i> 2006; 57 :586–7	Lacking qualitative data and/or analysis
Kaplan ME. Improving reading performance in inattentive children through mediated learning experience. <i>Diss Abstr Int</i> 1991; 51 :3018	Could not retrieve
Karnik NS. Categories of control: foster children and ADHD. <i>Child Youth Serv Rev</i> 2001; 23 :761–80	Other
Kean B. The Risk Society and attention deficit hyperactivity disorder (ADHD): a critical social research analysis concerning the development and social impact of the ADHD diagnosis. <i>Ethical Hum Psychol Psychiatry</i> 2005; 7 :131–42	Focused on pharmacological interventions
Kellner RN. Attention-deficit/hyperactivity disordered children's social self-perceptions of their peer-related personal and interpersonal problems. Crawley, WA: University of Western Australia; 2000	Could not retrieve

Reference	Reason for exclusion
Kennedy TK. A case of an UGLDS: unidentified gifted/learning disabled student. <i>Australas J Gift Educ</i> 2004; 13 :24–34	Could not retrieve
Khan UU. <i>Emotional Reactivity of Children and Adolescents Diagnosed with an Attention-Deficit Disorder: Teachers' Perspectives</i> . Crawley, WA: University of Western Australia; 2003	Could not retrieve
Kidd AC. Sleep disorders in children: a qualitative research study on the comparison of behavioral symptoms associated with poor quality sleep and ADHD. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2009; 70 :1555	Lacking qualitative data and/or analysis
Kidder RM. When don't you tell the teacher? <i>Educ Can</i> 2009; 49 :35	Lacking qualitative data and/or analysis
Kildea S, Wright J, Davies J. Making sense of ADHD in practice: a stakeholder review. <i>Clin Child Psychol Psychiatr</i> 2011; 16 :599–619	Not focused on school setting
King GA, Brown EG, Smith LK. <i>Resilience: Learning from People with Disabilities and the Turning Points in their Lives</i> . Westport, CT: Praeger Publishers/Greenwood Publishing Group; 2003	Not focused on school setting
King JL. Adults' descriptions of their lived experience taking methylphenidate in their school-aged years: a phenomenological investigation. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2010; 70 :5827	Not focused on school setting
Kingston AK. <i>Mothering Special Needs: A Different Maternal Journey</i> . London, England: Jessica Kingsley Publishers; England; 2007	Lacking qualitative data and/or analysis
Knezevic-Florin O, Zukovic S, Ninkovic S. Case study: school experience of children with attention deficit hyperactivity disorder. <i>Health Med</i> 2012; 6 :3482–7	Other
Knipp DK. Teens' perceptions about attention deficit/hyperactivity disorder and medications. <i>J Sch Nurs</i> 2006; 22 :120–5	Focused on pharmacological interventions
Knippenberg CA, Ernewein P. The feeling de jour: a therapist's and teacher's perspective on the emotional impairments of exceptional children. <i>Educ Psychol J</i> 2010; 47 :22–6	Lacking qualitative data and/or analysis
Knowles T. The Kids behind the Label: Understanding ADHD. <i>Educ Digest</i> 2010; 76 :59–61	Lacking qualitative data and/or analysis
Konza D. <i>An Effective Teaching Model Based on Classroom Observations of Students with Attention Deficit Hyperactivity Disorder</i> . Wollongong, NSW: University of Wollongong; 1999	Could not retrieve
Konza D. Gifted? ADHD? Or Both? In Embracing Diversity. Proceeding of the 21st National Conference of the Australia Association of Special Education Inc., 20–28 September. Brisbane, QLD: Australian Association of Special Education; 1997	Could not retrieve
Koro-Ljungberg M, Bussing R, Williamson P, Wilder J, Mills T. African-American teenagers' stories of attention deficit/hyperactivity disorder. <i>J Child Fam Stud</i> 2008; 17 :467–85	Not focused on school setting
Koro-Ljungberg M, Bussing R. The management of courtesy stigma in the lives of families with teenagers with ADHD. <i>J Fam Issues</i> 2009; 30 :1175–200	Not focused on school setting
Kos JM, Richdale AL, Hay DA. Children with attention deficit hyperactivity disorder and their teachers: a review of the literature. <i>Int J Disabil Dev Educ</i> 2006; 53 :147–60	Not primary research
Kostelnik MJ, Onaga E, Rohde B, Whiren A. Children with Special Needs: Lessons for Early Childhood Professionals. In Kostelnik MJ, editor. <i>Early Childhood Education Series</i> . Williston, VT: Teachers College Press; 2002. pp. 100–19	Lacking qualitative data and/or analysis
Kothari J, Morgan S. Multi-agency training programmes for professionals and parents of children with ADHD. <i>Arch Dis Child</i> 2010; 95 :A97	Not focused on school setting
Kreiss DS. Case studies of the experiences of students referred for problems of disruptive and/or aggressive behavior to an alternative high school program. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2004; 65 :3137	Focused on school-based interventions
Krout R, Burnham A, Moorman S. Computer and electronic music applications with students in special education: from program proposal to progress evaluation. <i>Music Ther Perspect</i> 1993; 11 :28–31	Lacking qualitative data and/or analysis
Landwehr JM. Understanding youth with ADHD in the context of mother-child and father-child relationships: a mixed methods study. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2012; 73 :1294	Not focused on school setting

