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Cognitive-behavioural therapy for a variety of conditions: an overview of systematic reviews and panoramic meta-analysis

Beth Fordham, Thavapriya Sugavanam, Katherine Edwards, Karla Hemming, Jeremy Howick, Bethan Copsey, Hopin Lee, Milla Kaidesoja, Shona Kirtley, Sally Hopewell, Roshan das Nair, Robert Howard, Paul Stallard, Julia Hamer-Hunt, Zafra Cooper and Sarah E Lamb on behalf of the Cognitive Behavioural Therapy – Overview Expert Consultation Group



Cognitive-behavioural therapy for a variety of conditions: an overview of systematic reviews and panoramic meta-analysis

Beth Fordham[®],^{1*} Thavapriya Sugavanam[®],¹ Katherine Edwards[®],¹ Karla Hemming[®],² Jeremy Howick[®],³ Bethan Copsey[®],¹ Hopin Lee[®],¹ Milla Kaidesoja[®],⁴ Shona Kirtley[®],¹ Sally Hopewell[®],¹ Roshan das Nair[®],^{5,6} Robert Howard[®],⁷ Paul Stallard[®],⁸ Julia Hamer-Hunt,⁹ Zafra Cooper[®]¹⁰ and Sarah E Lamb[®],^{1,11} on behalf of the Cognitive Behavioural Therapy – Overview Expert Consultation Group

- ¹Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, UK
- ²Institute of Applied Health Research, University of Birmingham, Birmingham, UK ³Faculty of Philosophy, University of Oxford, Oxford, UK
- ⁴Department of Psychology and Logopedics, University of Helsinki, Helsinki, Finland
- ⁵Department of Psychiatry and Applied Psychology, University of Nottingham, Nottingham, UK
- ⁶Institute of Mental Health, Nottinghamshire Healthcare NHS Foundation Trust, Nottingham, UK
- ⁷Division of Psychiatry, University College London, London, UK
- ⁸Department for Health, University of Bath, Bath, UK
- ⁹Public and patient representative, Oxford, UK
- ¹⁰Department of Psychiatry, Yale School of Medicine, New Haven, CT, USA
- ¹¹College of Medicine and Health, University of Exeter, Exeter, UK

*Corresponding author

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Abstract

Cognitive-behavioural therapy for a variety of conditions: an overview of systematic reviews and panoramic meta-analysis

Beth Fordham[®],^{1*} Thavapriya Sugavanam[®],¹ Katherine Edwards[®],¹ Karla Hemming[®],² Jeremy Howick[®],³ Bethan Copsey[®],¹ Hopin Lee[®],¹ Milla Kaidesoja[®],⁴ Shona Kirtley[®],¹ Sally Hopewell[®],¹ Roshan das Nair[®],^{5,6} Robert Howard[®],⁷ Paul Stallard[®],⁸ Julia Hamer-Hunt,⁹ Zafra Cooper[®]¹⁰ and Sarah E Lamb[®],^{1,11} on behalf of the Cognitive Behavioural Therapy – Overview Expert Consultation Group

¹Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, UK

- ²Institute of Applied Health Research, University of Birmingham, Birmingham, UK
- ³Faculty of Philosophy, University of Oxford, Oxford, UK
- ⁴Department of Psychology and Logopedics, University of Helsinki, Helsinki, Finland
- ⁵Department of Psychiatry and Applied Psychology, University of Nottingham, Nottingham, UK
- ⁶Institute of Mental Health, Nottinghamshire Healthcare NHS Foundation Trust, Nottingham, UK

⁷Division of Psychiatry, University College London, London, UK

⁸Department for Health, University of Bath, Bath, UK

⁹Public and patient representative, Oxford, UK

- ¹⁰Department of Psychiatry, Yale School of Medicine, New Haven, CT, USA
- ¹¹College of Medicine and Health, University of Exeter, Exeter, UK

*Corresponding author beth.fordham@ndorms.ox.ac.uk

Background: Cognitive-behavioural therapy aims to increase quality of life by changing cognitive and behavioural factors that maintain problematic symptoms. A previous overview of cognitive-behavioural therapy systematic reviews suggested that cognitive-behavioural therapy was effective for many conditions. However, few of the included reviews synthesised randomised controlled trials.

Objectives: This project was undertaken to map the quality and gaps in the cognitive-behavioural therapy systematic review of randomised controlled trial evidence base. Panoramic meta-analyses were also conducted to identify any across-condition general effects of cognitive-behavioural therapy.

Data sources: The overview was designed with cognitive-behavioural therapy patients, clinicians and researchers. The Cochrane Library, MEDLINE, EMBASE, PsycINFO, Cumulative Index to Nursing and Allied Health Literature, Child Development & Adolescent Studies, Database of Abstracts of Reviews of Effects and OpenGrey databases were searched from 1992 to January 2019.

Review methods: Study inclusion criteria were as follows: (1) fulfil the Centre for Reviews and Dissemination criteria; (2) intervention reported as cognitive–behavioural therapy or including one cognitive and one behavioural element; (3) include a synthesis of cognitive–behavioural therapy trials; (4) include either health-related quality of life, depression, anxiety or pain outcome; and (5) available in English. Review quality was assessed with A MeaSurement Tool to Assess systematic Reviews

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(AMSTAR)-2. Reviews were quality assessed and data were extracted in duplicate by two independent researchers, and then mapped according to condition, population, context and quality. The effects from high-quality reviews were pooled within condition groups, using a random-effect panoramic meta-analysis. If the across-condition heterogeneity was $l^2 < 75\%$, we pooled across conditions. Subgroup analyses were conducted for age, delivery format, comparator type and length of follow-up, and a sensitivity analysis was performed for quality.

Results: A total of 494 reviews were mapped, representing 68% (27/40) of the categories of the *International Classification of Diseases*, Eleventh Revision, Mortality and Morbidity Statistics. Most reviews (71%, 351/494) were of lower quality. Research on older adults, using cognitive–behavioural therapy preventatively, ethnic minorities and people living outside Europe, North America or Australasia was limited. Out of 494 reviews, 71 were included in the primary panoramic meta-analyses. A modest effect was found in favour of cognitive–behavioural therapy for health-related quality of life (standardised mean difference 0.23, 95% confidence interval 0.05 to 0.41, prediction interval –0.05 to 0.50, $l^2 = 32\%$), anxiety (standardised mean difference 0.30, 95% confidence interval 0.18 to 0.43, prediction interval –0.28 to 0.88, $l^2 = 62\%$) and pain (standardised mean difference 0.23, 95% confidence interval 0.05 to 0.41, prediction interval 0.05 to 0.41, prediction interval –0.28 to 0.74, $l^2 = 64\%$) outcomes. All condition, subgroup and sensitivity effect estimates remained consistent with the general effect. A statistically significant interaction effect was evident between the active and non-active comparator groups for the health-related quality-of-life outcome. A general effect for depression outcomes was not produced as a result of considerable heterogeneity across reviews and conditions.

Limitations: Data extraction and analysis were conducted at the review level, rather than returning to the individual trial data. This meant that the risk of bias of the individual trials could not be accounted for, but only the quality of the systematic reviews that synthesised them.

Conclusion: Owing to the consistency and homogeneity of the highest-quality evidence, it is proposed that cognitive-behavioural therapy can produce a modest general, across-condition benefit in health-related quality-of-life, anxiety and pain outcomes.

Future work: Future research should focus on how the modest effect sizes seen with cognitive–behavioural therapy can be increased, for example identifying alternative delivery formats to increase adherence and reduce dropout, and pursuing novel methods to assess intervention fidelity and quality.

Study registration: This study is registered as PROSPERO CRD42017078690.

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Contents

List of tables	xiii
List of figures	xv
List of boxes	xvii
List of abbreviations	xix
Plain English summary	ххі
Scientific summary	xxiii
Chapter 1 Background	1
Chapter 2 Aim and objectives Aim Objectives Step 1: data mapping Step 2: panoramic meta-analysis	3 3 3 3 3
Chapter 3 Review methods Mapping Inclusion and exclusion criteria for the mapping Search methods for identification of systematic reviews Data management Study selection Data extraction Quality assessment of reviews Visualisations mapping Panoramic meta-analysis Inclusion and exclusion criteria Data extraction Data management Data analyses Consistency of effect Expert consultation group including patient and public involvement Expert consultation group meeting 1: January 2018 Expert consultation group meeting 2: February 2019 Expert consultation group meeting 3: September 2019 Protocol revisions	5 5 7 8 8 8 8 9 9 9 10 10 10 10 10 10 10 10 10 10 10 12 13 13 13 13 13
Chapter 4 Results: mapping Process of study selection Excluded studies	15 15 15

Description of the included systematic reviews Summary tables	16 16
Bubble charts	16
Gap maps	16
The AMSTAR-2 review quality rating	20
Patient perspective and safety data	20
Chapter 5 Results: panoramic meta-analysis	27
Health-related quality of life	28
Primary analysis	28
Mean difference in health-related quality of life	31
Subgroup analysis	31
Sensitivity analysis	37 37
Health-related quality-of-life change scores and risk ratio data Discussion	37
Depression	37
Primary analysis	39
Discussion	39
Anxiety	39
Primary analysis	41
Mean difference in anxiety	41
Subgroup analysis	41
Sensitivity analyses	43
Anxiety change scores/dichotomous outcomes	43
Discussion	44
Pain	44
Primary analysis	44
Mean difference in pain	46
Subgroup analysis Sensitivity analysis	46 47
Pain change scores/dichotomous data	47
Discussion	47
Chapter 6 Generalisation	49
Chapter 7 Discussion	53
Principal findings and their meaning	53
Strengths	54
Weaknesses	54
Implications	56
Chapter 8 Conclusion	57
Chapter 9 Recommendations	59
Future research	59
Acknowledgements	61
References	65
Appendix 1 Sensitivity check papers	103
Appendix 2 Detailed search strategies for review	107

Appendix 3 Data extraction form for mapping	115
Appendix 4 The AMSTAR-2 checklist	119
Appendix 5 Data extraction form for the panoramic meta-analysis	123
Appendix 6 References to studies excluded at the full-text screening stage, with reasons for exclusion	127
Appendix 7 Summary tables of included systematic reviews grouped according to the conditions they targeted as per the ICD-11	287
Appendix 8 Gap maps of included systematic reviews grouped according to the condition each targeted, as per the ICD-11	347
Appendix 9 Health-related quality of life	357
Appendix 10 Depression	361
Appendix 11 Anxiety	365
Appendix 12 Pain	373

List of tables

TABLE 1 Context characteristics of the included reviews	19
TABLE 2 Population characteristics of the included reviews	21
TABLE 3 The AMSTAR-2 items summary ($n = 494$)	22
TABLE 4 Details of the population, context and conditions of the reviews included in the primary HRQoL PMA	50
TABLE 5 Reviews in ICD-11 primary: 01 Certain infectious or parasitic diseases	288
TABLE 6 Reviews in ICD-11 primary: 02 Neoplasms	289
TABLE 7 Reviews in ICD-11 primary: 05 Endocrine, nutritional or metabolic diseases	290
TABLE 8 Reviews in ICD-11 secondary: neurodevelopmental disorders (6A00-06)	291
TABLE 9 Reviews in ICD-11 secondary: schizophrenia or other primary psychoticdisorders (6A20-25)	292
TABLE 10 Reviews in ICD-11 secondary: mood disorders (6A60-80)	295
TABLE 11 Reviews in ICD-11 secondary: anxiety or fear-related problems (6B00-06)	303
TABLE 12 Reviews in ICD-11 secondary: obsessive-compulsive or related disorders(6B20-25)	308
TABLE 13 Reviews in ICD-11 secondary: disorders specifically associated with stress(6B40-45)	310
TABLE 14 Reviews in ICD-11 secondary: feeding or eating disorders (6B80-85)	314
TABLE 15 Reviews in ICD-11 secondary: disorders of bodily distress or bodily experience (6C20-21)	316
TABLE 16 Reviews in ICD-11 secondary: disorders due to substance use or addictive behaviours (6C40-51)	317
TABLE 17 Reviews in ICD-11 secondary: personality disorders and related traits(6D10-11)	318
TABLE 18 Reviews in ICD-11 secondary: neurocognitive disorders (6D70-72)	318
TABLE 19 Reviews in ICD-11 secondary: mental disorders associated with pregnancy, childbirth or the puerperium	319
TABLE 20 Reviews with populations from mixed mental health conditions	321
TABLE 21 Reviews in ICD-11 primary: 07 Sleep-wake disorders	329

TABLE 22 Reviews in ICD-11 primary: 08 Diseases of the nervous system	331
TABLE 23 Reviews in ICD-11 primary: 10 Diseases of the ear or mastoid process	333
TABLE 24 Reviews in ICD-11 primary: 12 Diseases of the respiratory system	333
TABLE 25 Reviews in ICD-11 primary: 13 Diseases of the digestive system	334
TABLE 26 Reviews in ICD-11 primary: 14 Diseases of the skin	335
TABLE 27 Reviews with populations in ICD-11 primary: 16 Diseases of thegenitourinary system	335
TABLE 28 Reviews in ICD-11 primary: 17 Conditions related to sexual health	335
TABLE 29 Reviews with populations in ICD-11 primary: 21 Symptoms, signs orclinical findings, not elsewhere classified	336
TABLE 30 Reviews in ICD-11 primary: 22 Injury, poisoning or certain otherconsequences of external causes	342
TABLE 31 Reviews with populations in ICD-11 primary: 24 Factors influencinghealth status or contact with health services	343
TABLE 32 Reviews with populations from mixed physical and mental conditions	344
TABLE 33 Summary table of reviews with populations from mixed physical conditions	346
TABLE 34 Gap map of mental conditions (in ICD-11: 06 Mental, behavioural or neurodevelopmental disorders)	348
TABLE 35 Gap map of mental conditions (in other ICD-11 categories)	351
TABLE 36 Gap map of physical conditions	352
TABLE 37 Gap map of mixed mental and physical conditions	355

List of figures

FIGURE 1 Roth and Pilling's generic therapeutic competencies: basic principles of CBT	1
FIGURE 2 The PRISMA flow diagram describing review selection for mapping	15
FIGURE 3 Bubble map representing the volume of systematic reviews, RCTs and participants included in the qualitative synthesis ($n = 494$ reviews)	18
FIGURE 4 Publication year and AMSTAR-2 quality rating of the included reviews	22
FIGURE 5 The PRISMA diagram from mapping to PMAs	27
FIGURE 6 Primary analysis of the primary outcome: HRQoL (end-point scores) from 'high-quality' reviews	30
FIGURE 7 The HRQoL funnel plot with pseudo-95% confidence limits (end-point data from high-quality reviews)	31
FIGURE 8 The HRQoL subgroup analysis (end-point data from higher-quality reviews): CBT intensity	32
FIGURE 9 Health-related quality of life: high- vs. low-intensity CBT, direct comparison PMA	33
FIGURE 10 The HRQoL subgroup analysis (end-point data from high-quality reviews): type of comparators	34
FIGURE 11 The HRQoL subgroup analysis (end-point data from high-quality reviews): duration of follow-up	35
FIGURE 12 The HRQoL subgroup analysis (end-point data from high-quality reviews): age	36
FIGURE 13 Primary analysis of the secondary outcome: anxiety from 'higher-quality' reviews	42
FIGURE 14 Primary analysis of the secondary outcome: pain from 'higher-quality' reviews	46
FIGURE 15 Sensitivity analysis for quality in HRQoL outcomes	358
FIGURE 16 The HRQoL sensitivity analysis: prioritisation of mental subscales	359
FIGURE 17 The HRQoL outcome (change score) synthesis across all conditions	360
FIGURE 18 The HRQoL outcome (RR) synthesis across all conditions	360
FIGURE 19 Primary analysis of the secondary outcome: depression from 'higher-quality' reviews	362
FIGURE 20 Depression funnel plot (end-point data from high-quality reviews)	363

FIGURE 21 Anxiety funnel plot (end-point data from high-quality reviews)	365
FIGURE 22 Anxiety subgroup analysis (end-point data from high-quality reviews): CBT intensity	366
FIGURE 23 Anxiety: high- vs. low-intensity CBT direct comparison PMA	367
FIGURE 24 Anxiety subgroup analysis (end-point data from high-quality reviews): type of comparators	368
FIGURE 25 Anxiety subgroup analysis (end-point data from high-quality reviews): duration of follow-up	369
FIGURE 26 Anxiety subgroup analysis (end-point data from high-quality reviews): age	370
FIGURE 27 Anxiety sensitivity analysis (end-point data from all-quality reviews)	371
FIGURE 28 Anxiety outcome synthesis (change scores) across all conditions	372
FIGURE 29 Anxiety outcome synthesis across all conditions: (a) risk difference; and (b) OR	372
FIGURE 30 Pain funnel plot (end-point data from high-quality reviews)	373
FIGURE 31 Pain subgroup analysis (end-point data from high-quality reviews): CBT intensity	374
FIGURE 32 Pain subgroup analysis (end-point data from high-quality reviews): type of comparators	374
FIGURE 33 Pain subgroup analysis (end-point data from high-quality reviews): duration of follow-up	375
FIGURE 34 Pain subgroup analysis (end-point data from high-quality reviews): age	375
FIGURE 35 Pain sensitivity analysis (end-point data from all-quality reviews)	376
FIGURE 36 Pain outcome synthesis across all conditions: (a) risk difference; and (b) OR	377

List of boxes

BOX 1 Primary and secondary ICD-11 codes	6
BOX 2 Primary and secondary ICD-11 codes represented and not represented in the CBT evidence map	17
BOX 3 Patient perspective and safety data	23
BOX 4 The ICD-11 categories (not) represented in the primary PMA of higher-quality reviews for the HRQoL outcome	29
BOX 5 The ICD-11 categories (not) represented in the primary PMA of higher-quality reviews for depression outcome	38
BOX 6 The ICD-11 categories (not) represented in the primary PMA of higher-quality reviews for anxiety outcome	40
BOX 7 The ICD-11 categories (not) represented in the primary PMA of higher-quality reviews for the pain outcome	45
BOX 8 The ICD-11 codes represented by primary and comorbid conditions in the higher- and lower-quality reviews in the HRQoL, anxiety and pain PMAs	51

List of abbreviations

ADHD	attention deficit hyperactivity disorder	NIHR	National Institute for Health Research
AMSTAR	A MeaSurement Tool to Assess	OR	odds ratio
	systematic Reviews	PMA	panoramic meta-analysis
BAI	Beck Anxiety Inventory	PPI	patient and public involvement
CBT	cognitive-behavioural therapy	PRISMA	Preferred Reporting Items
CI	confidence interval		for Systematic Reviews and
CINAHL	Cumulative Index to Nursing and		Meta-Analyses
	Allied Health Literature	RCT	randomised controlled trial
COPD	chronic obstructive pulmonary	RR	risk ratio
	disease	SF-12	Short Form questionnaire-12
CRD	Centre for Reviews and Dissemination		items
DARE	Database of Abstracts of Reviews	SF-36	Short Form questionnaire-36 items
DAIL	of Effects	SIGN	
ECG	expert consultation group	SIGN	Scottish Intercollegiate Guidelines Network
HRQoL	health-related quality of life	SMD	standardised mean difference
HTA	Health Technology Assessment	TAU	treatment as usual
ICD-11	International Classification of	VAS	visual analogue scale
Diseases, Eleventh Revision	WHO	World Health Organization	
NDORMS	Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences	WLC	wait-list control

Plain English summary

This report is a summary of research examining if a psychological therapy called cognitivebehavioural therapy can improve the quality of life of people living with physical and/or mental conditions. Cognitive-behavioural therapy uses a set of techniques that help individuals to identify and change problematic thoughts or behaviour patterns that might contribute to and maintain their physical or mental symptoms. It can be delivered face to face or through mediums such as the internet. We aimed to understand if cognitive-behavioural therapy helps patients with specific conditions only, or if it can help patients with any condition.

We searched relevant databases to find articles that combine the results from multiple trials testing cognitive-behavioural therapy. These are known as systematic reviews. We graded these reviews as providing good- or poor-quality evidence. We identified the conditions for which we had good-quality evidence on whether or not cognitive-behavioural therapy was helpful.

From each review, we took numerical data that told us if cognitive-behavioural therapy improved quality of life for that specific condition. Next, we combined all the numerical data together, across all the conditions, to see if there was a consistent benefit of cognitive-behavioural therapy.

The statistical analyses found that cognitive-behavioural therapy consistently improved quality of life across all the conditions where it has been tested. We have evidence that it can help children, adolescents and adults, of either sex, who are living in Europe, North America and Australasia. We are unsure if it will help older adults or people living in Africa, Asia or South America, nor do we know if cognitive-behavioural therapy is equally effective across different ethnic groups.

It is recommended that future research should prioritise understanding how cognitive-behavioural therapy works, why some people do not want to use cognitive-behavioural therapy and why some patients do not benefit from it.

Scientific summary

Background

Cognitive-behavioural therapy is an amalgam of interventions that emerged from cognitive and behavioural psychological models. It aims to improve quality of life by changing maladaptive cognitions that maintain problematic symptoms. An overview of cognitive-behavioural therapy systematic reviews was conducted in 2012 and included 269 reviews, concluding that cognitive-behavioural therapy was effective across many conditions. However, only 11 of the included reviews synthesised randomised controlled trials. Since then, there have been many more randomised controlled trials and subsequent reviews. In parallel, there has been more guidance on improving trial and review quality. Hence, the time was right to undertake an updated overview, focused on high-quality randomised controlled trial evidence, to introduce new methods to understand how consistent the effects are across different conditions and to understand where future research resources would be best invested.

Objectives

This overview aimed to comprehensively map the existing evidence base to identify where we have high-quality evidence of the effectiveness of cognitive-behavioural therapy and where we have evidence gaps. Then we examined the consistency of the effectiveness of cognitive-behavioural therapy across different conditions and, when appropriate, generated an across-condition general effect estimate. Finally, we considered the extent to which the existing evidence base could be used to guide treatment, commissioning and research investment decisions.

To answer these research aims, we undertook two steps: (1) a mapping exercise – we identified all available systematic reviews of cognitive–behavioural therapy, assessed their quality and stratified them by quality, condition, context and population; and (2) a panoramic meta-analysis – we selected higher-quality reviews with sufficient quantitative data and conducted panoramic meta-analyses for the primary outcome of health-related quality of life and for the secondary outcomes of depression, anxiety and pain.

Finally, we considered the implications of the mapping and panoramic meta-analytic data. We used a model of generalisation to examine how the data of the overview answer the questions needed to inform treatment, commissioning and research investment decisions.

Methods

We worked with a cognitive-behavioural therapy expert consultation group consisting of clinical academics (n = 6), research academics (n = 8) and patient representatives (n = 4) throughout the overview process to guide the protocol development, synthesis strategy, data analysis, and interpretation.

Data sources and search strategy

The Database of Abstracts of Reviews of Effects (up to March 2015), Cochrane Database of Systematic Reviews, MEDLINE (via Ovid), EMBASE (via Ovid), PsycINFO (via Ovid), Cumulative Index to Nursing and Allied Health Literature (via EBSCO*host*), Child Development and Adolescent Studies (via EBSCO*host*) and OpenGrey databases were searched up until January 2019. Publication year was restricted to after 1992 to eliminate superseded reviews.

Inclusion criteria

A systematic review of cognitive-behavioural therapy in any condition [recognised in the *International Classification of Diseases*, Eleventh Revision (ICD-11)] across any age group or setting was considered for inclusion if:

- the review fulfilled at least four of the five Centre for Reviews and Dissemination criteria to qualify as a systematic review
- the intervention was reported as cognitive-behavioural therapy or included at least one cognitive and one behavioural element
- the cognitive-behavioural therapy trials were qualitatively or quantitatively summarised
- one of the following outcomes was considered in the review health-related quality of life, depression, anxiety or pain
- it was available in English.

Stage one: mapping

Data extraction

The Covidence (Melbourne, VIC, Australia) platform was used for sifting and article management, and Microsoft Excel[®] (Microsoft Corporation, Redmond, WA, USA) was used for data extraction and management. Article screening, data extraction and quality assessment were conducted independently in duplicate by two researchers. A third researcher resolved conflicts. The online A MeaSurement Tool to Assess systematic Reviews (AMSTAR)-2 was used to assess the quality of the included reviews (i.e. high, moderate, low or critically low).

Reviews were categorised by the condition that they aimed to improve with cognitive-behavioural therapy. Physical conditions were classified by primary codes of the ICD-11, whereas mental conditions were represented by secondary codes under the primary code of 'Mental, behavioural and neurodevelopmental disorders.' We extracted descriptive information, such as participant characteristics (age, sex, ethnicity, country of residence), intervention (intensity, timing, context), control groups (active or non-active), outcomes, follow-up duration and patient perspectives (satisfaction, dropout rates, acceptability).

Evidence synthesis

The mapping exercise included producing (1) a bubble chart through TIBCO Spotfire[®] (TIBCO, Software Inc., Palo Alto, CA, USA) software to present the volume of evidence, in terms of number of reviews, randomised controlled trials and participants across all conditions; (2) summary tables to present the descriptions of the included reviews as per the ICD-11 classification; and (3) gaps maps, sectioned by condition, population, context and quality to highlight gaps in the evidence base.

Stage 2: panoramic meta-analysis

Data extraction

From the reviews identified in stage one, we selected reviews that contained quantitative data suitable for extraction. From these, we selected those reviews that were rated as 'moderate' or 'high' on the AMSTAR-2 checklist (henceforth referred to as 'higher-quality' reviews). Then we compared these reviews to identify if any review shared the same randomised controlled trial as another review. When we identified reviews that included the same randomised controlled trial, we chose (1) the review with the longest follow-up, (2) the review with the highest AMSTAR-2 rating, (3) the most recent review or (4) the review with the largest number of trials.

The primary analysis was conducted using the higher-quality reviews with suitable quantitative data. The analyses were conducted on the primary outcome of health-related quality of life and the secondary outcomes of depression, anxiety and pain.

Data synthesis

A panoramic meta-analysis using a two-step frequentist approach (random-effects model) was conducted with continuous end-point data for each outcome in Stata[®] versions 13 and 16 (StataCorp LP, College Station, TX, USA). The analysis produced a within- and across-condition *l*² heterogeneity statistic. If the heterogeneity (*l*²) was < 75%, we proceeded to pool the estimates across (1) the within-condition reviews and (2) across the condition estimates. We produced standardised mean differences with 95% confidence intervals for all analyses. We also calculated prediction intervals for the primary analyses. For meta-analyses with > 10 reviews, we produced funnel plots and conducted Egger's test to detect publication bias and small-study effects. Next, we conducted subgroup analyses based on the ages of participants (children and adolescents, adults, older adults), cognitive-behaviour therapy intervention intensity (high, low), comparator groups (active, non-active) and duration of follow-up [short (< 12 months), long (≥ 12 months)]. We performed a sensitivity analysis that combined all of the lower-quality reviews (rated 'low' or 'critically low' on the AMSTAR-2 checklist) with the higher-quality review data.

To aid interpretation of these results, we transformed the standardised mean difference into an approximate mean difference on the most common outcome measure (e.g. Beck Depression Inventory for depression). To do this, we multiplied the overall pooled estimate for each outcome by the standard deviation of the outcome measure to produce an estimate of the mean difference for each measure. We identified the standard deviation from a trial, judged as having a low risk of bias, in a higher quality review.

Generalisation of the evidence

The expert consultation group helped form a list of pertinent questions regarding the generalisability of this evidence. The questions were as follows:

- Is there evidence of a general effect of cognitive-behaviour therapy across conditions?
- Is this effect robust across the conditions represented in each ICD-11 code?
- Is the effect robust across conditions that are represented by lower-quality reviews only?
- Is the effect robust across the populations and contexts we have tested?
- Can we infer that the effect might be observed across conditions that are not included in the current overview?

We drew on an established model of generalisation to guide the interpretation of the overview data.

Results

Mapping

We mapped 494 reviews (2052 trials, 221,128 participants). The most common reason for a review to be excluded was because it did not include a synthesis of the included cognitive-behaviour therapy trials or it did not fulfil the Centre for Reviews and Dissemination criteria to qualify as a systematic review. Ten per cent (237/2454) of the full-text reviews were excluded because full texts were not available in English.

Most of the included reviews (284/494, 57%) were published in the preceding 5 years (2015 onwards). Of the 494 reviews, only 142 reviews (29%) were rated as 'high' or 'moderate' on the AMSTAR-2.

The 494 reviews included 13 out of 20 ICD-11 mental condition categories and 14 out of 20 ICD-11 physical condition categories. 'Mood disorders' were the most researched condition (92 reviews, 272 trials, 42,676 participants). Most reviews considered the effects of high-intensity cognitive-behaviour therapy (397/494, 80%) delivered as a standard treatment (463/494, 93%) in the short term (402/494, 81%) in the adult population (378/494, 77%). Research with older adults was limited (30/494, 6%).

The effects of cognitive-behaviour therapy as a preventative intervention (29/494, 6%) or as part of relapse prevention (7/494, 1%) were under-researched. Reporting on condition severity (247/494, 50%) and the setting whence participants were recruited was also poor (283/494, 57%). Nearly half of the included reviews did not report details on sex (218/494, 44%) or the country where the trials were conducted (218/494, 44%), and the majority did not report the ethnicity of the participants (458/494, 93%). Only a very small proportion of reviews had included trials from the Asian, South American and African continents (45/494, 9%).

Panoramic meta-analysis

Of the 494 reviews, 71 (207 trials, 20,862 participants) were high-quality reviews with data suitable for inclusion in the panoramic meta-analyses.

Health-related quality of life

Estimates from 24 reviews (49 trials, 4304 participants) representing 10 different conditions demonstrated low heterogeneity ($l^2 = 32\%$). The analysis produced a modest effect in favour of cognitive-behavioural therapy (standardised mean difference 0.23, 95% confidence interval 0.14 to 0.33, prediction interval -0.03 to 0.50). This translates to an estimated mean change of 3 points on the Short Form questionnaire-36 items tool. No publication bias or small-study effects were identified (p = 0.18).

The sensitivity analysis found that the inclusion of an additional 10 lower-quality reviews increased the heterogeneity ($l^2 = 71\%$), but did not alter the effect estimates (standardised mean difference 0.28, 95% confidence interval 0.17 to 0.38). The effect was larger for cognitive-behavioural therapy compared with non-active comparator groups than for cognitive-behavioural therapy compared with active comparator groups. The interaction effect between these two types of reviews (active and non-active comparator groups) was statistically significant. None of the other subgroup analyses reported significant interaction effects between the groups.

All of the analyses from the primary, condition-specific, subgroups and sensitivity analyses produced effect estimates consistent with the general effect.

Depression

There was too much heterogeneity within and between conditions in the depression analyses; therefore, we did not pool any reviews together. No publication or small-study bias was detected (p = 0.87).

Anxiety

The heterogeneity across the 12 conditions represented by the anxiety analysis was acceptable ($l^2 = 62\%$). We pooled across 34 high-quality reviews (59 trials, 4673 participants) and identified a small effect in favour of cognitive-behavioural therapy (standardised mean difference 0.30, 95% confidence interval 0.18 to 0.43, prediction interval -0.28 to 0.88). This translates to an estimated mean change of 4 points on the Beck Anxiety Inventory. No publication or small-sample bias was detected (p = 0.70). All of the analyses from the primary, conditions, subgroups and sensitivity analyses produced effect estimates consistent with the general effect.

Pain

The heterogeneity of effect estimates generated for the outcome of pain, across abdominal, leukaemiarelated, non-specific chest, osteoarthritis, spinal, back and neck pain was high, but acceptable ($l^2 = 64\%$). The overall pooled effect, from 10 high-quality reviews (22 trials, 2581 participants), was modest and in favour of cognitive–behavioural therapy (standardised mean difference 0.23, 95% confidence interval 0.05 to 0.41, prediction interval –0.28 to 0.74). The effect translated to a change of 6 mm on the 100-mm visual analogue scale. No publication or small-sample bias was detected (p = 0.19). All of the analyses from the primary, conditions, subgroups and sensitivity analyses produced effect estimates consistent with the general effect.

Generalisation

From our mapping and panoramic meta-analyses, we found that cognitive-behavioural therapy produced a general effect of improving health-related quality of life across different conditions.

The effects we found remained consistent across all conditions tested and when considering the broader number of health conditions represented by comorbidities of these patients. We suggested that this effect was robust across the conditions represented in the ICD-11 primary (physical conditions) and secondary (mental conditions) codes.

The consistency of the general effect leads us to suggest that it is robust across the populations (age, sex) and contexts (health-care setting, intervention delivery/timing, condition severity) that have been represented by this overview. We are less sure of the consistency of the effect across ethnic groups, as this was poorly reported. Nor are we sure of the effect in countries in Africa, Asia and South America, as these were under-researched.

The debate of whether or not the general effect can be generalised across conditions that are not represented in this overview remains contentious. There is no evidence to suggest that cognitivebehavioural therapy would not be effective or would be harmful. The expert consultation group did not reach agreement that cognitive-behavioural therapy effects change through shared mechanisms for every condition: some members of the group felt that additional detailed information on mechanistic data would be needed to make broader generalisations, but several members of the investigator team felt that it was sufficient that the statistical and remaining principles of generalisation had been met. Therefore, it remains uncertain if the effect would be replicated in conditions not represented in this overview.

Conclusion

The best-quality evidence available has estimated that cognitive-behavioural therapy produces a general improvement in health-related quality of life and reduces specific contributing symptoms (pain and anxiety). The effect is observed when cognitive-behavioural therapy is delivered via high-or low-intensity formats and is evident when data are collected > 12 months after a patient has received cognitive-behavioural therapy. The effect becomes much smaller when cognitive-behavioural therapy is compared with active comparators such as pharmacotherapy, relaxation or exercise therapy. However, we did not identify any condition for which there was evidence in favour of the comparator group (i.e. a statistically significant effect in favour of the comparator). Cognitive-behavioural therapy has been tested in participants with 22 different conditions. Given that there is no condition for which it has been demonstrated that there is no benefit of cognitive-behavioural therapy, cognitive-behavioural therapy is likely to work across most, if not all, conditions. However, some of our expert consultation group were not in agreement that we can make this generalisation across conditions not represented in the overview without more evidence on the mechanisms of how cognitive-behavioural therapy effects change.

We suggest that this effect is applicable to children, adolescents and adults, who are male or female, living in Europe, North America and Australasia. We recommend that future research examines (1) if ethnicity can moderate the effectiveness of cognitive-behavioural therapy, (2) if older adults experience the same effect as adults and children/adolescents, (3) the preventative use of cognitive-behavioural therapy and (4) targeting reviews published in languages other than English to try and identify evidence from countries in Africa, Asia and South America.

The main limitation of the panoramic meta-analyses is that we extracted and analysed data at the review level. Many reviews synthesised cognitive-behavioural therapy randomised controlled trial evidence in combination with other therapies or types of study design. We were often unable to extract

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the purely cognitive-behavioural therapy randomised controlled trial data in isolation; therefore, we could not use the data from that review. If we had been able to return to the randomised controlled trial data sources, then we could have included the individual randomised controlled trials in the panoramic meta-analyses, but this was beyond the scope of this study.

Study registration

This study is registered as PROSPERO CRD42017078690.

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Chapter 1 Background

C ognitive-behavioural therapy (CBT) is an amalgam of interventions that emerged from cognitive and behavioural psychological models. It aims to improve patients' quality of life by changing their maladaptive cognitions that maintain problematic symptoms. The basic principles of CBT are presented in *Figure 1*.

Cognitive-behavioural therapy can be delivered in different formats. High-intensity CBT has been defined as formal CBT with a trained health professional, predominantly delivered face to face, in an individual or group format.¹ Low-intensity CBT focuses on self-help and can be delivered by health professionals with brief CBT training (non-psychologists) and via several platforms (internet, telephone, paper based or face to face).¹ The distinction can become less clear in some forms of CBT in which high-intensity therapy is combined with low-intensity self-help methods.

A previous overview of CBT reviews,² conducted in 2012, identified 296 reviews. However, only 11 of these synthesised randomised controlled trial (RCT) evidence; therefore, the conclusions are subject to increased bias.² Since this overview,² there have been many more trials and reviews. There has also been more guidance for conducting and reporting high-quality trials and reviews.³⁻⁶ The existing CBT trial and review evidence base is large, yet the majority of expenditure on psychological treatment research remains focused on CBT effectiveness.⁷ Some researchers have argued that CBT is in a 'virtuous circle: money pours into research, evidence accumulates, more financial support is given to ... [CBT] ... and other forms of psychotherapy are excluded'⁸ (Peter Fonagy, University College London) (Copyright © The Economist Newspaper Limited 2014. Reproduced with permission). In providing a

Knowledge of the behavioural component

• The ways in which people respond to distress by behaviours that can maintain or worsen their problem (e.g. by avoidance or by reducing or restricting activity)

Knowledge of the cognitive component

 The way people think and create meaning about events in their lives, and how this links to the ways in which they develop beliefs about themselves, others and the world in which they live

An ability to draw on knowledge of the basic principles that underpin the rationale for CBT

- The inter-relationship between thoughts and images, feelings and behaviours
- The aim of helping clients to become more aware of the how they reason and ascribe meaning, to develop alternative viewpoints and explanations for their difficulties and to use behavioural experiments to test out the accuracy of these alternatives
- The aim of helping the person feel safe in order to test out their assumptions and fears and to change their behaviour

An ability to draw on knowledge of the importance of working collaboratively with the client

- A consistent philosophical and practical commitment to the notion that the client and the therapist work together to do the work
- Awareness that the aim of therapy is to help clients tackle their problems by harnessing their own resources

An ability to draw on knowledge and awareness of the importance of the client putting what has been learned into practice between sessions

Practice assignments, or 'homework'

FIGURE 1 Roth and Pilling's¹ generic therapeutic competencies: basic principles of CBT. © Crown copyright 2007. Contains public sector information licensed under the Open Government Licence v3.0.

comprehensive cross-sectional map of the best-quality available evidence, we can provide an indication of where CBT has an evidence base to support its effectiveness and where future research resources would be best directed.

Cognitive-behavioural therapy interventions share an underlying process, common therapeutic style and employ similar techniques (e.g. guided discovery), yet the condition-, population- and contextspecific protocols can look very different from one another. Because of the commonality of CBT interventions across conditions, it is plausible that CBT can produce a general effect across conditions. However, to date, to our knowledge, there is no overarching estimate regarding the consistency of CBT's effect across different condition categories. We propose to generate such an effect by performing panoramic meta-analyses (PMAs) on the effect estimates generated in each condition.

The concept and methodology of systematically reviewing systematic reviews is established, and includes quality and reporting guidelines.^{9,10} However, the existing reviews of systematic reviews are typically undertaken to compare multiple interventions in one condition.^{11,12} For this overview, we are interested in examining one intervention (CBT) across multiple conditions. In this overview, the classification of a 'condition' was based on the World Health Organization's (WHO's) *International Classification of Diseases*, Eleventh Revision (ICD-11).¹³ The WHO must consider cultural, religious and political differences that can influence condition categorisation. In using this internationally recognised tool, we developed research findings that are meaningful to a global audience. In looking across conditions, we examined the effect of CBT across all populations, with CBT compared with all types of comparator. Our primary outcome is health-related quality of life (HRQoL), and we include three secondary outcomes (depression, anxiety and pain) that would contribute to an individual's quality-of-life rating.

We employ PMA, which is an emerging methodology to synthesise systematic reviews across conditions.^{14,15} When methodological assumptions are met, it allows pooling of effect sizes across conditions. This produces an average effect across conditions, which, because of enlarged sample sizes, is estimated with more precision than within-condition pooled estimates.

Chapter 2 Aim and objectives

Aim

The overarching aim of the overview was to map the existing CBT systematic review evidence base and to examine if CBT produced an across-condition, general effect on HRQoL.

Objectives

To answer these research aims, the following steps were undertaken.

Step 1: data mapping

We identified all available systematic reviews of CBT and mapped these according to:

- conditions (ICD-11 category, severity)
- populations (age, sex, ethnicity, countries where the trials were conducted)
- context (delivery format, care setting, intervention timing)
- quality of the reviews.

The mapping exercise identified where there is/is not a high- or low-quality systematic review or meta-analysis of RCTs examining the effectiveness of CBT.

Step 2: panoramic meta-analysis

Reviews from step 1 that had sufficient quantitative data were entered into a PMA for the primary outcome of HRQoL and for the secondary outcomes of depression, anxiety and pain. Sensitivity analyses based on quality were performed.

If across-condition heterogeneity was not considerable, an across-condition general effect was generated for each outcome. Subgroup analyses based on age, CBT intensity, duration of follow-up and type of comparators were undertaken. We checked every within-condition and subgroup analysis to examine if there was evidence of inconsistency with the overall effect estimate.

In *Chapter 6*, we explore the extent to which the existing evidence base could be used to guide treatment, commissioning and research investment decisions. The aim of the patient and public input into the overview was to ensure that the overview produced work that remained rooted in the overall aim: to improve health for patients receiving CBT.

Chapter 3 Review methods

The methods for the mapping stage of the overview are presented first, followed by the methods for the PMA. The protocol was registered with PROSPERO, the international prospective register of systematic reviews (number CRD42017078690), and published open access.¹⁶

Mapping

Inclusion and exclusion criteria for the mapping

Types of reviews

We included all reviews that reported RCTs if they met four of the five methodological criteria outlined by the Centre for Reviews and Dissemination (CRD) at the University of York, as part of the Database of Abstracts of Reviews of Effects (DARE).¹⁷ DARE was consulted for its guidance in the application of the criteria:

- 1. Were inclusion/exclusion criteria reported?
- 2. Was the search adequate? (Databases stated, more than one database searched or one database plus checking references, hand-searching, contact with researchers, citation searching, internet searching.)
- 3. Were the included studies synthesised?
- 4. Was the quality of the included studies assessed?
- 5. Are sufficient details about the individual studies presented? (Details on the population/setting, intervention and a result for each included study.)