Reference	Reason for exclusion
Langberg JM, Vaughn AJ, Williamson P, Epstein JN, Girio-Herrera E, Becker SP. Refinement of an organizational skills intervention for adolescents with ADHD for implementation by school mental health providers. <i>Sch Ment Health</i> ;3:143–55	Focused on school-based interventions
Laughlin C, Hall SB. When is ritalin the answer? <i>Learning</i> 1995;24:56–8	Lacking qualitative data and/or analysis
Laurell GC. ADHD and other stories from the forsaken garden. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003;64:412	Not focused on school setting
Lavorata CM. Attention deficit hyperactivity disorder: families choosing alternate management approaches. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2001;62:1706	Lacking qualitative data and/or analysis
Law J, Plunkett C, Taylor J, Gunning M. Developing policy in the provision of parenting programmes: integrating a review of reviews with the perspectives of both parents and professionals. <i>Child Care Health Dev</i> 2009;35:302–12	Not focused on school setting
Lensch CR. Making Sense of Attention Deficit/Hyperactivity Disorder. Westport, CT: Bergin & Garvey; 2000	Not primary research
Leslie LK, Plemmons D, Monn AR, Palinkas LA. Investigating ADHD treatment trajectories: listening to families' stories about medication use. <i>J Dev Behav Pediatr</i> 2007;28:179–88	Other
Levine ES, Anshel DJ. 'Nothing works!' A case study using cognitive-behavioral interventions to engage parents, educators, and children in the management of attention-deficit/hyperactivity disorder. <i>Psychol Schools</i> 2011;48:297–306	Lacking qualitative data and/or analysis
Levine JE. <i>Learning from Behavior: How to Understand and Help 'Challenging' Children in School</i> . Westport, CT: Praeger Publishers/Greenwood Publishing Group; 2007	Lacking qualitative data and/or analysis
Litt J. Women's carework in low-income households – the special case of children with attention deficit hyperactivity disorder. <i>GenD Soc</i> 2004;18:625–44	Not focused on school setting
Little AM. Perceptions of Baldrige criteria implementation in middle school inclusive language arts classrooms. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011;72:887	Lacking qualitative data and/or analysis
Ljusberg A. Children's views on attending a remedial class – because of concentration difficulties. <i>Child Care Health Dev</i> 2011;37:440–5	Focused on school-based interventions
Ljusberg A-L, Brodin J. Self-concept in children with attention deficits. <i>Int J Rehabil Res</i> . 2007;30:195–201	Lacking qualitative data and/or analysis
Lovey J. Dealing with AD/HD in the classroom: one teacher's experience. <i>Emot Behav Difficult</i> 1998;3:30–6	Lacking qualitative data and/or analysis
Maddern L, Franey J, McLaughlina V, Cox S. An evaluation of the impact of an inter-agency intervention programme to promote social skills in primary school children. <i>Educ Psychol Pract</i> 2004;20:135–55	Not focused on school-age students with ADHD
Magiati I, Dockrell JE, Logotheti AE. Young children's understanding of disabilities: the influence of development, context, and cognition. <i>J Appl Dev Psychol</i> 2002;23:409–30	Lacking qualitative data and/or analysis
Margalit M, Raskind MH. Mothers of children with LD and ADHD: empowerment through online communication. <i>J Spec Educ Tech</i> 2009;24:2	Lacking qualitative data and/or analysis
Marks SU, Schrader C, Levine M. Paraeducator experiences in inclusive settings: helping, hovering, or holding their own? <i>Except Child</i> 1999;65:315–28	Not focused on school-age students with ADHD
Mattingly G, Surman CB, Mao AR, Eagan CA, Onofrey M, Lerner M. Improving communication in ADHD care: results from in-office linguistic research. <i>CNS Spectrums</i> 2011;16	Not focused on school setting
Mattison RE. Consultation interactions between special education teachers and child psychiatrists. <i>Child Adolesc Psychiatr Clin N Am</i> 2001;10:67–82	Lacking qualitative data and/or analysis
McFerran K. Quenching a desire for power: the role of music therapy for adolescents with ADHD. <i>Australas J Spec Educ</i> 2009;33:72–83	Not focused on school setting
McHoul A, Rapley M. A case of attention-deficit/hyperactivity disorder diagnosis: Sir Karl and Francis B. slug it out on the consulting room. <i>Discourse Soc</i> 2005;16:419–49	Not focused on school setting

Reference	Reason for exclusion
McIntyre R, Hennessy E. 'He's just enthusiastic. Is that such a bad thing?' Experiences of parents of children with attention deficit hyperactivity disorder. <i>Emot Behav Difficult</i> 2012; 17 :65–82	Not focused on school setting
McKinney JD, Feagans L. Adaptive classroom behavior of learning disabled students. <i>J Learn Disabil</i> 1983; 16 :360–7	Not primary research
McMenamy JM, Perrin EC, Wisner M. Age-related differences in how children with ADHD understand their condition: biological or psychological causality? <i>J Appl Dev Psychol</i> 2005; 26 :111–31	Lacking qualitative data and/or analysis
McMenamy JM, Perrin EC. The impact of experience on children's understanding of ADHD. <i>J Dev Behav Pediatr</i> 2008; 29 :483–92	Lacking qualitative data and/or analysis
McMenamy JM. Children's understanding of psychological and physical conditions: an investigation of domain-specificity. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2001; 61 :5029	Lacking qualitative data and/or analysis
McNeil KN. The Guardian of the Dream: A Journey through Attention Deficit Hyperactive Disorder to the Other Side of Me. In Pena RA, Guest K, Matsuda L, editors. <i>Community and Difference: Stories about Social Justice and Teaching</i> . New York, NY: Peter Lang Publishing Inc.; 2007. pp. 123–43	Lacking qualitative data and/or analysis
McNeil KN. Through our eyes: the shared lived experiences of growing up attention deficit hyperactive disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 66 :2049	Focused on school-based interventions
Meadows NB. Meeting the challenges of responsible inclusion. <i>Prev Sch Fail</i> 1996; 40 :139–42	Lacking qualitative data and/or analysis
Meaux JB, Hester C, Smith B, Shoptaw A. Stimulant medications: a trade-off? The lived experience of adolescents with ADHD. <i>J Spec Pediatr Nurs</i> 2006; 11 :214–26	Not focused on school setting
Mickelson J-R. <i>Our Sons were Labeled Behavior Disordered: Here are the Stories of our Lives</i> . Troy, NY: Educator's International Press; 2000	Lacking qualitative data and/or analysis
Miller AR, Condin CJ, McKellin WH, Shaw N, Klassen AF, Sheps S. Continuity of care for children with complex chronic health conditions: parents' perspectives. <i>BMC Health Serv Res</i> 2009; 9 :242	Not focused on school setting
Miller TW, Nigg JT, Miller RL. Attention deficit hyperactivity disorder in African American children: what can be concluded from the past ten years? <i>Clin Psychol Rev</i> 2009; 29 :77–86	Not primary research
Mills I. Understanding parent decision making for treatment of ADHD. <i>Sch Soc Work J</i> . 2011; 36 :41–60	Lacking qualitative data and/or analysis
Mintz J. Understanding of special educational needs terms by student teachers and student paediatric nurses. <i>Eur J Spec Needs Educ</i> 2010; 25 :225–38	Lacking qualitative data and/or analysis
Model SLF. Bear up early childhood teachers . . . accommodate attention deficit disorder children. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1995; 55 :3407	Lacking qualitative data and/or analysis
Moen OL, Hall-Lord ML, Hedelin B. Contending and adapting every day: Norwegian parents' lived experience of having a child with ADHD. <i>J Fam Nurs</i> 2011; 17 :441–62	Not focused on school setting
Monaco T, Eichenold D, Kasper V, Gonzales CV, Jackson S, Earle M, et al. Teachers identify and support at-risk gifted students. <i>Acad Leader</i> 2010; 8 :1–9	Lacking qualitative data and/or analysis
Montgomery CM. Discipline and love in African-Americans parenting children with attention deficit hyperactivity disorder: cultural dilemmas in becoming a 'good' parent. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 68 :1532	Not focused on school setting
Montgomery JK. Characteristics and development of male adolescent students who are gifted, gifted twice-exceptional, or attention deficit: a mixed-methods study. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 68 :2407	Lacking qualitative data and/or analysis
Moon SM, Zentall SS, Grskovic JA, Hall A, Stormont M. Emotional and social characteristics of boys with AD/HD and giftedness: a comparative case study. <i>J Educ Gift</i> 2001; 24 :207–47	Not focused on school setting
Morrison R, Burgman I. Friendship experiences among children with disabilities who attend mainstream Australian schools. <i>Can J Occup Ther</i> 2009; 76 :145–52	Not focused on school-age students with ADHD

Reference	Reason for exclusion
Morse E. Caretakers of children with ADHD: issues and experiences. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2003; 63 :3930	Could not retrieve
Morthel RD. A gender based comparative study of attention deficit hyperactivity disorder on behavior and achievement of elementary students. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2010; 70 :2387	Lacking qualitative data and/or analysis
Moses T. Being treated differently: stigma experiences with family, peers, and school staff among adolescents with mental health disorders. <i>Soc Sci Med</i> 2010; 70 :985–93	Lacking qualitative data and/or analysis
Moss JJ. Biomedicalizing schoolroom performances. Constructions of attention deficit disorder and reading disability in the first grade. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2010; 70 :2756	Lacking qualitative data and/or analysis
Mueller TG. IEP facilitation: a promising approach to resolving conflicts between families and schools. <i>Teach Except Child</i> 2009; 41 :60–7	Lacking qualitative data and/or analysis
Mulligan S. Classroom strategies used by teachers of students with attention deficit hyperactivity disorder. <i>Phys Occup Ther Pediatr</i> 2001; 20 :25–44	Focused on school-based interventions
Murray E. <i>'Don't Give Up On Them': Managing Attention Deficit Hyperactivity Disorder in Schools: What Teachers and Parents Believe and Know</i> . Perth, WA: Murdoch University; 2009	Lacking qualitative data and/or analysis
Naughton J. Disabilities from an insider's perspective. <i>Res Teach Dev Educ</i> 2011; 28 :43–9	Lacking qualitative data and/or analysis
Navarro V, Danforth S. A case study of ADHD diagnosis in middle school: perspectives and discourses. <i>Ethical Hum Psychol Psychiatry</i> 2004; 6 :111–24	Focused on pharmacological interventions
Neophytou K, Webber R. Attention deficit hyperactivity disorder: the family and social context. <i>Aust Soc Work</i> 2005; 58 :313–25	Not focused on school setting
Neophytou K. <i>ADHD, a Social Construct? The Experience of Families who Have a Child Diagnosed with Attention Deficit Hyperactivity Disorder</i> . Melbourne, VIC: Australian Catholic University; 2004	Not focused on school setting
Nicholls CJ. Lessons learned in living with attention-deficit hyperactivity disorder. <i>J Child Neurol</i> 2004; 19 :828–30	Lacking qualitative data and/or analysis
Nielsen JA. Increasing awareness of learning disabilities. <i>Alberta J Educ Res</i> 1997; 43 :169–72	Not focused on school setting
Nilholm C, Alm B. An inclusive classroom? A case study of inclusiveness, teacher strategies, and children's experiences. <i>Eur J Spec Needs Educ</i> 2010; 25 :239–52	Not focused on school-age students with ADHD
Norgard L. A strength-based behavioral approach to reduce stimulant medication referrals in elementary schools. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 67 :3165	Lacking qualitative data and/or analysis
Norris JA, Hoffman PR. Attaining, sustaining, and focusing attention: intervention for children with ADHD. <i>Semin Speech Lang</i> 1996; 17 :59–71	Lacking qualitative data and/or analysis
Oberthur AP. <i>A Study of Parents' Perceptions of the Behaviour and Learning of their Children with Attention Deficit Disorder</i> . Brisbane, QLD: University of Queensland; 1996	Could not retrieve
Okafor MN. Narrating realities of Latino mothers of children with attention deficit hyperactivity disorder {ADHD} using ecological and cultural approach. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 67 :4595	Not focused on school setting
Olaniyan O, dosReis S, Garriett V, Mychailyszyn MP, Anixt J, Rowe PC, et al. Community perspectives of childhood behavioral problems and ADHD among African American parents. <i>Ambul Pediatr</i> 2007; 7 :226–31	Not focused on school setting
Olmeda RE, Thomas AR, Davis CP. An analysis of sociocultural factors in social skills training studies with students with attention deficit/hyperactivity disorder. <i>Multiple Voices</i> 2003; 6 :58–72	Could not retrieve
O'Regan F, Cooper P. Ruby Tuesday: a student with ADHD and learning difficulties. <i>Emot Behav Difficult</i> . 2001; 6 :265–9	Lacking qualitative data and/or analysis
Oslington G. Our family's experience with the 'DORE' program. <i>Gifted</i> 2008:6–8	Could not retrieve