We included reviews of RCTs comparing CBT with an active or non-active comparator. Reviews containing randomised and non-randomised studies were included only if RCT data were summarised separately. We excluded reviews based on any other study designs (e.g. quasi-randomised, non-randomised).

Type of health condition

The ICD-11 classifies mental and physical diseases, disorders, injuries and other related health problems in a comprehensive and hierarchical fashion, and is used as a standard for both clinical and research purposes.¹³ The term condition will be used throughout this report to represent diseases, disorders and injuries. Participants with any conditions recognised by the ICD-11 or its nominal categorisation, and of any severity, were included. Non-health-related problems, such as procrastination, were excluded.

For physical conditions, we categorised reviews under the primary ICD-11 codes. For mental conditions, we used the secondary level of ICD-11 codes listed underneath the primary code of 06 mental, behavioural or neurodevelopmental disorders. A review was categorised according to its primary aims. For example, if a review examined the effectiveness of CBT to improve quality of life for people living with diabetes, then 05: Endocrine diseases was the condition category. However, if a review examined the effectiveness of CBT for improving depression in people living with diabetes, then the review was classified as 6A60-80 mood disorders, with comorbid 05 endocrine diseases. *Box* 1 shows all of the primary and secondary codes that could be considered in grouping reviews together.

Types of participants

We included participants of any age [children/adolescents (aged < 18 years), adults (aged 18-65 years) and older adults (aged > 65 years)], either sex and any ethnicity.

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BOX 1 Primary and secondary ICD-11 codes

ICD-11 primary codes

- 01 Certain infectious or parasitic diseases.
- 02 Neoplasms.
- 03 Diseases of the blood.
- 04 Diseases of the immune system.
- 05 Endocrine, nutritional or metabolic diseases.
- 07 Sleep-wake disorders.
- 08 Diseases of the nervous system.
- 09 Diseases of the visual system.
- 10 Diseases of the ear or mastoid process.
- 11 Diseases of the circulatory system.
- 12 Diseases of the respiratory system.
- 13 Diseases of the digestive system.
- 14 Diseases of the skin.
- 15 Diseases of the musculoskeletal system.
- 16 Diseases of the genitourinary system.
- 17 Conditions related to sexual health.
- 18 Pregnancy, childbirth or the puerperium.
- 19 Certain conditions originating in the perinatal period.
- 20 Developmental abnormalities.
- 21 Symptoms and signs not elsewhere classified.

ICD-11 secondary codes within '06 mental, behavioural or neurodevelopmental disorders'

- 6A00-06: neurodevelopmental disorders.
- 6A20-25: schizophrenia or other primary psychotic disorders.
- 6A40-41: catatonia.
- 6A60-80: mood disorders.
- 6B00-06: anxiety or fear-related disorders.
- 6B20-25: obsessive-compulsive disorders.
- 6B40-45: disorders specifically associated with stress.
- 6B60-66: dissociative disorders.
- 6B80-85: feeding or eating disorders.
- 6C00-01: elimination disorders.
- 6C20-21: disorders of bodily distress.
- 6C40-51: disorders due to substance use or addictive behaviours.
- 6C70-73: impulse control disorders.
- 6C90-91: disruptive behaviour or dissocial disorder.
- 6D10-11: personality disorders and related traits.
- 6D30-36: paraphilic disorders.
- 6D50-51: factitious disorders.
- 6D70-72: neurocognitive disorders.
- 6E20-21: mental or behavioural disorders associated with pregnancy, childbirth or the puerperium.
- 6E40: psychological or behavioural factors not elsewhere classified.

Types of health-care setting

We included reviews of RCTs that were conducted in any setting [e.g. primary care, secondary care, school/university, institutional (residential care)] and in any country.

Types of delivery timing

We included reviews of RCTs in which CBT was delivered preventatively, as a standard responsive care or as a relapse prevention.

Types of interventions

We included only reviews that evaluated CBT. Interventions were accepted as CBT when authors explicitly stated so in the title, abstract or keywords, or when the review defined the intervention as including at least one cognitive and one behavioural element.

If a trial intervention combined CBT with another therapy and the other therapy was used as a comparator condition (e.g. CBT plus pharmacotherapy compared with pharmacotherapy), then we included these trials. If a trial combined CBT with another therapy and this was compared with another type of comparator [e.g. CBT plus pharmacotherapy compared with wait-list control (WLC)], then we excluded these reviews because we could not extract the isolated effects of CBT.

All modes of CBT delivery were included and categorised into high or low intensity, based on the definitions by Roth and Pilling.¹ High-intensity CBT was defined as face-to-face, individual or group therapy, delivered by a trained CBT therapist. Low-intensity was CBT delivered via media (internet, written, telephone), or was when face-to-face, individual or group CBT was administered by a non-CBT therapist (paraprofessional or layperson). If the review did not report the intensity of the intervention, it was assumed to be high-intensity CBT. We excluded all non-CBTs: cognitive therapy, behavioural therapy, third-wave CBT (e.g. acceptance and commitment therapy, mindfulness therapy), motivational interviewing, stress inoculation therapy, problem-solving therapy and stress management therapy.

Types of comparators

We included reviews that compared CBT with one of the following: (1) a non-CBT-based active comparator (e.g. other psychological therapy, pharmacotherapy), (2) a non-active comparator [e.g. placebo, WLC, treatment as usual (TAU), standard care, no treatment] or (3) a CBT-based active comparator of different intensity [e.g. face-to-face CBT (high intensity) compared with internet-based CBT (low intensity)]. We excluded reviews that compared variations of high-intensity (e.g. group CBT compared with individual CBT) or low-intensity CBT (internet CBT compared with bibliotherapy CBT).

Types of outcomes

We included reviews if they reported data on at least one of the following outcomes: HRQoL, anxiety, depression or a condition-specific outcome (e.g. pain).

Length of follow-up

We included reviews with post-treatment, short-term (< 12 months) or long-term (\geq 12 months) follow-up data. If both short- and long-term follow-up data were reported, the synthesis of only the longest follow-up time point was included.

Search methods for identification of systematic reviews

We followed the principles of the Cochrane Handbook for Systematic Reviews of Interventions³ and recommendations for conducting overviews of systematic reviews⁹ to identify systematic reviews for the overview.

Information sources

The DARE (up to March 2015), Cochrane Database of Systematic Reviews, MEDLINE (via Ovid), EMBASE (via Ovid), PsycINFO (via Ovid), Cumulative Index to Nursing and Allied Health Literature

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(CINAHL) (via EBSCO*host*), Child Development & Adolescent Studies (via EBSCO*host*) and OpenGrey databases were searched on 25–27 April 2018 to identify relevant systematic reviews published between 1992 and 2018. An updated search was run on all the above databases on 30 January 2019, covering the period from April 2018 to 30 January 2019, excluding DARE, which is no longer updated. Owing to the volume of material being processed and the time constraints associated with this process, the reference lists of included reviews were not hand-searched for additional reviews. We did not contact authors for additional information to confirm inclusion/exclusion.

Search strategy

Comprehensive search strategies for each of the eight databases were designed by a senior research information specialist (SK). Each search strategy was developed iteratively, and a sensitivity check was performed in each database for the ability of each strategy to retrieve 36 key known papers (where indexed) that had been identified a priori (see *Appendix 1*). The included search terms were identified from these reviews and their associated database indexing terms, and with input from the expert consultation group (ECG). The search strategies utilised a combination of free text and controlled vocabulary search terms covering variations of 'CBT' searched in the title, abstract or keyword fields, and were combined with validated study-type filters for 'systematic review'. The Scottish Intercollegiate Guidelines Network systematic review search filters available on the InterTASC (Technology Appraisal Support Collaboration) Information Specialists' Sub-Group website¹⁸ was used to search the MEDLINE, EMBASE and CINAHL databases. The McMaster University Health Information Research Unit systematic review filter¹⁹ was modified and used in the PsycINFO search. The full search strategies for all the databases can be found in *Appendix 2*.

Restrictions

The scoping work identified that the earliest published review of CBT is from 1992.²⁰ Therefore, we restricted our search to reviews published since 1992. The search was not restricted in terms of language, although we subsequently excluded non-English-language reviews (see *Protocol revisions*).

Data management

The database search results were exported into Endnote [Clarivate Analytics (formerly Thomson Reuters), Philadelphia, PA, USA] for deduplication and then exported into Covidence (Melbourne, VIC, Australia), a Cochrane technology platform designed and recommended for systematic review management,³ and a final deduplication check was performed. The full texts of reviews shortlisted for full-text analysis were also uploaded to and screened in Covidence. Data extraction was performed using Microsoft Excel[®] (Microsoft Corporation, Redmond, WA, USA).

Study selection

Two review authors (TS and BF) independently screened the titles and abstracts of all the references identified by the search strategy. The full texts of the selected reviews were obtained via online resources or through Bodleian Libraries. Reviews were screened for eligibility by two review authors (KE and TS), using the criteria stipulated in *Inclusion and exclusion criteria for the mapping*; disagreements were resolved by consensus or deliberation with a third reviewer (BF).

Data extraction

A bespoke data extraction form was developed. This form was piloted by two reviewers (BF and TS) using the sensitivity check papers recommended by the ECG (see *Appendix 1*).

We extracted the following information:

- review identification details author, date of publication, aim, number of included RCTs and number of participants, risk-of-bias tool used
- participant details primary condition (that which the intervention is primarily aiming to treat) and comorbid conditions, severity, age category (children and adolescents aged < 18 years, adults aged 18–65 years and older adults aged > 65 years), sex, ethnicity

- setting from where participants were recruited, treatment timing (e.g. preventative, early, standard, relapse prevention) and countries where the individual RCTs were conducted
- intervention details CBT intensity, and, if available, number, duration and frequency of sessions and intervention content description
- comparator details description of comparator interventions (active: CBT or non-CBT interventions; non-active: WLC, TAU, no treatment)
- outcomes: what outcome was measured, follow-up period (short or long), the number of RCTs and number of participants summarised for this outcome, and whether or not a meta-analysis was conducted.

No numerical data were extracted at this stage. If a review had looked for one of our relevant outcomes but did not find any CBT RCTs, this was recorded. When available, we extracted information on patients' perspectives of CBT, for example patient satisfaction ratings, levels of adherence, dropout rates and any reported adverse events. When available, we extracted information on patient satisfaction, acceptability, adverse events and economic evaluations. An example data extraction form can be found in *Appendix 3*.

Quality assessment of reviews

The methodological quality of all the included systematic reviews was independently assessed by two review authors (KE, TS or BC) using the A MeaSurement Tool to Assess systematic Reviews (AMSTAR)-2 checklist.⁴ This checklist assesses the quality of the review design, analysis and reporting, but does not account for the risk of bias of the included RCTs. Because of the overview design (i.e. the review was conducted at the review level), it was outside the scope of this study to return to the RCT level to perform risk-of-bias assessments. Discrepancies between reviewers were adjudicated by another reviewer (BF). We used the online checklist²¹ (see *Appendix 4*) to complete the 16 items scored either as 'yes', 'no' or 'partial yes.' This automatically generated a review rating of 'critically low', 'low', 'moderate' or 'high' quality. We stratified the reviews based on their AMSTAR-2 score into higher-quality reviews (those rated 'high' or 'moderate' on the AMSTAR-2 checklist) and lower-quality reviews (those rated as 'low' or 'critically low') (Beverly Shea, University of Ottawa, 25 March 2019, personal communication).

We calculated the agreement on the overall quality rating between the two main reviewers (KE and TS) using weighted kappa (κ_w) (interpreted as < 0.20, poor; 0.21–0.40, fair; 0.41–0.60, moderate; 0.61–0.80, good; and 0.81–1.00, very good).²²

Independent, double data extraction was undertaken by two reviewers (KE, TS or BC). All data extraction forms and quality checklists were then cross-checked by a third reviewer (BF). All information from the data extraction sheets was entered into a review database, and graphic representation of quality was provided.

Visualisations mapping

The evidence from all the included systematic reviews was synthesised using the following types of charts, tables and maps.

Bubble chart

The evidence was grouped under the corresponding ICD-11 primary or secondary code. The volume of evidence, in terms of number of reviews, RCTs and participants, was then imported from Microsoft Excel into TIBCO Spotfire[®] (TIBCO, Software Inc., Palo Alto, CA, USA) software²³ to produce a bubble chart. The axes of the bubble charts were very large, ranging from 0 to 45,000 participants. To help readability of the charts, we stratified reviews into those with < 1000 participants and those with \geq 1000 participants.

Summary tables

The detailed description of each included review was represented in summary tables.

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Gap maps

The condition and population and context characteristics extracted from the included reviews were populated in an Excel spreadsheet to identify any gaps in the evidence base, and were summarised.

Panoramic meta-analysis

Inclusion and exclusion criteria

From the reviews identified in the mapping stage, we selected the higher-quality reviews (rated 'high' or 'moderate' on AMSTAR-2) that contained quantitative data (either a single RCT or a meta-analytic effect estimate generated from pooling across multiple RCTs). We extracted these data for HRQoL, depression, anxiety and pain (the most commonly reported condition-specific outcome).

Reviews often contained multiple meta-analyses conducted on data from the same participants for a single outcome (e.g. CBT vs. active comparators, CBT vs. non-active comparators, symptom response, recovery, relapse, remission). To avoid double-counting studies, one meta-analysis per outcome per condition had to be chosen from each review. We used a predefined, step-by-step, hierarchy system in line with the review objectives. We included the meta-analysis (or single RCT) (1) with the longest follow-up time; (2) with the largest number of included RCTs; (3) that used measurement tools with the highest psychometric properties; (4) with the largest number of participants; (5) for which an active comparator was prioritised over non-active comparators; (6) for which continuous outcomes were prioritised over dichotomous outcomes; (7) for which, within dichotomous outcomes, the odds ratio (OR) was prioritised over the risk ratio (RR); (8) for which a random-effects meta-analysis was prioritised over fixed effects; and (9) for which self-report measures were prioritised over clinician-rated measures.

We then grouped the reviews that included quantitative data on each outcome (HRQoL, depression, anxiety and pain). Some of the reviews shared the same RCTs. To avoid double-counting evidence, we had to select one review to include in the PMA. We used a predefined selection process.¹⁵ If two or more reviews shared the same RCT(s), we included the review (1) with the longest follow-up time, (2) with the highest AMSTAR-2 rating, (3) that was the most recently published, (4) with the largest number of RCTs or (5) with the largest number of participants.

Data extraction

We extracted the following data: number of participants in total and per group, number of participants who achieved the desired outcome in the case of dichotomous outcomes, effect sizes, confidence intervals (CIs), direction of effect, heterogeneity measures and type of meta-analysis. An example data extraction form can be found in *Appendix 5*.

Data management

Data from the data extraction sheets were entered into a master database (Excel) and exported into Stata[®] versions 13.1 and 16.0 (StataCorp LP, College Station, TX, USA). The PMAs were conducted by four reviewers (BC, HL, KE and TS).

Data analyses

Heterogeneity tests

We conducted a PMA per outcome measure. Review data were entered into an ICD-11 condition subgroup analysis and we tested the within-condition statistical heterogeneity across the reviews. In parallel, we tested the heterogeneity across the ICD-11 condition subgroup categories.

Assumptions for pooling across conditions

We developed three a priori conditions that must be met for us to pool the effect estimates across ICD-11 conditions categories:

- 1. Intervention homogeneity: the ECG and investigators (see *Expert consultation group including patient and public involvement*) agreed that, although investigators often use condition-, population- and context-specific protocols, the principles of CBT (see *Figure 1*) are the same across all conditions. This allows us to make a judgement of intervention homogeneity and, provided the other criteria are met, to pool estimates across conditions.
- 2. Design homogeneity: it is possible that meta-analytic estimates of effects would be moderated by differences between the review's underlying design and methodologies. The review estimates would also be influenced by the quality of the included RCTs. However, a RCT-level quality assessment was beyond the scope of this overview. Therefore, we used the proxy of assuming that the highest-quality reviews would be more likely to be unbiased in their methods and would probably report from the best-available evidence. We minimised review design (but not RCT design) variation by including only reviews that adhered to the CRD review criteria and were graded as being of high or moderate quality on the AMSTAR-2 tool (higher-quality reviews); hence, we could claim design homogeneity. We ran a sensitivity analysis (which included higher- and lower-quality review data) to ascertain if the variation in review quality affected the homogeneity of effect estimates across conditions.
- 3. Statistical homogeneity: statistical heterogeneity was assessed using the *I*² statistic; this is expressed as a percentage. A higher percentage is indicative of greater heterogeneity. *I*² reflects the variation in effect estimates between reviews that is attributable to heterogeneity.²⁴ There is no guidance regarding acceptable heterogeneity for PMAs. We used the guidance for meta-analysis heterogeneity,²⁵ which suggests that *I*² of < 75% is acceptable for pooling across the categories.

Panoramic meta-analysis method

The PMA was undertaken using a two-step frequentist approach random-effects model using the 'metan' command in Stata (versions 13.1 and 16). The two-step analysis consists of performing a conventional meta-analysis of a series of meta-analyses. The first step is undertaken by the original reviewers in obtaining a pooled treatment effect based on their included trials. Many of these will have been estimated via a random-effects meta-analysis, but some will have been analysed using a fixed-effects approach. Nonetheless, we assume that within-review variability has been appropriately allowed for. In the second step, the pooled estimates (with Cls) from each of the systematic reviews are combined into an overall (over all reviews) pooled estimate. At this point, we use a random-effects approach using the DerSimonian-Laird²⁶ approach. We obtained a pooled estimate from within condition and also across conditions, if the across-condition heterogeneity was < 75%. In the few cases where data required for the meta-analysis, such as standard deviations or Cls, were missing, we referred to the individual RCT paper to extract this information.

Primary analysis

The primary analysis was conducted on continuous, end-point data extracted from higher-quality reviews (AMSTAR-2 rating of 'moderate' or 'high' quality) if there were more than two systematic review per comparison. The primary outcome was HRQoL and the secondary outcomes were depression, anxiety and pain.

We analysed the standardised mean differences (SMDs). When reviews reported values as mean differences, we converted the pooled estimate into a SMD using the standard deviation reported.²⁷ We reported the 95% CIs and the prediction intervals. These offer a prediction of the distribution of SMDs from future reviews, perhaps in other conditions that have not been included in our overview.

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Secondary analysis

Some reviews reported change scores only; we pooled these separately because of concerns that these may be biased as a result of regression to the mean.²⁸ We performed separate PMAs for RRs and ORs.

We grouped reviews that directly compared high- with low-intensity CBT, irrespective of the condition, and analysed this group separately.

Transforming the standardised mean difference into a mean difference

To make meaningful interpretations, the overall pooled estimate (i.e. the SMD) for each outcome was transformed into a mean difference. The SMD was multiplied by the standard deviation of the most commonly used outcome measure (e.g. Beck Depression Inventory for depression) for each outcome.²⁹ To find a suitable standard deviation for the measurement tool, we identified a higher-quality review, which included a low risk-of-bias RCT that had used the most common outcome measure. From that trial, we extracted the standard deviation of the outcome measure at baseline.

Publication bias

When \geq 10 reviews were included in the meta-analysis, publication bias and small-study effects were tested for using Egger's regression intercept³⁰ and a visual assessment of funnel plot asymmetry. We used a conservative value of p < 0.1 at CIs of 95% to reflect asymmetry.

Subgroup analysis

Subgroup analyses were agreed a priori and were performed if four or more reviews were included in the meta-analysis across all conditions for each of the outcomes on the following: (1) CBT intensity (high/low intensity), (2) age (children and adolescents, adults, older adults), (3) duration of follow-up (short: < 12 months, long: > 12 months) and (4) comparator group (active, non-active). The subgroups were separated using the 'by()' command in Stata.

We ran interaction tests between the subgroups using an exploratory meta-regression. The meta-regression used the method of moments estimate of between-study variance and the 'metareg' command in Stata.

If we identified any reviews that directly compared high-intensity CBT with low-intensity CBT, we grouped these reviews together by outcomes (HRQoL, depression, anxiety and pain). If their estimates were homogeneous, then we pooled across the reviews as an example of direct comparison.

Sensitivity analysis

To test whether or not the quality of the reviews moderated the effect estimate and or heterogeneity, we ran a sensitivity analysis in which we included data from all reviews, irrespective of their AMSTAR-2 quality, for each outcome PMA. Then we compared the heterogeneity and pooled effect estimates between the sensitivity analyses and the primary analyses (which included only data from higher-quality reviews, i.e. those of 'high' and 'moderate' AMSTAR-2 quality).

We also conducted a sensitivity analysis in the HRQoL PMA for the two subscales of the Short Form questionnaire-12 items (SF-12)/Short Form questionnaire-36 items (SF-36) instruments. These instruments include a physical composite score and a mental composite score, but the tool does not pool them together. We prioritised the physical component scale (as recommended by the ECG; see *Expert consultation group including patient and public involvement*), then we re-ran the analyses using the mental component scale to determine if this changed the results.

Consistency of effect

We employed an ontological argument, which suggests that a lack of inconsistency across evidence suggests consistency of effect.³¹ We examined the effect estimates from each condition

subgroup (pooled effect across all reviews conducted within one condition), subgroup analyses (e.g. active/non-active comparator groups), sensitivity analyses (including the additional condition subgroup analyses) and secondary analyses (e.g. pooled effects across dichotomous outcomes). If any analyses produced a statistically significant effect in favour of the group (comparator or CBT) that was contrary to the overall pooled effect estimate, then the evidence for the general effect was inconsistent across the included conditions. If we did not identify any contrary evidence across any of the conditions or subgroups, then we declared that the overall effect was consistent across all included conditions.

Expert consultation group including patient and public involvement

We worked with a CBT ECG consisting of clinical academics (n = 6), research academics (n = 8) and patient representatives (n = 4). We met with this group directly on three occasions (January 2018, February 2019 and September 2019) and communicated via telephone/e-mail throughout the overview process. For each meeting, the group was sent a workbook of the work to date and a set of questions for the members to comment on. These were collected at the end of each meeting to ensure that all members' contributions were collated and recognised. The group was not involved in any of the data extraction or quality assessment of the reviews. The ECG provided advice on methods and interpretation, but the final decisions were taken by the study investigators.

Expert consultation group meeting 1: January 2018

In the first meeting, we achieved consensus on the search strategy (terms and databases), the inclusion/ exclusion criteria (population, intervention, comparison, outcomes, review design), data extraction form (data to extract) and analysis plan (avoid double-counting of RCTs, subgroup analyses).

Expert consultation group meeting 2: February 2019

The results of the data screening and extraction and the plan for the data synthesis were presented at this meeting. The ECG agreed the following actions:

- Protocol amendment to include both pooled and single trial data in the PMAs
- Protocol amendment to include behavioural outcomes as condition-specific outcomes.
- The ECG did not reach consensus on how the generalisation framework should be used (see *Chapter 6*). Beth Fordham, Jeremy Howick and Karla Hemming were to continue work on how this could be conceptualised for sharing with the ECG at the next meeting.

Expert consultation group meeting 3: September 2019

The preliminary results were presented at the third meeting. The ECG were in agreement for the mapping and PMA processes. We agreed to prioritise higher-quality reviews over any-quality reviews. However, again, we did not reach agreement on the generalisation framework. The ECG agreed that there was intervention homogeneity, but could not agree that CBT always effects change through the same mechanisms. It agreed that CBT is implemented via the core principles (see *Figure 1*), but it felt that it was important to recognise that the mechanisms for change would be different for patients living with different conditions. The ECG suggested that a review of all the mechanistic evidence for CBT's effectiveness was required in order to assume that there is a common mechanism of action.

The patient and public involvement (PPI) representatives guided our visual representation of the data and reflected that the real-life mechanisms of CBT will 'feel' very different for each individual receiving the treatment.

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Protocol revisions

We intended to translate non-English-language reviews. However, the resource and time allocations were unprepared for the number and complexity of reviews that were found. On discussion with the National Institute for Health Research (NIHR) Health Technology Assessment (HTA) programme board, we made a change to the protocol and excluded non-English-language reviews at the full-text screening stage.

In the protocol, we selected three general outcomes (HRQoL, depression and anxiety) and suggested collecting condition-specific outcomes, such as psychosis and physical/physiological outcomes. Subsequently, we chose to present the three general outcomes plus the most commonly reported other outcome, which was pain.

We had not envisaged the problem of a review reporting the mental and the physical component subscales of the SF-12 HRQoL tool separately. After consulting the ECG, we selected the physical subscale to be included in the primary analysis, and conducted a sensitivity analysis using the mental subscale data to examine if that affected the PMA estimates and heterogeneity.

Other specific changes included to:

- include both single RCT data and pooled meta-analysis data in a PMA
- include behavioural outcomes as condition-specific outcomes
- prioritise higher-quality reviews over any-quality reviews.

All the above changes were approved by the NIHR HTA programme board.

In response to comments from reviewers of the draft HTA monograph, we have included prediction intervals to our primary panoramic meta-analyses.

Chapter 4 Results: mapping

Process of study selection

The initial search of eight databases in April 2018 retrieved 12,339 references, and the updated search in January 2019 retrieved 916 references. In total, 7738 titles and abstracts were screened after deduplication, from which 2948 reviews were selected for full-text analysis. On full-text analysis, 494 systematic reviews³²⁻⁵²³ were selected for final inclusion. Data extraction for the mapping was done for all these reviews, the synthesis of which is presented in this chapter. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram describing each of these stages is presented in *Figure 2*.

Excluded studies

We excluded 2454 reviews at the full-text screening stage. Nearly half of these exclusions (1108/2454, 45%) were because the review did not provide a synthesis of CBT trials. Ten per cent (237/2454) of reviews were excluded because they were not available in English. References for the excluded reviews along with their reasons for exclusion are presented in *Appendix 6*.

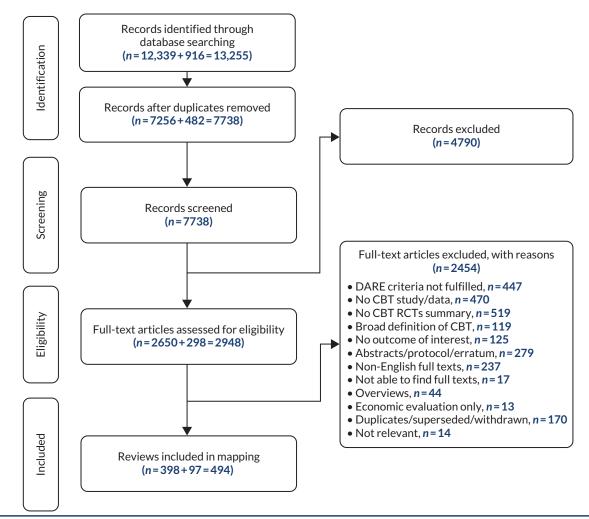


FIGURE 2 The PRISMA flow diagram describing review selection for mapping. Adapted from Fordham *et al.*⁵²⁴ © The Author(s) 2021. Published by Cambridge University Press. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

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Description of the included systematic reviews

We included 494 systematic reviews, which reported 2052 RCTs involving 221,128 participants.³²⁻⁵²³ The included reviews were synthesised in three main formats: summary tables, bubble charts and gap maps.

Summary tables

The summary tables provide comprehensive details of all the 494 included reviews, split into the ICD-11 codes (see *Appendix 7*, *Tables 5–33*).

Bubble charts

The 494 systematic reviews identified by the search examine the effectiveness of CBT on HRQoL, depression, anxiety or a condition-specific outcome in conditions represented in 14 out of 20 primary (physical) and 13 out of 20 secondary (mental) ICD-11 codes. This equates to 68% of all ICD-11 categories (27/40). 'Mood disorders [6A60-80]' were the most researched condition (92 reviews, 272 RCTs, 42,676 participants). The primary and secondary ICD-11 categories that are represented in the included reviews are listed in the unshaded rows presented in *Box 2*; those that are not represented (i.e. evidence gaps) are listed in the shaded rows in *Box 2*. The volume of reviews, trials and participants are represented in two bubble maps in *Figure 3*: (1) conditions that include < 1000 participants and (2) conditions that include > 1000 participants.

Gap maps

We produced a gap map that details the context and population characteristics of all the reviews conducted within each ICD-11 category (see *Appendix 8, Tables 34–37*). We have summarised the information in the following section.

Context characteristics of the included reviews

In *Table 1*, we present the number of reviews that included trials conducted in different contexts. One review could include some trials conducted in one context and also include trials conducted in another context. Therefore, that one review could represent two or more context characteristics. Consequently, the percentages presented across the rows will not always add up to 100% (n = 494 reviews). The shaded cells represent how many reviews did not report on this characteristic.

Context characteristics well reported

Nearly all the included reviews (486/494, 98%) reported whether or not they examined high- or lowintensity CBT. The majority were conducted on high-intensity CBT, but low-intensity CBT trials were included in 28% (139/494) of reviews across 14 out of 40 (35%) ICD-11 categories. Nearly all reviews (487/494, 99%) reported when follow-up data were collected. One-third of reviews (130/494, 26%) included a long-term (> 12 months) follow-up time point.

Context characteristics poorly reported

Only half of the reviews (247/494, 50%) reported on the severity of participants' symptoms. Of these, the majority described participants as having a clinical diagnosis (216/494, 44%), with no further description on the severity of the symptoms (i.e. chronic or severe). Only 3% (16/494) of reviews examined participants with subclinical symptoms.

Over half of the included reviews (283/494, 57%) did not report from which care setting they had recruited their samples. Of the reviews that did report this, the majority recruited their samples from outpatient settings (114/494, 23%).

Context characteristics rarely examined

All the included reviews reported when the intervention was delivered (494/494, 100%); only 7% (36/494) examined the use of CBT in a preventative context.

BOX 2 Primary and secondary ICD-11 codes represented and not represented in the CBT evidence map

ICD-11 primary codes

- 01 Certain infectious or parasitic diseases.
- 02 Neoplasms.
- 03 Diseases of the blood.
- 04 Diseases of the immune system.
- 05 Endocrine, nutritional or metabolic diseases.
- 07 Sleep-wake disorders.
- 08 Diseases of the nervous system.
- 09 Diseases of the visual system.
- 10 Diseases of the ear or mastoid process.
- 11 Diseases of the circulatory system.
- 12 Diseases of the respiratory system.
- 13 Diseases of the digestive system.
- 14 Diseases of the skin.
- 15 Diseases of the musculoskeletal system.
- 16 Diseases of the genitourinary system.
- 17 Conditions related to sexual health.
- 18 Pregnancy, childbirth or the puerperium.
- 19 Certain conditions originating in the perinatal period.
- 20 Developmental abnormalities.
- 21 Symptoms and signs NOS (MG30 pain, MG22 fatigue, MG43.6 excessive weight gain).

ICD-11 secondary codes within '06 mental, behavioural or neurodevelopmental disorders'

- 6A00-06: neurodevelopmental disorders.
- 6A20-25: schizophrenia or other primary psychotic disorders.
- 6A40-41: catatonia.
- 6A60-80: mood disorders.
- 6B00-06: anxiety or fear-related disorders.
- 6B20-25: obsessive-compulsive disorders.
- 6B40-45: disorders specifically associated with stress.
- 6B60-66: dissociative disorders.
- 6B80-85: feeding or eating disorders.
- 6C00-01: elimination disorders.
- 6C20-21: disorders of bodily distress.
- 6C40-51: disorders due to substance use or addictive behaviours.
- 6C70-73: impulse control disorders.
- 6C90-91: disruptive behaviour or dissocial disorder.
- 6D10-11: personality disorders and related traits.
- 6D30-36: paraphilic disorders.
- 6D50-51: factitious disorders.
- 6D70-72: neurocognitive disorders.
- 6E20-21: mental or behavioural disorders associated with pregnancy, childbirth or the puerperium.
- 6E40: psychological or behavioural factors NOS (MB23.0 aggressive behaviour).

NOS, not otherwise specified.

Shading indicates the ICD-11 categories that are not represented in the included reviews (i.e. evidence gaps).

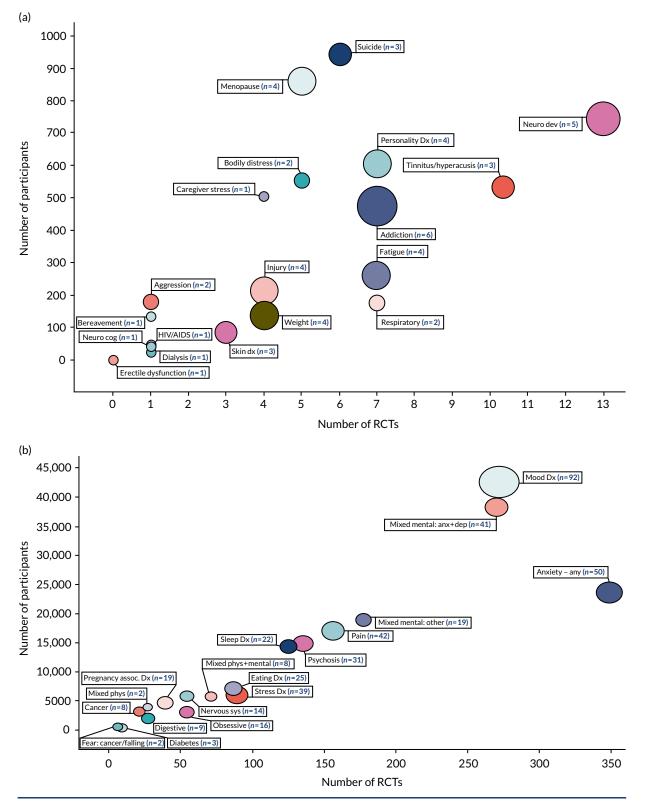


FIGURE 3 Bubble map representing the volume of systematic reviews, RCTs and participants included in the qualitative synthesis (n = 494 reviews). (a) Conditions with < 1000 participants in total; and (b) conditions with > 1000 participants in total. The size of a bubble and the number in brackets represents the number of reviews for each condition. AIDS, acquired immunodeficiency syndrome; anx, anxiety; assoc, associated; dep, depression; dx, disorder; HIV, human immunodeficiency virus; neuro cog, neurocognitive; neuro dev; neurodevelopmental; phys, physical; sys, system.

TABLE 1 Context characteristics of the included reviews

	Reviews, n (%)																					
Who: severity				What: intensity			When: delivered			Where: participants recruited						Follow-up						
Reviews	Subclinical	Clinical	Chronic	Severe	NR	High	Low	NR	Preventative	Standard	Relapse prevention	NR		GP primary	Outpatients		School/ university	Institution		Short term	Long term	NR
Reviews included in mapping: N = 494 (2052 RCTs; 221,128 participants)	16 (3)	216 (44)	19 (4)	10 (2)	247 (50)	397 (80)	139 (28)	8 (2)	29 (6)	463 (94)	7 (1)	0 (0)	92 (19)	41 (8)	114 (23)	35 (7)	36 (7)	4 (1)	283 (57)	402 (81)	130 (26)	7 (1)

GP, general practitioner; NR, not reported.

Notes

The shaded cells represent how many reviews did not report on this characteristic. Some reviews (and RCTs) recruited participants from different settings with varying levels of severity, included both types of intensities and considered both short- and long-term follow-up; therefore, the total in each category may not always add up to 100% (*n* = 494 reviews).

Population characteristics of the included reviews

In *Table 2*, we present the number of reviews that included trials with samples representing different characteristics. One review could include some trials conducted with one type of population (e.g. children and adolescents) and other trials conducted with another population (e.g. adults), or one trial that included children, adolescents and adults. Therefore, that one review could represent two (or more) sample characteristics. Consequently, the percentages presented across the rows will not always add up to 100% (n = 494 reviews). The shaded cells represent how many reviews did not report on this characteristic.

Population characteristics well reported

Most reviews reported the age of their samples (475/494, 96%); of these, only 6% (30/494 reviews, 81 RCTs and 6629 participants) were conducted with an older adult population.

Population characteristics poorly reported

Most reviews (458/494, 93%) did not report the ethnicity of the samples of their included trials. Of the 36 reviews that did report the ethnicity of their samples, we found an equal number of reviews that reported more white than non-white participants (10/494, 2%) and that reported more non-white than white participants (10/494, 2%).

Nearly half of the reviews (218/494, 44%) did not report on the sex of their trial samples or the country where their included trials were conducted. When reported, a higher number of reviews had a greater representation of female participants (167/494, 34%) in their trial samples, and most reviews included trials conducted in Europe, North America and Australasia (231/494, 47%).

The AMSTAR-2 review quality rating

Every review (n = 494) was assessed twice (by KE and TS) using the AMSTAR-2 checklist. The agreement between reviewers (KE and TS) in assessing the quality of reviews using the AMSTAR-2 checklist was good (327/494, 66%) ($\kappa_w = 0.63$, 95% CI 0.62 to 0.65). Figure 4 presents the proportion of reviews conducted over the preceding 20 years, classified into the four AMSTAR-2 quality categories.

Over the previous 20 years, the quality of systematic reviews has improved; however, in the latest time epoch (2015–19), we still identified that 36% of the included reviews were of critically low quality and only 29% of reviews were classified as being of moderate or high quality.

Table 3 represents the item summaries from the AMSTAR-2 checklist. Of the 'critical' items on the checklist, 68% (336/494) of the reviews failed to register the protocol before commencement of the review (item 2), 76% (373/494) failed to provide the list of excluded studies along with the reasons for exclusion of each (item 7) and 50% (248/494) of reviews did not report an adequate search strategy.

Patient perspective and safety data

Of the 494 reviews, 118 (24%) reviews reported data on dropout rates, adherence and satisfaction analyses. Twenty reviews^{32,53,56,68,78,103,133,153,165,198,219,234,244,251,266,367,376,402,464,469} searched for safety data, of which nine reviews included reports of adverse events occurring in the CBT groups. We have summarised all the patient perspective and safety data under the relevant conditions in *Box 3*.

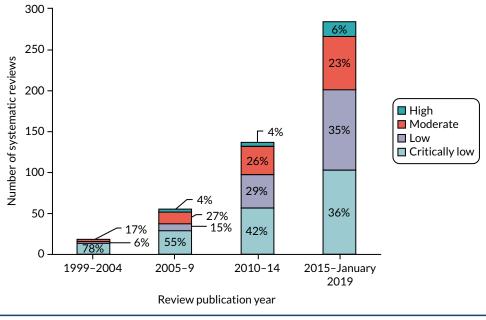
Overall, there does not seem to be a great difference in dropout rates between CBT and active or non-active comparator groups. However, it appears that more participants drop out of low-intensity internet-based CBT than out of face-to-face CBT, and patients reported greater satisfaction with the therapeutic relationship in face-to-face CBT. Older adults appeared to drop out more than younger adults,

TABLE 2 Population characteristics of the included reviews

	Reviews, n (%)																
	Age (years)				Sex				Ethnicity					Continent where the included RCTs were conducted			
Reviews	< 18	18-65	> 65	NR	< 50% female sample	> 50% female sample	Mixed	NR	< 25% non-white sample	25–75% non-white sample	> 75% non-white sample	Mixed	NR	Europe, North America, Australasia	Asia	Africa, South America	NR
Reviews included in mapping: N = 494 (2052 RCTs; 221,128 participants)	108 (22)	378 (77)	30 (6)	19 (4)	44 (9)	167 (34)	65 (13)	218 (44)	10 (2)	6 (1)	9 (2)	11 (2)	458 (93)	231 (47)	37 (8)	8 (2)	218 (44)

NR, not reported. Notes

The shaded cells represent how many reviews did not report on this characteristic. Some reviews (and RCTs) included participants across various subcategories; therefore, the total in each category may not always add up to 100% (n = 494 reviews).



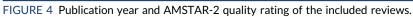


TABLE 3 The AMSTAR-2 items summary (n = 494)

	Response	, n (%)	_
AMSTAR-2 items	Yes	Partial yes or 0	No
Components of PICO in research questions and inclusion criteria (item 1)	266 (54)	-	228 (46)
Protocol registered before commencement of the review (item 2) ^a	153 (31)	5 (1)	336 (68)
Justification for selection of study design for inclusion (item 3)	80 (16)	-	414 (84)
Adequacy of the literature search (item 4) ^a	67 (14)	179 (36)	248 (50)
Study selection performed in duplicate (item 5)	325 (66)	-	169 (34)
Data extraction performed in duplicate (item 6)	322 (65)	-	172 (35)
Justification for excluding individual studies (item 7) ^a	108 (22)	13 (3)	373 (76)
Included studies reported in adequate detail (item 8)	106 (21)	350 (71)	38 (8)
Risk of bias from individual studies being included in the review (item 9) a	291 (59)	27 (5)	176 (36)
Reporting funding sources of included studies (item 10)	48 (10)	-	446 (90)
Appropriateness of meta-analytical methods (item 11) ^a	292 (59)	195 (39)	7 (1)
Assessment of potential impact of risk of bias on results of the review (item 12)	196 (40)	186 (38)	112 (23)
Consideration of risk of bias when interpreting the results of the review (item $13)^a$	277 (56)	-	217 (44)
Explanation/discussion of heterogeneity observed (item 14)	299 (61)	-	195 (39)
Assessment of presence and likely impact of publication bias (item 15) ^a	209 (42)	70 (14)	215 (44)
Reporting conflicts of interest and funding (item 16)	376 (76)	-	118 (24)
PICO, population, intervention, comparator, outcome. a Critical item.			

BOX 3 Patient perspective and safety data

Dropout

Anxiety

Adelman *et al.*³⁴ reported that children, adolescents and adults with anxiety disorders are more likely to drop out of CBT than out of WLC groups (OR 1.76, 95% CI 1.27 to 2.44). Participants were more likely to drop out of internet-based CBT than out of face-to-face CBT (OR 1.36, 95% CI 0.79 to 2.33).

Three reviews of anxiety disorders in children and adolescents reported no difference in the risk of participants dropping out between CBT and WLC groups (OR 0.94, 95% CI 0.58 to 1.51),⁵⁰⁹ TAU groups (OR 1.01, 95% CI 0.31 to 3.3)²²⁷ or placebo-pill control groups (RR 0.53, 95% CI 0.30 to 0.95).⁴⁸⁷

A review reported that more RCTs of CBT with adult participants than those with older adults report attrition levels below the 15% attrition threshold (67% vs. 40%).²⁵²

Mood disorders

The dropout rates of adults and older adults from CBT groups ranged from 7% to 40%^{217,420} and were not significantly different between CBT and comparator groups (active or non-active).^{59,145,280,501}

Anxiety and/or mood

Dropout rates for CBT ranged from 6% to 50% across children/adolescent and adult populations.^{101,459} A review⁴⁵ found no difference in dropout rates between high- and low-intensity (internet-based CBT) interventions (OR 0.79, 95% CI 0.57 to 1.09).

Obsessive-compulsive disorders (hypochondriasis)

A review of adults with hypochondriasis reported no difference between CBT and TAU/pharmacotherapy/ placebo comparator in the likelihood for participants to drop out of their trial arm (OR 1.14, 95% CI 0.56 to 2.32).⁴⁵⁰

Obsessive-compulsive disorders (body dysmorphic disorder)

No difference was detected in the number of children/adolescents and adults who dropped out between CBT and WLC groups (RR 1.00, 95% CI 0.96 to 1.05), and the effects of CBT on depression outcomes were not altered if dropouts were treated as non-responders.¹⁹⁵

Eating disorders

A review of adults with bulimia nervosa/binge-eating disorder reported no difference in dropout rates between CBT and active or non-active comparator groups [F(2,55) = 1.66; p = 0.20].¹⁷⁹ This remained true in adults with binge-eating disorder when CBT was an adjunct to pharmacotherapy [i.e. fluoxetine alone (22%) or fluoxetine plus CBT (23%)].³⁷⁸

Stress disorders

Two reviews reported dropout rates of between zero and 30%^{355,422} from CBT in adult populations with post-traumatic stress disorder, and that these rates did not differ significantly between the CBT and other active comparator groups.⁹⁶

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BOX 3 Patient perspective and safety data (continued)

Bodily distress disorders

There were no significant differences in dropout rates between CBT and progressive muscle relaxation groups in adults with medically unexplained symptoms (SMD 0.98, 95% CI 0.83 to 1.15; n = 90).⁴⁶⁹

Addiction

One review reported, without statistics, that fewer adults with psychostimulant abuse disorder dropped out of CBT groups than out of the TAU groups.³¹²

Neoplasms

Two reviews report very similar dropout rates from CBT interventions: 15% and 22%.65,238

Nervous system disorders (post-viral fatigue)

Castell *et al.*⁹³ reported that 17% of adults with post-viral fatigue syndrome dropped out of the CBT groups. Participants were more likely to drop out of CBT than out of a no-treatment control (RR 1.71, 95% CI 1.29 to 2.27), but not when compared with other active comparators¹⁷⁰ (RR 0.97, 95% CI 0.28 to 1.25), including exercise interventions²⁶⁶ (RR 0.59, 95% CI 0.28 to 1.25).

Conditions with symptoms of pain

Three reviews reported that a range of 0–22% of patients dropped out of CBT interventions for pain patients in both adult and children/adolescent populations.^{32,285,375}

Disorders of the ear (tinnitus)

One review examined adults' and older adults' satisfaction with internet-based CBT and found that more participants dropped out of internet-based CBT than out of an online education programme.²¹³

Adherence

Mood

Across the trials of adults with depression, the adherence rates ranged greatly, from 10% to 100%.^{165,459} A review of CBT for depression in children and adolescents reported that only 50% completed the full CBT programme.¹⁰⁶ Adherence rates were reported to significantly predict treatment response ($\beta = 0.90$; p < 0.001).²⁴⁰

Anxiety and mood

Adherence (defined as between 75% and 100% adherence) rates from RCTs of children/adolescents (86%), adults and older adults (24–90%) across anxiety and depression ranged from 24% to 90%.^{327,356,466}

Eating disorders

In children and adolescents with bulimia nervosa or EDNOS, the adherence rates were similar between CBT and other psychotherapies (family therapy).²⁴³ However, one review of bulimia nervosa in children, adolescents and adults estimated that 16% (95% CI 13% to 19%) of participants did not complete the CBT intervention.⁴³⁸

BOX 3 Patient perspective and safety data (continued)

Adherence rates were similar between high-intensity and low-intensity (i.e. internet-based) CBT.³⁵³ However, the acceptability ratings were higher for high-intensity CBT than for internet-based CBT.³⁶⁷

Conditions with symptoms of pain

One review of predominantly male (92%) veterans with comorbid pain, depression and substance abuse reported completion rates of only 38% for CBT interventions.⁵⁸

Insomnia

A review of internet-based CBT for insomnia reported that 78% of adult participants (range 67–100%) completed their treatment.⁹⁷ The review also reported that 71% of participants found internet-based CBT 'mostly' or 'very' effective.

Satisfaction

Mood

One review⁴⁹ suggests that older adults prefer psychological therapies, such as CBT, over pharmacotherapy because the side effects of pharmacotherapy become more problematic with increased comorbidity in older age.⁴⁹

There was no difference between children's and adolescents' reported levels of acceptability for CBT, compared with WLC or TAU comparator groups.⁵¹⁰

Anxiety and mood

Two reviews^{46,324} reported that 62–100% of adults were satisfied with internet-based CBT. One review³²⁴ found that participants reported more enjoyment when they were communicating with a therapist in face-to-face CBT.

Eating disorders

The acceptability ratings were higher for high-intensity CBT than for internet-based CBT.³⁶⁷

Stress disorders

One review reported, in great depth, the acceptability of CBT for children and adolescents with posttraumatic stress disorder.²⁹¹ It is recognised to be acceptable for children and their caregivers, but there are concerns regarding the trauma exposure component. This is considered central to the effectiveness of CBT, but some evidence suggests that this element is linked to patient dropout rates. CBT is delivered most commonly in a clinic, but this review suggests that home delivery could be more acceptable. It also suggests that CBT delivered in a group setting is more acceptable than individual CBT in ethnically diverse, urban children in the USA.²⁹¹

Psychosis

Cognitive-behavioural therapy was reported to be less acceptable than TAU for schizophrenia patients in one review,⁶⁶ whereas another review¹¹⁶ found no difference in acceptability. Therapists reported that it was harder to engage younger schizophrenic patients with the CBT intervention.⁵¹

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BOX 3 Patient perspective and safety data (continued)

Disorders of the ear (tinnitus)

Participants reported that the intervention was not engaging enough, and authors suggested that it might be too much of a commitment for those with low distress levels.²¹³

Adverse events

One or two patients per CBT group reported that their symptoms worsened because of participation in CBT in adults with post-viral fatigue syndrome,^{56,103,266} bodily distress (medically unexplained symptoms)⁴⁶⁹ and mixed mental conditions (mood disorder, anxiety and obsessive-compulsive disorders).⁵³ Adverse events were reported in reviews of other conditions, such as people with substance misuse conditions during withdrawal, schizophrenic patients and eating disorder patients, but there was no evidence to suggest that this was due to participating in CBT.^{133,198,219,234}

EDNOS, eating disorder not otherwise specified.

but they also reported preferring psychological therapies, such as CBT, over pharmacological therapies. There may be certain groups who do not find CBT acceptable; for example, one review of mainly male veterans reported very low completion rates.⁵⁸ Participants with common mental and physical conditions seemed generally satisfied with CBT, but schizophrenic patients seemed more likely to find CBT an unacceptable treatment option. In relation to adverse events, there is a lack of reporting on safety data from CBT reviews. However, the evidence we found does not suggest that participating in CBT could cause harm to participants.

Chapter 5 Results: panoramic meta-analysis

The map of the CBT review evidence base included 494 reviews. Of these, 171 reviews included data suitable for inclusion in the PMAs. The majority of the reviews reported in the mapping exercise, but excluded from the PMA, were not suitable because we could not extract the CBT RCT-specific data in isolation for any of the four outcomes (n = 279). This could be for any one of the following reasons:

- The review may not have performed a meta-analysis or reported any quantitative data from single RCTs.
- The review may have looked for RCTs reporting on the outcome but not identified any evidence.
- We may have been unable to extract CBT RCT data in isolation, for example a review that
 presented a subgroup analysis of 10 CBT trials, but one of these trials was not a RCT. We could not
 isolate the purely CBT RCT evidence; therefore, the data were not included in the PMA. To have
 included these RCTs, we would have needed to return to the original RCT and perform a new
 meta-analysis including only the RCT data.

Of the 126 reviews eligible for the end-point PMA, 71^{32,37,39,46,50,59,63,68,89,102,117,126,134,143,149,165,167-169,175,188,193, 197-199,205,206,211,219-221,227,231,234-236,246,249,251,259,261,267,275,286,291,299,315,317,340,343,347,357,369,371,373,397,401,405,409,432,445,446,448,450,454, 464,469,480,484,507,518 were higher-quality reviews (i.e. 'moderate' or 'high' on AMSTAR-2); the primary analyses for each outcome were conducted using these 71 higher-quality reviews. The PRISMA flow diagram describing review selection for the PMAs from the mapping stage is presented in *Figure 5*.}

For reviews reporting data as change scores or dichotomous outcomes (RR, OR), separate PMAs for each outcome were undertaken; these are presented in *Appendices* 9–12.

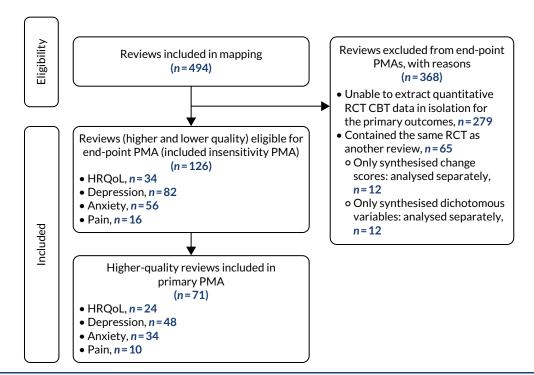


FIGURE 5 The PRISMA diagram from mapping to PMAs.

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Health-related quality of life

We identified 24 higher-quality systematic reviews^{32,39,63,165,188,193,219,220,231,235,236,275,286,299,317,343,347,371,409,445,446, 464,469,518 that met the eligibility criteria to be included in the HRQoL PMA. One review³⁴³ included two meta-analyses for different disorders; hence, the number of comparisons is 25. These reviews included 49 RCTs, 4304 participants and represent 12 out of 40 ICD-11 categories (30%), as presented in *Box 4*. The white rows represent those ICD-11 codes that are represented in the primary analysis, the purple rows represent those conditions that are represented in the sensitivity analyses (see *Sensitivity analysis*) and the orange rows represent those ICD-11 codes that are not represented.}

The most commonly used measure of HRQoL was the Short Form questionnaire-36 items (SF-36) (n = 6). Other measurements included the Quality of Life Inventory (n = 5), the EuroQol-5 Dimensions (n = 2), the WHO Quality of Life-BREF (n = 1), the Global Assessment of Functioning (n = 1) and the Modular System for Quality of Life-54 (n = 1). The remaining reviews used population-specific (e.g. KIDSCREEN-27; KINDL-R; Comprehensive Quality of Life Scale, Intellectual Disability) or condition-specific [e.g. Fibromyalgia Impact Questionnaire, ADHD (attention deficit hyperactivity disorder) Impact Module-Adult^M, Quality of Life in Alzheimer's Disease, Diabetes Quality of Life for Youths] quality-of-life measurements.

Some reviews included trials with mixed characteristics, for example one review could include trials with adults and with older adults; in such a case, we would record that there was one review with adult data and one with older adult data. Consequently, the counts do not always add to 24 reviews. The mapping results demonstrate that the majority of these meta-analyses were focused on adults (n = 21), with only three reviews of children/adolescents and one review of older people. A higher number of reviews (12/24) had samples that included more female than male participants than reviews with samples of more male than female participants (6/24). Only three reviews reported the ethnicity of their samples: two reviews had samples with < 25% non-white participants and one included a sample with > 75% non-white participants.

The majority of reviews reported on the management of clinical conditions (16/24), through high-intensity CBT (17/24), delivered in outpatient settings (16/24), and with short-term follow-up (19/24). Seven reviews shared these three contexts but were conducted across different conditions. The majority of the included RCTs were from Europe, North America and Australasia (21/24).

The number of reviews containing only one trial was 6 out of 25; for some conditions, the numbers in each trial were very small (*Figure 6*). Comparators were active (8/24), mixed (3/24) and non-active (13/24).

Primary analysis

Within-condition heterogeneity (I^2) varied between 0% and 56%, and across-condition heterogeneity was 32%; hence, the criteria for PMA were met. The pooled across-condition SMD between control groups and CBT intervention groups gave a modest effect in favour of CBT on outcomes of HRQoL (SMD 0.23, 95% CI 0.14 to 0.33) (see *Figure 6*). Variation in effects was observed across conditions; for example, in aggression, the estimate mean effect was almost zero, although it was estimated with considerable uncertainty (SMD –0.02, 95% CI –0.28 to 0.32), whereas, in anxiety disorders, the estimated effect was positive and was estimated with much greater certainty (SMD 0.42, 95% CI 0.20 to 0.64). This heterogeneity is reflected in the resulting prediction intervals, which, indicated for the overall effect (within any given condition), were between –0.03 and 0.50, indicating, at worst (and with little support in the prediction interval), a small negative effect of CBT for some conditions and, at best, a large positive effect for other conditions.

BOX 4 The ICD-11 categories (not) represented in the primary PMA of higher-quality reviews for the HRQoL outcome

ICD-11 primary codes

- 01 Certain infectious or parasitic diseases.
- 02 Neoplasms (in lower-quality reviews only).
- 03 Diseases of the blood.
- 04 Diseases of the immune system.
- 05 Endocrine, nutritional or metabolic diseases.
- 07 Sleep-wake disorders.
- 08 Diseases of the nervous system.
- 09 Diseases of the visual system.
- 10 Diseases of the ear or mastoid process.
- 11 Diseases of the circulatory system.
- 12 Diseases of the respiratory system.
- 13 Diseases of the digestive system (in lower-quality reviews only).
- 14 Diseases of the skin.
- 15 Diseases of the musculoskeletal system.
- 16 Diseases of the genitourinary system.
- 17 Conditions related to sexual health.
- 18 Pregnancy, childbirth or the puerperium.
- 19 Certain conditions originating in the perinatal period.
- 20 Developmental abnormalities.
- 21 Symptoms and signs NOS (MG30 pain, MG22 fatigue).

ICD-11 secondary codes within '06 mental, behavioural or neurodevelopmental disorders'

- 6A00-06: neurodevelopmental disorders.
- 6A20-25: schizophrenia or other primary psychotic disorders.
- 6A40-41: catatonia.
- 6A60-80: mood disorders.
- 6B00-06: anxiety or fear-related disorders.
- 6B20-25: obsessive-compulsive disorders.
- 6B40-45: disorders specifically associated with stress.
- 6B60-66: dissociative disorders.
- 6B80-85: feeding or eating disorders.
- 6C00-01: elimination disorders.
- 6C20-21: disorders of bodily distress.
- 6C40-51: disorders due to substance use or addictive behaviours.
- 6C70-73: impulse control disorders.
- 6C90-91: disruptive behaviour or dissocial disorder.
- 6D10-11: personality disorders and related traits.
- 6D30-36: paraphilic disorders.
- 6D50-51: factitious disorders.
- 6D70-72: neurocognitive disorders.
- 6E20-21: mental or behavioural disorders associated with pregnancy, childbirth or the puerperium.
- 6E40: psychological or behavioural factors NOS (MB23.0 aggressive behaviour).

NOS, not otherwise specified.

White rows represent ICD-11 codes represented in the primary analysis, purple shaded rows represent ICD-11 codes represented in the sensitivity analyses and orange shaded rows represent ICD-11 codes that are not represented in the HRQoL PMA.

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RESULTS: PANORAMIC META-ANALYSIS

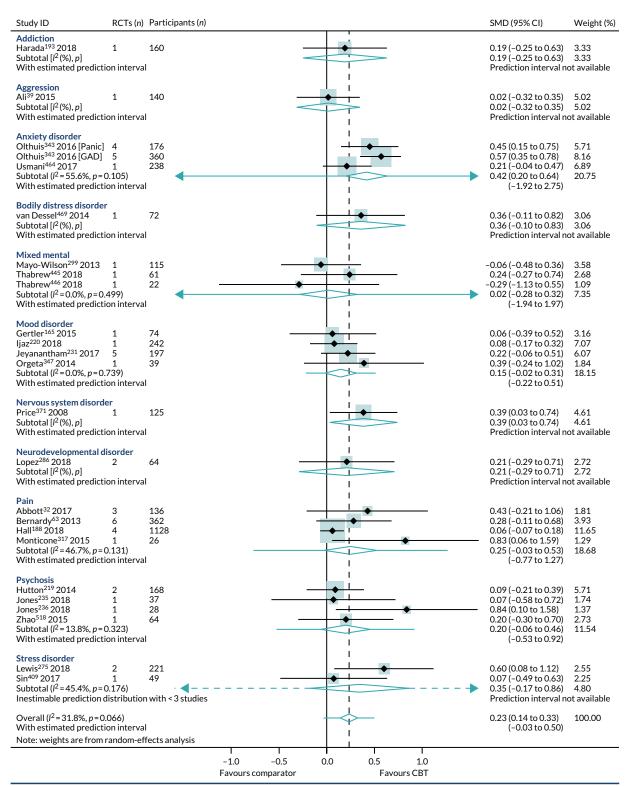


FIGURE 6 Primary analysis of the primary outcome: HRQoL (end-point scores) from 'high-quality' reviews. GAD, generalised anxiety disorder. Adapted from Fordham *et al.*⁵²⁴ © The Author(s) 2021. Published by Cambridge University Press. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

No publication bias was detected using funnel plots (*Figure 7*) and Egger's test showed that there were no small-study effects (p = 0.18).

Mean difference in health-related quality of life

We identified a standard deviation (10.93 points) of the SF-36 physical composite score from a trial,⁵²⁵ deemed to have a low risk of bias, in a higher-quality review.⁴⁶⁴ The SMD translated to an estimated mean difference on the SF-36 of 3 points (95% CI 2 to 4 points).

Subgroup analysis

The only interaction test that was statistically significant was between reviews of CBT compared with active comparators and reviews of CBT compared with non-active comparators. All other subgroup interaction tests were not statistically significant and are, therefore, consistent with the general effect of CBT on HRQoL outcomes.

Cognitive-behavioural therapy intensity

Overall, high- and low-intensity CBT reviews were distributed evenly across the different conditions and characteristics. High- and low-intensity CBT reviews both included populations diagnosed with 6B00-06 anxiety or fear-related disorders, 6A60-80 mood disorders, 6A00-06 neurodevelopmental disorders, 6B20-25 obsessive-compulsive disorders, 21 pain and 6B40-45 disorders specifically associated with stress. They included patients with chronic symptoms (6A60-80 mood disorders and 21 pain). The reviews included children, adolescents and adults, of both sexes, from all care settings in Europe, North America, Australasia and Asia. Reviews of both intensities included long-term follow-up data. Reviews of high-intensity, but not low-intensity, CBT included (1) populations diagnosed with 6C20-21 disorders of bodily distress, 08 diseases of the nervous system or 6A20-25 schizophrenia or other primary psychotic disorders; (2) older adults; and (3) CBT delivered in a preventative context. Reviews of low-intensity, but not high-intensity, CBT were conducted in populations diagnosed with 6C40-4H addiction and MB23 aggressive behaviour.

There was little difference between effect estimates in reviews of high-intensity and low-intensity CBT, although heterogeneity was substantially higher for low-intensity CBT (SMD 0.23, 95% CI 0.03 to 0.42; $I^2 = 68\%$) than for high-intensity CBT (SMD 0.21, 95% CI 0.11 to 0.32; $I^2 = 0\%$) (*Figure 8*). The interaction test between high- and low-intensity CBT reviews was not statistically significant (p = 0.99).

We identified three reviews^{318,343,521} (four RCTs, 243 participants; two reviews of lower quality and one review of higher quality) that directly compared high- with low-intensity CBT interventions on HRQoL outcomes in 6B00-06 anxiety or fear-related disorders and 6A60-80 mood disorders. One review provided separate data for both 6B01 panic and 6B04 social anxiety disorder populations, and so the

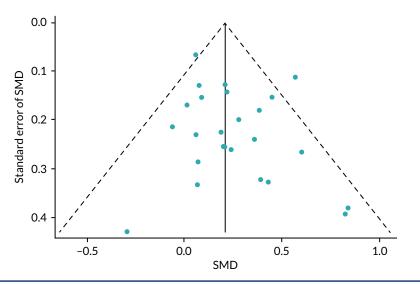


FIGURE 7 The HRQoL funnel plot with pseudo-95% confidence limits (end-point data from high-quality reviews).

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Study ID	RCTs (n)	Participants (n)	Health category	SMD (95% CI)	Weight (
High					
Bernardy ⁶³ 2013	6	362	Pain	0.28 (-0.11 to 0.68)	7.45
Gertler ¹⁶⁵ 2015	1	74	Mood disorder	0.06 (-0.39 to 0.52)	5.61
Hutton ²¹⁹ 2014	2	168	Psychosis	0.09 (-0.21 to 0.39)	12.91
ljaz ²²⁰ 2018	1	242	Mood disorder	0.08 (-0.17 to 0.32)	18.79
Jones ²³⁵ 2018	1	37	Psychosis Ito	0.07 (-0.58 to 0.72)	2.75
Jones ²³⁶ 2018	1	28	Psychosis	0.84 (0.10 to 1.58)	2.11
Monticone ³¹⁷ 2015	1	26	Pain 🔶 🚽	0.83 (0.06 to 1.59)	1.97
Orgeta ³⁴⁷ 2014	1	39	Mood disorder	0.39 (-0.24 to 1.02)	2.93
Price ³⁷¹ 2008	1	125	Nervous system disorder	0.39 (0.03 to 0.74)	9.32
Sin ⁴⁰⁹ 2017	1	49	Stress disorder	0.07 (-0.49 to 0.63)	3.70
Thabrew ⁴⁴⁵ 2018	1	61	Mixed mental	0.24 (-0.27 to 0.74)	4.56
Usmani ⁴⁶⁴ 2017	1	238	Anxiety disorder	0.21 (-0.04 to 0.47)	17.87
van Dessel ⁴⁶⁹ 2014	1	72	Bodily distress disorder	0.36 (-0.11 to 0.82)	5.37
Zhao ⁵¹⁸ 2015	1	64	Psychosis	0.20 (-0.30 to 0.70)	4.67
Subtotal ($l^2 = 0.0\%$, $p = 0$.	.732)		$\overline{\diamond}$	0.21 (0.11 to 0.32)	100.00
Low					
Ali ³⁹ 2015	1	140	Aggression	0.02 (-0.32 to 0.35)	12.40
Hall ¹⁸⁸ 2018	4	1128	Pain	0.06 (-0.07 to 0.18)	17.92
Harada ¹⁹³ 2018	1	160	Addiction	0.19 (-0.25 to 0.63)	9.73
Lewis ²⁷⁵ 2018	2	221	Stress disorder	0.60 (0.08 to 1.12)	8.13
Lopez ²⁸⁶ 2018	2	64	Neurodevelopmental disorder	0.21 (-0.29 to 0.71)	8.50
Mayo-Wilson ²⁹⁹ 2013	1	115	Mixed mental	-0.06 (-0.48 to 0.36)	10.18
Olthuis ³⁴³ 2016 (GAD)	5	360	Anxiety disorder	0.57 (0.35 to 0.78)	15.65
Olthuis ³⁴³ 2016 (Panic)	4	176	Anxiety disorder	0.45 (0.15 to 0.75)	13.26
Thabrew ⁴⁴⁶ 2018	1	22	Mixed mental	-0.29 (-1.13 to 0.55)	4.21
Subtotal (<i>I</i> ² =68.1%, <i>p</i> =0	0.001)		\diamond	0.23 (0.03 to 0.42)	100.00
Note: weights are from	random-e	ffects analysis			
			-1.0 -0.5 0.0 0.5 1.0		
			-1.0 -0.5 0.0 0.5 1.0 Favours comparator Favours CBT		

FIGURE 8 The HRQoL subgroup analysis (end-point data from higher-quality reviews): CBT intensity. Note that two reviews^{32,231} that combined high- and low-intensity CBT are not included here. GAD, generalised anxiety disorder.

PMA included four meta-analyses. In this subset of direct comparisons, there was no difference between high- and low-intensity CBT (SMD 0.15, 95% CI –0.10 to 0.40; $I^2 = 0\%$) (*Figure 9*).

The direct evidence (see *Figure 9*) comparing high- with low-intensity CBT in 6B00-06: Anxiety and 6A60-80: Mood disorders supports our indirect evidence (see *Figure 8*) from subgroup analyses of high and low intensity. In summary, we have found no direct or indirect evidence that high- or low-intensity CBT produced different effect sizes.

Type of comparators

The choice of comparator had a significant effect on the treatment estimates. Comparison to an active intervention was associated with a very small effect (SMD 0.09, 95% CI –0.01 to 0.19; $l^2 = 0$ %) (*Figure 10*). The active comparators tested in these reviews were education, exercise, pharmacotherapy, physiotherapy, psychotherapy/counselling and relaxation. Comparison with a non-active control was associated with a larger effect estimate (SMD 0.31, 95% CI 0.18 to 0.45; $l^2 = 40$ %). The interaction test was statistically significant (p = 0.04).

Duration of follow-up

Effect estimates were higher in reviews reporting short-term follow-up (SMD 0.29, 95% CI 0.17 to 0.42; $l^2 = 30\%$) than in reviews reporting long-term follow-up (SMD 0.11, 95% CI 0.02 to 0.20; $l^2 = 0\%$) (*Figure 11*). However, the interaction test did not find a statistically significant difference between the groups (p = 0.06).

Age

Effect estimates were similar in reviews of children and adolescents (SMD 0.20, 95% CI –0.15 to 0.56; $l^2 = 0\%$) and adults (SMD 0.23, 95% CI 0.14 to 0.33; $l^2 = 39\%$) (*Figure 12*). However, the sample sizes were much smaller in the reviews of children and adolescents, and the consequent CIs crossed zero. The interaction test did not find a statistically significant difference between the children/adolescents and adult groups (p = 0.06). The effect size for older adults was larger (SMD 0.39, 95% CI –0.24 to 1.02), but was generated from one review, with one trial and only 39 participants, and, again, the 95% CIs crossed zero (see *Figure 12*).

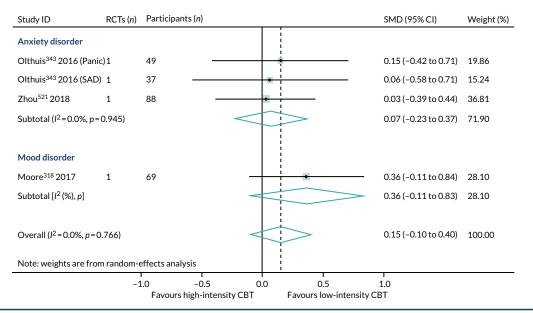


FIGURE 9 Health-related quality of life: high- vs. low-intensity CBT, direct comparison PMA. SAD, seasonal affective disorder.

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			s (n) Health category	SMD (95% CI)	Weight (
Active					
Gertler ¹⁶⁵ 2015	1	74	Mood disorder	0.06 (-0.39 to 0.52)	4.87
Hall ¹⁸⁸ 2018	4	1128	Pain 🔶	0.06 (-0.07 to 0.18)	64.57
lones ²³⁵ 2018	1	37	Psychosis 🔶	0.07 (-0.58 to 0.72)	2.38
Sin ⁴⁰⁹ 2017	1	49	Stress disorder	0.07 (-0.49 to 0.63)	3.22
Fhabrew ⁴⁴⁵ 2018	1	61	Mixed mental	0.24 (-0.27 to 0.74)	3.96
Fhabrew ⁴⁴⁶ 2018	1	22	Mixed mental	-0.29 (-1.13 to 0.55)	1.43
Jsmani ⁴⁶⁴ 2017	1	238	Anxiety disorder	0.21 (-0.04 to 0.47)	15.52
Zhao ⁵¹⁸ 2015	1	64	Psychosis	0.20 (-0.30 to 0.70)	4.05
Subtotal (I ² =0.0%, p=0).934)		\diamond	0.09 (-0.01 to 0.19)	100.00
No active					
Ali ³⁹ 2015	1	140	Aggression	0.02 (-0.32 to 0.35)	8.88
Harada ¹⁹³ 2018	1	160	Addiction	— 0.19 (-0.25 to 0.63)	6.27
jaz ²²⁰ 2018	1	242	Mood disorder	0.08 (-0.17 to 0.32)	11.66
leyanantham ²³¹ 2017	5	197	Mood disorder	0.22 (-0.06 to 0.51)	10.35
lones ²³⁶ 2018	1	28	Psychosis	• 0.84 (0.10 to 1.58)	2.78
_ewis ²⁷⁵ 2018	2	221	Stress disorder	◆ 0.60 (0.08 to 1.12)	4.94
_opez ²⁸⁶ 2018	2	64	Neurodevelopmetal disorder	0.21 (-0.29 to 0.71)	5.24
Mayo-Wilson ²⁹⁹ 2013	1	115	Mixed mental	-0.06 (-0.48 to 0.36)	6.67
Monticone ³¹⁷ 2015	1	26	Pain	• 0.83 (0.06 to 1.59)	2.62
Olthuis ³⁴³ 2016 (GAD)	5	360	Anxiety disorder	• 0.57 (0.35 to 0.78)	12.98
Olthuis ³⁴³ 2016 (Panic)	4	176	Anxiety disorder	0.45 (0.15 to 0.75)	9.85
Orgeta ³⁴⁷ 2014	1	39	Mood disorder 🔶 🔶	0.39 (-0.24 to 1.02)	3.67
Price ³⁷¹ 2008	1	125	Nervous system disorder	0.39 (0.03 to 0.74)	8.27
/an Dessel ⁴⁶⁹ 2014	1	72	Bodily distress disorder	0.36 (-0.11 to 0.82)	5.81
Subtotal (I ² = 40.3%, p =	0.059)			0.31 (0.18 to 0.45)	100.00
Note: weights are from	randoi	n-effects anal	sis		
				1.0	

FIGURE 10 The HRQoL subgroup analysis (end-point data from high-quality reviews): type of comparators. Note that three reviews^{32,63,219} with mixed active and non-active comparators are not included here. GAD, generalised anxiety disorder.

Study ID Long			i) Health category	
Hall ¹⁸⁸ 2018	4	1128	Pain —	
Hutton ²¹⁹ 2014 Ijaz ²²⁰ 2018	2 1	168 242	Psychosis Mood disorder	
Jones ²³⁵ 2018			•	-
Jones ²³⁵ 2018 Jones ²³⁶ 2018	1	37	Psychosis	
	1	28	Psychosis	•
Sin ⁴⁰⁹ 2017	1	49	Stress disorder	
Thabrew ⁴⁴⁵ 2018	1	61	Mixed mental	
Usmani ⁴⁶⁴ 2017	1	238	Anxiety disorder	
van Dessel ⁴⁶⁹ 2014	1	72	Bodily distress disorder	•
Subtotal ($I^2 = 0.0\%$, $p = 0$).606)		\sim	
Short				
Abbott ³² 2017	3	136	Pain	•
Ali ³⁹ 2015	1	140	Aggression	_
Gertler ¹⁶⁵ 2015	1	74	Mood disorder 🔶	
Harada ¹⁹³ 2018	1	160	Addiction	
Jeyanantham ²³¹ 2017	5	197	Mood disorder	<u> </u>
Lewis ²⁷⁵ 2018	2	221	Stress disorder	•
Lopez ²⁸⁶ 2018	2	64	Neurodevelopmental disorder	
Mayo-Wilson ²⁹⁹ 2013	1	115	Mixed mental	_
Monticone ³¹⁷ 2015	1	26	Pain I	•
Olthuis ³⁴³ 2016 (GAD)	5	360	Anxiety disorder	
Olthuis ³⁴³ 2016 (Panic) 4	176	Anxiety disorder	_
Orgeta ³⁴⁷ 2014	1	39	Mood disorder	•
Price ³⁷¹ 2008	1	125	Nervous system disorder	•
Thabrew ⁴⁴⁶ 2018	1	22	Mixed mental	
Zhao ⁵¹⁸ 2015	1	64	Psychosis	
Subtotal (<i>I</i> ² = 29.5%, <i>p</i> =	-			>
Note: weight are from	randon	n-effects analysis		-
			-1.0 -0.5 0.0	0.5 1.0
			Favours comparator	Favours CBT

Note that one review⁶³ with combined short- and long-term follow-up is not included here. GAD, generalised anxiety disorder.

SMD (95% CI)

0.06 (-0.07 to 0.18) 52.21 0.09 (-0.21 to 0.39)

0.07 (-0.58 to 0.72) 1.93 0.84 (0.10 to 1.58)

0.07 (-0.49 to 0.63) 2.60 0.24 (-0.27 to 0.74) 3.20 0.21 (-0.04 to 0.47) 12.55 0.36 (-0.11 to 0.82) 3.77 0.11 (0.02 to 0.20)

0.43 (-0.21 to 1.06) 3.50 0.02 (-0.32 to 0.35)

0.06 (-0.39 to 0.52) 6.01 0.19 (-0.25 to 0.63)

0.22 (-0.06 to 0.51) 11.09 0.60 (0.08 to 1.12)

0.21 (-0.29 to 0.71) 5.19 -0.06 (-0.48 to 0.36)

0.83 (0.06 to 1.59)

0.57 (0.35 to 0.78)

0.45 (0.15 to 0.75)

0.39 (-0.24 to 1.02)

0.39 (0.03 to 0.74)

-0.29 (-1.13 to 0.55)

0.20 (-0.30 to 0.70)

0.29 (0.17 to 0.42)

0.08 (-0.17 to 0.32)

Weight (%)

9.07

13.19

1.48

100.00

9.30

6.31

4.88

6.76

2.50

14.51

10.47

3.55

8.58

2.14

5.21

100.00

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³⁴⁷ Study ID	RCTs	(n) Participan	s (n) Healthy category	SMD (95% CI)	Weight (
Adults					
Ali ³⁹ 2015	1	140	Aggression	0.02 (-0.32 to 0.35)	5.48
Bernardy ⁶³ 2013	6	362	Pain	0.28 (-0.11 to 0.68)	4.35
Gertler ¹⁶⁵ 2015	1	74	Mood disorder	— 0.06 (-0.39 to 0.52)	3.55
Hall ¹⁸⁸ 2018	4	1128	Pain	0.06 (-0.07 to 0.18)	11.60
Harada ¹⁹³ 2018	1	160	Addiction	0.19 (-0.25 to 0.63)	3.73
Hutton ²¹⁹ 2014	2	168	Psychosis	0.09 (-0.21 to 0.39)	6.16
ljaz ²²⁰ 2018	1	242	Mood disorder	0.08 (-0.17 to 0.32)	7.49
Jeyanantham ²³¹ 2017	5	197	Mood disorder	— 0.22 (-0.06 to 0.51)	6.52
Jones ²³⁵ 2018	1	37	Psychosis	0.07 (-0.58 to 0.72)	1.99
Jones ²³⁶ 2018	1	28	Psychosis	• 0.84 (0.10 to 1.58)	1.58
Lewis ²⁷⁵ 2018	2	221	Stress disorder	• 0.60 (0.08 to 1.12)	2.88
Lopez ²⁸⁶ 2018	2	64	Neurodevelopmental disorder	0.21 (-0.29 to 0.71)	3.07
Mayo-Wilson ²⁹⁹ 2013	1	115	Mixed mental	-0.06 (-0.48 to 0.36)	3.39
Monticone ³¹⁷ 2015	1	26	Pain	• 0.83 (0.06 to 1.59)	1.48
Olthuis ³⁴³ 2016 (GAD)	5	360	Anxiety disorder	• 0.57 (0.35 to 0.78)	8.51
Olthuis ³⁴³ 2016 (Panic)	4	176	Anxiety disorder	0.45 (0.15 to 0.75)	6.16
Price ³⁷¹ 2008	1	125	Nervous system disorder	0.39 (0.03 to 0.74)	5.06
Sin ⁴⁰⁹ 2017	1	49	Stress disorder	0.07 (-0.49 to 0.63)	2.56
Usmani ⁴⁶⁴ 2017	1	238	Anxiety disorder	- 0.21 (-0.04 to 0.47)	7.31
van Dessel ⁴⁶⁹ 2014	1	72	Bodily distress disorder	0.36 (-0.11 to 0.82)	3.43
Zhao ⁵¹⁸ 2015	1	64	Psychosis	0.20 (-0.30 to 0.70)	3.08
Subtotal (I ² =39.4%, p=0	0.034)		$\langle \overline{\diamond} \rangle$	0.23 (0.14 to 0.33)	100.00
Children and adolescen	its				
Abbott ³² 2017	3	136	Pain	0.43 (-0.21 to 1.06)	31.71
Thabrew ⁴⁴⁵ 2018	1	61	Mixed mental	0.24 (-0.27 to 0.74)	50.14
Thabrew ⁴⁴⁶ 2018	1	22	Mixed mental	-0.29 (-1.13 to 0.55)	18.15
Subtotal ($l^2 = 0.0\%$, $p = 0$.	.400)			> 0.20 (-0.15 to 0.56)	100.00
Older adults					
Orgeta ³⁴⁷ 2014	1	39	Mood disorder	0.39 (-0.24 to 1.02)	
Subtotal [<i>l</i> ² (%), <i>p</i>]				0.39 (-0.24 to 1.02)	100.00
Note: weights are from I	random	n-effects analy	sis		
			-1.0 -0.5 0.0	т т 0.5 1.0	
			Favours comparator	Favours CBT	



Sensitivity analysis

The sensitivity analysis was conducted with an additional 10 reviews that had been rated as low or critically low on the AMSTAR-2. Therefore, the sensitivity analysis was conducted with 34 reviews (76 RCTs, 7466 participants).^{32,39,63,82,165,188,193,219,220,231,235,236,270,275,276,279,286,299,317,329,343,347,356,371,409,413,445,446,464,467, ^{469,513,518,521} Inclusion of lower-quality reviews increased the estimate of effect (SMD 0.28, 95% CI 0.17 to 0.38) and raised the levels of heterogeneity ($I^2 = 71\%$) (see *Appendix 9, Figure 15*). This analysis included reviews from more physical conditions: 13: Digestive system, 02: Neoplasms, 08: Headaches and epilepsy and 21: Symptoms such as tinnitus and fatigue (see Box 4). All of the additional within-condition group estimates were consistent with the general effect, that is, an absence of inconsistent effects.}

We re-ran the PMA replacing the physical component scores with the mental component scores from the SF-12/SF-36 in the two reviews that presented both the physical and the mental component scores.^{220,464} The replacement did not change the overall effect or heterogeneity rating for the HRQoL outcome (SMD 0.24, 95% CI 0.14 to 0.33; $l^2 = 38\%$) (see Appendix 9, Figure 16).

Health-related quality-of-life change scores and risk ratio data

Four reviews (four RCTs, 185 participants), two of higher and two of lower quality, presented HRQoL data as change scores.^{158,246,406,523} These included reviews of 6B00-06 anxiety and 6A60-80 mood disorders, 13 digestive system, 21 pain and 12 respiratory system disorders. The overall pooling reported acceptable heterogeneity and a moderate effect in favour of CBT (SMD 0.58, 95% CI 0.15 to 1.00; $l^2 = 66\%$) (see Appendix 9, Figure 17).

One lower-quality review (two RCTs, 145 participants) presented HRQoL data as a RR.¹⁷⁰ This review identified a large effect (SMD 1.57, 95% CI 0.78 to 2.37; *I*², not applicable) in favour of CBT (see *Appendix 9*, *Figure 18*).

Discussion

From the highest-quality reviews, we found that CBT produced consistent, positive effects on HRQoL across 10 different conditions. Effect estimates suggest a modest, long-term improvement, compared with no intervention. These effects became very small when CBT is compared with other active treatments, including education, exercise, pharmacotherapy, physiotherapy, psychotherapy/counselling and relaxation. We did not find a difference between the effect sizes of reviews conducted with low-intensity CBT or high-intensity CBT.

The effect estimates were generated by synthesising data from samples of children, adolescents and adults, of both sexes, mainly living in countries in Europe, North America and Australasia. There is a lack of higher-quality evidence of CBT's effectiveness for older adults.

We do not know if CBT will be effective when delivered preventatively or when delivered to patients with severe or subclinical symptoms. We do not know if CBT is equally effective across different ethnic groups nor do we know its effect for people living in countries in Africa, Asia or South America.

Depression

We identified 48 higher-quality systematic reviews^{37,39,46,50,59,63,117,126,143,167-169,175,197-199,205,206,220,221,231,234,235,246, 249,261,267,275,286,299,340,357,369,371,373,401,405,409,432,445,446,448,450,454,469,480,484,507 that met the eligibility criteria to be included in the primary depression PMA. One review included six meta-analyses for different disorders; hence, the number of comparisons is 53. These included 130 RCTs and 14,073 participants, and represent 16 out of 40 possible ICD-11 categories (40%). *Box 5* includes the ICD-11 codes represented in the primary PMA (white cells) and those codes not represented (shaded cells).}

BOX 5 The ICD-11 categories (not) represented in the primary PMA of higher-quality reviews for depression outcome

ICD-11 primary codes

- 01 Certain infectious or parasitic diseases.
- 02 Neoplasms.
- 03 Diseases of the blood.
- 04 Diseases of the immune system.
- 05 Endocrine, nutritional or metabolic diseases.
- 07 Sleep-wake disorders.
- 08 Diseases of the nervous system.
- 09 Diseases of the visual system.
- 10 Diseases of the ear or mastoid process.
- 11 Diseases of the circulatory system.
- 12 Diseases of the respiratory system.
- 13 Diseases of the digestive system.
- 14 Diseases of the skin.
- 15 Diseases of the musculoskeletal system.
- 16 Diseases of the genitourinary system.
- 17 Conditions related to sexual health.
- 18 Pregnancy, childbirth or the puerperium.
- 19 Certain conditions originating in the perinatal period.
- 20 Developmental abnormalities.
- 21 Symptoms and signs NOS (MG30 pain, MG22 fatigue).