Reference	Reason for exclusion
Ozdemir S. The first step to success program: Implementation effectiveness with Turkish children with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2006; 67 :2115	Focused on school-based interventions
Pang WC, Zhang KC. Reading intervention for secondary students with hyperactive behaviours in Hong Kong. <i>Emot Behav Difficult</i> 2011; 16 :69–85	Lacking qualitative data and/or analysis
Paoni MF. The synthesis of a social information processing model of attention-deficit/hyperactivity disorder and social competence intervention. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2001; 61 :6144	Not focused on school setting
Papadopoulos TC, Mulcahy RF. Pedagogy of integration: interactions between children with and without special needs in early childhood and elementary integrated settings. <i>Can J Spec Educ</i> 1995; 10 :136–58	Lacking qualitative data and/or analysis
Partridge L, Williams N. What's In It For Me? New Perspectives on Motivating Students With AD/HD. In PL Jeffery, editor. <i>Proceedings of AARE 2007 International Education Research Conference. 2007 November 26–29; Fremantle, Australia</i> . Melbourne, VIC: Australian Association for Research in Education; 2008	Not primary research
Partridge L. <i>Teaching Adolescent AD/HD Boys Through 'Self-Sufficient Reward Control': A Sociological Investigation</i> . Lewiston, NY: Edwin Mellen Press; 2009	Focused on school-based interventions
Partridge RK. Listening to the AD/HD-diagnosed schoolboy as 'insider': a grounded theory study. Crawley, WA: University of Western Australia; 2006	Could not retrieve
Pelham WE, Milich R. Peer relations in children with hyperactivity/attention deficit disorder. <i>J Learn Disabil</i> 1984; 17 :560–7	Not primary research
Pellegrini AD, Landers-Pott M. Children, classroom context and activity and attention to tasks. <i>Emot Behav Difficult</i> . 1996; 1 :29–35	Not primary research
Perry SN, Franklin KK. An Analysis of College Students with AD/HD at a Private and Public Institution in Arkansas Using a Grounded Theory Approach. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, Chattanooga, TN, 6–8 November 2002	Could not retrieve
Pester J. An investigative assessment of the need for a Y9 pupil with learning difficulties and ADHD. <i>Emot Behav Difficult</i> 2002; 7 :215–27	Other
Peters K, Jackson D. Mothers' experiences of parenting a child with attention deficit hyperactivity disorder. <i>J Adv Nurs</i> 2009; 65 :62–71	Not focused on school setting
Peterson D, Maddux CD. Rural regular and special education teachers' perceptions of teaching hyperactive students. <i>Rural Spec Educ Q</i> 1988; 9 :10–15	Lacking qualitative data and/or analysis
Petruzzi L. Attention deficit disorder: family physicians' perspective on diagnosis and treatment. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 66 :2806	Not focused on school setting
Plumer PJ. Using peers as intervention agents to improve the social behaviors of elementary-aged children with attention deficit hyperactivity disorder: effects of a peer coaching package. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2008; 68 :2813	Lacking qualitative data and/or analysis
Poillion MJ. Effects of teacher training on the alteration of teacher instructional style and the academic success of students identified with attention-deficit hyperactivity disorder. <i>Diss Abstr Int</i> 1993; 54 :2121	Lacking qualitative data and/or analysis
Poley JA. Effects of classroom cognitive behavioral training with elementary school ADHD students: a pilot study. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1996; 56 :2616	Lacking qualitative data and/or analysis
Porter L. Collaboration with parents. <i>Teach Learn Netw</i> 2009; 16 :23–5	Lacking qualitative data and/or analysis
Pretorius D. How parents of children diagnosed with attention-deficit/hyperactivity disorder manage their children: scaffolding in chaos. Crawley, WA: University of Western Australia; 2005	Could not retrieve

Reference	Reason for exclusion
Prigg A. Experiences and perceived roles of occupational therapists working with children with special learning needs during transition to school: a pilot study. <i>Aust Occup Ther J</i> 2002; 49 :100–11	Lacking qualitative data and/or analysis
Prosser B. <i>Behaviour Management or Management Behaviour? A Sociological Study of Attention Deficit Hyperactivity Disorder (ADHA) in Australian and American Secondary Schools</i> . Perth, WA: Murdoch University; 2001	Not focused on school setting
Prosser B. Beyond Deficit Views: Redesigning Pedagogies To Engage Students Identified With Attention Deficit Hyperactivity Disorder. Paper presented at the Culture, Knowledge and Understanding Conference, Singapore, May 2007	Lacking qualitative data and/or analysis
Prosser B. Hearing silenced voices: using narrative research with marginalised youth. <i>Crit Pedagog Netw</i> 1998; 11 :1–11	Could not retrieve
Prosser B. Media and Pedagogical Exchange: Taking ADHD to Radio 2GB. In Jeffery PL, editor. <i>Proceedings of the AARE 2009 International Education Research Conference; 2009 December 2; Canberra, Australia</i> . Melbourne, VIC: Australian Association for Research in Education; 2010	Lacking qualitative data and/or analysis
Prosser B. Weaving a Whole Cloth: Metaphor as a Response to Representational Challenges in Critical Narrative Research. In Jeffery PL, editor. <i>Proceedings of the AARE 2007 International Education Research Conference; 2007 November 28; Fremantle, Australia</i> . Melbourne, VIC: Australian Association For Research in Education; 2008	Not focused on school setting
Prosser BJ. Beyond ADHD: a consideration of attention deficit hyperactivity disorder and pedagogy in Australian schools. <i>Int J Inclusive Educ</i> 2008; 12 :81–97	Lacking qualitative data and/or analysis
Quinn PO. <i>Adolescents and ADD: Gaining the Advantage</i> . Washington, DC: Magination Press/American Psychological Association; 1995	Lacking qualitative data and/or analysis
Radford PM, Ervin RA. Employing descriptive functional assessment methods to assess low-rate, high-intensity behaviors: a case example. <i>J Posit Behav Interv</i> 2002; 4 :146–55	Lacking qualitative data and/or analysis
Rafalovich A. <i>Framing ADHD Children: A Critical Examination of the History, Discourse, and Everyday Experience of Attention Deficit</i> . Maryland, MD: Lexington Books; 2004	Focused on school-based interventions
Rapport MD. A comparison of attentional training utilizing a response cost procedure and methylphenidate (Ritalin) on the classroom behaviors of hyperactive children. <i>Diss Abstr Int</i> 1981; 42 :389	Lacking qualitative data and/or analysis
Raskind MH, Margalit M, Higgins EL. 'My LD': children's voices on the internet. <i>Learn Disabil Q</i> 2006; 29 :253–68	Not focused on school-age students with ADHD
Reiber C, McLaughlin TF. Classroom interventions: methods to improve academic performance and classroom behavior for students with attention-deficit/hyperactivity disorder. <i>Int J Spec Educ</i> 2004; 19 :1–13	Lacking qualitative data and/or analysis
Reis EM. Attention deficit hyperactivity disorder: Implications for the classroom teacher. <i>J Instr Psychol</i> 2002; 29 :175–8	Not primary research
Risley J. Her grades fell. It was hard to watch. <i>Working Mother</i> 2003; 50	Could not retrieve
Robbins KS. The social construction of attention deficit disorder: An ethnography and archaeology (Michel Foucault). <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2000; 60 :3534	Lacking qualitative data and/or analysis
Robin SS, Bosco JJ. Creating an Approach for Understanding the Diagnosis and Treatment of Hyperkinetic Children. Paper presented at the Annual Meeting of the American Educational Research Association, Boston, MA, April 1980	Could not retrieve
Robins M, Gilbert RN. <i>Welcome to Our World: Realities of High School Students</i> . Thousand Oaks, CA: Corwin Press, Inc.; 1998	Lacking qualitative data and/or analysis
Robinson K. Reflections on parenting a child with ADHD: exploring professional–client relationships. <i>J Fem Fam Ther</i> 2003; 15 :75–90	Lacking qualitative data and/or analysis
Rosenzweig JM, Brennan EM, Ogilvie A. Work-family fit: voices of parents of children with emotional and behavioral disorders. <i>Soc Work</i> 2002; 47 :415–24	Not focused on school setting
Ross E, Ross EC. The identification of ADHD. <i>Infants Young Child</i> 2006; 19 :164–7	Lacking qualitative data and/or analysis