ICD-11 secondary codes within '06 mental, behavioural or neurodevelopmental disorders'

- 6A00-06: neurodevelopmental disorders.
- 6A20-25: schizophrenia or other primary psychotic disorders.
- 6A40-41: catatonia.
- 6A60-80: mood disorders.
- 6B00-06: anxiety or fear-related disorders.
- 6B20-25: obsessive-compulsive disorders.
- 6B40-45: disorders specifically associated with stress.
- 6B60-66: dissociative disorders.
- 6B80-85: feeding or eating disorders.
- 6C00-01: elimination disorders.
- 6C20-21: disorders of bodily distress.
- 6C40-51: disorders due to substance use or addictive behaviours.
- 6C70-73: impulse control disorders.
- 6C90-91: disruptive behaviour or dissocial disorder.
- 6D10-11: personality disorders and related traits.
- 6D30-36: paraphilic disorders.
- 6D50-51: factitious disorders.
- 6D70-72: neurocognitive disorders.
- 6E20-21: mental or behavioural disorders associated with pregnancy, childbirth or the puerperium.
- 6E40: psychological or behavioural factors NOS (MB23.0 aggressive behaviour, QE01 caregiver stress).

NOS, not otherwise specified.

White rows represent ICD-11 codes represented in the primary analysis; purple shaded rows represent ICD-11 codes that are not represented in the depression PMA.

The most commonly used measure of depression was the Beck Depression Inventory (n = 22). Other measurements included the Hamilton Depression Rating Scale (n = 7), the Hospital Anxiety and Depression Scale (n = 4), the Patient Health Questionnaire-9 items (n = 2), the Montgomery–Åsberg Depression Rating Scale (n = 2), the Center for Epidemiologic Studies Depression Scale (n = 2), the Profile of Mood States (n = 1), the Depression Anxiety Stress Scale (n = 1) and the Hopkins Symptoms Checklist (n = 1). The remaining reviews used population-specific depression measures [Glasgow Depression Scale for People with a Learning Disability (n = 1), Children's Depression Inventory-revised (n = 3)].

The majority of these meta-analyses were focused on adults (37/48), with seven reviews focusing on adolescents/children and one review focusing on older people. More reviews had samples that included more female than male participants (23/48) than samples with more male than female participants (9/48). Only seven reviews reported the ethnicity of their samples. Of these, four reviews had samples with < 25% non-white participants and one included a sample with > 75% non-white participants.

The majority of reviews reported on the management of clinical conditions (26/48), on interventions of high intensity (26/48), delivered in outpatient settings (27/48), and with short-term follow-up (39/48). The majority of included RCTs in the reviews were from Europe, North America and Australasia (33/48). Many of the reviews contained only one trial (54%, 26/48), and, for some conditions, such as personality disorders, the numbers in those trials were very small (see *Appendix 10, Figure 19*).

Primary analysis

Within-condition heterogeneity (*I*²) varied between 0% (6D10-11: Personality disorders) and 86.3% (6A60-80: Mood disorders), and across-condition heterogeneity was 81%. The across-condition heterogeneity was too high for us to pool across the ICD-11 category groups (see *Appendix 10, Figure 19*). Ten of the within-condition groups reported effects in favour of CBT with some certainty. However, aggression, eating disorders, mixed mental conditions, nervous system disorders and stress-related disorders report within-condition effects of close to zero.

The heterogeneity was too high to pool across ICD-11 categories in any of the subgroup or sensitivity analyses. There was no evidence of publication bias or of small-study effects (Egger's test p = 0.87) (see Appendix 10, Figure 20).

Discussion

Depression was the most commonly reported outcome in the review evidence base. The variation between the effect estimates generated for the within-condition subgroups was too wide-ranging to pool across the ICD-11 condition groups. No further subgroup or sensitivity analyses were conducted to compare with the primary analysis.

Anxiety

We identified 34 higher-quality systematic reviews^{37,39,89,134,143,168,175,205,227,234-236,246,249,251,259,275,286,291,315,340,343,347,371, 373,397,409,432,445,446,450,464,469,480 that met the eligibility criteria. Two reviews included meta-analyses for different disorders; hence, the number of comparisons is 36. These included 59 RCTs and 4673 participants, and represent 13 out of 40 possible ICD-11 categories (33%). *Box 6* includes the ICD-11 codes represented in the primary PMA (white rows), those conditions represented in the sensitivity analysis only, namely lower-quality reviews (purple rows) and those codes not represented (orange rows).}

The most commonly used measure of anxiety was the Beck Anxiety Inventory (BAI) (n = 9). Other measurements included the Hospital Anxiety and Depression Scale (n = 6), the State–Trait Anxiety Inventory (n = 6), the Hamilton Anxiety Rating Scale (n = 1), the Hopkins Symptom Checklist (n = 1) and the Profile of Mood States (n = 1). The remaining reviews used population-specific [Glasgow Anxiety Scale for People with an Intellectual Disability, Revised Children's Manifest Anxiety Scale (n = 4)]

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BOX 6 The ICD-11 categories (not) represented in the primary PMA of higher-quality reviews for anxiety outcome

ICD-11 primary codes

- 01 Certain infectious or parasitic diseases.
- 02 Neoplasms.
- 03 Diseases of the blood.
- 04 Diseases of the immune system.
- 05 Endocrine, nutritional or metabolic diseases.
- 07 Sleep-wake disorders.
- 08 Diseases of the nervous system.
- 09 Diseases of the visual system.
- 10 Diseases of the ear or mastoid process.
- 11 Diseases of the circulatory system.
- 12 Diseases of the respiratory system.
- 13 Diseases of the digestive system.
- 14 Diseases of the skin.
- 15 Diseases of the musculoskeletal system.
- 16 Diseases of the genitourinary system.
- 17 Conditions related to sexual health.
- 18 Pregnancy, childbirth or the puerperium.
- 19 Certain conditions originating in the perinatal period.
- 20 Developmental abnormalities.
- 21 Symptoms and signs NOS (MG30 pain, MG22 fatigue).

ICD-11 secondary codes within '06 mental, behavioural or neurodevelopmental disorders'

- 6A00-06: neurodevelopmental disorders.
- 6A20-25: schizophrenia or other primary psychotic disorders.
- 6A40-41: catatonia.
- 6A60-80: mood disorders.
- 6B00-06: anxiety or fear-related disorders.
- 6B20-25: obsessive-compulsive disorders.
- 6B40-45: disorders specifically associated with stress.
- 6B60-66: dissociative disorders.
- 6B80-85: feeding or eating disorders.
- 6C00-01: elimination disorders.
- 6C20-21: disorders of bodily distress.
- 6C40-51: disorders due to substance use or addictive behaviours.
- 6C70-73: impulse control disorders.
- 6C90-91: disruptive behaviour or dissocial disorder.
- 6D10-11: personality disorders and related traits.
- 6D30-36: paraphilic disorders.
- 6D50-51: factitious disorders.
- 6D70-72: neurocognitive disorders.
- 6E20-21: mental or behavioural disorders associated with pregnancy, childbirth or the puerperium.
- 6E40: psychological or behavioural factors NOS (MB23.0 aggressive behaviour).

NOS, not otherwise specified.

White rows represent ICD-11 codes represented in the primary analysis, purple rows represent ICD-11 codes represented in the sensitivity analyses and orange rows represent ICD-11 codes that are not represented in the anxiety PMA.

or condition-specific [Generalised Anxiety Disorder-7 (n = 3), Dental Anxiety Scale, Cardiac Anxiety Questionnaire] measurements.

The majority of these meta-analyses focused on adults (23/34), with seven reviews of adolescents/ children and two reviews of older people. More reviews had samples that included more female than male participants (14/34) than samples with more male than female participants (9/34). Only five reviews reported the ethnicity of their samples. Of these, four reviews had samples with > 75% white participants and none included a sample with < 25% white participants.

The majority of reviews reported on the management of clinical conditions (20/34), on interventions of high intensity (29/34), delivered in outpatient settings (22/34), and with a short-term follow-up (27/34). The majority of included RCTs were from Europe, North America and Australasia (22/34). Out of 34 reviews, 24 contained only one trial, and, in some cases, the numbers in each trial were very low (*Figure 13* presents the data).

These analyses also included reviews with trials conducted in less common contexts and populations, for example patients with subclinical mood (6A60-80) conditions (n = 1), and CBT delivered in preventative contexts to mood disorder (6A60-80), psychosis (6A20-25) (n = 2) and inpatient psychosis patients (n = 2), and to older adults living with stress disorders (6B40-45), obsessive disorders (6B20-25), anxiety (6B00-06) and mood (6A60-80) disorders (n = 2). None of these specific reviews produced effect estimates that were inconsistent with the primary anxiety PMA.

Primary analysis

Within-condition heterogeneity varied between 0% (MG30 pain) and 75% (6B40-45 stress-related disorders) and across-condition heterogeneity was 62%. The pooled across-condition SMD gave a modest effect in favour of CBT on outcomes of anxiety (SMD 0.30, 95% CI 0.18 to 0.43) (see *Figure 13*). The prediction intervals for the overall effect were -0.28 to 0.88. No inconsistent effects were identified across the conditions.

Once again, variation in effects was observed across conditions. This heterogeneity is reflected in the resulting prediction interval, which, indicated for the overall effect (within any given condition), was between -0.28 to 0.88, indicating a possible small negative effect of CBT for some conditions and, at best, a large positive effect for other conditions.

There was no evidence of publication bias or of small-study effects (Egger's test p = 0.70) (see Appendix 11, Figure 21).

Mean difference in anxiety

We transformed the across-condition SMD into a mean difference of the most commonly reported anxiety outcome, the BAI.⁵²⁶ We identified a standard deviation (13.46 points) of the BAI from a low risk-of-bias trial⁵²⁵ in a higher-quality review.⁴⁶⁴ The SMD translated to an estimated mean difference on the BAI of 4 points (95% CI 2 to 6 points).

Subgroup analysis

None of the interaction tests between the subgroups was significant and the evidence is consistent with the primary anxiety PMA.

Cognitive-behavioural therapy intensity

Reviews of low- and high-intensity CBT examined similar populations and conditions. The ICD-11 categories that were represented by high-intensity CBT only, and not low-intensity CBT, were 6A20-25 schizophrenia or other primary psychotic disorders, 6D10-11 personality disorders and related traits, 6A00-06 neurodevelopmental disorders and 12 diseases of the respiratory system. The populations who were sampled in reviews of high-intensity CBT but not in reviews of low-intensity CBT were older adults (06B40-45 disorders specifically associated with stress, 6B20-25 obsessive-compulsive disorders,

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RESULTS: PANORAMIC META-ANALYSIS

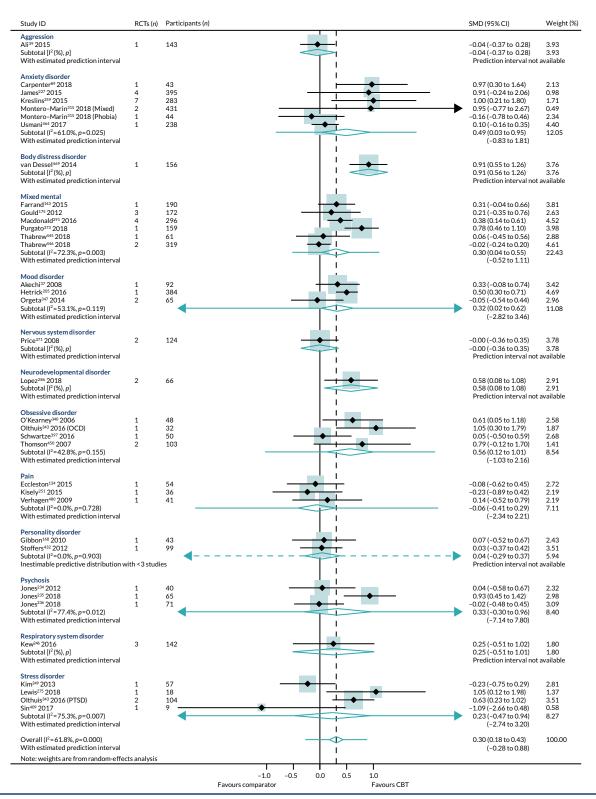


FIGURE 13 Primary analysis of the secondary outcome: anxiety from 'higher-quality' reviews. OCD, obsessive-complusive disorder; PTSD, post-traumatic stress disorder. Adapted from Fordham *et al.*⁵²⁴ © The Author(s) 2021. Published by Cambridge University Press. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

6B00-06 anxiety or fear-related disorders and 6A60-80 mood disorders) and subclinical populations (6A60-80 mood disorders). High-intensity, but not low-intensity, CBT reviews included trials delivered in preventative contexts (6A20-25 schizophrenia or other primary psychotic disorders and 6A60-80 mood disorders) and to inpatient samples (6A20-25 schizophrenia or other primary psychotic disorders).

The heterogeneity was too high to pool across the low-intensity CBT reviews ($l^2 = 78\%$). The lowintensity CBT reviews included trials examining CBT delivered via paraprofessionals (n = 3) or via the internet (n = 4). The heterogeneity was much lower in high-intensity CBT reviews (SMD 0.28, 95% CI 0.15 to 0.42; $l^2 = 54\%$). The interaction test between high- and low-intensity CBT reviews was not statistically significant (p = 0.62) (see Appendix 11, Figure 22).

We identified five reviews^{87,306,343,360,521} (11 RCTs, 503 participants) that directly compared high- with low-intensity CBT interventions on anxiety outcomes in 6B00-06: Anxiety, 6A60-80: Mood and pain [including tinnitus 21 Symptoms and signs not otherwise specified (MG30 pain)] conditions. In this subset of direct comparisons, there was no difference between high- and low-intensity CBT (SMD 0.03, 95% CI -0.14 to 0.21; $I^2 = 20\%$) (see *Appendix 11, Figure 23*). This direct evidence comparing high- with low-intensity CBT in anxiety and mood and pain conditions supports our indirect evidence (see *Appendix 11, Figure 22*) from the high- and low-intensity CBT subgroup analyses. We have found no direct or indirect evidence that high- or low-intensity CBT produce different effect sizes.

Type of comparators

The effect was larger and significant when CBT was compared with non-active comparators (SMD 0.37, 95% CI 0.19 to 0.55; $l^2 = 64\%$) and smaller and non-significant when compared with active comparators (SMD 0.19, 95% CI 0.00 to 0.37; $l^2 = 49\%$) (see *Appendix 11, Figure 24*). However, the interaction test between the two groups was not significant (p = 0.24).

Duration of follow-up

Effect estimates were higher in reviews reporting long-term follow-up (SMD 0.38, 95% CI 0.15 to 0.60; $l^2 = 66\%$) than in those reporting short-term follow-up (SMD 0.27, 95% CI 0.12 to 0.43; $l^2 = 59\%$) (see *Appendix 11, Figure 25*). However, the interaction test did not find a statistically significant difference between the groups (p = 0.48).

Age

Effect estimates were similar in reviews of children and adolescents (SMD 0.37, 95% CI 0.12 to 0.62; $l^2 = 67.1\%$) and adults (SMD 0.32, 95% CI 0.15 to 0.48; $l^2 = 63.6\%$). The estimates in the two reviews of older adults were much lower and the 95% CIs crossed zero (SMD 0.06, 95% CI -0.30 to 0.43; $l^2 = 0\%$) (see *Appendix 11*, *Figure 26*). The interaction test did not find a statistically significant difference between the three groups (p = 0.69).

Sensitivity analyses

We identified 56 reviews (117 RCTs, 11,409 participants)^{34,37,39,89,134,143,168,171,175,205,215,216,227,234-236,241,246,249,251, 259,266,275,277,286,291,294,306,315,329,340,343,347,356,371,373,377,379,397,398,409,410,413,425,429,432,445,446,450,463,464,469,480,497,513 of any quality with data suitable for inclusion in the sensitivity anxiety PMA. Five reviews had separate valid data representing different conditions; therefore, the total number of comparisons in the all-quality anxiety PMA is 64. Inclusion of lower-quality reviews increased the heterogeneity across conditions ($I^2 = 76\%$) beyond our threshold for pooling across the conditions (see *Appendix* 11, *Figure 27*). All of the ICD-11 category within-condition effects were consistent with the primary analysis for anxiety outcomes.}

Anxiety change scores/dichotomous outcomes

Four lower-quality reviews (four RCTs, 255 participants) reported anxiety outcome data as change scores.^{56,105,336,457} These included reviews of 6B00-06 anxiety, 6A60-80 mood disorders and 08 diseases of the nervous system. The heterogeneity was too high (*I*² = 88.1%) to pool across the reviews (see *Appendix 11, Figure 28*). One lower-quality review⁴³³ reported an OR (one RCT, 112 participants) and found a large effect in favour of CBT (SMD 1.01, 95% CI 0.96 to 1.06; *I*², not applicable) (see *Appendix 11, Figure 29*). One lower-quality review³³² (one RCT, 27 participants) reported a risk difference and presented a moderate effect in favour of CBT (SMD 0.36, 95% CI 0.01 to 0.71; *I*², not applicable) (see *Appendix 11, Figure 29*). There were no data that were inconsistent with the primary analysis for anxiety outcomes from any of the change score or dichotomous data.

Discussion

The primary PMA reported that CBT produces a small, but meaningful, long-term improvement in anxiety symptoms. Results from the primary, subgroup, sensitivity subgroups, change scores and dichotomous data PMAs are all consistent with the primary PMA. Some individual reviews were conducted in less frequently researched contexts (e.g. trials conducted in Africa), under-represented populations (e.g. older adults) and less frequently researched delivery formats (e.g. preventative CBT). Every review generated effect estimates that were consistent with the overall general effect.

Cognitive-behavioural therapy was effective when it was delivered via high-intensity methods, but there was too much variation to conclude whether or not CBT was effective when it was delivered via low-intensity methods. However, there were no statistically significant differences between any of the subgroup tests.

The effect estimates were generated by synthesising data from samples of children, adolescents and adults, of both sexes, mainly living in countries in Europe, North America and Australasia. There is a lack of higher-quality evidence of CBT's effectiveness for older adults.

We do not know if CBT will be effective when delivered preventatively or when delivered to patients with severe or subclinical symptoms. We do not know if CBT is effective across different ethnic groups nor do we know its effect for people living in countries in Africa, Asia or South America.

Pain

We identified 10 higher-quality systematic reviews^{32,68,102,134,149,188,211,251,317,446} that met the eligibility criteria. These included 22 RCTs (2581 participants) and represent 5 out of 40 possible ICD-11 categories (13%). *Box 7* presents the ICD-11 codes represented in the primary PMA (white rows), those codes represented in the sensitivity analysis (i.e. lower-quality reviews) (purple rows) and those codes not represented (orange rows).

The most commonly used measure of pain was the 100-mm visual analogue scale (VAS) (n = 6). Other measurements included the numerical rating scale of pain intensity (n = 3), the Wong-Baker Faces Pain Rating Scale (n = 2), the modified von Korff scale (n = 1), the Chronic Pain Grade questionnaire (n = 1) and the McGill Pain Questionnaire (n = 1).

The majority of these meta-analyses were focused on adults (6/10),^{102,134,149,188,211,317} three reviews focused on adolescents/children^{32,68,446} and one review did not report the age of the samples.²⁵¹ All of the reviews included samples that were equally balanced between male and female participants. Only one review⁶³ reported the ethnicity of its samples (> 75% white participants).

Two reviews specified examining CBT in patients with chronic symptoms of pain, anxiety and mood conditions. Half of the reviews examined high-intensity and half of the reviews examined low-intensity CBT. One review examined using CBT to prevent pain developing post orthodontic treatments, but all the others were using CBT in response to diagnosed problems. Two reviews observed the use of CBT for inpatients with pain conditions, whereas the remaining reviews examined CBT in outpatient/community settings. Three reviews included long-term follow-ups (abdominal pain, back pain, anxiety and mood disorders). Four reviews included only one trial, and five reviews included < 100 participants (*Figure 14*).

Primary analysis

The across-condition heterogeneity was 64% and the pooled across-condition SMD gave a modest effect in favour of CBT on outcomes of pain (SMD 0.23, 95% CI 0.05 to 0.41) (see *Figure 14*). The prediction intervals for the overall effect were -0.28 to 0.74.

BOX 7 The ICD-11 categories (not) represented in the primary PMA of higher-quality reviews for the pain outcome

	01 Certain infectious or parasitic diseases.
	02 Neoplasms.
	03 Diseases of the blood.
	04 Diseases of the immune system.
	05 Endocrine, nutritional or metabolic diseases.
	07 Sleep-wake disorders.
	08 Diseases of the nervous system (only lower-quality reviews).
	09 Diseases of the visual system.
	10 Diseases of the ear or mastoid process.
	11 Diseases of the circulatory system.
	12 Diseases of the respiratory system.
	13 Diseases of the digestive system [DA01.11 oral mucositis (related to cancer treatments)].
	14 Diseases of the skin.
	15 Diseases of the musculoskeletal system (FA00–05 osteoarthritis).
	16 Diseases of the genitourinary system.
	17 Conditions related to sexual health.
	18 Pregnancy, childbirth or the puerperium.
	19 Certain conditions originating in the perinatal period.
	20 Developmental abnormalities.
	21 Symptoms and signs NOS (MG30 pain).
	6A20-25: schizophrenia or other primary psychotic disorders. 6A40-41: catatonia.
	6A40-41: catatonia.
	6A60-80: mood disorders.
	6B00-06: anxiety or fear-related disorders.
	6B20-25: obsessive-compulsive disorders.
	6B40-45: disorders specifically associated with stress.
	6B60-66: dissociative disorders.
	6B80-85: feeding or eating disorders.
	6C00-01: elimination disorders.
	6C20-21: disorders of bodily distress.
	6C40-51: disorders due to substance use or addictive behaviours.
	6C70-73: impulse control disorders.
	6C90-91: disruptive behaviour or dissocial disorder.
	6D10-11: personality disorders and related traits.
	6D30-36: paraphilic disorders.
	6D50-51: factitious disorders.
	6D70-72: neurocognitive disorders.
	6E20-21: mental or behavioural disorders associated with pregnancy, childbirth or the puerperium.
	6E40: psychological or behavioural factors NOS.
	hite rows represent ICD-11 codes represented in the primary analysis, purple shaded rows represen
/ł	
	D-11 codes represented in the sensitivity analyses and orange shaded rows represent ICD-11 codes
][D-11 codes represented in the sensitivity analyses and orange shaded rows represent ICD-11 codes e not represented in the pain PMA.

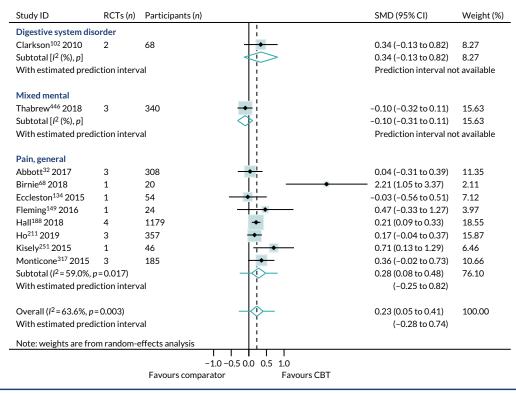


FIGURE 14 Primary analysis of the secondary outcome: pain from 'higher-quality' reviews. Adapted from Fordham *et al.*⁵²⁴ © The Author(s) 2021. Published by Cambridge University Press. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

There was no evidence of publication bias, nor of small-study effects (Eggers test p = 0.19) (see Appendix 12, Figure 30).

Mean difference in pain

We transformed the across-condition SMD into a mean difference of the most commonly reported pain outcome, the 100-mm VAS. We identified a standard deviation (27 mm) of the VAS from a trial⁵²⁷ with a low risk of bias in a higher-quality review.³² The SMD translated to an estimated mean difference on the VAS of 6 mm (95% Cl 1 to 11 mm).

Subgroup analysis

There were no statistically significant interaction effects between any subgroups; therefore, the evidence is consistent with the primary analysis.

Cognitive-behavioural intensity

High- and low-intensity CBT was examined in both children/adolescent and adult populations. The only review¹⁴⁹ of preventative CBT delivered low-intensity treatment. There were no other differences in the populations or contexts tested with high- and low-intensity CBT.

The heterogeneity was too high to pool separately across the low-intensity CBT reviews ($I^2 = 84\%$). The low-intensity CBT reviews included trials examining CBT delivered by paraprofessionals (n = 4), through self-help tools (n = 6). The heterogeneity was much lower in high-intensity CBT reviews (SMD 0.19, 95% CI 0.01 to 0.37; $I^2 = 18\%$) (see Appendix 12, Figure 31). The interaction test between high- and low-intensity reviews was not statistically significant (p = 0.87).

No reviews directly compared the effectiveness of low-intensity compared with high-intensity CBT on pain outcomes. Therefore, no direct evidence is available to compare with our indirect evidence.

Type of comparators

The effect was larger when CBT was compared with non-active comparators (SMD 0.59, 95% CI 0.07 to 1.11; $l^2 = 69\%$) and was very small when compared with active comparators (SMD 0.14, 95% CI -0.11 to 0.38; $l^2 = 73\%$) (see Appendix 12, Figure 32). However, the difference between the two groups was not statistically significant when tested with the interaction test (p = 0.86).

Duration of follow-up

Effect estimates were higher in reviews reporting short-term follow-up (0.32, 95% CI 0.04 to 0.59; $l^2 = 70.5\%$) than in reviews reporting long-term follow-up (0.19, 95% CI 0.08 to 0.31; $l^2 = 0\%$) (see *Appendix 12, Figure 33*). However, the interaction test did not find a statistically significant difference between the groups (p = 0.62).

Age

The effect estimates extracted from reviews conducted in children and adolescent populations were too varied ($I^2 = 87\%$) to justify pooling across them. Conversely, there was 0% heterogeneity between the reviews in adult populations and the pooled effect was modest (SMD 0.21, 95% CI 0.12 to 0.31; $I^2 = 0\%$) (see Appendix 12, Figure 34). The interaction test between (1) children and adolescents and (2) adults did not find a significant difference between these groups (p = 0.68).

Sensitivity analysis

We identified 16 reviews (19 comparisons, 39 RCTs, 4592 participants)^{32,68,102,134,149,188,211,222,251,266,306,317,348, 413,446,473} of any quality with data suitable for inclusion in the sensitivity pain PMA. This introduced 08: Nervous system disorders into the analysis. In the sensitivity analysis, all of the ICD-11 within-condition groups were consistent with the primary analysis for pain outcomes. Inclusion of lower-quality reviews marginally reduced the estimate of effect and heterogeneity (SMD 0.21, 95% CI 0.11 to 0.31; $I^2 = 51\%$), compared with the primary PMA (see *Appendix 12, Figure 35*).

Pain change scores/dichotomous data

The reviews that reported dichotomous data were consistent with the primary analysis. One lower-quality review, Palermo *et al.*,³⁵⁴ presented pain outcome data as ORs. This review demonstrated a non-significant effect for CBT (SMD 7.99, 95% CI –2.72 to 18.70) (see *Appendix 12*, *Figure 36*). One lower-quality review, Bernardy *et al.*,⁶⁴ reported pain outcome data as risk differences and showed a non-significant effect for CBT (SMD 0.08, 95% CI –0.03 to 0.19) (see *Appendix 12*, *Figure 36*).

Discussion

From a smaller data set of the highest-quality reviews, we found that CBT produced consistent improvements in pain outcomes across six different conditions. Effect estimates suggest a modest long-term improvement in comparison with any other comparator intervention. We did not find a difference in the effect sizes between reviews conducted with low-intensity CBT and those conducted with high-intensity CBT.

The effect estimates were generated by synthesising data from samples of children, adolescents and adults, of both sexes, mainly living in countries in Europe, North America and Australasia. To our knowledge, there is no higher-quality evidence of CBT's effectiveness for older adults.

The included reviews presented evidence to suggest that CBT can improve pain outcomes when CBT is delivered preventatively to patients with chronic or subclinical symptoms, but there is no evidence regarding severe symptoms. We do not know if CBT is equally effective across different ethnic groups, nor do we know its effect for people living in countries in Africa, Asia or South America.

Chapter 6 Generalisation

One of the aims of the project was to consider the extent to which the existing evidence base could be used to guide treatment, commissioning and research investment decisions.

This necessitated a layer of questions:

 In the existing evidence base of systematic reviews, is there evidence of a general effect of CBT across different conditions (categorised by the ICD-11)?

Yes. Our PMA analyses (see *Chapter 5*) concluded that CBT does produce a general effect across conditions. We were able to meet the criteria of statistical, intervention and design homogeneity for our primary outcome of HRQoL, and two out of three secondary outcomes (anxiety and pain). We can feel confident in generalising the effect across these condition categories.

 Can we assume that this effect is robust across all the specific conditions represented in each ICD-11 code?

In our methodology, we classified physical conditions at the primary ICD-11 code level and mental conditions at the secondary level. In each category, there are many subconditions. For some ICD-11 categories, such as musculoskeletal diseases (15), we have reviews representing three (arthropathies, spine conditions and osteopathies) of the five subcategories, whereas for others, such as respiratory disorders (12), we have reviews representing only one subcategory [lower respiratory tract diseases: asthma and chronic obstructive pulmonary disease (COPD)] out of six. We suggest that, as we found no evidence of inconsistent evidence, the effect of CBT will remain consistent across all conditions subsumed beneath each ICD-11 category. The consistency of effect mirrors and reassures the CBT field's move towards transdiagnostic approaches. For example, literature suggests that a transdiagnostic manual is equally effective as condition-specific manuals for treating patients with all types of eating disorders (anorexia, bulimia, binge-eating and eating disorders not otherwise specified).⁵²⁸ The benefit of using a transdiagnostic approach is that it is suitable for people with multiple conditions. Our PPI representatives suggested that this was a very important point, particularly because, with an ageing population, more and more people will live with multiple comorbidities.

 Can we assume that this general effect is robust across conditions (ICD-11) that are represented by lower-quality reviews only?

Yes. We performed sensitivity analyses and found that the inclusion of lower-quality reviews increased the heterogeneity of review effect estimates, but did not alter the SMD. We can feel confident in generalising the effect across higher- and lower-quality systematic review evidence.

- Can we assume that our general effect is robust across the populations and contexts? Yes. We found no evidence of inconsistency in effect. We mapped the population and context details of the included reviews. We found no reviews, condition analyses or subgroup analyses that reported a statistically significant effect in favour of the comparator over CBT. *Table 4* details the population, context and conditions of the reviews included in the primary HRQoL analyses. We identified each review from those populations or contexts that were under-represented and presented the individual review effect estimate. None of the individual or pooled meta-analyses produced an estimate that was inconsistent with the general effect of CBT on HRQoL.
- Can we infer that this treatment effect might be observed across conditions that are not included in the current systematic review evidence base?
 Our systematic approach meant that we classified reviews by the primary condition that the CBT was aiming to treat. For example, if a review examined the use of CBT to reduce symptoms of depression [i.e. a mood disorder (6A60-80)] in patients with COPD (12: respiratory disorder), then the review was classified as a review of the effectiveness of CBT for 6A60-80: Mood disorders with comorbid 12: Respiratory disorder (COPD). However, if CBT improves HRQoL in patients with mood disorders and comorbid COPD, then CBT is also improving quality of life for COPD patients. As quality of reviews did not affect the general effect, we generated a list of conditions for which CBT is effective from those reviews included in the sensitivity analyses. The following comorbid conditions are represented in the HRQoL, anxiety and pain outcome

sensitivity analyses, but not represented in the primary list of conditions: intellectual disabilities (6A00-4), brain injury (6D70-2), dementia (6D70-2), migraines (08), epilepsy (08), circulatory diseases (11), COPD (12), irritable bowel syndrome (13), arthritis (15), tinnitus (21) and fatigue (21). Therefore, we conclude that CBT's effect is consistent across 22 out of 40 ICD-11 codes (55%), as presented in *Box 8*.

TABLE 4 Details of the population, context and conditions of the reviews included in the primary HRQoL PMA

Generalisation parameter	Details from the included reviews	
Condition		
Severity of symptoms	Most reviews examined the effect of CBT in patients who received a clinical diagnosis. Three reviews examined the effectiveness of CBT specifically for patients with chronic symptoms and found consistent effects:	
	 Mood disorders - SMD 0.08 (95% CI -0.17 to 0.32)²²⁰ Anxiety disorder - SMD -0.29 (95% CI -1.13 to 0.55)⁴⁴⁶ Pain - SMD 0.83 (95% CI 0.06 to 1.59)³¹⁷ 	
Population		
Age	Reviews were conducted with children and adolescents (3/24) living with anxiety and/or mood ^{445,446} and pain ³² conditions and older adults with mood disorders (1/24) ³⁴⁷ and adults (20/24) in nine different conditions (including anxiety, mood and pain conditions). The age subgroup analysis (see <i>Chapter 5</i>) did not identify a difference between children/adolescents and adults. The older adult review produced a consistent, but uncertain, effect (0.39, 95% CI –0.24 to 1.02) ³⁴⁷	
Sex	The majority of the reviews were conducted with samples that were equally represented by male and female participants (21/24 reviews). One review of patients with neck pain had a female participant sample of > 75% and reported a consistent but uncertain effect (0.28, 95% CI -0.11 to 0.68). ⁶³ Two reviews reported samples with > 75% male participants. The review conducted in anxiety reported an uncertain but consistent effect (0.21, 95% CI -0.04 to 0.47). ⁴⁶⁴ The effect was the same for the review conducted in bodily distress (0.36, 95% CI -0.11 to 0.82) ⁴⁶⁹	
Ethnicity	Very few reviews reported the ethnicity of their samples. Of the five reviews that did, four included $> 75\%$ white participants. These all produced consistent evidence:	
	 In pain conditions - SMD 0.28 (95% CI -0.11 to 0.68)⁶³ In anxiety and mood conditions - SMD 0.24 (95% CI -0.27 to 0.74),⁴⁴⁵ SMD -0.29 (95% CI -1.13 to 0.55)⁴⁴⁶ and SMD 0.21 (95% CI -0.04 to 0.47)⁴⁶⁴ 	
	Only one review reported a $< 25\%$ white participant sample. This was conducted in anxiety and obsessive–compulsive conditions (-0.06, 95% CI -0.48 to 0.36) ²⁹⁹	
Context		
Country	Five reviews included trials that were conducted in Asia. These were conducted in:	
	 Psychosis – SMD 0.07 (95% CI –0.58 to 0.72),²³⁵ SMD 0.84 (95% CI 0.10 to 1.58)²³⁶ 	
	 Stress disorders - SMD 0.60 (95% CI 0.08 to 1.12)²⁷⁵ Anxiety and obsessive-compulsive disorders - SMD -0.06 (95% CI -0.48 to 0.36)²⁹⁹ Anxiety and mood disorders - SMD 0.24 (95% CI -0.27 to 0.74)⁴⁴⁵ 	
	All other trials included in the reviews were conducted in Europe, North America and Australasia	
Health-care setting	Only five reviews recruited participants from inpatient settings. These were conducted in:	
	 Mood disorders - SMD 0.22 (95% CI -0.06 to 0.51)²³¹ Psychosis - SMD 0.07 (95% CI -0.58 to 0.72);²³⁵ SMD 0.84 (95% CI 0.10 to 1.58);²³⁶ SMD 0.23 (95% CI 0.14 to 0.33)⁵¹⁸ Anxiety disorders - SMD 0.21 (95% CI -0.04 to 0.47)⁴⁶⁴ 	
	All other review samples were recruited from community, primary and outpatient settings	
Health-care timing	One review implemented CBT as a preventative intervention for patients with schizophrenia (0.09, 95% CI –0.21 to 0.39). ²¹⁹ The other reviews examined CBT delivered as a standard treatment	
Note HRQoL general effect 0.23 (95% CI 0.14 to 0.33; $l^2 = 32\%$) across 24 reviews, 49 RCTS, 4304 participants.		

BOX 8 The ICD-11 codes represented by primary and comorbid conditions in the higher- and lower-quality reviews in the HRQoL, anxiety and pain PMAs

ICD-11 primary codes

- 01 Certain infectious or parasitic diseases (1C60-62: HIV).
- 02 Neoplasms.
- 03 Diseases of the blood.
- 04 Diseases of the immune system.
- 05 Endocrine, nutritional or metabolic diseases.
- 07 Sleep-wake disorders.
- 08 Diseases of the nervous system.
- 09 Diseases of the visual system.
- 10 Diseases of the ear or mastoid process.
- 11 Diseases of the circulatory system.
- 12 Diseases of the respiratory system.
- 13 Diseases of the digestive system.
- 14 Diseases of the skin.
- 15 Diseases of the musculoskeletal system.
- 16 Diseases of the genitourinary system (GA33 pregnancy loss).
- 17 Conditions related to sexual health.
- 18 Pregnancy, childbirth or the puerperium.
- 19 Certain conditions originating in the perinatal period.
- 20 Developmental abnormalities.
- 21 Symptoms and signs NOS (MG30 pain, MG22 fatigue, MC41 tinnitus).

ICD-11 secondary codes within '06 mental, behavioural or neurodevelopmental disorders'

- 6A00-06: neurodevelopmental disorders (6A02 autism, 6A00 intellectual disability and 6A05 ADHD).
- 6A20-25: schizophrenia or other primary psychotic disorders.
- 6A40-41: catatonia.
- 6A60-80: mood disorders.
- 6B00-06: anxiety or fear-related disorders.
- 6B20-25: obsessive-compulsive disorders.
- 6B40-45: disorders specifically associated with stress.
- 6B60-66: dissociative disorders.
- 6B80-85: feeding or eating disorders.
- 6C00-01: elimination disorders.
- 6C20-21: disorders of bodily distress.
- 6C40-51: disorders due to substance use or addictive behaviours.
- 6C70-73: impulse control disorders.
- 6C90-91: disruptive behaviour or dissocial disorder.
- 6D10-11: personality disorders and related traits.
- 6D30-36: paraphilic disorders.
- 6D50-51: factitious disorders.
- 6D70-72: neurocognitive disorders (6D80-86: dementia).
- 6E20-21: mental or behavioural disorders associated with pregnancy, childbirth or the puerperium.
- 6E40: psychological or behavioural factors NOS (MB23.0 aggressive behaviour).

HIV, human immunodeficiency virus; NOS, not otherwise specified. Purple shaded rows indicate the ICD-11 categories that are not represented in any of the PMAs. To generalise beyond the conditions and comorbidities represented in this overview is a challenging area for CBT, in which there are a diverse range of strongly held perspectives. We specified a priori that we would use a model of generalisation^{529,530} to guide our thinking, which necessitated that the evidence met three assumptions:

- 1. Statistical homogeneity in the systematic reviews being used to generate the estimate of effect. This was fulfilled.
- 2. Clinical homogeneity populations and contexts represented in the overview represent the contexts to which the generalisation is being made.
- 3. Shared mechanisms of action, which is the assumption that CBT effects change by changing the same or similar mediating variables across all conditions.

This would mean that, to assume an effect of CBT on HRQoL in a condition that has no systematic review evidence, there should be evidence of a general effect on HRQoL among similar patients, contexts and settings (i.e. there is no reason to believe that the treatment should work differently or be harmful). For the final assumption of shared mechanisms to be met, the highest level of evidence we would seek is that that from multiple mediation analyses.

As described, the ECG met on several occasions. We collectively agreed on the criteria for statistical homogeneity and the importance of consistency of effects, and that these were met in the PMA. For clinical homogeneity, we agreed the data extraction variables and framework, and were able to demonstrate where there is adequate evidence on context and where there is not adequate evidence (see *Table 4*). We demonstrated consistent effects for children, adolescents and adults, of both sexes, with clinical diagnoses, living in Europe, North America and Australasia, being treated in community, primary and secondary care settings with CBT being delivered in response to a diagnosis. However, there was less certainty for older adults, with subclinical, chronic or severe symptoms, living in Asia, Africa or South America, being treated in an inpatient setting or receiving CBT preventatively.

We did not search specifically for systematic reviews of mediation studies. At a basic level, the ECG and investigators were able to agree that the principles of CBT are the same regardless of the condition, namely that we intervene to modify thoughts and feelings, to influence behaviours and, ultimately, to improve health outcomes. The challenge is that the range of thoughts, feelings and behaviours is quite wide, and the ECG and investigators were unable to agree that CBT works through the same therapeutic mechanisms for every condition for which it has been used. The ECG recommended that future research should target identifying what the mechanisms of CBT are for each population. If these mechanisms could improve symptoms in other populations, then the evidence for effectiveness could be meaningfully generalised across the conditions. This will be a judgement call and there are likely to be situations in which details on mechanisms are available and similar to those included in reviews, and that the context and characteristics align to provide confidence in broader generalisation. The ECG suggested that a systematic review of mediation studies of CBT would be helpful in this respect, but this was outside the scope of this study.

Chapter 7 Discussion

Principal findings and their meaning

Cognitive-behavioural therapy has been evaluated (with systematic reviews) in most conditions (68%, 27/40 of ICD-11 categories). These reviews have summarised the RCT evidence of whether or not CBT improved outcomes in these conditions. The review estimates were similar enough between the different conditions for us to generate a general (as opposed to a condition-specific) effect estimate. We found that CBT produced a modest general benefit to HRQoL, anxiety and pain outcomes. The evidence was consistent across all 22 out of 40 (55%) conditions (and comorbidities), populations and contexts that have been tested.

The estimates for depression outcomes between conditions were too different; therefore, we could not produce a pooled general effect estimate. Although there were many more reviews in the depression PMA, the reviews used fewer different outcome measurements than in HRQoL, anxiety and pain PMAs. Therefore, it is unlikely that the high heterogeneity is due to the variation in the outcome measurements used. CBT has been shown to be very effective for people with clinical depression.^{531,532} Our overview does not suggest that CBT is not effective for symptoms of depression, only that there was a great variation in how effective it was for changing depression symptoms across different conditions.

Cognitive-behavioural therapy was effective whether it was delivered in high- or low-intensity formats. This is not to imply that CBT can be delivered in high- or low-intensity formats interchangeably. The findings simply state that when low-intensity CBT has been tested in RCTs and synthesised into reviews, we found that it improved HRQoL, anxiety and pain outcomes. This adds strength to the argument that the mechanisms by which CBT is effective remain effective when delivered via high- or low-intensity formats.

Cognitive-behavioural therapy was effective in the short and long term. However, there was a paucity of reporting on the longer-term follow-ups (i.e. > 5 years post intervention); therefore, we have not captured the importance of relapse. We highlighted in the mapping exercise that there is a paucity of systematic review evidence regarding relapse prevention; this is an essential consideration to take into account when interpreting these findings.

When we pooled reviews that compared CBT with active interventions (e.g. pharmacotherapy, psychotherapy, exercise, education or relaxation), the effect estimates became very small. We found a significant interaction in the HRQoL analyses between those reviews that compared CBT with an active comparator and those that compared CBT with an inactive comparator. This could suggest that CBT and these other active interventions share mechanisms that improve HRQoL for patients.

We assume that CBT will help children, adolescents and adults, but we are uncertain as to how much it will help older adults, as there is less available evidence for this age population. We feel confident that CBT will be equally effective for male and female participants. The evidence base over-represents people who live in Europe, North America and Australasia, and poorly reports the ethnicity of the samples in the reviews. Consequently, we do not know if the effects will translate across people of different ethnicities in Europe, North America or Australasia or, to people who live in Asia, Africa or South America.

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Strengths

When an individual systematic review pools evidence across many trials, the sample sizes can remain small. Small sample sizes mean that the effect estimate is less certain. One of the major strengths of this overview is that, by pooling data from many reviews across conditions, we become more certain of the effect estimates. Our HRQoL and anxiety outcome estimates include > 4000 participants, which guidance suggests indicates a certain effect.⁵³³

To maintain the lowest risk of bias and the greatest design homogeneity, we conducted our primary analyses with the highest-quality (rated 'moderate' or 'high' on the AMSTAR-2 checklist) reviews. The most common criticism of all the reviews was that we, as readers, could not access a review protocol to check if the authors had performed what they had intended to perform and had not simply 'cherry-picked' results to present in the review publication. Another common problem was reviews not reporting the reasons why they excluded trials from their review. Without this information, we cannot check if there was any bias towards including some, but not other, trials. Our sensitivity analyses suggest that the higher-quality reviews report consistent findings (less heterogeneity), compared with poorer-quality reviews, but the quality of the reviews did not alter the effect estimates.

As the inclusion of the lower-quality reviews did not alter the effect estimates, we concluded that the general effect is consistent across conditions represented by higher- and lower-quality reviews. We also suggested that the effect could be generalised to comorbid conditions represented by these reviews. Consequently, the general effect can be generalised to over half (55%) of all conditions represented in the ICD-11.

Weaknesses

The main methodological weakness was due to our restriction in remaining at the review level, as opposed to including RCT-level extraction and analysis. The mapping exercise identified 494 reviews. Of these, 279 were not included in the PMA because we could not extract the purely CBT RCT evidence. For example, a review that synthesised 10 CBT RCTs with three non-RCTs would be excluded from the PMA unless the review had presented any of the purely RCT evidence in isolation (even if it was one single RCT, which we could include). Similarly, if a review included 30 CBT RCTs combined with six mindfulness-based cognitive therapy RCTs, then this would have been excluded unless the review also presented a separate CBT subgroup analysis. The only way we would have been able to include these RCTs would have been to return to the original RCTs, extract the data and perform a meta-analysis of those data for entry into the PMA. This was a conflicting decision. The evidence base was so large that we did not have the resources to perform RCT-level extraction or analysis, but this was at the expense of many RCTs being excluded from the PMAs.

Another consequence of remaining at the review level was the limitation of the quality assessments. A review of high quality may include RCTs judged to have a high risk of bias. Without performing additional RCT-level assessment and a separate analysis of RCTs with low risks of bias, we could not restrict the data to the best-quality RCT-level data.

This overview does not examine the health economics of the CBT evidence base, which is an essential element of commissioning and is the context of evidence-based medicine. We could not perform this analysis because it was beyond the scope of this current overview.

Our method for classifying reviews was to represent each review in one ICD-11 code. We classified the review by the primary condition the CBT was being used to treat. For example, a review of CBT for depression in COPD patients was classified as a review of CBT for depression with comorbid COPD. This meant that we could not reflect the multimorbidity represented in these reviews.

A total of 158 out of 494 reviews included a comorbid condition such as alcohol abuse or dementia. Our methodology means that we have under-represented the number of different conditions for which CBT has been used to improve HRQoL and reduce symptoms of depression, anxiety and pain.

We have mapped the systematic review data across each condition and by the following groups: 'who' (populations with different clinical severity), 'what' (the CBT intensity format) and 'when' (delivered at what time, i.e. preventatively, in response to clinical diagnosis or as a relapse prevention). We were restricted to reporting and analysing the review-level data. Reviews often combined RCTs conducted across multiple subgroups. We did not perform RCT-level exploration of the subgroups, which limits the accuracy of our findings.

Our indirect (intensity subgroup analyses) and direct (high- compared with low-intensity CBT reviews) evidence suggested no difference in effectiveness between using high-intensity and using low-intensity CBT. However, although reviews of high-intensity CBT produced broadly similar estimates of CBT's effectiveness, the estimates from low-intensity reviews varied widely. The large variation in the low-intensity CBT estimates may be due to our definition of low-intensity CBT.¹ We combined face-to-face delivery of CBT by paraprofessionals with self-help delivery of CBT (e.g. internet CBT). Future subgroup analyses could test if these two methods of delivery moderate the effectiveness of CBT.

When a review did not report how CBT was delivered in the included trials (i.e. high- or low-intensity CBT), we assumed that it was delivered face to face by a specialist (high intensity). We made this assumption because high-intensity CBT was the original and most common delivery method. When we developed our data extraction methods, we checked the trials in reviews that did not specify the CBT intensity. We found that these trials had tested high-intensity CBT. However, we did not check the included trials for every review included in our overview; therefore, this assumption may have led to us over-representing high-intensity CBT.

We made another assumption, whereby, if a review did not specify the time when the follow-up data were collected, we presumed that it was short term (< 12 months post intervention). We made this assumption because the majority of trials employed short-term follow-ups. However, as before, this assumption may be incorrect for some reviews.

Although most reviews estimated their effects with a random-effects meta-analysis, a few used a fixedeffects approach. We made an assumption that the within-review variability had been appropriately allowed for. If this assumption was incorrect, then our results might underestimate the amount of variation within conditions.

To make a meaningful interpretation of our effect estimates, we transformed them into mean differences using the standard deviation of the target outcome measure. If the value of this standard deviation is not a good approximate to the true standard deviation for this outcome, we might be underestimating or overestimating the effect size for each outcome considered.

We used techniques, such as using workbooks to record personal reflections, in the ECG meetings to ensure that each member could contribute equally. However, the debates often became polarised between academic discussions. Nevertheless, talking to PPI representatives more informally and during breaks generated rich feedback that helped the research group. On reflection, we should have included a formal forum at the end of each ECG meeting in which every member could summarise the day's discussion and ask specific questions.

Implications

We have high-quality systematic review evidence, which demonstrates that, in comparison to no intervention, CBT improves HRQoL, anxiety and pain outcomes by a modest amount. This includes CBT that is delivered through low- and high-intensity formats. The benefit has been consistent in every condition, population and context in which it has been tested and synthesised into a systematic review. There are some conditions and contexts in which we are less certain about generalising the estimates from the PMA. These include conditions for which there is no similar condition already included in the review (e.g. vision impairments), or if CBT is being applied in contexts that we believe will vary substantially because of, among other things, cultural issues and health beliefs.

We have used a framework of broader generalisation that has considered pathophysiological rationale alongside the traditional quality indicators used in evidence-based medicine.^{534,535} The early proponents of evidence-based medicine were more subtle in their approach, and demanded that values, circumstances, expertise and even pathophysiologic rationale be considered, especially when generalising evidence from clinical trials.^{536,537} The most prominent evidence-based medicine rule of evidence is the GRADE system, which does not allow any role for pathophysiologic rationale at all, even though it does allow for recommendations to populations outside the trial (generalising).⁵ We suggested that using the results of the PMA alongside knowledge of mechanistic actions of CBT in particular situations may enable the generalisation of this effective treatment (CBT) to a greater range of physical and mental conditions (and hence patients).

Chapter 8 Conclusion

C ognitive-behavioural therapy can help patients cope with the challenges of living with mental and physical conditions. We have found that it consistently improves quality of life and reduces anxiety and pain symptoms for people living with many different conditions across the 19 ICD-11 categories for which we have systematic review evidence. CBT has been tested in many different populations and contexts, and all these reviews report effects that are consistent with our general effects. High- and low-intensity CBT appear to be equally effective. The biggest area of uncertainty is around whether sociological constructs, such as ethnicity, religion, culture, country or language, could moderate the effectiveness of CBT or whether it will be equally effective across these constructs. We suggest that CBT will be effective for the conditions represented in the ICD-11 codes we have represented in the overview. However, we are unclear if the general effect can be applied to conditions that are not represented at all in the overview.

Chapter 9 Recommendations

Future research

The overview suggests a general benefit of CBT in physical and mental conditions. However, we also identified some unanswered questions. These are not presented in an order of priority:

- We do not know what the mediating variables for CBT's effectiveness are, nor do we know whether or not these are different across conditions. We recommend a review or an overview of CBT mechanisms across conditions.
- We do not know the longer-term effects of CBT. Reviews of CBT trials that monitor their participants over ≥ 5 years, and that account for the relapse in patients, are needed to see if the effects remain across all conditions.
- We found that CBT produced a modest benefit in HRQoL, anxiety and pain outcomes. Clinical research should focus on identifying how these effects from CBT can be magnified. For example
 - Examining if the delivery of CBT can be modified to increase adherence and reduce dropouts (e.g. examining if the location of therapy delivery influences attendance rates).
 - Prioritising assessments of treatment fidelity and quality to check whether or not the therapists delivering CBT are adhering to the same core CBT principles.¹ A novel method to check the content of face-to-face CBT consultations is to use artificial intelligence to monitor if a therapist has used a core CBT technique.
- We were not confident to recommend that CBT would work equally for older adults because of an absence of evidence. We are aware of new reviews and existing trials that suggest that CBT will be equally effective for older adults (aged > 65 years).⁵³⁸ For example, a large, recent review found that the effects for psychotherapy (including CBT) on depression outcomes were equal between adults (aged 24–55 years), older adults (aged 55–75 years) and the oldest adults (aged > 75 years old).⁵³⁸
- We were unsure, owing to a lack of reporting on ethnicity of trial samples, whether or not CBT would be equally effective across ethnic groups. Another review of psychotherapy (including CBT) on depression outcomes between racial/ethnic groups concluded that race/ethnicity did not moderate the effectiveness of psychotherapy. However, authors highlight the problems of defining an ethnic group and encourage future research to include country of residence, language, religion and race in a definition of ethnicity.⁵³⁹
- Owing to an absence of evidence of trials conducted in Africa, Asia and South America, we were unsure if the general effects of CBT would apply to people living in those countries. The overview excluded reviews not published in English. Future research could prioritise reviews of CBT that include trials conducted in Africa, Asia or South America to see if the effects are the same as they have been in Europe, North America and Australasia.

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Cognitive Behavioural Therapy – Overview Expert Consultation Group (CBT-O ECG)

- Bethan Copsey, Medical Statistician, School of Medicine, University of Leeds.
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- Beth Fordham, Senior Psychology Fellow, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences (NDORMS), University of Oxford.
- Daniel Freeman, Professor of Clinical Psychology, Department of Psychiatry, University of Oxford, who was a member of the ECG and reviewed the report.
- Zara Hansen, CBT therapist specialising in pain conditions, NDORMS, University of Oxford.
- Karla Hemming, Professor of Biostatistics, Institute of Applied Health Research Professor of Biostatistics, University of Birmingham.
- Robert Howard, Professor of Psychiatry, Institute of Mental Health, University College London.
- Jeremy Howick, Senior Fellow, Department of Philosophy, University of Oxford.
- Sarah E Lamb, Mireille Gillings Professor of Health Innovation, College of Medicine and Health, University of Exeter.
- Hopin Lee, Research Fellow, NDORMS, University of Oxford.
- Richard Lilford, Professor and Director of National Institute for Health Research Applied Research Centre West Midlands, University of Birmingham, who was a member of the ECG.
- Michael Lyle, Patient and Public Representative, who was a member of the ECG.
- Paul Salkovskis, Professor of Clinical Psychology and Director for the Doctorate in Clinical Psychology, University of Oxford, who was a member of the ECG and reviewed the report.
- Michael Sharpe, Professor of Psychological Medicine, Department of Psychiatry, University of Oxford.
- Paul Stallard, Professor of Child and Family Mental Health, Department for Health, University of Bath.
- Thavapriya Sugavanam, Research Fellow, NDORMS, University of Oxford.

Personal communications

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Contributions of authors

Dr Beth Fordham (https://orcid.org/0000-0001-5996-3563) (Senior Health Psychology Fellow) was the principal investigator and the grant holder.

Dr Thavapriya Sugavanam (https://orcid.org/0000-0002-3033-2028) (Post-doctoral Research Assistant) contributed to the protocol development, database selection, search term selection, reference management, title/abstract screening, full-text screening, data extraction, quality assessment, data analysis, interpretation and report writing.

Ms Katherine Edwards (https://orcid.org/0000-0002-1092-0092) (Research Associate) contributed to the full-text retrieval, reference management, title/abstract screening, full-text screening, data extraction, quality assessment, data analysis, interpretation and report writing.

Professor Karla Hemming (https://orcid.org/0000-0002-2226-6550) (Professor of Biostatistics) has expertise in PMA. She made a large contribution to the design, procedure, analysis, interpretation and report writing.

Dr Jeremy Howick (https://orcid.org/0000-0003-0280-7206) (Senior Fellow) has expertise in Epistemology Philosophy of Medicine. He developed the generalisation methodology and contributed to the report writing.

Dr Bethan Copsey (https://orcid.org/0000-0001-9783-6549) (Post-doctoral Research Fellow) designed and ran the PMA and contributed to the data extraction and interpretation.

Dr Hopin Lee (https://orcid.org/0000-0001-5692-0314) (Post-doctoral Research Fellow) contributed to the data analysis, interpretation and writing.

Ms Milla Kaidesoja (https://orcid.org/0000-0003-0372-8251) (HiLIFE Research Trainee) contributed to the data extraction, generalisation and interpretation.

Ms Shona Kirtley (https://orcid.org/0000-0002-7801-5777) (Senior Information Specialist) led the database search and keyword selection aspects of the overview and commented on the methods section of the final report.

Assistant Professor Sally Hopewell (https://orcid.org/0000-0002-6881-6984) (Associate Professor of Trials and Reviews) has methodology expertise and contributed to the design, procedure and interpretation.

Professor Roshan das Nair (https://orcid.org/0000-0001-8143-7893) (Professor of Clinical Psychology) contributed to the methodological design, interpretation and report writing. Professor das Nair has a special interest in cultural and minority representation.

Professor Robert Howard (https://orcid.org/0000-0002-3071-2338) (Professor of Psychiatry) was a member of the ECG and contributed to the report writing and dissemination.

Professor Paul Stallard (https://orcid.org/0000-0001-8046-0784) (Professor of Child and Family Mental Health) was a member of the ECG and contributed to the report writing and dissemination.

Ms Julia Hamer-Hunt (Patient and Public Representative) was an ECG member, reviewed the report and contributed to the plain English summary of the report.

Professor Zafra Cooper (https://orcid.org/0000-0001-7963-656X) (Professor of Psychiatry) was a member of the ECG, reviewed the report and contributed to the report writing.

Professor Sarah E Lamb (https://orcid.org/0000-0003-4349-7195) (Professor of Rehabilitation) was mentor to Dr Beth Fordham throughout the entire project. She contributed to every stage of this project from the design to the interpretation and writing.

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Data-sharing statement

Requests for access to data should be addressed to the corresponding author.

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Appendix 1 Sensitivity check papers

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Appendix 2 Detailed search strategies for review

MEDLINE

Database and platform

Ovid MEDLINE[®] Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE[®] Daily and Ovid MEDLINE[®], 1946 to present.

Search filter

Scottish Intercollegiate Guidelines Network systematic review search filter for MEDLINE (via Ovid) [www.sign.ac.uk/search-filters.html (accessed February 2019)].

Date search was conducted

Original: 25 April 2018 (for publication years 1992 to present) (2967 references).

Updated: 30 January 2019 (for publication years 2018-19) (359 references).

Search strategy

- 1. (cognitive adj2 behavio?r adj3 (therap\$ or theor\$ or intervention\$ or train\$ or treatment\$ or psychotherap\$ or programme\$ or program\$ or method\$ or approach\$)).ti,ab,kw.
- 2. (cognitive adj2 behavio?ral adj3 (therap\$ or theor\$ or intervention\$ or train\$ or treatment\$ or psychotherap\$ or programme\$ or program\$ or method\$ or approach\$)).ti,ab,kw.
- 3. CBT.ti,ab,kw.
- 4. Cognitive Therapy/
- 5. or/1-4
- 6. Meta-Analysis as Topic/
- 7. meta analy\$.tw.
- 8. metaanaly\$.tw.
- 9. Meta-Analysis/
- 10. (systematic adj (review\$1 or overview\$1)).tw.
- 11. exp Review Literature as Topic/
- 12. or/6-11
- 13. cochrane.ab.
- 14. embase.ab.
- 15. (psychlit or psyclit).ab.
- 16. (psychinfo or psycinfo).ab.
- 17. (cinahl or cinhal).ab.
- 18. science citation index.ab.
- 19. bids.ab.
- 20. cancerlit.ab.
- 21. or/13-20
- 22. reference list\$.ab.
- 23. bibliograph\$.ab.
- 24. hand-search\$.ab.
- 25. relevant journals.ab.
- 26. manual search\$.ab.
- 27. or/22-26
- 28. selection criteria.ab.

29. data extraction.ab.

- 30. 28 or 29
- 31. Review/
- 32. 30 and 31
- 33. Comment/
- 34. Letter/
- 35. Editorial/
- 36. animal/
- 37. human/
- 38. 36 and 37
- 39. 36 not 38
- 40. or/33-35,39
- 41. 12 or 21 or 27 or 32
- 42. 41 not 40
- 43. 5 and 42
- 44. limit 43 to yr = '1992-2018'.

EMBASE

Database and platform

Embase, 1974-2018, week 17 (via Ovid).

Search filter

The SIGN systematic review filter for EMBASE (via Ovid) [www.sign.ac.uk/search-filters.html (accessed February 2019)].

Date search was conducted

Original: 25 April 2018 (for publication years 1992 to present) (4862 references).

Update: 30 January 2019 (for publication years 2018-19) (192 references).

Search strategy

- 1. (cognitive adj2 behavio?r adj3 (therap\$ or theor\$ or intervention\$ or train\$ or treatment\$ or psychotherap\$ or programme\$ or program\$ or method\$ or approach\$)).ti,ab,kw.
- 2. (cognitive adj2 behavio?ral adj3 (therap\$ or theor\$ or intervention\$ or train\$ or treatment\$ or psychotherap\$ or programme\$ or program\$ or method\$ or approach\$)).ti,ab,kw.
- 3. CBT.ti,ab,kw.
- 4. Cognitive Therapy/
- 5. exp Cognitive Behavioral Therapy/
- 6. or/1-5
- 7. exp Meta Analysis/
- 8. ((meta adj analy\$) or metaanalys\$).tw.
- 9. (systematic adj (review\$1 or overview\$1)).tw.
- 10. or/7-9
- 11. cancerlit.ab.
- 12. cochrane.ab.
- 13. embase.ab.
- 14. (psychlit or psyclit).ab.
- 15. (psychinfo or psycinfo).ab.
- 16. (cinahl or cinhal).ab.
- 17. science citation index.ab.

- 18. bids.ab.
- 19. or/11-18
- 20. reference list\$.ab.
- 21. bibliograph\$.ab.
- 22. hand-search\$.ab.
- 23. relevant journals.ab.
- 24. manual search\$.ab.
- 25. or/20-24
- 26. selection criteria.ab.
- 27. data extraction.ab.
- 28. 26 or 27
- 29. review.pt.
- 30. 28 and 29
- 31. Letter.pt.
- 32. Editorial.pt.
- 33. animal/
- 34. human/
- 35. 33 and 34
- 36. 33 not 35
- 37. or/31-32,36
- 38. 10 or 19 or 25 or 30
- 39. 38 not 37
- 40. 6 and 39
- 41. limit 40 to yr = '1992-2018'.

Cumulative Index to Nursing and Allied Health Literature

Database and platform

CINAHL (via EBSCOhost).

Search filter

The SIGN systematic review filter for CINAHL (via EBSCOhost) [www.sign.ac.uk/search-filters.html (accessed February 2019)].

Date search was conducted

Original: 25 April 2018 (for publication years 1992 to present) (1062 references).

Update: 30 January 2019 (for publication years 2018–19) (174 references).

Search strategy

- (TI (cognitive N2 behaviour N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AB (cognitive N2 behaviour N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*))
- (TI (cognitive N2 behavior N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AB (cognitive N2 behavior N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*))
- 3. (TI (cognitive N2 behavioural N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AB (cognitive N2 behavioural N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*))

- 4. (TI cognitive N2 behavioral N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AB cognitive N2 behavioral N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*))
- 5. (TI 'CBT') OR (AB 'CBT')
- 6. (MH 'Cognitive Therapy') OR (SU 'Cognitive Therapy')
- 7. S1 OR S2 OR S3 OR S4 OR S5 OR S6
- 8. (MH Meta Analysis)
- 9. (TX 'meta analys*')
- 10. (TX 'metaanaly*')
- 11. (MH 'Literature Review+')
- 12. (TX systematic N1 (review or overview))
- 13. S8 OR S9 OR S10 OR S11 OR S12
- 14. (PT 'Commentary')
- 15. (PT 'Letter')
- 16. (PT 'Editorial')
- 17. (MH Animals)
- 18. S14 OR S15 OR S16 OR S17
- 19. S13 NOT S18
- 20. S7 AND S19
- 21. PY 1992-2018
- 22. S20 AND S21

PsycINFO

Database and platform:

PsycINFO, 1967 to April week 2 2018 (via Ovid).

Search filter

McMaster Hedges Maximises Specificity Systematic Review filter for PsycINFO (via Ovid) (modified) [https://hiru.mcmaster.ca/hiru/HIRU_Hedges_PsycINFO_Strategies.aspx#Reviews (accessed February 2019)].

Date search was conducted

Original: 27 April 2018 (for publication years 1992 to present) (2190 references).

Update: 30 January 2019 (for publication years 2018-19) (150 references).

Search strategy

- 1. (cognitive adj2 behavio?r adj3 (therap\$ or theor\$ or intervention\$ or train\$ or treatment\$ or psychotherap\$ or programme\$ or program\$ or method\$ or approach\$)).ti,ab.
- 2. (cognitive adj2 behavio?ral adj3 (therap\$ or theor\$ or intervention\$ or train\$ or treatment\$ or psychotherap\$ or programme\$ or program\$ or method\$ or approach\$)).ti,ab.
- 3. CBT.ti,ab.
- 4. Cognitive Behavior Therapy/
- 5. or/1-4
- 6. meta-analy\$.tw.
- 7. systematic review.md.
- 8. meta analysis.md.
- 9. search:.tw.
- 10. or/6-9

11. 5 and 10

12. limit 11 to yr = '1992-2018'

Notes

The McMaster Hedges Maximises Specificity Systematic Review filter for PsycINFO was modified in the following way:

- 1. Changed 'meta-analysis.tw.' to 'meta-analy\$.tw.'
- 2. Added 'systematic review.md.' and 'meta analysis.md.'

This was to account for known missing papers with 'meta-analyses' or 'meta-analytic' in the abstract and for papers that do not use 'search' (e.g. where 'retrieval' or 'databases surveyed' is used). If the papers are systematic reviews or reviews, they should be assigned the methodology heading ('.md.').

Cochrane Database of Systematic Reviews

Database and platform

Cochrane Database of Systematic Reviews [via The Cochrane Library: http://cochranelibrary-wiley.com/ cochranelibrary/search/ (accessed May 2020)].

Date search was conducted

Original: 26 April 2018 (for publication years 1992 to present) (176 references).

Update: 30 January 2019 (for publication years 2018-19) (20 references).

Search strategy

- 1. (cognitive next/2 behaviour* next/3 therap*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 2. (cognitive next/2 behaviour* next/3 theor*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 3. (cognitive next/2 behaviour* next/3 intervention*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 4. (cognitive next/2 behaviour* next/3 train*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 5. (cognitive next/2 behaviour* next/3 treatment*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 6. (cognitive next/2 behaviour* next/3 psychotherap*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 7. (cognitive next/2 behaviour* next/3 programme*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 8. (cognitive next/2 behaviour* next/3 program*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 9. (cognitive next/2 behaviour* next/3 method*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 10. (cognitive next/2 behaviour* next/3 approach*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 11. (cognitive next/2 behavior* next/3 therap*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 12. (cognitive next/2 behavior* next/3 theor*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 13. (cognitive next/2 behavior* next/3 intervention*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 14. (cognitive next/2 behavior* next/3 train*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 15. (cognitive next/2 behavior* next/3 treatment*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 16 (cognitive next/2 behavior* next/2 nexted the next / next a law in Costrane Deviews (Neviews only)
- 16. (cognitive next/2 behavior* next/3 psychotherap*):ti,ab,kw in Cochrane Reviews (Reviews only)
- (cognitive next/2 behavior* next/3 programme*):ti,ab,kw in Cochrane Reviews (Reviews only)
 (cognitive next/2 behavior* next/3 program*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 19. (cognitive next/2 behavior* next/3 method*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 20. (cognitive next/2 behavior* next/3 approach*):ti,ab,kw in Cochrane Reviews (Reviews only)
- 21. 'CBT':ti,ab,kw in Cochrane Reviews (Reviews only)
- 22. [mh 'Cognitive Therapy'] in Cochrane Reviews (Reviews only)
- 23. #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22
- 24. #23 Publication Year from 1992 to 2018

Database of Abstracts of Reviews of Effects

Database and platform

Database of Abstracts of Reviews of Effect [via The Cochrane Library: https://cochranelibrary-wiley. com/cochranelibrary/search/ (accessed May 2020)].

Date search was conducted

Original: 26 April 2018 (for publication years 1992 to present) (610 references).

Update: no updated search on DARE as no longer updated.

Search strategy

- 1. cognitive next/2 behaviour* next/3 therap*:ti,ab,kw in Other Reviews
- 2. cognitive next/2 behaviour* next/3 theor*:ti,ab,kw in Other Reviews
- 3. cognitive next/2 behaviour* next/3 intervention*:ti,ab,kw in Other Reviews
- 4. cognitive next/2 behaviour* next/3 train*:ti,ab,kw in Other Reviews
- 5. cognitive next/2 behaviour* next/3 treatment*:ti,ab,kw in Other Reviews
- 6. cognitive next/2 behaviour* next/3 psychotherap*:ti,ab,kw in Other Reviews
- 7. cognitive next/2 behaviour* next/3 programme*:ti,ab,kw in Other Reviews
- 8. cognitive next/2 behaviour* next/3 program*:ti,ab,kw in Other Reviews
- 9. cognitive next/2 behaviour* next/3 method*:ti,ab,kw in Other Reviews
- 10. cognitive next/2 behaviour* next/3 approach*:ti,ab,kw in Other Reviews
- 11. cognitive next/2 behavior* next/3 therap*:ti,ab,kw in Other Reviews
- 12. cognitive next/2 behavior* next/3 theor*:ti,ab,kw in Other Reviews
- 13. cognitive next/2 behavior* next/3 intervention*:ti,ab,kw in Other Reviews
- 14. cognitive next/2 behavior* next/3 train*:ti,ab,kw in Other Reviews
- 15. cognitive next/2 behavior* next/3 treatment*:ti,ab,kw in Other Reviews
- 16. cognitive next/2 behavior* next/3 psychotherap*:ti,ab,kw in Other Reviews
- 17. cognitive next/2 behavior* next/3 programme*:ti,ab,kw in Other Reviews
- 18. cognitive next/2 behavior* next/3 program*:ti,ab,kw in Other Reviews
- 19. cognitive next/2 behavior* next/3 method*:ti,ab,kw in Other Reviews
- 20. cognitive next/2 behavior* next/3 approach*:ti,ab,kw in Other Reviews
- 21. 'CBT':ti,ab,kw in Other Reviews
- 22. [mh 'Cognitive Therapy'] in Other Reviews
- 23. #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22
- 24. #23 Publication Year from 1992 to 2018.

Child Development and Adolescent Studies

Database and platform

Child Development and Adolescent Studies (via EBSCOhost).

Date search was conducted

Original: 25 April 2018 (for publication years 1992 to present) (177 references).

Update: 30 January 2019 (for publication years 2018–19) (21 references).

Search strategy

- (TI (cognitive N2 behaviour N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AB (cognitive N2 behaviour N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AS (cognitive N2 behaviour N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or programme* or program* or method* or approach*))
- 2. (TI (cognitive N2 behavior N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AB (cognitive N2 behavior N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AS (cognitive N2 behavior N3 (therap* or theor* or intervention* or treatment*)) OR (AS (cognitive N2 behavior N3 (therap* or programme* or program* or method* or approach*)) OR (AS (cognitive N2 behavior N3 (therap* or theor* or intervention* or treatment* or psychotherap* or programme* or program* or method* or approach*))
- 3. (TI (cognitive N2 behavioural N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AB (cognitive N2 behavioural N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AS (cognitive N2 behavioural N3 (therap* or theor* or intervention* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AS (cognitive N2 behavioural N3 (therap* or theor* or intervention* or treatment* or psychotherap* or programme* or program* or method* or approach*))
- 4. (TI cognitive N2 behavioral N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AB cognitive N2 behavioral N3 (therap* or theor* or intervention* or train* or treatment* or psychotherap* or programme* or program* or method* or approach*)) OR (AS cognitive N2 behavioral N3 (therap* or theor* or intervention* or treatment*)) OR (AS cognitive N2 behavioral N3 (therap* or programme* or program* or method* or approach*)) OR (AS cognitive N2 behavioral N3 (therap* or theor* or intervention* or treatment* or psychotherap* or programme* or program* or method* or approach*))
- 5. (TI 'CBT') OR (AB 'CBT') OR (DE 'CBT')
- 6. (DE 'Cognitive Therapy') OR (SU 'Cognitive Therapy')
- 7. (DE 'Cognitive-behavioral therapy') OR (DE 'Cognitive behavioral therapy') OR (DE 'Cognitive-behavior behavioural therapy') OR (DE 'Cognitive behavior therapy') OR (DE 'Cognitive behavior therapy') OR (DE 'Cognitive behavior therapy') OR (DE 'Cognitive behaviour therapy') OR (DE 'Cognitive behaviour therapy') OR
- 8. (DE 'BEHAVIOR therapy') OR (SU 'BEHAVIOR therapy') OR (DE 'BEHAVIOUR therapy') OR (SU 'BEHAVIOUR therapy') OR (DE 'BEHAVIORAL therapy') OR (SU 'BEHAVIOURAL therapy') OR (DE 'BEHAVIOURAL therapy') OR (SU 'BEHAVIOURAL therapy')
- 9. S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8
- 10. (DE 'SYSTEMATIC reviews (Medical research)') OR (DE 'systematic review') OR (SU 'SYSTEMATIC reviews (Medical research)') OR (DE 'review')
- 11. (DE 'META-analysis') OR (SU 'META-analysis')
- 12. (DE 'Literature Review')
- 13. (TX 'metaanaly*')
- 14. (TX 'meta analy*')
- 15. (TX systematic N3 (review or overview))
- 16. S10 OR S11 OR S12 OR S13 OR S14 OR S15
- 17. S9 AND S16
- 18. DT 1992-2018
- 19. S17 AND S18.

OpenGrey

Database and platform

OpenGrey [via www.opengrey.eu/ (accessed February 2019)].

Date search was conducted

Original: 26 April 2018 (295 references).

Update: 30 January 2019 (0 references).

Search strategy

1. 'cognitive behavioral' OR 'cognitive behavioural' OR 'cognitive behavior' OR 'cognitive behaviour' OR 'CBT'.

Appendix 3 Data extraction form for mapping

Data extraction	Notes
Review ID (surname, year)	
Reviewer completing form	
Date completed	
Reference citation (first author, title, journal, volume, issue)	
Published in last 5 years (Y/N)	
Aim of the review	
Design of included studies [RCT $n = [participants n =]]$	
Any risk-of-bias tool employed (Y/N) [Detail]	RoB not just quality assessment tool. Report the actual tool used in 'details'
Primary health problem	Report ICD-11 for every health problem reported
Secondary health problem	
Severity (mild, moderate, severe, NR)	Select one or many or 'unclear'
Age categories [number of RCTs]	Select one or many of children, adolescents, adults, older adults or 'not reported' or 'unclear'
Other characteristics reported: (1) gender, (2) ethnicity, (3) other specific/unique information	Report top-level information on (1) gender (2) ethnicity and (3) if available other information (but do not need to search)
Where recruited [number of RCTs]	Report as the review has reported: clinic, university, internet, etc
When delivered [number of RCTs]	Drop-down list [(1) preventative (2) preventative for relapse (3) early intervention (4) standard treatment (5) mixed (6) not reported (7) other (standard treatment is the norm, the others are if review specifies a target)]
Countries included [number of RCTs]	
CBT high/low/combined: description of CBT	 High intensity: formal psychotherapy delivered by relatively specialist psychological therapist Low intensity: guided self-help – books, internet, structured exercise, brief interventions can be with relevantly trained individual
CBT overall: number of sessions, duration and frequency	As much as is available in the review. Can synthesise ourselves but only at this top level
CBT content description 1 [number of RCTs/total RCTs]	Report high-intensity intervention first then low intensity
CBT description 2 [number of RCTs/total]	Complete for every type of CBT category the review includes
CBT description 3 [number of RCTs/total]	
CBT description 4 [number of RCTs/total]	
CBT description 5 [number of RCTs/total]	
Control description 1 [number of RCTs]	If review synthesises all non-active/active together, then extract as such; if reported as separate control groups, then we can extract as such and then later we will combine
Control description 2 [number of RCTs]	
Control description 3 [number of RCTs]	
Control description 4 [number of RCTs]	

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Data extraction	Notes	
Control description 5 [number of RCTs]		
Other details	Only most pertinent information if required	
HRQoL category	Choose (1) category, (2) category but no data available, (3) not measured. If HRQoL emerges at individual RCT level, then we extract (but only for HRQoL)	
How measured [name(s) of instruments/method]	Specific name of outcome	
When measured [pegged time point?]	Short (majority < 12 months), long (majority \ge 12 months) or 'unclear' [if the review reports where the follow-up time points are pegged to, i.e. post randomisation, post intervention, then report]	
Number of RCTs [number of participants]	Number of RCTs [number of participants]	
Meta-analysis [Y/N]	If no meta-analysis, please report the direction of results (i.e. in favour or not in favour of CBT)	
Depression category	Choose (1) category, (2) category but no data available, (3) not measured	
How measured [name(s) of instruments/method]	Specific name of outcome	
When measured [pegged time point?]	Short (majority < 12 months), long (majority \ge 12 months) or 'unclear' [if the review reports where the follow-up time points are pegged to, i.e. post randomisation, post intervention, then report]	
Number of RCTs [number of participants]	Number of RCTs [number of participants]	
Meta-analysis [Y/N]	If no meta-analysis, please report the direction of results (i.e. in favour or not in favour of CBT)	
Anxiety category	Choose (1) category (2) category but no data available (3) not measured	
How measured [name(s) of instruments/method]	Specific name of outcome	
When measured [pegged time point?]	Short (majority < 12 months), long (majority \ge 12 months) or 'unclear' [if the review reports where the follow-up time points are pegged to, i.e. post randomisation, post intervention, then report]	
Number of RCTs [number of participants]	Number of RCTs [number of participants]	
Meta-analysis [Y/N]	If no meta-analysis, please report the direction of results (i.e. in favour or not in favour of CBT)	
Physical/physiological category	Choose (1) category, (2) category but no data available, (3) not measured	
How measured [name(s) of instruments/method]	Specific name of outcome	
When measured [pegged time point?]	Short (majority < 12 months), long (majority \ge 12 months) or 'unclear' [if the review reports where the follow-up time points are pegged to, i.e. post randomisation, post intervention, then report]	
Number of RCTs [number of participants]	Number of RCTs [number of participants]	
Meta-analysis [Y/N]	If no meta-analysis, please report the direction of results (i.e. in favour or not in favour of CBT)	
Psychosis category	Choose (1) category, (2) category but no data available, (3) not measured	
How measured [name(s) of instruments/method]	Specific name of outcome	
When measured [pegged time point?]	Short (majority < 12 months), long (majority \ge 12 months) or 'unclear' [if the review reports where the follow-up time points are pegged to, i.e. post randomisation, post intervention, then report]	

Data extraction	Notes		
Number of RCTs [number of participants]	Number of RCTs [number of participants]		
Meta-analysis [Y/N]	If no meta-analysis, please report the direction of results (i.e. in favour or not in favour of CBT)		
All other outcomes reported in review	List format e.g. (1) PANSS psychosis		
Overall	See AMSTAR-2 PDF ²¹		
Mechanism data	Extraction of entire section 'How the intervention might work' (for Cochrane reviews), or similar (other reviews), and/or direct data: namely changes to beliefs such as self-efficacy or hypotheses for mechanisms such as presented in the discussions		
Acceptability			
Satisfaction			
Adverse effects			
Economic analyses			
ID, identification; N, no; NR, not reported; PANSS, Positive and Negative Syndrome Scale; PDF, Portable Document			

ID, identification; N, no; NR, not reported; PANSS, Positive and Negative Syndrome Scale; PDF, Portable Docume Format; RoB, risk of bias; Y, yes.

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Appendix 4 The AMSTAR-2 checklist

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AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

For Yes	: :	Optional (recommended)	
	<u>Population</u> Intervention <u>C</u> omparator group <u>O</u> utcome	☐ Timeframe for follow-up	□ Yes □ No
2.		ntain an explicit statement that the review of the review and did the report justify an	
The aut	tial Yes: hors state that they had a written l or guide that included ALL the ng:	For Yes: As for partial yes, plus the protocol should be registered and should also have specified:	
	review question(s) a search strategy inclusion/exclusion criteria a risk of bias assessment	 a meta-analysis/synthesis plan, if appropriate, <i>and</i> a plan for investigating causes of heterogeneity justification for any deviations from the protocol 	YesPartial YesNo
3.	Did the review authors explain	their selection of the study designs for inclu-	usion in the review?
	1 9 8	CTs ly NRSI th RCTs and NRSI	□ Yes □ No
	tial Yes (all the following):	mprehensive literature search strategy? For Yes, should also have (all the following):	
	search strategy justified publication restrictions (e.g. language)	 searched the reference lists / bibliographies of included studies searched trial/study registries included/consulted content experts in the field where relevant, searched for grey literature conducted search within 24 months of completion of the review 	☐ Yes ☐ Partial Yes ☐ No
	and achieved consensus on which OR two reviewers selected a sam	ntly agreed on selection of eligible studies	□ Yes □ No

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

6.	Did the review authors perform	data extraction in duplicate?	
	included studies	onsensus on which data to extract from from a sample of eligible studies <u>and</u> t 80 percent), with the remainder	□ Yes □ No
		a list of excluded studies and justify the exclu	isions?
	ial Yes: provided a list of all potentially relevant studies that were read in full-text form but excluded from the review	For Yes, must also have: Justified the exclusion from the review of each potentially relevant study	☐ Yes☐ Partial Yes☐ No
8.	Did the review authors describe	the included studies in adequate detail?	
For Parti	ial Yes (ALL the following): described populations described interventions described comparators described outcomes described research designs	 For Yes, should also have ALL the following: described population in detail described intervention in detail (including doses where relevant) described comparator in detail (including doses where relevant) described study's setting timeframe for follow-up 	 Yes Partial Yes No
from	ial Yes, must have assessed RoB unconcealed allocation, <i>and</i> lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all- cause mortality)	 For Yes, must also have assessed RoB from: allocation sequence that was not truly random, <i>and</i> selection of the reported result from among multiple measurements or analyses of a specified outcome 	 □ Yes □ Partial Yes □ No □ Includes only NRSI
RoB:	ial Yes, must have assessed from confounding, <i>and</i> from selection bias	 For Yes, must also have assessed RoB: methods used to ascertain exposures and outcomes, and selection of the reported result from among multiple measurements or analyses of a specified outcome 	 □ Yes □ Partial Yes □ No □ Includes only RCTs
10. For Yea	s Must have reported on the sour	n the sources of funding for the studies inclu ces of funding for individual studies included that the reviewers looked for this information authors also qualifies	ded in the review?