Reference	Reason for exclusion
Rudnick P. My Billy. <i>New Yorker</i> 2006; 82 :40	Lacking qualitative data and/or analysis
Ruenzel D. Addicted. <i>Teach Mag</i> 1996; 8 :28–9,32,4–5	Lacking qualitative data and/or analysis
Rush C, Harrison P. Ascertaining teachers' perceptions of working with adolescents diagnosed with attention-deficit/hyperactivity disorder. <i>Educ Psychol Pract</i> 2008; 24 :207–23	Lacking qualitative data and/or analysis
Rush S, Wheeler J. Ascertaining disabling perceptions using perceptual mapping: applications to teachers' perceptions of adolescents with attention-deficit/hyperactivity disorder. <i>Disabil Soc</i> 2011; 26 :743–56	Lacking qualitative data and/or analysis
Rush S. Teachers' perceptions of working with adolescents with Attention-Deficit/Hyperactivity Disorder: a concept-mapping approach. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2005; 66 :1223	Could not retrieve
Ryan S. 'I used to worry about what other people thought but now I just think . . . well I don't care': shifting accounts of learning difficulties in public places. <i>Health Place</i> 2008; 14 :730–9	Not focused on school setting
Salt N, Parkes E, Scammell A. GPs' perceptions of the management of ADHD in primary care: a study of Wandsworth GPs. <i>Prim Health Care Res Dev</i> 2005; 6 :162–71	Not focused on school setting
Sams SE. The effects of functional intervention on the behavior of four students labeled ADHD. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1999; 60 :1081	Lacking qualitative data and/or analysis
Santamaria M. School counselors' strategies supporting Vygotsky's theory and affecting behavior of Hispanic English language learners (ELL) with ADHD in second grade. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2009; 70 :448	Focused on school-based interventions
Schaedler JS. A phenomenological study of the developmental course and adult outcome of women with attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2000; 60 :4908	Could not retrieve
Schirduan V, Case K. Mindful curriculum leadership for students with attention deficit hyperactivity disorder: leading in elementary schools by using multiple intelligences theory (SUMIT). <i>Teachers Coll Rec</i> 2004; 106 :87–95	Lacking qualitative data and/or analysis
Schirduan V, Case KI. Mindful Curriculum Leadership for Students with Attention Deficit Hyperactivity Disorder (ADHD): Leading in Elementary Schools by Using Multiple Intelligences Theory (SUMIT[C]). Paper presented at the Annual Meeting of the American Education Research Association, Seattle, WA, 10–14 April 2001	Lacking qualitative data and/or analysis
Schirduan VM. Elementary students with attention deficit hyperactivity disorder (ADHD) in schools using multiple intelligences theory: Intelligences, self-concept, and achievement. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2000; 61 :891	Other
Schmalzer SN. Teachers' perceptions of self-management interventions for ADHD: an initial investigation. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2009; 69 :6435	Lacking qualitative data and/or analysis
Scope CR. The efficacy of conjoint behavioral consultation to reduce the off-task behavior of elementary school children diagnosed with attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2003; 64 :1975	Lacking qualitative data and/or analysis
Seabi J. Foundation phase educators' perceptions of attention deficit hyperactivity disorder at a mainstream primary school. <i>S Afr J High Educ</i> 2010; 24 :616–29	Lacking qualitative data and/or analysis
Segal E. Mothering a child with attention-deficit hyperactivity disorder: learned mothering. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1996; 56 :4950	Not focused on school setting
Segal R, Frank G. The extraordinary construction of ordinary experience: scheduling daily life in families with children with attention deficit hyperactivity disorder. <i>Scand J Occup Ther</i> 1998; 5 :141–7	Lacking qualitative data and/or analysis
Segal R, Hinojosa J. The activity setting of homework: an analysis of three cases and implications for occupational therapy. <i>Am J Occup Ther</i> 2006; 60 :50–9	Not focused on school setting

Reference	Reason for exclusion
Segal R. The construction of family occupations: a study of families with children who have attention deficit/hyperactivity disorder. <i>Can J Occup Ther</i> 1998; 65 :286–92	Not focused on school setting
Shattell MM, Bartlett R, Rowe T. 'I have always felt different': the experience of attention-deficit/hyperactivity disorder in childhood. <i>J Pediatr Nurs</i> 2008; 23 :49–57	Not focused on school setting
Shaw K, Wagner I, Eastwood H, Mitchell G. A qualitative study of Australian GPs' attitudes and practices in the diagnosis and management of attention-deficit/hyperactivity disorder (ADHD). <i>J Fam Pract</i> 2003; 20 :129–34	Not focused on school setting
Sheehan AD, Sheehan CM. Lost in a sea of ink: how I survived the storm. <i>J Adolesc Adult Literacy</i> 2000; 44 :20	Lacking qualitative data and/or analysis
Singer B. The psychological experience of siblings of children with ADHD (attention deficit hyperactivity disorder, learning disabilities. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 1997; 58 :2700	Could not retrieve
Singh I. Boys will be boys: fathers' perspectives on ADHD symptoms, diagnosis, and drug treatment. <i>Harv Rev Psychiatr</i> 2003; 11 :308–16	Not focused on school setting
Singh I. Doing their jobs: mothering with ritalin in a culture of mother-blame. <i>Soc Sci Med</i> 2004; 59 :1193–205	Not focused on school setting
Slee R. Finding a student voice in school reform: student disaffection, pathologies of disruption and educational control. <i>Int Stud Sociol Educ</i> 1994; 4 :147–72	Lacking qualitative data and/or analysis
Smagorinsky P, Cameron T, O'Donnell-Allen C. 'Achtung' maybe: a case study of the role of personal connection and art in the literary engagement of students with attentional difficulties. <i>Read Writ Q</i> 2007; 23 :333–58	Focused on school-based interventions
Smith M, Tett L. New community schools and pupils with social, emotional and behavioural difficulties. <i>Scot Educ Rev</i> 2002; 34 :151–62	Not focused on school-age students with ADHD
Spicer CD. The Emotional Toll of Being a Twice Exceptional Adult : A Case Study. In Wormald C and Vialle W, editors. <i>Dual Exceptionality</i> . Sydney, NSW: Australian Association for the Education of the Gifted and Talented Ltd; 2011. pp. 33–6	Lacking qualitative data and/or analysis
St James O'Connor T, Meakes E, Pickering M, Schuman M. On the right track: client experience of narrative therapy. <i>Contemp Fam Ther</i> 1997; 19 :479–95	Not focused on school setting
Stagg AM. Barriers to attention-deficit/hyperactivity disorder intervention implementation in the public school setting. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2011; 71 :6467	Lacking qualitative data and/or analysis
Stinnett TA, Crawford SA, Gillespie MD, Cruce MK, Langford CA. Factors affecting treatment acceptability for psychostimulant medication versus psychoeducational intervention. <i>Psychol Schools</i> 2001; 38 :585	Lacking qualitative data and/or analysis
Stolowitz MA. How to achieve academic and creative success in spite of the inflexible, unresponsive higher education system. <i>J Learn Disabil</i> 1995; 28 :4–7	Lacking qualitative data and/or analysis
Stone KL. An investigation of sibling relationships of children with AD/HD and their older siblings. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2000; 60 :4255	Lacking qualitative data and/or analysis
Stultz CH, Flannagan D. Talk about school between mothers and children with or without ADHD. <i>J Child Fam Stud</i> 1999; 8 :425–35	Lacking qualitative data and/or analysis
Tan TS, Cheung WS. Effects of computer collaborative group work on peer acceptance of a junior pupil with attention deficit hyperactivity disorder (ADHD). <i>Comput Educ</i> 2008; 50 :725–41	Lacking qualitative data and/or analysis
Taylor M, Houghton S, Durkin K. Getting children with attention deficit hyperactivity disorder to school on time. <i>J Fam Issues</i> 2008; 29 :918–43	Not focused on school-age students with ADHD
Taylor M, Houghton S. Examination-related anxiety in students diagnosed with AD/HD and the case for an allocation of extra time: perspectives of teachers, mothers and students. <i>Emot Behav Difficult</i> 2008; 13 :111–25	Other
Taylor M, O'Donoghue T, Houghton S. To medicate or not to medicate? The decision-making process of Western Australian parents following their child's diagnosis with an attention deficit hyperactivity disorder. <i>Int J Disabil Dev Educ</i> 2006; 53 :111–28	Not focused on school setting