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?					
RCTs For Yes:					
□ The authors justified combining the data in a meta-analysis	□ Yes				
□ AND they used an appropriate weighted technique to combine	🗆 No				
study results and adjusted for heterogeneity if present.	□ No meta-analysis				
□ AND investigated the causes of any heterogeneity	conducted				
For NRSI					
For Yes:					
□ The authors justified combining the data in a meta-analysis	□ Yes				
AND they used an appropriate weighted technique to combine	🗆 No				
study results, adjusting for heterogeneity if present	\Box No meta-analysis				
□ AND they statistically combined effect estimates from NRSI that	conducted				
were adjusted for confounding, rather than combining raw data,					
or justified combining raw data when adjusted effect estimates					
were not available					
AND they reported separate summary estimates for RCTs and					
NRSI separately when both were included in the review					
12. If meta-analysis was performed, did the review authors assess the poten individual studies on the results of the meta-analysis or other evidence sy					
For Yes:					
□ included only low risk of bias RCTs	□ Yes				
\Box OR, if the pooled estimate was based on RCTs and/or NRSI at variable	🗆 No				
RoB, the authors performed analyses to investigate possible impact of	\Box No meta-analysis				
RoB on summary estimates of effect.	conducted				
13. Did the review authors account for RoB in individual studies when interresults of the review?	13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?				
For Yes:					
□ included only low risk of bias RCTs	□ Yes				
\Box OR, if RCTs with moderate or high RoB, or NRSI were included the	🗆 No				
review provided a discussion of the likely impact of RoB on the results					
14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?					
For Yes:					
There was no significant heterogeneity in the results					
\Box OR if heterogeneity was present the authors performed an investigation of	□ Yes				
sources of any heterogeneity in the results and discussed the impact of this on the results of the review	□ No				
15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?					
For Yes:					
\Box performed graphical or statistical tests for publication bias and discussed	□ Yes				
the likelihood and magnitude of impact of publication bias	🗆 No				
	□ No meta-analysis				
	conducted				

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?			
Fo	r Yes	:	
		The authors reported no competing interests OR	□ Yes
		The authors described their funding sources and how they managed	🗆 No
		potential conflicts of interest	

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Appendix 5 Data extraction form for the panoramic meta-analysis

Meta-analysis details				
HRQoL				
GRADE or equivalent				
Intervention vs. control group				
Age group				
When measured				
Name of outcome instrument	Specific name of instrument on which meta-analysis was conducted			
Number of RCTs				
Continuous SMD or MD [S/MD post or S/MD of changed and the second	ge] (± favours intervention or not)			
Number of participants				
S/MD (effect size) and type [95% CI]	Hedges or Cohen (\pm favours intervention or not)			
l ²				
Fixed or random effects				
Reference				
Depression				
GRADE or equivalent				
Intervention vs. control group				
Age group				
Name of outcome instrument				
When measured				
Number of RCTs				
Binary OR or RR (\pm favours intervention or not)				
Number of participants				
Number of events				
OR/RR [95% CI]				
 ²				
Fixed or random effects				
Continuous SMD or MD [S/MD post or S/MD of changed and the second	ge] (± favours intervention or not)			
Number of participants				
S/MD (effect size) and type [95% CI]				
J ²				
Fixed or random effects				
Reference				
Anxiety				
GRADE or equivalent				
Intervention vs. control group				

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Meta-analysis details
Age group
Name of outcome instrument
When measured
Number of RCTs
Binary OR or RR (± favours intervention or not)
Number of participants
Number of events
OR/RR [95% CI]
J ²
Fixed or random effects
Continuous SMD or MD [S/MD post or S/MD of change] (± favours intervention or not)
Number of participants
S/MD (effect size) and type [95% CI]
l^2
Fixed or random effects
Reference
Physical/physiological
GRADE or equivalent
Intervention vs. control group
Age group
When measured
Name of outcome instrument
Number of RCTs
Binary OR or RR (± favours intervention or not)
Number of participants
Number of events
OR/RR [95% CI]
J ²
Fixed or random effects
Continuous SMD or MD [S/MD post or S/MD of change] (± favours intervention or not)
Number of participants
S/MD (effect size) and type [95% CI]
J ²
Fixed or random effects
Reference
Psychosis
GRADE or equivalent
Intervention vs. control group
Age group

Meta-ana	lvsis (detai	s

Name of outcome instrument When measured Number of RCTs Binary OR or RR (± favours intervention or not) Number of participants Number of events OR/RR [95% CI] **1**2 Fixed or random effects Continuous SMD or MD (± favours intervention or not) Number of participants S/MD (effect size) and type [95% CI] 12 Fixed or random effects Reference MD, mean difference; S/MD, standardised or mean difference.

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Appendix 6 References to studies excluded at the full-text screening stage, with reasons for exclusion

Studies excluded because no English full text or translation available (n = 237)

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Appendix 7 Summary tables of included systematic reviews grouped according to the conditions they targeted as per the ICD-11

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TABLE 5 Reviews in ICD-11 primary: 01 Certain infectious or parasitic diseases

							CBT intervention group		Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Uwimana and Louw ⁴⁶⁵ 2007	Human immunodeficiency virus	NA	Critically low	1 (NR)	Adults	NR	Group CBT	NA	Peer support counselling	NA	Short	1	1	1	x

, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; NA, not applicable; NR, not reported.

TABLE 6 Reviews in ICD-11 primary: 02 Neoplasms

							CBT intervent	ion group	Comparator gr	oup	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Berry <i>et al.</i> ⁶⁵ 2017	Neoplasms	NA	Low	1 (118)	Adults	The Netherlands	Face-to-face CBT (couples therapy)	NA	NA	TAU	Short	X	✓	X	≤
Boutin ⁷³ 2007	Malignant neoplasms of breast	NA	Critically low	2 (213)	Adults	NR	Individual CBT	NA	NR	NR	Short-long	x	1	x	x
Ernst <i>et al.</i> ¹³⁷ 2006	Malignant neoplasms of breast	NA	Critically low	1 (92)	NR	NR	Therapist-led group CBT + standard oncological care	NA	NA	TAU	Long	x	X	X	1
Hines <i>et al.</i> ²⁰⁹ 2011	Malignant neoplasms	Cognitive dysfunction	Moderate	1 (40)	Adults	USA	Individual CBT+ telephone booster	NA	NA	WLC	Short	1	x	x	x
Juvet <i>et al.</i> ²³⁸ 2009	Malignant neoplasms of breast	NA	Moderate	1 (114)	Adults	Israel	Group CBT	NA	Relaxation + guided support	TAU	Short	≤	≤	≤	1
Mirosevic et al. ³¹³ 2019	Malignant neoplasms	NA	Critically low	4 (625)	Adults	NR	Group CBT	NA	NA	TAU	Long	x	x	x	1
Mustafa et al. ³²² 2013	Malignant neoplasms of breast	NA	Moderate	1 (63)	Adults	Australia	Individual CBT	NA	NA	TAU	Short-long	≤	1	1	1
Ye et al. ⁵¹³ 2018	Malignant neoplasms of breast	NA	Low	10 (1939)	Adults	USA, China, Ireland, France, the Netherlands, Australia	Individual CBT	NA	Behavioural placebo, relaxation, drug	WLC, TAU	Short	1	1	1	1

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data found; NA, not applicable; NR, not reported.

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							CBT intervention	on group	Comparator g	roup	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Amato Nesbit et al. ⁴¹ 2019	Diabetic peripheral neuropathy	NA	Critically low	1 (19)	Adults	NR	Individual CBT	NA	NA	Sham	Short	X	x	X	1
Elliot ¹³⁶ 2012	Diabetes mellitus	Depression	Critically low	2 (158)	Adults	The Netherlands, USA	Group CBT, individual CBT	NA	Education, blood glucose awareness training	NA	Short-long	x	1	x	1
Uchendu and Blake ⁴⁶³ 2017	Diabetes mellitus	Depression, anxiety	Low	6 (NR)	Adults	The Netherlands, USA, Sweden	Group CBT, individual CBT	Telephone CBT	NA	TAU, NR	Long	1	✓	1	1

, Outcome searched for in the review, and RCT data identified and extracted; x, outcome was not searched for in the review; NA, not applicable; NR, not reported.

Reviews in this ICD-11 primary classification 06 mental, behavioural or neurodevelopmental problems are presented at the secondary level of classification.

TABLE 8 Reviews in ICD-11 secondary: neurodevelopmental disorders (6A00-06)

							CBT intervention	on group	Comparator a	group	Outcome						
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific		
Goode <i>et al</i> . ¹⁷⁴ 2018	ADHD	NA	Critically low	1 (119)	Children, adolescents	NR	NR	NA	NA	TAU	Short	x	≤	≤	1		
Jensen <i>et al.</i> ²³⁰ 2016	ADHD	Anxiety, depression	Low	2 (85)	Adults	NR	Manualised group CBT or individual CBT	NA	NA	TAU	Short	≤	1	1	1		
Kemper et al. ²⁴⁴ 2018	ADHD	NA	High	1 (119)	Children, adolescents	NR	NR	NA	NA	TAU	Short	x	x	x	1		
Lopez <i>et al</i> . ²⁸⁶ 2018	ADHD	NA	High	6 (277)	Adults	Sweden, Finland, Spain, Iceland, USA	Individual CBT	Internet- based CBT	Relaxation, education, cognitive training, drug	WLC	Short	1	1	1	1		
Vidal-Estrada et al. ⁴⁸¹ 2012	ADHD	NA	Critically low	3 (146)	Adults	NR	Individual CBT + medication	NA	Medication	NA	Short	X	1	1	1		

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data identified and extracted; X, not reported.

							CBT intervention	group	Comparator group	o	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Álvarez-Jiménez et al. ⁴⁰ 2011	Psychosis	NA	Moderate	1 (309)	Adults	NR	Manualised individual CBT	NA	Supportive counselling therapy	TAU	Long	X	X	x	1
Anagnostopoulou <i>et al.</i> 43 2018	Psychosis	NA	Critically low	1 (30)	Adolescents	UK	Individual CBT	NA	Family therapy	TAU	Short	x	x	x	1
Armando et al. ⁵¹ 2015	Psychosis	NA	Critically low	1 (309)	Adolescents, adults	NR	NR	NA	Supportive counselling + TAU	TAU	Long	X	X	x	1
Bighelli <i>et al.⁶⁶</i> 2018	Psychosis	NA	Moderate	2 (323)	Adults	UK, Norway	Individual CBT	NA	NA	WLC	Short	,	,	x	1
Bird <i>et al.</i> ⁶⁷ 2010	Early-onset psychosis	NA	Moderate	3 (529)	Adults	NR	Group CBT, individual CBT	NA	NA	TAU	Long	x	x	x	1
Buckley <i>et al.</i> ⁷⁹ 2015	Psychosis	NA	High	5 (349)	Adults	USA, UK, Italy	Individual CBT	NA	Supportive therapy	NA	Short	x	1	x	1
Davies <i>et al.</i> ¹¹⁶ 2018	Psychosis	NA	Moderate	6 (712)	Adolescents, adults	Canada, UK, Germany, Australia	Individual CBT (French and Morrison ⁵⁴⁰ protocol)	NA	Drug	Needs-based intervention	Long	x	X	x	1
de Koning <i>et al.</i> ¹²¹ 2009	Attenuated psychosis syndrome	NA	Critically low	1 (128)	Adults	Germany	Comprehensive individual CBT	NA	Supportive counselling	NA	Long	x	X	x	1
Devoe <i>et al</i> . ¹²⁸ 2018	Attenuated psychosis syndrome	NA	Moderate	3 (236)	Young adults	Canada, the Netherlands, Australia	Individual CBT + TAU, individual CBT + placebo	NA	Supportive therapy, supportive therapy + placebo drug	TAU + monitoring	Short	x	x	x	1
Devoe <i>et al.</i> ¹²⁷ 2019	Psychosis	NA	Low	6 (843)	Young adults	Canada, the Netherlands, UK, Australia, New Zealand	Individual CBT, individual CBT +TAU, individual CBT + placebo, individual CBT + monitoring	NA	Supportive therapy, supportive therapy + placebo	TAU + monitoring	Long	x	x	X	J
Gaag et al. ¹⁶¹ 2014	Psychosis	NA	Moderate	9 (768)	Adults	UK, the Netherlands, Canada, Germany, Norway	Individually tailored case formulation + culturally adapted CBT	NA	Supportive counselling, social activity treatment	Attention placebo, TAU	Short	x	x	x	1
Hutton and Taylor ²¹⁹ 2014	Psychosis	NA	Moderate	3 (324)	Adults	Canada, Australia, the Netherlands	Individual CBT	NA	Supportive therapy	Monitoring	Long	1	1	√	1

TABLE 9 Reviews in ICD-11 secondary: schizophrenia or other primary psychotic disorders (6A20-25)

							CBT intervention	n group	Comparator group	p	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Conditio specific
Jacobsen <i>et al.²²⁶</i> 2018	Psychosis	NA	Low	1 (90)	Adults	UK	NR	NA	NA	TAU	Long	x	1	,	1
Jones et al. ²³⁴ 2012	Psychosis	NA	Moderate	5 (378)	Adults	NR	Group CBT, individual CBT	NA	Supportive psychotherapy, family intervention, supportive counselling, enhanced supportive therapy, befriending, TAU	TAU	Long	1	/	1	J
ones <i>et al.²³⁵</i> 018	Psychosis	NA	High	14 (1561)	Adults	Scotland, Germany, UK, the Netherlands, Canada, USA, China	Group CBT, individual CBT	NA	Psychoeducation, family intervention, supportive psychotherapy, health education, group social skills training, supportive counselling, social activities therapy, befriending		Short-long	1	•	J	\$
ones <i>et al</i> . ²³⁶ 018	Psychosis	NA	High	12 (1827)	Adults	UK, Pakistan, China	Individual CBT	NA	NA	TAU	Long	1	1	1	1
Kennedy and Xyrichis ²⁴⁵ 2017	Psychosis	NA	Low	2 (105)	Adults	USA, Australia	Group CBT, TORCH ⁵⁴¹ individual CBT	NA	Supportive therapy, befriending	NA	Short	X	x	x	1
Kluwe-Schiavon et al. ²⁵⁴ 2013	Psychosis	NA	Critically low	1 (40)	Adults	NR	Individual CBT	NA	Cognitive remediation therapy	TAU	Short	≤	x	x	1
Lawrence <i>et al</i> . ²⁶⁹ 2006	Psychosis	NA	Critically low	1 (88)	Adults	Australia, UK, Germany	Group CBT	NA	Psychoeducation	TAU, NR	Long	X	1	1	1
Laws <i>et al</i> . ²⁷⁰ 2018	Psychosis	NA	Critically low	9 (626)	Adults	NR	Group CBT, individual CBT	NA	Psychoeducation, befriending, drug	WLC, TAU	Short	1	x	x	1
Lockwood <i>et al.</i> ²⁸³ 2004	Psychosis	Social anxiety	Critically low	4 (825)	Adults	UK, NR	Group CBT, individual CBT	NA	Supportive counselling	WLC, TAU	Short-long	1	1	1	1
Mehl <i>et al</i> . ³⁰⁴ 2015	Delusional disorder	NA	Critically low	5 (842)	Adults	NR	Individual CBT for psychosis	NA	Supportive therapy, social activity therapy, family intervention	TAU	Short	x	X	X	1
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No. 9

DOI: 10.3310/hta25090

							CBT intervention	group	Comparator grou	p	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Naeem <i>et al.</i> ³²³ 2016	Psychosis	NA	Critically low	7 (1128)	Adults	NR	Individual CBT for psychosis, group CBT for psychosis, culturally adapted individual CBT for psychosis	NA	Supportive counselling, befriending	TAU	Short-long	,	1	,	1
Rector and Beck ³⁸⁰ 2001	Psychosis	NA	Critically low	6 (341)	Adults	NR	NR	NA	Problem-solving, supportive therapy, informal support, befriending	TAU	Short	X	1	X	1
Sarin <i>et al.</i> ³⁹⁴ 2011	Psychosis	NA	Moderate	5 (623)	Adults	NR	Group CBT, individual CBT	NA	Other psychotherapy (family intervention, supportive therapy)	TAU	Short, NR	x	\$	J	,
Skelton <i>et al.</i> ⁴¹⁴ 2015	Delusional disorder	NA	Moderate	1 (17)	Adults	NR	Individual CBT	NA	NA	Attention placebo	Short	≤	1	1	1
Turner <i>et al</i> . ⁴⁵⁸ 2014	Psychosis	NA	Low	8 (497)	NR	NR	Group CBT, individual CBT	NA	Supportive counselling	NA	Short	x	x	x	1
van der Gaag et al. ¹⁶¹ 2014	Psychosis	NA	Low	9 (768)	Adults	UK, Norway, Germany, the Netherlands, Canada	Individual CBT	NA	Supportive counselling, social activity treatment	TAU, attention placebo	Short	x	X	x	1
Velthorst <i>et al.</i> ⁴⁷⁶ 2015	Psychosis	NA	Critically low	2 (238)	Adults	USA, Germany	Group CBT, individual CBT	NA	Cognitive remediation	TAU	Short	x	x	x	1
Wood <i>et al.</i> ⁵⁰³ 2016	Psychosis	NA	Low	1 (29)	Adults	UK	Individual CBT	NA	NA	TAU	Short	x	1	x	1
Zhao <i>et al</i> . ⁵¹⁸ 2015	Psychosis	NA	High	1 (41)	Adults	Germany	Group CBT	NA	Group psychological programme	NA	Short	1	≤	≤	1

TABLE 9 Reviews in ICD-11 secondary: schizophrenia or other primary psychotic disorders (6A20-25) (continued)

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data found; ', outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); NA, not applicable; NR, not reported; TORCH, Treatment Of Resistant Command Hallucinations.

TABLE 10 Reviews in ICD-11 secondary: mood disorders (6A60-80)

							CBT intervention g	oup	Comparator grou	p	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Ackermann and Williams ³³ 2002	Premenstrual dysphoric disorder	NA	Critically low	1 (49)	NR	NR	Individual CBT	NA	NA	Placebo	NR	x	1	x	x
Ahern <i>et al.</i> ³⁶ 2018	Depressive disorder	NA	Critically low	24 (2379)	Adults	Sweden, Australia, USA, Norway, UK, the Netherlands, Spain	NA	Internet-based CBT + therapist, internet-based CBT + administrative support	Individual CBT	WLC, TAU, attention control	Short	×	1	X	x
Akechi <i>et al</i> . ³⁷ 2008	Depressive disorder	Metastatic breast cancer	High	1 (92)	Adults	NR	Group CBT	NA	NA	TAU	NR	≤	1	1	x
Antoniades <i>et al.</i> 48 2014	Depressive disorder	NA	Low	1 (63)	Adults	NR	NA	Culturally adapted internet-based CBT	NA	WLC	Short	x	1	x	X
Apóstolo et al. ⁴⁹ 2015	Depressive disorder	NA	Moderate	1 (92)	Older adults	UK	Individual CBT + TAU (modified for older people)	NA	Talking control group	TAU	Short	1	1	x	x
Babowitch and Antshel ⁵⁵ 2016	Depressive disorder	Substance abuse	Critically low	1 (40)	Adolescents	NR	Individual CBT, family CBT	NA	NA	TAU	Long	x	1	x	x
Beltman <i>et al</i> . ⁵⁹ 2010	Depressive disorder	Cancer, HIV, MS, RA, vascular disease, COPD, renal failure	Moderate	6 (725)	Adults	NR	Group CBT, individual CBT	NA	Other psychotherapy	WLC, TAU	Short	x	1	X	x
Bennett <i>et al.</i> 61 2015	Subthreshold depression	Epilepsy, IBD	Low	2 (71)	Children, adolescents	Serbia and Montenegro, USA	Individual CBT	NA	NA	TAU (counselling, depression information leaflet)	Short-long	1	1	x	1
Briani <i>et al</i> . ⁷⁶ 2018	Depressive disorder	Pain (knee osteoarthritis)	Low	1 (69)	Adults	NR	NA	Internet-based CBT	NA	TAU	Short	≤	1	x	x
Butler <i>et al</i> . ⁸² 2018	Bipolar or related disorder	NA	Low	4 (405)	Adults	UK, USA, Germany, Canada	Individual CBT, individual CBT for insomnia	NA	Psychoeducation, supportive therapy	TAU	Short-long	1	1	x	1
Casacalenda <i>et al.</i> 92 2002	Depressive disorder	NA	Critically low	1 (239)	Adults	NR	Individual CBT	NA	Imipramine (drug), interpersonal therapy	Placebo	Short	x	1	x	x
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295

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							CBT intervention gro	oup	Comparator grou	р	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Clevenger et al. ¹⁰⁴ 2018	Depressive disorder	NA	Critically low	1 (40)	Children, adolescents, adults	NR	Individual CBT + SSRI	NA	SSRI	NA	Long	x	1	x	X
Compton <i>et al</i> . ¹⁰⁶ 2002	Depressive disorder	NA	Critically low	1 (57)	Children, adolescents	NR	Individual CBT	NA	Non-focused supportive intervention	NA	Long	x	1	X	x
Cuijpers <i>et al.</i> ¹¹³ 2009	Subthreshold depression	Subthreshold depression	Critically low	10 (1159)	Adolescent, adults	NR	Group CBT (coping with depression)	Guided self-help CBT (coping with depression)		WLC, TAU	Short	x	1	X	X
Cuijpers et al. ¹¹² 2013	Depressive disorder	NA	Low	9 (506)	Adults	USA, UK, Romania	Acute phase individual CBT + 3 or 4 booster (Beck ⁵⁴² protocol)	NA	Drug	NA	Short-long	X	1	X	x
Cuijpers <i>et al.</i> ¹¹¹ 2017	Depressive disorder	Diabetes	Low	3 (200)	Adults	NR	Individual CBT	NA	Cognitive therapy, behavioural activation	NA	NR	x	1	x	x
Das et al. ¹¹⁴ 2019	Depressive disorder	Heart failure	Critically low	1 (60)	Adults	USA	NR	NA	Exercise	TAU	Short	x	1	x	x
de Mello <i>et al</i> . ¹⁴⁵ 2005	Depressive disorder	NA	Critically low	3 (204)	Adults	NR	Individual CBT	NA	Interpersonal therapy	NA	Short	x	1	x	x
Dekker ¹²³ 2008	Depressive disorder	Stroke, diabetes (type 2)	Critically low	2 (174)	NR	NR	Individual tailored CBT	NA	Diabetes education	Attention placebo, no intervention	Short	x	1	x	X
Demissie <i>et al.</i> ¹²⁴ 2018	Bipolar or related disorder	NA	Low	2 (91)	Adults	Brazil	Group CBT	NA	NA	TAU	Short-long	1	1	1	1
Ebrahim et al. ¹³² 2012	Depressive disorder	NA	Low	8 (1400)	Adults	USA, Canada, Pakistan, Iran, the Netherlands	Mostly individualised face-to-face CBT	Internet-based CBT, CBT (delivered by female health workers)	Drug	No intervention, TAU	NR	x	1	x	x
Escobar and Gorey ¹³⁸ 2018	Depressive disorder	NA	Low	5 (485)	Adults	USA	Group CBT, individual CBT	Telephone CBT	NA	TAU	Short	x	1	x	x
Fernie <i>et al</i> . ¹⁴⁶ 2015	Depressive disorder	Epilepsy	Low	1 (59)	Adults	NR	Individual CBT	NA	NA	WLC	NR	x	1	x	x
Forman-Hoffman et al. ¹⁵³ 2016	Depressive disorder	NA	Low	1 (123)	Children, adolescents	USA, NR	Individual CBT	NA	Drug, CBT + drug	Placebo	Short	1	1	x	x

TABLE 10 Reviews in ICD-11 secondary: mood disorders (6A60-80) (continued)

							CBT intervention gro	pup	Comparator grou	p	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Franco <i>et al</i> . ¹⁵⁶ 2018	Depressive disorder	Diabetes	Critically low	2 (345)	Adults	NR	NA	Internet-based CBT	NA	WLC, TAU	Short	1	1	1	1
Gertler <i>et al.</i> ¹⁶⁵ 2015	Depressive disorder	Brain injury	High	2 (177)	Adults	USA	Individual CBT	NA	Supportive psychotherapy	WLC	Short	1	1	x	x
Griffiths <i>et al.</i> ¹⁸⁰ 2010	Depressive disorder	NA	Low	5 (2166)	Adults	USA	NA	Internet-based CBT	NA	WLC, attention control, passive control		X	1	≤	x
Guidi <i>et al</i> . ¹⁸⁴ 2016	Depressive disorder	NA	Moderate	1 (40)	Adults	NR	Individual CBT	NA	NA	TAU	Long	x	1	x	x
Haibach <i>et al</i> . ¹⁸⁶ 2014	Depressive disorder	Substance abuse	Critically low	1 (66)	Adults	USA	Integrated individual CBT	NA	12-step facilitation	NA	Long	x	1	x	1
Hall and Skelton ¹⁹⁰ 2012	Depressive disorder	Caregivers (dementia)	Critically low	1 (42)	Adults	UK	CBT family intervention for caregivers	NA	NR	NR	Short	x	1	X	x
Hamers <i>et al</i> . ¹⁹¹ 2018	Depressive disorder	Intellectual disabilities	Low	1 (32)	Adults	NR	Manualised individual CBT	NA	NA	TAU	Short	x	1	x	x
Hart et al. ¹⁹⁶ 2012	Depressive disorder	Cancer (mixed)	Low	1 (78)	Adults	USA	NA	Group CBT (delivered by social worker)	Crisis consultation and individual therapy	NA	Short	x	1	X	x
van Hees <i>et al</i> . ²⁰² 2013	Depressive disorder	NA	Low	3 (333)	Adults	NR	Individual CBT	NA	Interpersonal therapy	NA	Short	x	1	x	x
Hennemann et al. ²⁰⁴ 2018	Depressive disorder	NA	Low	1 (84)	Adults	Sweden	NA	Internet-based CBT	NA	TAU	Long	1	1	1	x
Hetrick <i>et al.</i> ²⁰⁵ 2016	Depressive disorder	NA	Moderate	4 (1600)	Children, adolescents	Australia, New Zealand, USA	Manualised group CBT	Telephone CBT	NA	No intervention, TAU, attention placebo	Long	x	1	1	X
Hetrick <i>et al.</i> ²⁰⁶ 2011	Depressive disorder	NA	Moderate	2 (536)	Children, adolescents	UK, NR	Individual CBT + SSRI	NA	SSRI	NA	Short	x	1	x	x
Hides et al. ²⁰⁷ 2010	Depressive disorder	Substance abuse	Critically low	1 (66)	Adults	NR	NA	Group CBT	Group 12-step facilitation	NA	Short	x	1	x	1
Hundt <i>et al.</i> ²¹⁷ 2014	Depressive disorder	Substance use disorder	Critically low	3 (357)	Older adults	NR	Group CBT	Telephone CBT	12-step facilitation	TAU	Short	x	1	x	x
Huntley <i>et al.</i> ²¹⁸ 2012	Depressive disorder	NA	Moderate	3 (113)	Adults	UK	Group CBT + usual care	NA	NA	TAU	Short	x	1	x	x
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							CBT intervention gr	oup	Comparator gro	up	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
ljaz <i>et al.</i> 220 2018	Treatment resistant depressive disorder	Treatment resistant	Moderate	1 (242)	Adults	UK	Individual CBT	NA	NA	TAU	Long	1	1	x	x
Jackson <i>et al.</i> ²²⁴ 2015	Depressive disorder	Epilepsy	Moderate	1 (30)	Adolescents	Serbia	Individual CBT	NA	NA	TAU	Short	1	1	≤	x
Jeyanantham et al. ²³¹ 2017	Depressive disorder	Heart failure	Moderate	5 (204)	Adults	USA	Face-to-face individual CBT \pm telephone sessions (delivered by a therapist)	Face-to-face individual CBT (delivered by nurse) + telephone sessions	Exercise, CBT + exercise	TAU	Short	1	1	x	1
Jiang <i>et al.</i> ²³² 2018	Depressive disorder	Heart failure	Low	5 (383)	Adults	Philippines, USA	Face-to-face group CBT and individual CBT (delivered by a therapist) \pm telephone call	Face-to-face CBT (delivered by nurse) <u>+</u> telephone call	- NR	NR	Short	1	1	,	1
Karyotaki et al. ²⁴⁰ 2017	Depressive disorder	NA	Moderate	13 (3876)	Adults	Switzerland, Australia, the Netherlands, UK, Germany, Spain		Self-guided internet-based CBT	NA	TAU, WLC, attention placebo, no intervention	Short	x	1	x	x
Kavanagh <i>et al.</i> ²⁴¹ 2009	Depressive disorder	NA	Critically low	2 (1153)	Adolescents	USA, Australia	Coping with depression	Coping with depression (delivered by teachers)	NA	No intervention	Short	x	,	1	x
Kiosses <i>et al.</i> ²⁵⁰ 2011	Depressive disorder	NA	Critically low	1 (100)	Older adults	NR	NR	NA	Drug	NA	NR	≤	1	≤	≤
Klein et al.253 2007	Depressive disorder	NA	Critically low	1 (88)	Adolescents	NR	Group CBT	NA	NA	TAU	Long	x	1	x	x
Krishna <i>et al</i> . ²⁶¹ 2015	Depressive disorder	NA	Moderate	1 (96)	Adults	The Netherlands	Group CBT	NA	NA	TAU	Long	x	1	x	x
Lane <i>et al</i> . ²⁶⁴ 2013	Depressive disorder	Congenital heart disease	Moderate	0 (0)	Adolescents, adults	, NR	NA	NA	NA	NA	NA	≤	≤	x	≤
Li et al. ²⁷⁷ 2017	Depressive disorder	Diabetes	Low	3 (336)	Adults	NR	Group CBT/ individual CBT (diabetes specific and generic)	NA	Diabetes education	TAU, WLC	Short	,	1	1	,

TABLE 10 Reviews in ICD-11 secondary: mood disorders (6A60-80) (continued)

disorderLinder et d^{120} 2015Depressive linder et d^{120} 2014NAModerate7 (1273)AdultsNRIndividual CBTTelephone Ethosed intermet-based CETDue, counsellingTAUShort x								CBT intervention gr	oup	Comparator grou	p	Outcome				
disorder operation of a constraint of a solution of a soluti	Study		specific	quality	RCTs (number			intensity					HRQoL	Depression	Anxiety	Conditior specific
disorder Universe Internet based Internet based <td>Li et al.²⁷⁸ 2018</td> <td></td> <td>NA</td> <td>Low</td> <td>2 (468)</td> <td>Adults</td> <td>UK, Japan</td> <td>Individual CBT</td> <td>NA</td> <td>NA</td> <td>TAU</td> <td>Long</td> <td>x</td> <td>1</td> <td>x</td> <td>x</td>	Li et al. ²⁷⁸ 2018		NA	Low	2 (468)	Adults	UK, Japan	Individual CBT	NA	NA	TAU	Long	x	1	x	x
2011 disorder and neck) Individual CBT NA Fluexetine (drug) NA Short X	Linde <i>et al.</i> ²⁸⁰ 2015		NA	Moderate	7 (1273)	Adults	NR	Individual CBT	internet-based	Drug, counselling	TAU	Short	x	1	x	x
disorderindexadolescentsindividual CBTNAEducationNAShort x </td <td></td> <td></td> <td></td> <td>Moderate</td> <td>1 (184)</td> <td>Adults</td> <td>USA</td> <td>NA</td> <td>(delivered by</td> <td>NA</td> <td>TAU</td> <td>Short</td> <td>≤</td> <td>1</td> <td>≤</td> <td>x</td>				Moderate	1 (184)	Adults	USA	NA	(delivered by	NA	TAU	Short	≤	1	≤	x
2011disorderlowMewton and Andrews ³⁸⁸ 2016Depressive uideationCritically lowCritically 	Ma et al. ²⁸⁹ 2014		NA	Low	1 (208)	,	UK	Individual CBT	NA	Fluoxetine (drug)	NA	Short	x	1	x	x
Andrews tideationdisorder ideationsuicide ideationlowImage: Second Sec		•	Diabetes		1 (51)	Adults	NR	Individual CBT	NA	Education	NA	Short	x	1	x	1
2018disorderLowLow5 (631)AdultsTaiwan, England, Adustralia, Hong Kong, SwedenNAGuided internet: based CBTWLC, TAUShort-long \checkmark \checkmark X Napa et al. 325 2017Depressive disorderCaregivers (psychosis)Critically1 (21)AdultsNRFamily CBT relapse preventionNANATAULong X \checkmark X Noh ³³⁴ 2018Depressive disorderHomeless youthCritically1 (27)AdultsNRFamily CBT relapse preventionNANATAULong X \checkmark X Opoka and Lincoln ³⁴⁴ 2017Depressive disorderPsychosisCritically low1 (30)AdultsNRIndividual CBTNANATAUShort X \checkmark \checkmark Opoka and Lincoln ³⁴⁴ 2017Depressive disorderPsychosisCritically low1 (30)AdultsNRIndividual CBTNANATAUShort X \checkmark \checkmark Opoka and Lincoln ³⁴⁴ 2017Depressive disorderDementiaModerate 2 (82)Older adultsUK, USAIndividual CBTNANATAUShort \checkmark \checkmark \checkmark Opoka and Lincoln ³⁴⁴ 2017Depressive disorderDementiaModerate 2 (82)Qlder adultsUK, USAIndividual CBTNANATAUShort \checkmark \checkmark \checkmark Opoka and Lincoln ³⁴⁴ 2014Depressive disorderDementia			suicide		2 (208)	Adults	NR	NR		CBT, interperson therapy, drug + clinical	clinical	Short	X	1	x	X
2017 disorder England, Australia, Hong Kong, Sweden Based CBT Napa et al. ³²⁵ 2017 Depressive Caregivers (psychosis) Critically 1 (21) Adults NR Family CBT relapse prevention NA NA TAU Long X ✓ X Noh ³³⁴ 2018 Depressive disorder Homeless youth 1 (27) Adolescents, Acolescents, Voung adults Group CBT NA NA NA TAU Long X ✓ X Opoka and Lincol ³⁴⁴ 2017 Depressive disorder Psychosis Critically 1 (30) Adults NR Individual CBT NA NA TAU Short X ✓ ✓ Opoka and Lincol ³⁴⁴ 2017 Depressive disorder Psychosis Critically 1 (30) Adults NR Individual CBT NA NA TAU Short X ✓ ✓ ✓ Opola and Lincol ³⁴⁴ 2017 Depressive disorder Dementia Moderate 2 (82) Older adults UK, USA Individual CBT NA NA TAU Short ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓			Epilepsy		1 (NR)	Children	NR	Individual CBT	NR	NR	NR	Short	≤	1	≤	≤
disorder (psychosis) low relapse prevention Noh ³³⁴ 2018 Depressive disorder Homeless youth Critically low 1 (27) Adolescents, Republic of young adults Group CBT NA NA TAU Short X X X Opoka and Lincoln ³⁴⁴ 2017 Depressive disorder Psychosis Critically low 1 (30) Adults NR Individual CBT NA NA TAU Short X ✓ ✓ Opoka and Lincoln ³⁴⁴ 2017 Depressive disorder Psychosis Critically low 1 (30) Adults NR Individual CBT NA NA TAU Short X ✓ ✓ Orgeta <i>et al.</i> ³⁴⁷ 2014 Depressive disorder Dementia Moderate 2 (82) Older adults UK, USA Individual CBT NA NA TAU Short ✓ ✓	Moore et al. ³¹⁸ 2017		NA	Low	5 (631)	Adults	England, Australia, Hong Kong,	Group CBT	NA		WLC, TAU	Short-long	1	1	x	X
disorder youth low young adults Opoka and Depressive Psychosis Critically 1 (30) Adults NR Individual CBT NA NA TAU Short X ✓ ' Lincoln ³⁴⁴ 2017 Depressive Dementia Moderate 2 (82) Older adults UK, USA Individual CBT NA NA TAU Short ✓ ' ✓ 2014	Napa <i>et al</i> . ³²⁵ 2017				1 (21)	Adults	NR		NA	NA	TAU	Long	x	1	x	x
Lincoln ³⁴⁴ 2017 disorder low Orgeta <i>et al.</i> ³⁴⁷ Depressive Dementia Moderate 2 (82) Older adults UK, USA Individual CBT NA NA TAU Short I I I I I I I I I I I I I I I I I I I	Noh ³³⁴ 2018				1 (27)	young	•	Group CBT	NA	NA	TAU	Short	x	1	x	x
2014 disorder			Psychosis		1 (30)	Adults	NR	Individual CBT	NA	NA	TAU	Short	x	1	,	1
			Dementia	Moderate	2 (82)	Older adults	UK, USA	Individual CBT	NA	NA	TAU	Short	1	,	1	1
Osugo and Depressive Intellectual Critically 1 (32) Adults NR Individual CBT NA NA TAU Short ′ ′ ✓ Cooper ³⁵⁰ 2016 disorder disabilities low	Osugo and Cooper ³⁵⁰ 2016	Depressive disorder	Intellectual disabilities		1 (32)	Adults	NR	Individual CBT	NA	NA	TAU	Short	,	,	1	x

Health Technology Assessment 2021 Vol. 25 No. 9

299

							CBT intervention gr	oup	Comparator grou	р	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Oud et al. ³⁵² 2019	Subthreshold depression	Subclinical depression or clinical depressive disorder	Low	4 (976)	Children, adolescents	USA, the Netherlands	Group CBT, individual CBT	Mixed CBT (group CBT/ bibliotherapy CBT/online CBT)	NA	Placebo, online monitoring	Short	1	1	x	x
Pfeiffer <i>et al.</i> ³⁶⁵ 2011	Depressive disorder	NA	Low	7 (488)	Adults	NR	Group CBT	NA	Peer support interventions	NA	Short	x	1	x	x
Riper <i>et al.</i> ³⁸³ 2013	B Depressive disorder	Alcohol misuse	Low	1 (164)	Adults	USA	Individual CBT for depression + TAU	NA	NA	TAU + placebo	Short	x	1	1	1
Robinson <i>et al.³⁸⁶</i> 2011	Depressive disorder	Including suicide ideation	Low	1 (90)	Adolescents, young adults	NR	Individual CBT	NA	NA	TAU	Short	x	1	1	1
Sharp <i>et al.</i> 405 2013	3 Depressive disorder	Diabetes	Moderate	1 (167)	Adults	The Netherlands	NA	Computerised CBT (adapted from coping with depression)	NA	WLC	Short	≤	1	1	1
Shi <i>et al</i> . ⁴⁰⁷ 2018	Depressive disorder	HIV	Low	4 (319)	NR	USA	Individual CBT	NA	Education on HIV medication adherence	TAU	Short-long	x	1	1	1
So et al. ⁴²⁰ 2013	Depressive disorder	NA	Moderate	5 (976)	Adults	Sweden, the Netherlands, Germany	NA	Internet-based CBT (unguided, guided)	NA	WLC, TAU	Short	,	1	X	X
Soares-Weiser et al. ⁴²¹ 2007	Bipolar or related disorder	NA	Moderate	1 (253)	Adults	UK	Individual CBT	NA	NA	TAU	Long	x	X	X	1
Ssegonja <i>et al.⁴²⁷</i> 2019	Subthreshold depression	Subsyndromal	Low	7 (3931)	Children, adolescents		Group CBT ('Friends', 'PRP', 'the resourceful adolescent', 'Friends for life')	Group CBT (delivered by health-care professionals, teachers and psychologists)	Bibliotherapy, supportive expressive therapy	TAU, WLC, brochure, attention control	Long	x	1	x	x
Starkstein and Brockman ⁴²⁸ 2017	Depressive disorder	Parkinson's disease	Critically low	1 (80)	Adults	NR	Individual CBT	NA	NA	Clinical monitoring	Short	x	1	x	x
Taylor and Montgomery ⁴⁴⁴ 2007	Depressive disorder	NA	Low	1 (30)	Adolescents	NR	Group CBT	NA	Relaxation	WLC	Short	x	1	x	x

TABLE 10 Reviews in ICD-11 secondary: mood disorders (6A60-80) (continued)

							CBT intervention gr	oup	Comparator grou	p	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)		Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Conditio specific
Thomas <i>et al.⁴⁴⁸</i> 2006	Depressive disorder	MS	Moderate	3 (106)	Adults	NR	Group CBT, individual CBT	Telephone CBT	Drug	TAU, WLC	Short	≤	1	x	1
Townsend <i>et al.⁴⁵⁴</i> 2010	Depressive disorder	NA	Moderate	1 (93)	Children, adolescents	USA	Group adolescent coping with depression	NA	Life skills tutoring	NA	Long	x	1	≤	X
Twomey <i>et al.⁴⁶²</i> 2017 (Deprexis)	Depressive disorder	NA	Moderate	8 (2402)	Adults	USA, Germany, Switzerland	NA	Computerised CBT (Deprexis)	NA	WLC, TAU	Short	X	1	,	X
Vandepitte <i>et al</i> . ⁴⁷² 2016	Anxiety and depression	Caregivers (dementia)	Low	2 (292)	Adults	Spain	Group CBT	NA	NA	TAU	Short	1	1	x	x
Venning <i>et al.</i> ⁴⁷⁷ 2009	Depressive disorder	NA	Critically low	5 (2195)	Children, adolescents	USA, New Zealand, Australia	Group CBT ['PEP', 'PRP', 'Problem- solving for Life', 'RAP-kiwi', 'the resourceful adolescent')	NA	NA	TAU, NR	Long	x	1	1	x
Wang <i>et al</i> . ⁴⁸⁵ 2008	Depressive disorder	Diabetes	Critically low	1 (42)	Adults	NR	Individual CBT	NA	Diabetes self- management education	NA	Short	x	1	x	1
Wang <i>et al</i> . ⁴⁸⁸ 2017	Depressive disorder	Diabetes	Low	2 (368)	Adults	The Netherlands, Germany	NR	NA	Diabetes education	TAU	Long	x	1	X	x
Wang et al. ⁴⁸⁶ 2018	Depressive disorder	Post stroke	Critically low	22 (1911)	Adults	UK, China	Individual CBT \pm drug	NA	Drug	Placebo, placebo or drug, attention control, TAU	Short	x	1	,	x
Ward ⁴⁸⁹ 2007	Depressive disorder	Racial and ethnic minority women	Critically low	1 (267)	Adults	USA	NR	NA	Drug	TAU	Short	1	1	x	X
Wilson <i>et al</i> . ⁵⁰¹ 2008	Depressive disorder	NA	Moderate	2 (148)	Older adults	USA	Individual CBT	NA	Focused visual imagery, education, psychodynamic therapy	NA	Short	1	1	x	x
Woltz et al. ⁵⁰² 2012	Depressive disorder	Heart failure	Critically low	1 (74)	Adults	USA	Individual CBT	NA	Walking programme	Attention control	Short	x	1	x	x

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TABLE 10 Reviews in ICD-11 secondary: mood disorders (6A60-80) (continued)

							CBT intervention gro	oup	Comparator grou	IP	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Xiao et al. ⁵⁰⁶ 2017	Depressive disorder	Cancer (breast)	Low	1 (60)	Adults	USA	Individual CBT	NA	NA	No intervention	Short	x	1	x	x
Xie et al. ⁵⁰⁷ 2015	Depressive disorder	Parkinson's disease	Moderate	6 (381)	Adults	UK, USA, China	Individual CBT + drug/monitoring, mixed individual CBT + telephone sessions	Bibliotherapy (self-help)	Drug, telephone support	Monitoring, no intervention	Short	x	1	x	1
Yang et al. ⁵¹⁰ 2017	Depressive disorder	NA	Low	3 (93)	Children	NR	Group CBT	NA	NA	WLC, no intervention, placebo	Short	x	1	X	X
Ye et al. ⁵¹² 2016	Bipolar or related disorder	NA	Low	1 (76)	Adults	USA, Germany	Individual CBT	NA	Education, support therapy	NA	Short	x	1	x	1
Zhang <i>et al.⁵¹⁷</i> 2018	Depressive disorder	NA	Critically low	3 (164)	Adults	NR	Individual CBT	Internet-based CBT	NA	Placebo	Long	x	1	x	x
Zhou <i>et al</i> . ⁵²⁰ 2014	Depressive disorder	NA	Low	1 (334)	Adolescents	NR	Individual CBT + drug	NA	Drug	NA	Short	x	1	x	x
Zhou et al.519 2016	Depressive disorder	NA	Low	3 (1066)	Adults	NR	NA	Internet-based CBT	NA	Attention control, WLC	Short-long	1	1	1	x

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data found; ', outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); HIV, human immunodeficiency virus; IBD, irritable bowel disorder; MS, multiple sclerosis; NA, not applicable; NR, not reported; PEP, Penn Enhancement Program; PRP, Penn Resiliency Program; RA, rheumatoid arthritis; RAP, Resourceful Adolescence Program; SSRI, selective serotonin reuptake inhibitor.

The reviews in *Table 11* are labelled using the tertiary-level ICD-11 labels:

- 6B00 Generalised anxiety disorder
- 6B01 Panic disorder
- 6B02 Agoraphobia
- 6B03 Specific phobia
- 6B04 Social anxiety disorder
- 6B05 Separation anxiety disorder
- 6B06 Selective mutism.

TABLE 11 Reviews in ICD-11 secondary: anxiety or fear-related problems (6B00-06)

				N			CBT intervention gro	oup	Comparator grou	p	Outcome				
	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Conditior specific
	GAD, SAD, panic, phobia	NA	Low	34 (2029)	Children, adults	NR	NA	Computerised CBT	High-intensity CBT	WLC	Short	x	x	1	x
Baardseth et al. ⁵⁴ 2013	Anxiety	NA	Critically low	2 (123)	Adults	NR	NR	NA	Short-term dynamic psychotherapy, emotion-focused therapy	NR	NA	X	x	1	1
	GAD, SAD, panic	NA	Critically low	13 (NR)	NR	NR	NR	NA	Drug	NA	Short	x	x	1	x
Caldirola <i>et al.⁸⁴</i> 2018	Panic	NA	Critically low	1 (150)	Adults	The Netherlands	Individual CBT, individual CBT + SSRI	NA	SSRI	NA	Long	x	X	1	x
Carpenter et al. ⁸⁹ 2018	GAD, panic	NA	Moderate	1 (43)	Adults	NR	Individual CBT	NA	NA	Placebo (non-directive)	Short	x	x	1	x
Cartwright- Hatton <i>et al.</i> % 2004	Anxiety	NA	Critically low	10 (636)	Children, adolescents	USA, Australia	Group CBT, individual CBT	NA	NA	WLC	Short	x	X	1	x
Clond ¹⁰⁵ 2016	Anxiety	NA	Critically low	1 (42)	Children, adolescents	USA	A brief form of individual CBT based on 'Coping Cat' and the C.A.T. Project ⁵⁴³	NA	EFT	WLC	Short	X	x	1	X
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				Number			CBT intervention gr	oup	Comparator grou	ıp	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time		. Depression	Anxiety	Condition specific
Davis et al. ¹¹⁸ 2015	GAD, phobia, separation	NA	Critically low	1 (51)	Children, adolescents	NR	Group CBT	NA	NA	WLC	Long	x	1	1	x
de Souza Moura <i>et al.</i> ¹²² 2015	Panic	NA	Critically low	1 (36)	Adults	NR	Individual CBT	NA	Physical exercise	NA	Long	x	x	1	x
Ewing <i>et al</i> . ¹³⁹ 2015	Anxiety	NA	Moderate	20 (2099)	Children	NR	Trans-diagnostic individual CBT or group CBT	NA	NA	WLC	NC	x	x	1	x
Farrer <i>et al.</i> ¹⁴⁴ 2013	SAD, exam anxiety	NA	Low	3 (300)	Adults	Australia, Spain, UK	NA	Internet-based CBT	Education	WLC	Short	x	1	1	x
Foa et al. ¹⁵¹ 2002	GAD, panic	NA	Critically low	2 (425)	Adults	NR	Individual CBT	NA	Drug	Placebo	Short	x	x	1	x
Hall <i>et al.</i> ¹⁸⁹ 2016	GAD	NA	Moderate	5 (242)	Older adults	5 NR	Group CBT, individual CBT	NA	Information only, enhanced usual care, supportive psychotherapy, drug, acceptance and commitment therapy	NA	Short	X	x	1	1
Hendriks et al. ²⁰³ 2008	GAD, panic, SAD, agoraphobia	NA	Low	7 (396)	Older adults	s NR	Group CBT, individual CBT	NA	Supportive psychotherapy	WLC, TAU, discussion group	Short	x	1	1	x
James <i>et al.</i> ²²⁷ 2015	Anxiety	NA	Moderate	10 (707)	Children, adolescents	NR	Group CBT, school- based group CBT, clinic-based group CBT, modular CBT, individual CBT, 'Facing your Fears' programme, manualised group CBT	NA	Group CBT with parental advice, group support and attention, family-based CBT family-based education support, social recreation programme, CBT without cognitive restructuring (IAFS)		Long	x	x	•	x
Jayakody et al. ²²⁸ 2014	Anxiety	NA	Low	0 (0)	Adults	NR	NA	NA	NA	NA	NA	≤	x	≤	x

TABLE 11 Reviews in ICD-11 secondary: anxiety or fear-related problems (6B00-06) (continued)

							CBT intervention gro	up	Comparator group)	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality	Number of RCTs (number of participants)		Country of RCTs	High intensity (description)	Low intensity (description)		Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Kishita and Laidlaw ²⁵² 2017	GAD	NA	Critically low	7 (323)	Older adults	NR	Group CBT, individual CBT	NA	Supportive therapy, telephone calls, discussion groups	WLC	Short	x	x	1	x
Kreslins <i>et al.²⁵⁹</i> 2015	Anxiety	Autistic spectrum disorder	Moderate	7 (283)	Children, adolescents	NR	Group CBT, individual CBT, mixed individual CBT + group CBT	NA	NA	WLC, TAU	Short	x	x	1	X
Kreuze <i>et al.²⁶⁰</i> 2018	Mixed anxiety, SAD	NA	Low	13 (1073)	adolescents	USA, Australia, Germany, UK	Group CBT, individual CBT	Audio CBT, partially guided CBT, computerised CBT		WLC, TAU, placebo	Short	x	,	r	1
Kumar and Malone ²⁶² 2008	Panic	Alcohol dependence	Critically low	2 (122)	Adults	NR	Group CBT, individual CBT	NA	Exposure, alcohol treatment programme, internet self-help	NA	Long	≤	1	1	1
Markowitz et al. ²⁹⁵ 2014	Panic	NA	Critically low	1 (91)	Adults	The Netherlands	Individual CBT	NA	Interpersonal therapy	NA	Short	x	x	1	1
Michail <i>et al</i> . ³¹⁰ 2017	SAD	Psychosis	Moderate	1 (16)	Adults	Australia	Group CBT	NA	NA	WLC	Short	1	1	1	1
Oldham-Cooper and Loades ³⁴² 2017	Anxiety	NA	Low	4 (257)	Children, adolescents	Australia, USA	Manualised individual CBT 'Coping Cat'	NA	NA	WLC	Short	x	X	1	x
Opriș et al. ³⁴⁶ 2012	Phobia (flying)	NA	Critically low	1 (45)	Adults	NR	NR	NA	Behavioural therapy + virtual reality exposure	NA	Short	x	x	1	1
Østergaard ³⁴⁹ 2018	Selective mutism	NA	Critically low	1 (21)	Children	NR	Individual CBT (integrated behaviour therapy for selective mutism)	NA	NA	WLC	Short-long	x	x	1	,
Pateraki and Morris ³⁵⁸ 2018	Anxiety	Asthma	Moderate	1 (94)	Children, adolescents, adults	UK	Individual CBT	NA	NA	TAU	Short	x	x	1	x
Perna and Caldirola ³⁶¹ 2017	Panic (treatment resistant)	NA	Critically low	1 (58)	Adults	NR	Individual CBT	NA	SSRI	NA	Short	x	x	1	1
Perna <i>et al.³⁶²</i> 2011	Agoraphobia with panic	NA	Critically low	1 (49)	Older adults	NR	NR	NA	Drugs	WLC	Short	x	x	1	1
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305

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							CBT intervention gro	oup	Comparator grou	ıp	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	- Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Podina <i>et al.</i> ³⁶⁸ 2016	Anxiety	NA	Critically low	8 (404)	Children, adolescents	NR	NA	Internet-based CBT	High-intensity CBT	WLC	Short	x	x	1	x
Pompoli <i>et al.³⁷⁰</i> 2016	⁹ Panic with or without agoraphobia	NA	Moderate	18 (1090)	Adults	NR	Group CBT, individual CBT	NA	NA	WLC	Short	x	x	1	1
Provencher et al. ³⁷² 2011	Anxiety	Bipolar	Critically low	1 (108)	NR	NR	Individual CBT for PTSD	NA	NA	TAU	Short	x	≤	1	1
Reinholt and Krogh ³⁸¹ 2014	Anxiety	NA	Critically low	5 (1240)	Adults	NR	Trans-diagnostic group CBT and individual CBT	NA	NA	TAU, WLC	Short	x	x	1	X
Schade <i>et al</i> . ³⁹⁵ 2003	Anxiety	Substance abuse (alcohol)	Critically low	2 (206)	Adults	NR	Group CBT, individual CBT	NA	Substance abuse treatment	NA	Short	x	x	1	1
Schwartze et al. ³⁹⁸ 2017	Panic	NA	Low	1 (12)	Adults	NR	Group CBT	NA	Drug	NA	Short	x	,	1	1
Singh and Gorey ⁴¹¹ 2018	SAD	NA	Critically low	1 (26)	Adults	NR	Individual CBT	NA	Mindfulness- based cognitive therapy	NA	Short	x	x	1	X
Singh and Servern ⁴¹⁰ 2018	Anxiety 3	NA	Critically low	3 (326)	Adults, older adults	Romania, Sweden, Switzerland, Austria, Germany	NA	Internet-based CBT guided group, unguided and guided individual CBT	NA	WLC	Short	1	1	1	x
Stoll et al. ⁴³³ 2017	Anxiety	Chronic fatigue syndrome/ myalgic encephalomyelitis	Low	1 (112)	Children, adolescents	The Netherlands	NA	Internet-based CBT	NA	TAU	Short-long	X	x	1	J
Stratford et al. ⁴³⁴ 2015	Anxiety	Bipolar	Critically low	2 (149)	Adults	USA, Brazil	Group CBT and individual CBT for borderline personality disorder and PTSD	NA	NA	TAU	Short	X	x	1	x
Sukhodolsky et al. ⁴³⁵ 2013	Anxiety	Autism	Moderate	5 (224)	Children, adolescents	NR	Group CBT, individual CBT	NA	Social recreation	WLC, TAU	Short	x	x	1	x
Torous <i>et al</i> . ⁴⁵³ 2017	SAD	NA	Critically low	1 (52)	Adults	NR	NA	CBT app	Interpersonal therapy app	NA	Short	x	≤	1	x
Usmani et al. ⁴⁶⁴ 2017	Anxiety	COPD	High	1 (238)	Adults	USA	Group CBT	NA	Education	NA	Long	1	x	1	1

TABLE 11 Reviews in ICD-11 secondary: anxiety or fear-related problems (6B00-06) (continued)

				Neurobeu			CBT intervention gro	up	Comparator grou)	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Verberne et al. ⁴⁷⁸ 2018	Anxiety	Acquired brain injury	Low	1 (12)	Adults	NR	Individual CBT	NA	NA	WLC	Short	x	x	1	x
Waddell <i>et al</i> . ⁴⁸² 2007	Anxiety	NA	Critically low	1 (594)	Children, adolescents	Australia	NA	'Friends' child group CBT (delivered by teachers)	NR	NR	Long	x	1	1	X
Wang et al. ⁴⁸⁷ 2017	Anxiety	NA	Low	20 (1811)	Children, adolescents	Australia, USA, Spain, Mexico, Ireland	Group CBT, individual CBT, mixed group CBT + individual CBT	NA	Education, non-specific counselling	Placebo, no intervention, TAU, group attention support	Short	x	X	1	X
Warwick et al. ⁴⁹⁰ 2017	Anxiety	Autistic spectrum disorders	Critically low	19 (1085)	Children, adolescents	NR	Group CBT, individual CBT	NA	NR	WLC	Short	x	x	1	x
Wersebe et al. ⁴⁹⁷ 2013	SAD	NA	Low	8 (403)	Adults	USA, China, Europe, Australia, NR	Group CBT, intensive group CBT	NA	NA	Placebo, WLC, TAU	Short	x	x	1	1
Wide Boman et al. ⁴⁹⁹ 2013	Phobia (dental)	NA	Low	1 (41)	Adults	USA	NR	NA	Behavioural therapy	WLC, positive dental experience	Long	≤	x	1	x
Yang et al. ⁵⁰⁹ 2018	SAD	NA	Moderate	14 (1000)	Children, adolescents	NR	Group CBT, individual CBT	Internet-based CBT	Not used in analysis	WLC, placebo, no intervention	Short	,	,	1	x
Zhou <i>et al.⁵²¹</i> 2018	GAD, SAD, panic, separation, selective mutism	ΝΑ	Low	78 (5035)	Children, adolescents	Spain, UK, Iran, Norway, the	Group CBT ± parental involvement, individual CBT ± parental involvement, parent CBT, mixed individual CBT + group CBT	Internet-based CBT, bibliotherapy CBT	Bibliotherapy CBT, group behavioural therapy, individual behavioural therapy + parental involvement	No intervention, WLC, TAU, placebo	Short	1	×	1	X
Zhu <i>et al.⁵²²</i> 2014	GAD	NA	Moderate	4 (199)	Adults	NR	Group CBT, individual CBT	NA	Non-directive therapy, minimal contact control, supportive psychotherapy, discussion groups	NA	NR	x	X	1	x

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data found; app, application; ', outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); C.A.T., Cognitive-behavioural Therapy for Anxious Adolescents; EFT, emotional freedom technique; GAD, generalised anxiety disorder; IAFS, Intervention with Adolescents with Social Phobia; NA, not applicable; NR, not reported; PTSD, post-traumatic stress disorder; SAD, social anxiety disorder; SSRI, selective serotonin reuptake inhibitor.

CBT intervention group **Comparator group** Outcome Number Comorbid/ AMSTAR-2 of RCTs High Condition (number of Country of Non-active Follow-up Condition specific quality intensity Low intensity Active Study description rating participants) Age RCTs (description) (description) (description) (description) time HRQoL Depression Anxiety specific symptoms Dèttore et al.126 OCD NA Moderate 5 (420) Children, Sweden, NA Internet-based Online non-WLC Short 1 1 x 1 2015 adolescents. UK. USA. directive therapy, CBT, behavioural adults Australia, UK therapy steps, progressive and USA web-camera relaxation. mixed family-based bibliotherapy CBT Funderburk Hypochondriasis NA Critically 2 (104) Adults NR Individual CBT. NA Physiotherapy/ WLC Short 1 1 x X et al.159 2018 enhanced individual low exercise CBT, individual CBT + physiotherapy Grist and OCD NA Moderate 1 (204) NR NA Computerised E-mail therapy NA Short 1 1 Adults x Cavanagh¹⁸¹ CBT 2013 NA Children, NR WLC Short X Harrison Body Moderate 5 (225) Individual CBT Internet-based Anxiety x X 1 et al.¹⁹⁵ 2016 adolescents, dysmorphic CBT management, disorder adults psychoeducation + telephone calls. supportive therapy Ipser et al.221 NA 2 (73) NR Individual CBT NA WLC, no Body High Adults NA Short 1 1 \leq 1 2009 dysmorphic intervention disorder Julien et al.237 OCD NA NR Short Critically 2 (134) NR Individual CBT NA Inference-based NA 1 1 1 2016 low therapy, exposure and response prevention therapy O'Kearney OCD NA Moderate 6 (351) Children, Australia, Individual CBT, group NA Placebo, WLC, Short 1 Medication 1 \leq 1 et al.340 2006 adolescents USA. CBT, family CBT NR Brazil. the Netherlands, UK Petricone-Hypochondriasis Diabetes, Critically 3 (NR) Adults NR NR Internet-based Motivational Online Short X X X 1 CBT Westwood cardiac, low enhancement discussion, NR et al.³⁶⁴ 2018 cancer therapy

TABLE 12 Reviews in ICD-11 secondary: obsessive-compulsive or related disorders (6B20-25)

							CBT intervention g	oup	Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	. Depression	Anxiety	Condition specific
Schwartze et al. ³⁹⁷ 2016	OCD	NA	Moderate	3 (253)	Adults	NR	Group CBT	NA	Drug	NA	Short-long	x	1	1	1
Skapinakis et al. ⁴¹² 2016	OCD	Depression	Moderate	9 (231)	Adults	NR	Individual CBT	NA	Drug	WLC, placebo	Short	x	x	1	1
Stock and Andrews ⁴³¹ 2004	OCD	NA	Critically low	1 (112)	Children, adolescents	NR	Individual CBT	NA	Drug	Placebo	Short	x	X	1	1
Thomson and Page ⁴⁵⁰ 2007	Hypochondriasis	NA	Moderate	3 (294)	Adults	UK, the Netherlands, USA	Individual CBT	NA	NA	WLC, TAU, placebo	Short-long	x	1	1	1
Watson and Rees ⁴⁹² 2008	OCD	Paediatric OCD	Critically low	4 (189)	Children, adolescents	UK, Australia, USA	Individual CBT, group CBT, mixed individual CBT + group CBT	NA	NA	WLC, placebo	Short	X	x	1	1
Weston <i>et al.</i> ⁴⁹⁸ 2016	OCD	Autism spectrum disorder	Low	1 (46)	Adolescents, adults	UK	Individual CBT	NA	Anxiety management	NA	Short	x	,	1	1
Williams et al. ⁵⁰⁰ 2006	Body dysmorphic disorder	NA	Critically low	1 (19)	Adults	NR	Individual CBT	NA	NA	WLC	Short	x	1	X	,
Wootton ⁵⁰⁴ 2016	OCD	NA	Critically low	6 (462)	Children, adolescents, adults	Sweden, UK, USA, Norway, Australia, multiple countries	NA	Remote CBT (internet-based CBT, computerised CBT, video conferencing CBT, bibliotherapy CBT, telephone CBT)	Face-to-face CBT, relaxation	WLC, attention control	Short-long	x	x	1	1

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data found; ', outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); NA, not applicable; NR, not reported; OCD, obsessive-compulsive disorder.

9

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							CBT intervention gro	oup	Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Arends <i>et al.</i> ⁵⁰ 2012	Adjustment disorder	NA	Moderate	2 (204)	Adults	Netherlands	Group CBT, individual CBT	NA	NA	TAU, no intervention	Long	≤	1	x	x
Bisson ⁶⁹ 2010	PTSD	Physical injury	Critically low	3 (358)	Adults	NR	Individual CBT	NA	Person-centred therapy	TAU, no intervention	Short-long	x	1	1	1
Blainey ⁷⁰ 2012	PTSD	Birth trauma	Critically low	1 (56)	Adults	NR	Individual CBT	NA	NA	TAU	NR	x	X	1	1
Brooks <i>et al.</i> ⁷⁷ 2018	PTSD	NA	Critically low	1 (21)	Adults	USA	Individual CBT (modified for disaster workers)	NA	NA	TAU	Short	x	✓	1	1
Cary and McMillen ⁹¹ 2012	PTSD	NA	Critically low	3 (333)	Children, adolescents	NR	Trauma-focused individual CBT	NA	NA	WLC, standard community care, non- directive supportive care	C	X	1	1	1
Chen <i>et al.</i> % 2018	PTSD	Sexual abuse	Low	1 (14)	Children	Syria	Individual CBT	NA	EMDR	NA	Short	x	≤	≤	1
Ehring <i>et al</i> . ¹³⁵ 2014	PTSD	NA	Low	1 (74)	Adults	NR	Trauma-focused individual CBT	NA	Present-centred therapy	WLC	Short	x	1	1	1
Field and Cottrell ¹⁴⁷ 2011	PTSD L	Sexual abuse	Critically low	1 (14)	Children	Iran	Individual CBT	NA	EMDR	NA	Short	x	x	1	1
Forman- Hoffman et al. ¹⁵⁴ 2018	PTSD	Combat assault	Low	9 (809)	Adults	NR	Individual CBT 'Seeking safety'	NA	Exposure therapy, imaginal exposure, relaxation	WLC,TAU	Short	,	1	1	X
Forneris <i>et al.</i> ¹⁵⁵ 2013	⁵ PTSD	Motor vehicle, industrial, non-sexual assault	Low	3 (105)	Adults	Australia	Brief individual CBT	NA	Supportive counselling	NA	Short	x	1	1	1
Furuta <i>et al</i> . ¹⁶⁰ 2018	PTSD	Traumatic birth	Low	2 (161)	Adults	Sweden, USA	Trauma-focused individual CBT	Internet-based CBT + TAU	NA	WLC + TAU, attention control + TAU	Short	x	x	1	1
Gillies et al. ¹⁶⁹ 2016	PTSD	Exposed to traumatic events	Moderate	5 (319)	Children, adolescents	USA, Netherlands, Iran	Trauma-focused individual CBT	NA	Play therapy, EMDR	TAU	Short	≤	1	1	1
Guest <i>et al.</i> ¹⁸³ 2016	PTSD	Post vehicle accident	Low	2 (95)	Adults	China, Germany	Individual CBT	NA	Self-help book CBT	WLC	Short	x	1	1	1

TABLE 13 Reviews in ICD-11 secondary: disorders specifically associated with stress (6B40-45)

							CBT intervention gro	oup	Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition y specific
Ho and Lee ²¹² 2012	PTSD	NA	Critically low	8 (227)	Adults	NR	Trauma-focused individual CBT	NA	EMDR	NA	Short	x	1	1	1
Khan <i>et al</i> . ²⁴⁷ 2018	PTSD	Traumatic events	Critically low	1 (23)	Adults	NR	NR	NA	EMDR	NA	Short	x	1	,	,
Kim <i>et al.²⁴⁹</i> 2013	PTSD	NA	Moderate	1 (55)	NR	USA	Individual CBT	NA	NA	WLC	NR	x	1	1	1
Kowalik <i>et al.²⁵⁷</i> 2011	PTSD	Sexual abuse	Critically low	4 (427)	Children	NR	Individual CBT or parent-child CBT, sexual specific/ trauma-focused/ adapted for sexually abused pre-school children (CBT-SAP)	NA	Non-directive support therapy, child-centred play therapy	NA	Short	x	x	1	V
Leigh-Hunt and Perry ²⁷² 2015	PTSD	Offenders	Low	1 (44)	Adults	USA	Group CBT	NA	NA	TAU	Short	≤	≤	1	1
Lewis <i>et al.²⁷⁵</i> 2018	PTSD	NA	High	6 (437)	Adults	USA, Sweden, Iraq, UK	NA	Internet-based CBT	Other internet- based psychological therapy	WLC, TAU	Short	1	1	1	1
Mabey and van Servellen ²⁹⁰ 2014	PTSD	Severe mental illness (depression, bipolar, schizophrenia)	low	1 (108)	Adults	USA	Individual CBT	NA	NA	TAU	Short	≤	1	1	1
Macedo <i>et al.²⁹²</i> 2018	PTSD	NA	Moderate	1 (156)	Adults	NR	Individual CBT	NA	Brief treatment programme (breathing + psychoeducation)	NA	Long	X	x	1	x
Moreno-Alcázaı et al. ³²⁰ 2017	PTSD	NA	Moderate	3 (119)	Children, adolescents	NR	Individual CBT	NA	EMDR	NA	Short	x	1	1	1
Nocon <i>et al.³³³</i> 2017	PTSD	War displacement	Critically low	1 (399)	Children	Sri Lanka	Individual CBT	NA	NA	WLC	Short	x	1	1	1
O'Donnell et al. ³³⁸ 2018	Adjustment disorder	NA	Critically low	1 (54)	Adults	NR	NA	Self-help bibliotherapy	NA	WLC	Short	x	1	1	x
Palic and Elklit ³⁵⁵ 2011	PTSD	Refugees	Critically low	5 (106)	Adults	Vietnam, Cambodia, mixed southern Asian nationality	Culturally sensitive individual CBT for South East Asians, individual CBT	NA	Psychoactive medication, exposure therapy	WLC	Short	1	1	1	1

311

TABLE 13 Reviews in ICD-11 secondary: disorders specifically associated with stress (6B40-45) (continued)

							CBT intervention gro	oup	Comparator group		Outcome				
Study	Condition description		AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
de Medeiros Passarela <i>et al.</i> ³⁰³ 2010	PTSD	Sexual abuse	Low	2 (136)	Children, adolescents	USA, Australia	Family/parent CBT	NA	NA	TAU	Short	X	X	1	1
Patel <i>et al</i> . ³⁵⁷ 2014	PTSD	Torture survivors	High	1 (16)	Adults	Sweden	Individual CBT	NA	Behavioural exposure	NA	Short	1	1	1	1
Roberts <i>et al</i> . ³⁸⁵ 2009	PTSD	NA	Moderate	3 (248)	Adults	NR	Trauma-focused individual CBT	NA	Supportive counselling	WLC	Long	x	X	1	1
Roberts <i>et al</i> . ³⁸⁴ 2016	PTSD	Substance misuse	Moderate	1 (353)	Adults	USA	Group CBT or individual CBT: 'seeking safety', integrated CBT	NA	Group women's health education	NA	Short-long	X	X	1	1
Rodenburg et al. ³⁸⁷ 2009	PTSD	NA	Critically low	2 (52)	Children, adolescents	NR	NR	NR	EMDR	NA	Short	x	x	1	1
Russell and Davis ³⁹¹ 2007	PTSD	Sexual assault	Critically low	1 (10)	Adults	NR	NR	NA	NA	WLC	Short	x	1	x	1
Schwartze <i>et al.³⁹⁹ 2017</i> (PTSD)	PTSD	NA	Moderate	1 (24)	Adults	NR	Culturally adapted group CBT	NA	Applied muscle relaxation + TAU	NA	Short	X	,	1	1
Sebastian and Nelms ⁴⁰² 2017	PTSD	Sexual violence	Critically low	1 (50)	NR	Democratic republic of Congo	NR	NA	EFT	NA	Short	X	≤	1	1
Silverman <i>et al.⁴⁰⁸ 2008</i>	PTSD	Sexual abuse, traumatic event	Critically low	3 (164)	Children, adolescents	Iran, NR	Trauma-focused group CBT, trauma- focused individual CBT	NA	EMDR	WLC	Short	x	1	1	1
Sin <i>et al</i> . ⁴⁰⁹ 2017	PTSD	Psychosis	Moderate	3 (145)	Adults	USA, UK	Trauma-focused individual CBT	NA	Brief psychoeducation	TAU	Short-long	1	1	1	✓
Soo and Tate ⁴²² 2007	Acute stress disorder	Traumatic brain injury	Moderate	1 (24)	Adults	UK	Individual CBT	NA	Supportive counselling	NA	Short	X	X	1	X

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Study	Condition description		AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Sullivan and Simonson ⁴³⁶ 2016	PTSD	Refugees	Critically low	1 (31)	Children, adolescents	USA (refugees/ immigrants from Burundi, Congo, Kenya, Liberia, Rwanda, Somalia, Tanzania, Myanmar, Nepal, Russia, Bosnia, Afghanistan, Iraq, Turkey and Uzbekistan)	Trauma-focused individual CBT	NA	Child-centred play therapy	NA	Short	X	X	•	X
Swan <i>et al</i> . ⁴³⁹ 2017	PTSD	Psychosis	Critically low	1 (108)	Adults	USA	Individual CBT	NA	NA	TAU	Short	x	1	1	≤
Torchalla and Strehlau ⁴⁵² 2018	PTSD	Workplace trauma	Critically low	1 (31)	Adults	USA	Trauma-focused individual CBT	NA	NA	No intervention	Short	x	X	1	X
data identified,	but unable to	extract becaus	e of insufficie	ent informatio	n (e.g. which i	ndividual studies o	arched for in the reviev contributed to this outco applicable; NR, not rep	ome, relevant data	pooled with non-CBT	or non-RCT stud					

Outcome

Comparator group

CBT intervention group

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9

							CBT intervention gro	up	Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Brownley et al. ⁷⁸ 2016	BED	NA	Low	7 (699)	Adults	USA	Therapist-led individual CBT, partially therapist-led individual CBT	Guided or pure self help	Interpersonal therapy	WLC	Short	x	1	x	1
de Jong <i>et al.</i> ¹²⁰ 2018	Bulimia nervosa, BED, EDNOS	NA	Low	1 (130)	Adults	UK	NR	NA	Interpersonal therapy	NA	Long	x	x	x	1
Flament <i>et al</i> . ¹⁴⁸ 2012	⁸ BED and anorexia nervosa	NA	Critically low	1 (108)	Adults	Italy	Individual CBT	NA	Drug	NA	Long	x	x	X	1
Flodgren et al. ¹⁵⁰ 2015	BED	NA	High	1 (128)	Adults	USA	NA	Video- teleconference CBT	Face-to-face CBT	NA	Short	1	1	X	1
Ghaderi and Andersson ¹⁶⁶ 1999	Mixed	NA	Critically low	5 (334)	NR	NR	NR	NA	Drug, supportive– expressive therapy, interpersonal therapy	WLC	Short	x	x	X	1
Ghaderi <i>et al.</i> ¹⁶⁷ 2018	Bulimia nervosa	NA	Moderate	9 (949)	Adults	USA, Switzerland, the Netherlands	Individual CBT, group CBT, mixed individual CBT + group CBT	Self-help, guided self-help	Interpersonal therapy, behavioural weight loss	WLC, placebo	Short-long	≤	1	X	1
Grenon <i>et al.</i> ¹⁷⁹ 2017	BED	NA	Moderate	4 (328)	Adults	USA, Canada	Group CBT	NA	Behavioural therapy, interpersonal therapy, group psychodynamic interpersonal therapy	NA	Short	X	,	x	J
Grenon <i>et al.</i> ¹⁷⁸ 2018	Bulimia nervosa, BED	NA	Critically low	1 (42)	Adults	USA	Group CBT	NA	Behavioural therapy	NA	Short	x	,	X	1
Hay and Claudino ²⁰⁰ 2010	Mixed	NA	Critically low	3 (220)	Adults	NR	Individual CBT for bulimia nervosa	NA	Guided self-help CBT	WLC	Short	≤	1	X	1
Hay et al. ²⁰¹ 2012	Bulimia nervosa	NA	Low	1 (33)	Adults	NR	Individual CBT	NA	Individual nutritional counselling	NA	Long	x	x	x	1
Hay <i>et al.</i> ¹⁹⁹ 2001	Anorexia nervosa	NA	Moderate	4 (141)	Adults	USA, Canada	Individual CBT	NA	Drug	NA	Short	x	1	x	1

TABLE 14 Reviews in ICD-11 secondary: feeding or eating disorders (6B80-85)

						CBT intervention gro		Comparator group		Outcome				
		AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Conditio specific
Bulimia nervosa	NA	Moderate	17 (1367)	Adults	USA, Canada, UK, Australia	Group CBT or individual CBT for bulimia, mixed group CBT + individual CBT	NA	Self-monitoring, CBT/exposure and response prevention, interpersonal therapy, behavioural therapy, short-term focal psychotherapy, psychoeducation, supportive- expressive therapy, prescriptive therapy non-directive counselling and 'focused evocative unfolding'	WLC, no intervention	Short	X	1	X	J
Anorexia nervosa	NA	Moderate	2 (56)	Adults	New Zealand, Germany	Individual CBT	NA	Interpersonal therapy, SSCM, FPDT	Optimised TAU	Long	x	1	X	1
BED	NA	Low	5 (494)	Adults	NR	Group CBT, individual CBT	NA	Weight loss treatment, drug	NA	Short	x	,	x	1
Bulimia nervosa, EDNOS	NA	Critically low	1 (85)	Adolescents	NR	NA	CBT guided self-care	Family therapy	NA	Long	x	X	x	1
Anorexia nervosa, bulimia nervosa, BED, EDNOS	NA	Low	4 (474)	Adults	NR	NA	Internet-based CBT, CD-ROM CBT	High-intensity face-to-face CBT	WLC, TAU	Short-long	X	x	x	1
Anorexia nervosa	NA	Low	1 (56)	Adults	NR	Individual CBT	NA	Interpersonal therapy	Non-specific supportive clinical management	Short	X	x	x	1
Mixed	NA	Critically low	5 (249)	Adults	Australia, UK, USA, Germany	Enhanced individual CBT	NA	NR	NR	Short	x	x	x	1
BED	NA	Low	3 (261)	Adults	USA, Switzerland	Group CBT, individual CBT	Guided self-help	Behavioural weight loss therapy, interpersonal therapy	NA	Long	x	×	x	1
	Anorexia ervosa Bulimia ervosa BED Bulimia ervosa, ED Bulimia ervosa, BED, DNOS Anorexia ervosa, BED, DNOS Anorexia ervosa BED, DNOS Anorexia ervosa BED, DNOS	Condition lescriptionspecific symptomsRulimia lervosaNAAutorexia lervosaNAREDNABulimia lervosa, DNOSNARervosa, lervosa, DNOSNARervosa, lervosa, lervosa, lervosa, NANARervosa, lervosa, lervosa, NANARervosa, lervosa, lervosa, NANARervosa, lervosa, lervosa, NANARervosa, lervosa, lervosa, NANARervosa, lervosa, lervosaNARervosa, lervosaNARervosa, lervosaNARervosa, lervosaNARervosa, lervosaNA	Condition lescriptionspecific symptomsquality ratingRulimia lervosaNAModerateNAModerateModerateRervosaNAModerateREDNALowRervosa, lervosa, DNOSNALowRervosa, lowNACritically lowNANALowRervosa, lowNALowRervosa, lowNALowRervosa, lowNALowRervosa, lowNALowRervosa, lowNALowRervosa, lowNALowRervosa, lowNALow	Condition lescriptionspecific symptomsquality rating(number of patients)Rulinia lervosaNAModerate17 (1367)NAModerate17 (1367)NAModerate2 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MacerNALow3 (241)AdultsLostralia, UK, USA, Germany	condition escriptionsspecific ratingquality patients)fummer of AgeCountry of RCTsintensity (description)hulimia ervosaNAModerate17 (1367)AdultsUSA, Canada, UK, AustraliaGroup CBT or individual CBT for bulimia, mixed group CBT + individual CBTunorexia ervosaNAModerate2 (56)AdultsNew Zealand, 	Jondition specific patients) quality patients) (number of patients) Country of Age Intensity (description) Low intensity (description) NA Moderate 17 (1367) Adults USA, Canada, UK, Australia Group CBT or individual CBT for bulimia, mixed group CBT + individual CBT NA unorexia NA Moderate 2 (56) Adults New Zealand, Germany Individual CBT NA tED NA Low 5 (494) Adults NR Group CBT, individual CBT NA tervosa NA Critically low 1 (85) Adolescents NR NA CBT guided self-care NA Critically invorskia Low 4 (474) Adults NR NA CBT guided self-care NA Low 1 (56) Adults NR NA Internet-based CBT, CD-ROM CBT NA Critically low 1 (56) Adults NR Individual CBT NA 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				N			CBT intervention gr	oup	Comparator group		Outcome				
Study		Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Peat <i>et al</i> . ³⁵⁹ 2017	BED	NA	Critically low	2 (170)	Adults	NR	Group CBT	NA	Behavioural weight loss therapy	NA	Long	x	1	x	1
Pittock <i>et al.³⁶⁷</i> 2018	Bulimia nervosa	NA	Low	1 (196)	Adults	USA	NA	Internet-based CBT	Face-to-face CBT	NA	Long	x	x	x	1
Polnay <i>et al.³⁶⁹</i> 2014	Bulimia nervosa	NA	Moderate	3 (133)	Adults	USA, Norway	Group CBT (delivered by doctoral qualified psychologists)	NA	NA	WLC	Short	x	1	x	1
Reas and Grilo ³⁷⁸ 2008	BED	NA	Critically low	1 (108)	Adults	USA	Individual CBT	NA	Fluoxetine	Placebo	Short	x	x	x	1
Svaldi <i>et al</i> . ⁴³⁸ 2018	Bulimia nervosa	NA	Moderate	4 (295)	Adolescents, adults	NR	Individual CBT	NA	(Active arms not included in analysis)	WLC	Short	x	1	x	1
Watson <i>et al</i> . ⁴⁹¹ 2016	Mixed	NA	Low	1 (76)	Adults	USA	NA	Internet-based CBT	Psychoeducation	NA	Short	x	x	x	1

TABLE 14 Reviews in ICD-11 secondary: feeding or eating disorders (6B80-85) (continued)

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data found; ', outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); CD-ROM, compact disc read-only memory; BED, binge-eating disorder; EDNOS, eating disorder not otherwise specified; FPDP, Focal Psychotherapy; NA, not applicable; NR, not reported; SSCM, Specialist Supportive Clinical Management.

TABLE 15 Reviews in ICD-11 secondary: disorders of bodily distress or bodily experience (6C20-21)

				Number			CBT intervention gro	oup	Comparator group		Outcome				
Study	Condition description		AMSTAR-2 quality rating		Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Nezu <i>et al.³²⁸</i> 2001	Bodily distress or experience disorder	NA	Critically low	1 (50)	Adults	NR	Group CBT	NA	NA	WLC	Short	x	1	x	1
van Dessel et al. ⁴⁶⁹ 2014	Bodily distress or experience disorder	NA	High	4 (504)	Adults	USA, Spain, Germany, the Netherlands	Group CBT, individual CBT	NA	Progressive muscle relaxation	TAU	Short-long	1	1	1	1

, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; NA, not applicable; NR, not reported.

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Health Technology Assessment 2021 Vol. 25

No. 9

TABLE 16 Reviews in ICD-11 secondary: disorders due to substance use or addictive behaviours (6C40-51)

				Number			CBT intervention gro	oup	Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating		Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression		Condition specific
Dugosh <i>et al</i> . ¹³⁰ 2016	Opioid addiction	NA	Critically low	1 (60)	NR	NR	Individual CBT + methadone maintenance treatment	NA	Methadone maintenance treatment	NA	Long	1	X	x	x
Eccleston et al. ¹³³ 2017	Opioid misuse	Chronic back/ neck pain	Moderate	1 (42)	Adults	NR	Group CBT, individual CBT for the prevention of opioid misuse	NA	NA	TAU	Short	X	1	1	1
Harada <i>et al</i> . ¹⁹³ 2018	Due to use of stimulants	Amphetamine- type stimulants	High	1 (160)	Adults	Australia	NA	Internet-based CBT	NA	WLC	Short	1	x	x	x
Minozzi <i>et al.</i> ³¹² 2016	Due to use of hallucinogens	Psychostimulant	High	0 (0)	Adults	NA	NA	NA	NA	NA	NA	x	≤	X	≤
Stevens <i>et al.</i> ⁴²⁹ 2018	Internet gaming disorder	NA	Critically low	3 (148)	Adolescents, NR	China, Republic of Korea, NR	Group CBT, group CBT + medication	NA	Medication only, physical exercise	No intervention	Short	x	1	1	x
van der Maas <i>et al.⁴⁶⁸</i> 2019	Gambling disorder	NA	Critically low	1 (66)	Adults	Sweden	NA	Internet-based CBT and e-mail and discussion groups	NA	WLC	Long	X	1	1	x

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data identified and extracted; X, not reported.