Reference	Reason for exclusion
Taylor Wilcoxson JL. Attention deficit hyperactivity disorder and creative potential of children: a multiple case study. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2006; 66 :4502	Focused on school-based interventions
Teasley M. Effective Interventions for Students with ADHD. In Franklin C, Harris MB, Allen-Meares P, editors. <i>The School Practitioner's Concise Companion to Mental Health</i> . New York, NY: Oxford University Press; 2008. pp. 19–34	Lacking qualitative data and/or analysis
Terenzi N. In my own words. <i>Reaching Today's Youth</i> 1999; 4 :4–7	Could not retrieve
Terry J. Coping with ADHD. <i>Child Educ</i> 1998; 75 :48–9	Could not retrieve
TES. Friday hero. <i>Times Educ Suppl</i> 2005; 3	Lacking qualitative data and/or analysis
Thompson D, Emira M. 'They say every child matters, but they don't': an investigation into parental and carer perceptions of access to leisure facilities and respite care for children and young people with autistic spectrum disorder (ASD) or attention deficit, hyperactivity disorder (ADHD). <i>Disabil Soc</i> 2011; 26 :65–78	Not focused on school setting
Thorlaksen CE. The experiences that enhance and inhibit learning for post-secondary students diagnosed with ADHD: a qualitative study. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2011; 72 :77	Not focused on school setting
Tidefors I, Strand J. Life history interviews with 11 boys diagnosed with attention-deficit/hyperactivity disorder who had sexually offended: a sad storyline. <i>J Trauma Dissociation</i> 2012; 13 :421–34	Not focused on school setting
Timmer DF. Group support for teenagers with attention deficit hyperactivity disorder. <i>Soc Work Educ</i> 1995; 17 :194–8	Lacking qualitative data and/or analysis
Tracey DK, Gleeson G. Sense of coherence, loneliness and interpersonal concerns in adolescents with AD/HD: a comparison of adolescents' and mothers' perceptions. <i>Aust J Guid Counsell</i> 1998; 8 :49–58	Lacking qualitative data and/or analysis
Travell C, Visser J. 'ADHD does bad stuff to you': young people's and parents' experiences and perceptions of attention deficit hyperactivity disorder (ADHD). <i>Emot Behav Difficult</i> 2006; 11 :205–16	Lacking qualitative data and/or analysis
Tsurumaki M. Self-esteem enhancement in children with attention-deficit/hyperactivity disorder. <i>Tohoku Psychologica Folia</i> 2007; 66 :105–11	Lacking qualitative data and/or analysis
Turk TN, Campbell DA. What's wrong with Doug: the academic struggles of a gifted student with ADHD from preschool to college. <i>Gift Child Today</i> 2002; 25 :48	Lacking qualitative data and/or analysis
Tyler Junior College. <i>Tutor Training for Occupational Students with Learning Disabilities. PY95 Final Detailed Report</i> . Texas, TX: Tyler Junior College; 1995	Lacking qualitative data and/or analysis
Tyson K. Using the teacher-student relationship to help children diagnosed as hyperactive: an application of intrapsychic humanism. <i>Child Youth Care Forum</i> 2000; 29 :265–89	Lacking qualitative data and/or analysis
Underwood DJ, Kopels S. Complaints filed against schools by parents of children with AD/HD: implications for school social work practice. <i>Child Schools</i> 2004; 26 :221–33	Lacking qualitative data and/or analysis
Vail A, Mandiloff V. Cultivating Our Garden: Serving Students with Learning Disabilities in Family and Consumer Sciences. In Vail A, editor: <i>Family & Consumer Sciences Education Association</i> . Ellensburg, WA: Central Washington University; 1996	Could not retrieve
Van Der Westhuizen B. An ecosystemic approach to addressing attentional difficulties and heightened motor activity. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2009; 69 :4248	Lacking qualitative data and/or analysis
Vogl TA. Navigating the glass maze: towards a phenomenology-derived learning model of graduate students with attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2007; 68 :438	Not focused on school setting
Volpe RJ, Anastasio RJ, DuPaul GJ. Classroom and Instructional Strategies. In Goldstein S, Nagliere JA, DeVries M, editors. <i>Learning and Attention Disorders in Adolescence and Adulthood: Assessment and Treatment</i> . 2nd edn. Hoboken, NJ: John Wiley & Sons Inc.; 2011. pp. 467–87	Could not retrieve

Reference	Reason for exclusion
Waite R, Tran M. Explanatory models and help-seeking behavior for attention-deficit/hyperactivity disorder among a cohort of postsecondary students. <i>Arch Psychiatr Nurs</i> 2010; 24 :247–59	Not focused on school setting
Wallace N. The perceptions of mothers of sons with ADHD. <i>Aust New Zeal J Fam Ther</i> 2005; 26 :193–9	Lacking qualitative data and/or analysis
Ware JN, Ohrt JH, Swank JM. A phenomenological exploration of children's experiences in a social skills group. <i>J Spec Group Work</i> 2012; 37 :133–51	Not focused on school-age students with ADHD
Watson C, Marr C. A breakfast club for children with emotional and behavioural difficulties. <i>Education</i> 2003; 31 :15–18	Lacking qualitative data and/or analysis
Weiss M, Hechtman L, Weiss G. ADHD in parents. <i>J Am Acad Child Adolesc Psychiatr</i> 2000; 39 :1059–61	Lacking qualitative data and/or analysis
Wheeler L, Pumfrey P, Wakefield P. Variability of ADHD symptoms across primary school contexts: an in-depth case study. <i>Emot Behav Difficult</i> 2009; 14 :69–84	Other
Wheeler L. Mixed Method Research into the Variability of ADHD Symptoms in Educational Settings. Paper presented at the BERA conference 2011. London; Institution of Education; 2011	Lacking qualitative data and/or analysis
White-McMahon M. What you see is not what you get. <i>Reclaim Child Youth</i> 2010; 19 :58–61	Lacking qualitative data and/or analysis
Wiebe J, Nicol JJ. Juxtaposition: ADHD and music at school. <i>Can J Music Ther</i> 2007; 13 :171–3	Lacking qualitative data and/or analysis
Wiebe JE. ADHD, the classroom and music: a case study. Saskatchewan, SK: University of Saskatchewan; 2007	Focused on school-based interventions
Williams MA. Exploration of effect of diagnosis of high school girls with attention deficit disorder on their mothers and the mother-daughter relationship. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2011; 72 :1786	Not focused on school setting
Williams NJ. Gaining control: perspectives of parents of children with AD/HD. Crawley, WA: The University of Western Australia; 2009	Not focused on school setting
Williams Orlando C. Parental explanatory models of children's attention deficit hyperactivity disorder. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> 2010; 71 :2277	Not focused on school setting
Williamson P, Koro-Ljungberg ME, Bussing R. Analysis of critical incidents and shifting perspectives: transitions in illness careers among adolescents with ADHD. <i>Qual Health Res</i> 2009; 19 :352–65	Not focused on school setting
Willis J. Using my neuroscience to treat the sickness in our classrooms. <i>Catalyst for Change</i> 2010; 36 :46–55	Not focused on school-age students with ADHD
Wong W. An investigation to describe and enhance the metacognitive processes of high school students with attention deficit hyperactivity disorder and learning disability who were studying for an examination. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 2005; 65 :4455	Focused on school-based interventions
Woods C. My brave hyperactive son. <i>Times Educ Suppl</i> 2007; 23	Lacking qualitative data and/or analysis
Wright MS. <i>The Readiness of Adults with Attention Deficit Hyperactivity Disorder for Self-Directed Learning</i> . Mississippi, MS: University of Southern Mississippi; 2001	Could not retrieve
Wright SF. 'A little understood solution to a vaguely defined problem': parental perceptions of Ritalin. <i>Educ Child Psychol</i> 1997; 14 :50–9	Lacking qualitative data and/or analysis
Yehle AK, Wambold C. An ADHD success story: strategies for teachers and students. <i>Teach Except Child</i> . 1998; 30 :8–13	Lacking qualitative data and/or analysis
Yoon ML. An Evaluation Of The Application Of The Suggestive-Accelerative Model Of Learning And Teaching On High School Students. Melbourne, VIC: RMIT University; 2005	Could not retrieve
Young S, Chesney S, Sperlinger D, Misch P, Collins P. A qualitative study exploring the life-course experiences of young offenders with symptoms and signs of ADHD who were detained in a residential care setting. <i>Crim Behav Ment Health</i> 2009; 19 :54–63	Could not retrieve

Reference	Reason for exclusion
Young-Loveridge J. A personal perspective on challenging behaviour: ADHD? <i>Aust J Early Child</i> 1997; 22 :1–6	Lacking qualitative data and/or analysis
Zentall SS, Moon SM, Hall AM, Grskovic JA. <i>Learning Characteristics of Boys with Attention Deficit/Hyperactivity Disorder and/or Giftedness</i> . Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL, March 1997	Lacking qualitative data and/or analysis
Zentall SS, Moon SM, Hall AM, Grskovic JA. Learning and motivational characteristics of boys with AD/HD and/or giftedness. <i>Except Child</i> 2001; 67 :499–519	Lacking qualitative data and/or analysis
Ziesing-Clark S. Confusion, heartache and tears: some mother's experiences of children diagnosed with attention deficit hyperactive disorder. <i>Aust J Early Child</i> 1998; 23 :31–5	Not focused on school setting
Zimmermann SH. Portrait of success: a situational analysis case study of students challenged by attention-deficit/hyperactivity disorder. <i>Dissertation Abstracts International: Section A: Humanities and Social Sciences</i> 1999; 59 :2368	Focused on school-based interventions

A decorative graphic consisting of numerous thin, parallel green lines that curve from the left side of the page towards the right, creating a sense of movement and depth.

**EME
HS&DR
HTA
PGfAR
PHR**

Part of the NIHR Journals Library
www.journalslibrary.nihr.ac.uk

This report presents independent research funded by the National Institute for Health Research (NIHR). The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health

Published by the NIHR Journals Library