TABLE 17 Reviews in ICD-11 secondary: personality disorders and related traits (6D10-11)

				Marchan			CBT intervention gro	oup	Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Davidson and Tran ¹¹⁵ 2014	Personality disorder	NA	Critically low	1 (106)	Adults	NR	Individual CBT for personality disorder	NA	NA	TAU	Long	x	1	x	x
Gibbon <i>et al.</i> ¹⁶⁸ 2010	Personality disorder	Cocaine dependence	Moderate	1 (43)	Adults	UK	Individual CBT	NA	NA	TAU	Short	≤	1	1	x
Matusiewicz et al. ²⁹⁸ 2010	Personality disorder	NA	Critically low	4 (348)	Adults	NR	Individual CBT	NA	Brief dynamic therapy, brief relational therapy	WLC, TAU	Short	x	1	1	1
Stoffers <i>et al</i> . ⁴³² 2012	Personality disorder	NA	Moderate	1 (106)	Adults	UK	Individual CBT	NA	NA	TAU	Short	x	1	1	1

, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; </

TABLE 18 Reviews in ICD-11 secondary: neurocognitive disorders (6D70-72)

				Neurskau			CBT intervention gro	oup	Comparator group		Outcome				
Study	Condition description	tion symptoms rating patients) Age RCT	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific			
Sleight ⁴¹⁵ 2016	Mild neurocognitive disorder		Critically low	1 (41)	Adults	USA	Individual CBT intervention 'Memory and Attention Adaption Training'	NA	NA	WLC	Short	1	x	x	X

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; NA, not applicable.

							CBT intervention gro	oup	Comparator group		Outcome				
Study	Condition description		AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Bledsoe and Grote ⁷¹ 2006	Depressive disorder	Pregnancy and postpartum depression	Critically low	3 (172)	Adults	UK, France	Home-based individual CBT	NA	NA	TAU, placebo, NR	Short	X	1	x	x
Craig and Howard ¹⁰⁹ 2009	Postnatal depression	NA	Critically low	5 (502)	Adults	NR	Individual CBT, individual CBT + antidepressants, group CBT	Individual CBT (delivered by early-childhood nurses), group CBT (delivered by health visitors)	Non-directive counselling, psychodynamic therapy, antidepressants	TAU	Short-long	≤	1	x	x
De Crescenzo ¹¹⁹ 2014	Postnatal depression	NA	Moderate	1 (35)	Adults	NR	Individual CBT + paroxetine	NA	Paroxetine only	NA	Short	x	1	X	X
Dennis ¹²⁵ 2004	Postnatal depression	NA	Critically low	1 (176)	Adults	Finland	Individual CBT with between-session telephone support	NA	NA	TAU	Short	x	1	X	x
Huang ²¹⁶ 2018	Postnatal depression	NA	Low	6 (510)	Adults	Canada, Australia, France, Iran	Individual CBT, group CBT	Internet-based CBT	NA	TAU	Short	1	1	1	x
Lau ²⁶⁷ 2017	Postnatal depression	Pregnancy loss, PTSD, depression	Moderate	6 (530)	Adults	Canada, USA, Australia, Germany, Sweden	NA	Internet-based CBT with therapist support	NA	TAU, WLC	Short	x	1	1	x
Lavender ²⁶⁸ 2016	Antenatal depression	NA	Critically low	1 (55)	Adults	USA	Modified individual CBT	NA	NR	NR	Short	x	1	≤	x
Leis ²⁷³ 2009	Postnatal depression	NA	Critically low	1 (37)	Adults	Australia	NA	CBT (delivered by early- childhood nurses)	Support sessions	NA	Short	x	1	x	x
LoGiudice ²⁸⁴ 2018	Undergoing IVF	NA	Critically low	1 (31)	Adults	Iran	Group CBT	NA	NR	NR	Short	≤	1	1	x
Maguire ²⁹⁴ 2018	Postnatal depression	NA	Critically low	2 (172)	Adults	Germany, Australia	Group CBT, individual CBT	NA	NA	TAU	Short	x	x	1	x
McDonagh ³⁰¹ 2014	Postnatal depression	NA	Low	1 (35)	Adults	Canada	NR	NA	Paroxetine only	NA	Short	x	1	x	x
														ſ	ontinued

				N			CBT intervention g	roup	Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	Number of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time		Depression	Anxiety	Conditior specific
Mendelson ³⁰⁷ 2017	Perinatal anxiety, depression	NA	Low	1 (39)	Adults	USA	Individual CBT	NA	NA	TAU	Short	x	1	≤	x
Nillni ³³¹ 2018	Perinatal anxiety, depression	NA	Critically low	1 (105)	Adults	NR	Individual CBT	NA	NA	TAU + parent mentor programme	Short	X	1	1	X
Perveen ³⁶³ 2013	Postnatal depression	NA	Critically low	5 (607)	Adults	UK, USA, Australia	Individual CBT (delivered by therapists)	CBT (delivered by health visitor or research staff)	NA	TAU	Short	x	1	1	x
Sangsawang ³⁹³ 2018	Postnatal depression	NA	Critically low	1 (47)	Adolescents	USA	NA	CBT adapted for Apache adolescents, 'Living in Harmony' programme	Educational support	NA	Short	x	1	≤	≤
Scope ⁴⁰⁰ 2013	Postnatal depression	NA	Low	1 (192)	Adults	Australia	Group CBT	NA	Group + individual counselling	TAU	Short	x	1	x	x
Stevenson ⁴³⁰ 2010	Postnatal depression	NA	Moderate	1 (192)	Adults	Australia	Group CBT	NA	Group counselling	NA	Short	x	1	x	x
van Ravesteyn ⁴⁷¹ 2017	Antenatal depression	NA	Low	1 (1300)	Adults	NR	Group CBT, individual CBT	NA	Supportive counselling, psychoeducation, health-care visits	TAU, booklet	Short	x	1	X	x
Webb ⁴⁹⁴ 2004	Perinatal psychosis	Perinatal period	Moderate	0 (0)	Adults	NR	NA	NA	NA	NA	NA	x	x	≤	x

TABLE 19 Reviews in ICD-11 secondary: mental disorders associated with pregnancy, childbirth or the puerperium (continued)

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data found; ', outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); IVF, in vitro fertilisation; NA, not applicable; NR, not reported; PTSD, post-traumatic stress disorder.

TABLE 20	Reviews with	populations	from mixed	mental	health conditions
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100 11					Number			CBT intervent	tion group	Comparator g	roup	Outcome				
ICD-11 primary/ secondary	Condition description	Study	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depressior	n Anxiety	Condition specific
 Anxiety disorder Mood disorder Stress disorder 	 Anxiety Depression PTSD 	Adelufosi ³⁵ 2017	Female genital mutilation	Critically low	0 (0)	Children, adults	NR	NA	NA	NA	NA	NA	X	≤	≤	≤
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Andersen ⁴⁴ 2016	NA	Moderate	5 (435)	Adults	Australia, USA	Transdiagnostic individual or group CBT	Transdiagnostic internet-based CBT + e-mail/ telephone	NA	WLC	Short	x	1	1	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Andrews ⁴⁶ 2018	NA	Moderate	53 (8279)	Adults	NR	NA	Internet-based CBT	High-intensity face-to-face CBT, bibliotherapy CBT	WLC ± discussion group, WLC ± attention placebo, TAU, information, self-monitoring	Short-long	X	1	1	1
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Armento ⁵² 2012	Parkinson's disease	Critically low	2 (174)	Older adults	NR	Individual CBT, 1 session of individual CBT + telephone sessions	NA	Supportive therapy	Clinical monitoring	Short	5	1	1	1
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Arnberg ⁵³ 2014	NA	Low	21 (1855)	Children, adolescents, adults	Australia, Sweden, Switzerland	NA	Internet-based CBT	High-intensity individual CBT, online supportive therapy		NR	X	1	1	1
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Bower ⁷⁴ 2003	NA	Low	1 (NR)	Adults	NR	NR	NA	Non-directive counselling	NA	Long	x	1	≤	x
 Anxiety disorder Mood disorder 	1. GAD 2. Panic 3. Phobia 4. Depression	Cape ⁸⁶ 2010	NA	Critically low	11 (709)	Adults	Australia, UK	Individual CBT	NA	NA	TAU	Short	x	1	1	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Chibanda ⁹⁹ 2015	HIV	Low	1 (13)	Adults	China	Group CBT	NA	NA	WLC	Short	x	1	≤	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Clarke ¹⁰¹ 2015	NA	Low	1 (1477)	Adolescents	Australia	NA	Internet-based CBT	NA	WLC	Short	x	1	1	X
																continue

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					Number			CBT interven	tion group	Comparator g	roup	Outcome				
ICD-11 primary/ secondary	Condition description	Study	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time		Depression	Anxiety	Condition- specific
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Coventry ¹⁰⁸ 2008	COPD	Low	1 (48)	Adults	USA	Individual CBT	NA	Education	NA	NR	X	1	1	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Davies ¹¹⁷ 2014	NA	Moderate	4 (198)	Adults	Australia, Canada, Spain	NA	Internet-based CBT	Other psychotherapy	WLC, no intervention	Short	x	1	1	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Ebert ¹³¹ 2015	NA	Low	11 (778)	Children, adolescents	Australia, the Netherlands, New Zealand, Sweden		Internet-based CBT	NA	WLC, placebo	Short	x	1	1	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Farrand ¹⁴³ 2015	Myocardial infarction, multiple sclerosis	Moderate	2 (235)	Adults	NR	NA	Internet-based CBT	NA	TAU, attention control	Long	X	1	1	1
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Fulton ¹⁵⁸ 2018	Breast cancer	Critically low	1 (13)	Adults	NR	Group CBT	NA	Supportive therapy	NA	Short	1	,	,	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Garcia- Escalera ¹⁶² 2016	NA	Low	14 (1337)	Children, adults	Australia, UK, USA	Transdiagnostic individual or group CBT	Transdiagnostic internet-based CBT	NA	WLC, discussion group	Short	x	1	1	x
 Anxiety disorder Mood disorder Stress disorder 	1. Anxiety 2. Depression 3. PTSD	Giummarra ¹⁷¹ 2018	Traumatic injury	Low	3 (366)	Adults	,	Individual CBT, modular CBT		Supportive counselling	TAU	Short	x	1	1	x
 Anxiety disorder Stress disorder 	1. Panic 2. PTSD	Gonçalves ¹⁷³ 2015	NA	Low	3 (67)	Adults	NR	Individual CBT	NA	NA	WLC	Short	x	X	1	1
 Anxiety disorder Stress disorder OCD 	 GAD Panic Agoraphobia PTSD OCD 	Gould ¹⁷⁵ 2012	NA	Moderate	3 (172)	Older adults	NR	Individual CBT	NA	Drug, supportive therapy	TAU	Long	X	1	1	x

TABLE 20 Reviews with populations from mixed mental health conditions (continued)

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					Number			CBT intervent	ion group	Comparator g	roup	Outcome				
ICD-11 primary/ secondary	Condition description	Study	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RC1s (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
 Anxiety disorder Stress disorder 	1. Agoraphobia 2. PTSD	Gregory ¹⁷⁷ 2018	NA	Critically low	2 (53)	Adults	USA	Individual CBT, group CBT	NA	NR	NR	Short	x	x	1	x
 Anxiety disorder Mood disorder OCD 	 SAD Depression OCD 	Grist ¹⁸² 2018	NA	Low	3 (408)	Children, adolescents	The Netherlands, Sweden	NA	Internet-based CBT	High-intensity, face-to-face CBT	WLC	Short	x	1	1	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Hobbs ²¹⁴ 2011	Alcohol dependence	Critically low	2 (131)	Adults	NR	NR	NA	NR	NR	Short	x	1	1	1
 Anxiety disorder Mood disorder 	1. SAD 2. Depression	Huang ²¹⁵ 2018a	NA	Critically low	2 (79)	Adults	Australia, USA	Group CBT	Internet-based CBT	NA	Placebo, no intervention	Short	x	1	1	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Jennings ²²⁹ 2015	Learning disability	Critically low	1 (32)	Adults	UK	Individual CBT	NA	NA	TAU	Short	x	1	1	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Kaltenthaler ²³⁹ 2006	NA	Low	1 (274)	Adults	UK, USA	NA	Internet-based CBT	NA	TAU, information	Short	≤	1	1	≤
 Anxiety disorder Mood disorder Stress disorder 	1. Anxiety 2. Depression 3. PTSD	Kayrouz ²⁴² 2018	NA	Moderate	1 (159)	Adults	Iraq	NA	Internet-based CBT	NA	WLC	Short	x	1	5	1
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Mac-donald ²⁹¹ 2016	Childhood abuse	Moderate	6 (658)	Children, adolescents	Australia, Norway, USA	Individual CBT, trauma- focused individual CBT, sexual-abuse individual CBT, child individual CBT	NA	Supportive therapy, child- centred therapy	WLC, TAU	Short	≤	1	1	1
																continued

Health Technology Assessment 2021 Vol. 25 No. 9

					Number			CBT interven	tion group	Comparator g	group	Outcome				
ICD-11 primary/ secondary	Condition description	Study	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCTs (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time		Depression	Anxiety	Condition specific
 Anxiety disorder OCD 	 GAD SAD Panic OCD/ hypochondriasis 	Mayo- Wilson ²⁹⁹ 2013	NA	High	22 (2001)	Adults	Australia, Canada, the Netherlands, Spain, Sweden, UK, USA		Internet-based CBT, telephone CBT, bibliotherapy CBT, mixed CBT (bibliotherapy + internet-based CBT)	High-intensity CBT	WLC, TAU	Short	1	J	1	1
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Mehndiratta ^{30!} 2013	⁵ Epilepsy	Critically low	1 (37)	Older adults	Australia	Group CBT	NA	NA	TAU	Short	x	1	≤	1
 Anxiety disorder Stress disorder 	1. Phobia 2. PTSD	Montero- Marin ³¹⁵ 2018	NA	Moderate	4 (495)	Adults	Spain, USA, Norway	Group CBT, individual CBT	NA	Progressive relaxation, applied relaxation	NA	Short-long	; ′	1	1	1
 Anxiety disorder Mood disorder Stress disorder 	 Anxiety Depression Stress 	Naidu ³²⁴ 2016	NA	Low	5 (390)	Adults	Sweden, Australia	NA	Internet-based CBT	High-intensity face-to-face individual or group CBT	ΝΑ	Short	x	≤	1	X
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Newby ³²⁷ 2016	NA	Low	14 (1606)	Adults, older adults	Sweden, Canada, Australia, UK, Switzerland, Germany, Austria	NA	Transdiagnostic internet-based CBT	Relaxation	WLC, TAU, discussion, forum	Short	1	1	1	x
 Anxiety disorder Mood disorder Disorders due to substance use or addictive behaviour 	 Anxiety Depression Addictive behaviour 	Ng ³²⁹ 2018	NA	Critically low	1 (NR)	Adults, older adults	China	Group CBT	NA	NA	WLC, no intervention	Short	1	≤	1	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Noble ³³² 2018	Epilepsy	Critically low	1 (59)	Adults	Australia	Individual CBT	NA	NA	WLC	Short	x	1	1	x

TABLE 20 Reviews with populations from mixed mental health conditions (continued)

ICD-11			Comorbid/	AMSTAR-2	Number			CBT intervent	ion group	Comparator g	roup	Outcome				
primary/ secondary	Condition description	Study	specific symptoms	quality rating	of RCTS (number of patients)	Age	Country of RCTs	High intensity (description)		Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Noone ³³⁵ 2018	Dementia	Low	2 (82)	Older adults	UK, USA	Individual CBT	NR	NA	TAU	Short	x	✓	1	x
 Anxiety Mood disorder 	1. Anxiety 2. Depression	Normann ³³⁶ 2018	NA	Critically low	2 (122)	Adults	NR	Individual CBT	NA	Metacognitive therapy	NA	Short-long	x	1	1	x
 Anxiety disorder Stress disorder OCD 	1. GAD 2. SAD 3. Panic 4. PTSD 5. OCD	Olthuis ³⁴³ 2016	NA	Moderate	28 (4998)	Adults	Australia, Austria, Germany, the Netherlands, Sweden, Switzerland	NA	Internet-based CBT	High-intensity face-to-face CBT	WLC, attention control, information, discussion	Short-long	1	X	5	1
 Mood disorder Anxiety disorder 	 Depressive disorders Anxiety 	Opoka ³⁴⁴ 2018	Psychosis	Critically low	1 (150)	Adults	NR	Individual CBT	NA	NA	TAU	Short	x	x	x	1
 Mood disorder Stress disorder 	 Depression Stress 	O'Sullivan ³⁵¹ 2016	War-affected children and young people	Critically low	2 (102)	Children, adolescents		Group trauma- focused CBT	NA	NA	WLC		x	,	1	1
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Păsărelu ³⁵⁶ 2017	NA	Low	4 (283)	Adults	Sweden, Australia	NA	Transdiagnostic internet-based CBT	NA	WLC	Long	1	1	1	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Pennant ³⁶⁰ 2015	NA	Low	15 (2615)	Children, adolescents, young adults	NR	NA	Computerised CBT	High-intensity face-to-face CBT, attention bias modification, computer control	WLC, TAU, no intervention	Short	x	1	1	5
 Anxiety disorder Mood disorder Stress disorder Bodily distress disorder 	 Anxiety Depression PTSD Somatoform 	Purgato ³⁷³ 2018	NA	Moderate	1 (313)	Children, adolescents, adults		Trauma- focused individual CBT	Web-based CBT, group CBT (delivered by school staff and paraprofessionals)	NA	TAU, no intervention, general support, WLC	Short	1	1	1	J
																continue

		Study		AMSTAR-2 quality rating	Number	s) Age		CBT interven	tion group	Comparator g	roup	Outcome				
ICD-11 primary/ secondary	Condition description		Comorbid/ specific symptoms		of RCTs (number of patients)		Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time		. Depressior	n Anxiety	Condition- specific
 Anxiety disorder Mood disorder 	1. Anxiety 2. Depression	Rasing ³⁷⁷ 2017	NA	Critically low	16 (4422)	Adolescents	Australia, USA, the Netherlands Canada	Group CBT	NA	Activity	Information	Long	x	1	1	X
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Reavell ³⁷⁹ 2018	Cardiovascular disease	Low	1 (38)	Adults	Australia	Individual CBT	NA	NA	TAU	Long	,	1	1	≤
 Anxiety disorder Stress disorder 	1. Panic 2. PTSD	Rodrigues ³⁸⁸ 2011	NA	Critically low	5 (132)	Adults	NR	Individual CBT	NA	Drug	WLC	Short	x	X	1	1
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Smith ⁴¹⁸ 2014	COPD	Low	4 (378)	Adults	Norway, Australia, USA	Group CBT, individual CBT	NA	COPD education	TAU	Short	,	1	1	X
 Mood disorder Feeding or eating disorder 	1. Depression 2. Eating	Snoek ⁴¹⁹ 2002	Diabetes	Critically low	8 (85)	Adults	NR	Group CBT, individual CBT	NA	Non- prescriptive therapy	No intervention	Short	x	1	1	1
 Anxiety disorder Mood disorder OCD 	 Anxiety Depression OCD 	Spain ⁴²³ 2015	Autism spectrum disorder	Critically low	1 (37)	Adults	UK	Individual CBT for OCD	NA	Anxiety management	NA	Short	x	1	1	1
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Spek ⁴²⁴ 2007	NA	Low	10 (1465)	Adults	NR	NA	Internet-based CBT	NA	WLC, TAU, placebo, self- monitoring, information, online discussion group	Short	X	1	1	x
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Spies ⁴²⁵ 2013	HIV/AIDS	Critically low	3 (250)	Adults	Hong Kong, USA	Group CBT, individual CBT	NA	Supportive psychotherapy, peer counselling, intervention control	No intervention	NR	1	1	1	X
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Tay ⁴⁴² 2018	Dementia	Critically low	1 (50)	Older adults	NR	Individual CBT (for mild to moderate dementia patients)	NA	NA	TAU	Short	x	1	,	x

TABLE 20 Reviews with populations from mixed mental health conditions (continued)

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ICD-11			Comorbid/	AMSTAR-2	Number			CBT intervent	ion group	Comparator g	roup	Outcome				
primary/	Condition description	Study	specific symptoms	quality rating	(number of patients)		Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Conditio specific
	 Anxiety Depression 	Thabrew ⁴⁴⁵ 2018	Long-term physical health problems	High	8 (770)	Children, adolescents	USA, UK, India, Australia, Serbia, Montenegro	individual CBT, home-based individual CBT,	NA	Education, supportive psychotherapy, supportive non-directive therapy, non- directive behavioural counselling	WLC, TAU, information	Short-long	•	1	5	J
	 Anxiety Depression 	Thabrew ⁴⁴⁶ 2018b	Long-term physical health problems	High	4 (469)	Children, adolescents	USA, Germany	NA	Internet-based CBT or Web-MAP	Specialised headache treatment, education, applied relaxation	WLC	Short-long	/	1	1	1
	 Anxiety Depression 	Troeung ⁴⁵⁷ 2013	Parkinson's disease	Critically low	1 (80)	Older adults	USA	Individual CBT	NA	NA	Clinical monitoring	Short .	x	1	1	X
		Twomey ⁴⁶¹ 2015	NA	Low	25 (3716)	Adults	NR	Individual CBT, group CBT	Computerised CBT, guided CBT, telephone CBT	NA	WLC, no intervention, TAU	Short .	x	/	5	1
	 Anxiety Depression 	Twomey ⁴⁵⁹ 2017 (MoodGYM)	NA	Critically low	11 (4570)	Adults	Australia, Ireland, UK, Norway	NA	Internet-based CBT 'MoodGYM'	Telephone support or website	TAU, no intervention	Short .	x	1	≤	x
	 Anxiety Depression 	Valimaki ⁴⁶⁶ 2017	NA	Low	1 (187)	Adolescents	New Zealand	NA	Computerised CBT 'SPARX'	NA	TAU	Short .	x	,	1	x
	 Anxiety Depression 	Verdeli ⁴⁷⁹ 2006	NA	Critically low	3 (118)	Adolescents	NR	Group CBT, individual CBT, school-based CBT	NA	Interpersonal therapy	No intervention, WLC, attention support	Short .	x	1	1	x
																contin

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327

TABLE 20 Reviews with populations from mixed mental health conditions (continued)

			Construction		Number			CBT intervention group		Comparator group		Outcome	Outcome				
ICD-11 primary/ secondary	Condition description	Study	Comorbid/ specific symptoms	AMSTAR-2 quality rating	(number of patients) Age		Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition- specific	
 Anxiety disorder Mood disorder 	 Anxiety Depression 	Wang ⁴⁸⁴ 2013	NA	Moderate	2 (115)	Adults	Hong Kong	Group CBT, individual CBT	NA	Dejian mind-body intervention	WLC	Short	x	1	≤	x	
 Anxiety disorder Stress disorder OCD 	1. GAD 2. SAD 3. Panic 4. PTSD 5. OCD	Watts ⁴⁹³ 2015	NA	Critically low	48 (6926)	Adults	NR	Individual CBT (delivered by therapists, psychologists)	CBT (delivered by nurses, social workers, behavioural health specialists)	NA	TAU	Short	x	1	1	X	
 Anxiety disorder Mood disorder Stress disorder 	 Anxiety Depression Stress 	Yatham ⁵¹¹ 2018	NA	Critically low	2 (615)	Children, adolescents	Palestine	Individual CBT 'teaching recovery techniques', individual CBT adapted 'teaching recovery techniques'	NA	NA	WLC	Short	x	,	1	X	

A Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; <, outcome searched for in the review, but no CBT data found; ', outcome searched for in the review and RCT
 data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); AIDS, acquired immunodeficiency syndrome;
 GAD, generalised anxiety disorder; HIV, human immunodeficiency virus; NA, not applicable; NR, not reported; OCD, obessesive-compulsive disorder; PTSD, post-traumatic stress disorder; SAD, social anxiety disorder.
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		e		Number			CBT intervention gro	oup	Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCIs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxie	
Bohra 2013 ⁷²	Insomnia	Pain	Critically low	1 (51)	Older adults	NR	Group CBT for insomnia	NA	Stress management and wellness	NA	Short	x	x	x	
Brasure 2016 ⁷⁵	Insomnia	NA	Low	11 (1182)	Adults	USA, UK, Europe	Group CBT for insomnia, individual CBT for insomnia	Self-help CBT for insomnia, internet-based CBT for insomnia	Sleep hygiene, self- help	Internet sham, placebo (drug), WLC, TAU	Short	x	x	x	
Budhrani 2015 ^{®0}	Insomnia	Breast cancer	Critically low	1 (72)	Adults	NR	Individual CBT	NA	NR	NR	Short	x	x	x	
Cheng 2012 ⁹⁷	Insomnia	NA	Low	4 (300)	Adults	USA, Canada, Sweden	NA	Computerised CBT for insomnia	NA	WLC, self- monitoring	Short	x	x	x	
Cheung 2018 ⁹⁸	Insomnia	NA	Critically low	1 (139)	Adults	UK	NA	Group CBT (delivered by health visitors)	NA	Sleep monitoring	Long	x	X	x	
Gebara 2018 ¹⁶³	Insomnia	Depression	Critically low	3 (124)	Adults	USA, Sweden	Group CBT, individual CBT	NA	Drug, relaxation	WLC	Short	x	1	x	
Johnson 2016 ²³³	Insomnia	Cancer	Critically low	5 (621)	Adults	NR	Individual CBT for insomnia, group CBT for insomnia	Video-based CBT for insomnia	Behavioural placebo, mindfulness-based cancer recovery	WLC, TAU	Short	X	x	x	
Koffel 2015 ²⁵⁵	Insomnia	NA	Low	6 (408)	Adults	NR	Group CBT	NA	Sleep/pain education	WLC, TAU, diary-keeping	Short	x	1	x	
Mitchell 2012 ³¹⁴	Insomnia	NA	Critically low	3 (201)	Adults, older adults	Norway, Canada, China	Group CBT, individual CBT	NA	Drug	NA	Short-long	1	1	1	
Montgomery 2003 ³¹⁶	Insomnia	NA	Moderate	2 (102)	Older adults	USA	Group CBT, individual CBT	NA	NA	WLC, placebo	Short	≤	x	x	
Morin 1999 ³²¹	Insomnia	NA	Critically low	1 (24)	Adults	NR	Multicomponent group CBT	NA	NA	WLC	Long	x	x	x	
Navarro-Bravo 2015 ³²⁶	Insomnia	NA	Critically low	5 (456)	Adults	NR	Individual CBT	NA	Stress management and wellness, sleep hygiene education	WLC, TAU	Short	x	X	x	
Okajima 2011 ³³⁹	Insomnia	NA	Critically low	4 (226)	Adults	NR	Group CBT, individual CBT	NA	Drug	WLC, placebo, TAU	Long	x	,	x	
Phelps 2017 ³⁶⁶	Insomnia	NA	Critically low	1 (81)	Adults	USA	NR	NA	Sleep hygiene	NA	Short	x	x	x	

TABLE 21 Reviews in ICD-11 primary: 07 Sleep-wake disorders

Health Technology Assessment 2021 Vol. 25

No. 9

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Condition kiety specific

continued

				Number			CBT intervention gr	oup	Comparator group		Outcome				
Study	Condition description		AMSTAR-2 quality rating	of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Seyffert 2016 ⁴⁰³	Insomnia	NA	Low	11 (1886)	Adults	Canada, Hong Kong, UK, Sweden, the Netherlands, Germany, USA	NA	Internet-based CBT	Group CBT, telehealth CBT, internet-based CBT without support, internet control, imagery relief therapy	WLC	Short-long	X	/	x	1
Smallfield 2018 ⁴¹⁶	Insomnia	NA	Critically low	1 (60)	Older adults	NR	NA	Telephone CBT (delivered using workbook)	NA	Information	Short	x	x	x	1
Taylor 2014 ⁴⁴³	Insomnia	Depression, PTSD, alcohol abuse	Critically low	4 (132)	Adults	NR	Individual CBT	Self-help CBT with telephone support	NA	Placebo, WLC, NR	Short	x	1	1	1
Trauer 2015 ⁴⁵⁵	Insomnia	NA	Moderate	5 (240)	Adults	Canada, USA, China, Australia	Group CBT for insomnia, individual CBT for insomnia	NA	Sleep hygiene education	WLC, placebo, tablets	Short-long	x	x	x	1
Twomey 2013 ⁴⁶⁰	Insomnia	NA	Critically low	33 (5768)	Adults	Australia, UK, Spain, USA, Switzerland, Canada, Germany	NA	Computerised CBT	High-intensity face-to-face CBT, psychoeducation, computer-guided self-relaxation	WLC, TAU, NR	Short	x	1	1	J
Werner-Seidler 2018 ⁴⁹⁶	Insomnia	NA	Low	2 (173)	Adolescents, young adults	The Netherlands, UK	NA	eCBT for insomnia	NA	WLC	Short	≤	1	1	1
Wu 2015 ⁵⁰⁵	Insomnia	Medical/ psychiatric conditions	Low	10 (609)	Adults	NR	Individual CBT for insomnia, individual CBT for insomnia + drug	NA	Sleep hygiene, escitalopram plus quasi desensitisation, mindfulness-based stress reduction, obstructive sleep apnoea surgery, wellness education, audiotape relaxation training	WLC, TAU	Short	x	,	,	1
Zachariae 2016 ⁵¹⁶	Insomnia	NA	Low	11 (1460)	Adults	NR	NA	Internet-based CBT for insomnia	NR	WLC	Short	x	x	x	1

TABLE 21 Reviews in ICD-11 primary: 07 Sleep-wake disorders (continued)

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data found; ', outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); eCBT, digitally-delivered CBT; NA, not applicable; NR, not reported; PTSD, post-traumatic stress disorder.

		<u> </u>		Number			CBT intervention gro	up	Comparator group		Outcome				
Study	Condition description	specific	AMSTAR-2 quality rating	of RCIs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Bagnell 2007 ⁵⁶	Post-viral fatigue syndrome	NA	Low	4 (459)	Children, adults	NR	Individual CBT	NA	Relaxation, guided support group	TAU, WLC, no intervention	Long	1	1	1	1
Carlson 2017 ⁸⁸	Psychogenic non-epileptic seizures	NA	Low	1 (34)	Adults	USA	Individual CBT	NA	NA	TAU	Short	x	X	x	1
Castell 201193	Post-viral fatigue syndrome	NA	Critically low	16 (1457)	Adults	NR	Individual CBT, group CBT	NA	Education/support, relaxation, supportive listening, adaptive pacing, counselling	injection, TAU,	Short	1	,	,	,
Cleare 2015 ¹⁰³	Post-viral fatigue syndrome	NA	Critically low	9 (1552)	Children, adolescents, adults	NR	Group CBT, individual CBT	Internet-based CBT	Guided support, relaxation, education and support, psychoeducation, specialist medical care	No intervention, TAU	Long	1	1	5	J
Cross 2015 ¹¹⁰	Epilepsy or seizures	NA	Critically low	2 (60)	Adolescents, adults	NR	Group CBT, individual CBT	NA	Supportive counselling	No intervention, TAU	Short	1	1	x	1
Gillings 2007 ¹⁷⁰	Post-viral fatigue syndrome	NA	Low	4 (NR)	Adults	NR	NR	NA	Relaxation and guided support	No intervention	Short-long	1	1	1	1
Koychev 2017 ²⁵⁸	Parkinson's disease	NA	Critically low	1 (45)	Adults	NR	Individual CBT	NA	NA	WLC	Short	1	1	1	1
arun 2017 ²⁶⁶ .	Post-viral fatigue syndrome	NA	Low	2 (331)	Adults	UK, USA	Individual CBT	NA	Anaerobic activity therapy, cognitive therapy, relaxation, specialist medical care, adaptive pacing therapy, graded exercise therapy	NA	Long	,	✓	1	1
Maguire 2011 ²⁹³	Epilepsy or seizures	NA	Critically low	2 (60)	Adolescents, adults	NR	NR	NA	Supportive counselling	TAU, no intervention	Short	1	1	x	1
															continue

TABLE 22 Reviews in ICD-11 primary: 08 Diseases of the nervous system

		Course hid (Number			CBT intervention g	roup	Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCIs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time		Depression	Anxiety	Condition specific
Martlew 2014 ²⁹⁷	Epilepsy or seizures	NA	Moderate	1 (66)	Adults	UK	Individual CBT	NA	NA	TAU	Short	≤	1	1	1
Price 2008371	Post-viral fatigue syndrome	NA	Moderate	8 (1050)	Adults	UK, USA, the Netherlands, Australia	Group CBT, individual CBT	NA	Education, relaxation, psychodynamic, exercise, cognitive therapy, counselling, guided support group	WLC, TAU, no intervention	Short	1	V	1	V
Reid 2011 ¹⁰³	Post-viral fatigue syndrome	NA	Critically low	1 (69)	Children, adolescents	NR	Individual CBT	NA	NA	No intervention	Short	≤	≤	≤	1
Russell 2017390	Post-viral fatigue syndrome	NA	Critically low	1 (640)	Adults	NR	Individual CBT	NA	NA	TAU	Long	x	X	X	1
Walklet 2016 ⁴⁸³	Motor neuron diseases or related disorders	NA	Low	2 (60)	Adults	NR	Individual CBT	Na	NA	TAU	Short	1	x	x	x

TABLE 22 Reviews in ICD-11 primary: 08 Diseases of the nervous system (continued)

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data found; ', outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); NA, not applicable; NR, not reported.

TABLE 23 Reviews in ICD-11 primary: 10 Diseases of the ear or mastoid process

				Number			CBT intervention gro	oup	Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Fackrell 2017 ¹⁴⁰	Hyperacusis	NA	Critically low	1 (60)	Adults	NR	Individual CBT	NA	NA	WLC	Long	1	✓	1	1
Hoare 2011 ²¹³	Tinnitus	NA	Low	8 (410)	Adults, older adults	UK	Therapist-delivered individual CBT	Internet-based CBT	Internet-based education, education, minimal contact education relaxation, tinnitus retraining therapy	WLC	Short	x	1	1	1
Toivonen 2017 ⁴⁵¹	Tinnitus	NA	Moderate	1 (64)	Adults	Sweden	NA	Internet-based CBT	Asynchronous web- based acceptance and commitment therapy	Online discussion forum	Short-long	1	1	1	1

V, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; NA, not applicable; NR, not reported.

TABLE 24 Reviews in ICD-11 primary: 12 Diseases of the respiratory system

		e		Number			CBT intervention gro	oup	Comparator group		Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCIS (number of patients)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Kew 2016 ²⁴⁶	Asthma	NA	High	6 (134)	Adults	UK, India, Belgium, Canada, Italy	Individual CBT	NA	NA	WLC, no intervention TAU, self- management	Short	1	J	1	1
Yorke 2015514	Asthma	NA	Low	1 (40)	Adults	NR	Individual CBT	NA	Self-management intervention	NA	Short	1	≤	,	1

✓, Outcome searched for in the review, and RCT data identified and extracted; ≤, outcome searched for in the review, but no CBT data found; ′, outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); NA, not applicable; NR, not reported.

TABLE 25 Reviews in ICD-11 primary: 13 Diseases of the digestive system

		e		Number			CBT intervention	group	Comparator gro	oup	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Amorim 201842	Dentofacial parafunctional disorders	NA	Low	1 (57)	Adults	Germany	NA	CBT (delivered by health-care professional)	Occlusal splint	NA	Short	x	1	≤	1
Clarkson 2010 ¹⁰²	Oral mucositis	Cancer	Low	2 (68)	Adults	USA	Individual CBT	NA	Hypnosis, relaxation and imagery	Therapist contact, TAU	Short	≤	x	x	1
Cong 2018 ¹⁰⁷	Irritable bowel syndrome	NA	Critically low	2 (149)	Adults	UK, Sweden	NA	Internet-based CBT, self- management CBT	NA	WLC, TAU	Short	1	1	≤	J
Ford 2019 ¹⁵²	Irritable bowel syndrome	NA	Critically low	5 (307)	Adults	USA, New Zealand, Sweden	NA	Internet-based CBT, self- administered/ minimal contact CBT	NA	NR	Short	X	x	X	1
Hanlon 2018 ¹⁹²	Irritable bowel disorder/ syndrome	NA	Moderate	7 (770)	Adolescents, adults	Sweden, UK, USA, Australia	NA	Internet-based CBT	Stress management, drug	TAU, placebo	Short-long	1	1	1	1
Li 2014 ²⁷⁹	Irritable bowel syndrome	NA	Low	4 (NR)	Adults	Australia, USA, the Netherlands, UK	Individual CBT (delivered by psychologists)	Internet-based CBT (delivered by nurses)	Relaxation, drug	TAU, WLC	Short	1	,	,	1
Li 2018 ²⁷⁶	Irritable bowel syndrome	NA	Low	1 (199)	Adults	New Zealand	NA	Internet-based CBT	NA	TAU	Short	1	x	≤	1
Thakur 2018 ⁴⁴⁷	Irritable bowel disorder	NA	Critically low	1 (32)	Adults	Iran	Group CBT	NA	NA	WLC	Short	x	1	≤	≤
Zijdenbos 2009 ⁵²³	Irritable bowel syndrome	NA	Critically low	4 (497)	Adults	NR	Group CBT, individual CBT	NA	NA	TAU, placebo, education	Short-long	1	x	x	1

A Outcome searched for in the review, and RCT data identified and extracted; *X*, outcome was not searched for in the review; < outcome searched for in the review, but no CBT data found; ', outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); NA, not applicable; NR, not reported.
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TABLE 26 Reviews in ICD-11 primary: 14 Diseases of the skin

				Number			CBT intervention	group	Comparator gro	up	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Chan 2012 ⁹⁴	Diseases of the skin	NA	Critically low	1 (16)	Adults	UK	Group CBT (delivered by psychologist)	NA	NA	TAU	Short	1	X	X	X
Chida 2007 ¹⁰⁰	Atopic eczema	NA	Critically low	1 (55)	Adults	Germany	Individual CBT	NA	Dermatological education	NA	Long	≤	1	1	1
Lert 2010 ²⁷⁴	Vitiligo	NA	Low	1 (16)	Adults	UK	Group CBT	NA	NA	TAU	Short	1	x	x	x

V, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; s, outcome searched for in the review, but no CBT data found; NA, not applicable.

TABLE 27 Reviews with populations in ICD-11 primary: 16 Diseases of the genitourinary system

		Comorbid/		Number of RCTs			CBT intervention	group	Comparator gro	oup	Outcome				
Study	Condition description	specific symptoms	AMSTAR-2 quality rating	(number of	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Tao 2017 ⁴⁴¹	Menopausal hot flushes	Breast Cancer	Critically low	2 (518)	Adults	UK, the Netherlands	Individual CBT	NA	Physical exercise	TAU, WLC	Short	x	x	X	1
Tremblay 2008 ⁴⁵⁶	Menopausal hot flushes	NA	Low	1 (29)	Adults	NR	Group CBT	NA	NA	WLC	Short	1	x	x	1
van Driel 2018 ⁴⁷⁰	Menopause	Breast cancer	Low	1 (173)	Adults	NR	Group CBT	NA	NA	WLC	Short	x	x	x	1
Vélez Toral 2014 ⁴⁷⁴	Menopause	NA	Critically low	1 (140)	Adults	NR	Individual CBT	NA	Self-help CBT	WLC	Short	1	1	≤	1

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data identified and extracted; X, not reported.

TABLE 28 Reviews in ICD-11 primary: 17 Conditions related to sexual health

		C		Number			CBT intervention	group	Comparator gro	oup	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Khera 2011 ²⁴⁸	Male erectile dysfunction	NA	Critically low	0 (0)	Adults	NA	NA	NA	NA	NA	NA	≤	x	x	\leq

Reviews falling under ICD-11 primary code 21 (*Table 29*) have been subdivided into those with mental conditions and those with physical conditions. The reviews are listed under each of their respective categories.

TABLE 29 Reviews with populations in ICD-11 primary: 21 Symptoms, signs or clinical findings, not elsewhere classified

		Comorbid/	AMSTAR-2	Number			CBT intervention gro	oup	Comparator grou	p	Outcome				
Study	Condition description	specific symptoms	quality rating	of RCIS (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Mental condition	15														
Ali 2015 ³⁹	Aggression	Intellectual disabilities	High	1 (179)	Adults	UK	NA	Manualised group CBT anger management therapy (delivered by lay therapist)	NA	WLC, TAU	Short	1	1	1	✓
Smedslund 2007 ⁴¹⁷	Aggression	NA	Moderate	0 (0)	Adults	NA	NA	NA	NA	NA	NA	x	≤	≤	≤
Chen 2018 ⁹⁵	Fear of cancer	Cancer	Critically low	1 (88)	NR	NR	Blended individual CBT + additional electronic consultations	NA	NR	NR	Short	1	1	1	x
Liu 2018 ²⁸²	Fear of falling	NA	Moderate	5 (1103)	Older adults	NR	NA	Group or individual CBT (delivered by nurses)	Tai Chi	TAU	Short	x	x	x	1
lyengar 2018 ²²³	Suicidal behaviour	NA	Critically low	1 (40)	Adolescents	NR	Integrated individual CBT and group CBT	NA	NA	TAU	Long	x	1	x	x
Lai 2014 ²⁶³	Suicidal behaviour	NA	Critically low	2 (351)	Adults	NR	NA	Internet-based CBT	Information website	TAU	Short	x	1	x	x
Leavey 2017 ²⁷¹	Suicidal behaviour	NA	Low	3 (551)	Adults	USA, the Netherlands, Australia	NA	Internet-based CBT	Information website	TAU	Short	x	1	X	x
Scott 2016 ⁴⁰¹	Stress	Caregiver (dementia)	Moderate	4 (505)	Adults	NR	NA	Technology-based CBT	NA	WLC	Short	1	1	1	<i>x</i>

		e		Number			CBT intervention gr	oup
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCIS (number of participants)	Age	Country of RCTs	High intensity (description)	Low i (desc
Physical condition	ns							
Abbott 2017 ³²	Chronic pain	NA	High	5 (369)	Children, adolescents	Germany, USA, Australia, the Netherlands	Individual CBT	CD-R
Anie 201547	Chronic pain	Sickle cell disease	Moderate	1 (53)	Adolescents	USA	Family home-based group CBT	NA
Bender 2011 ⁶⁰	Chronic pain	NA	Moderate	4 (299)	Children, adolescents, adults	USA, Germany, Canada	NA	Family based online interr CBT + telept suppo
Bernardy 2013 ⁶³	Chronic pain	NA	High	13 (840)	Children, adolescents, adults	Europe, USA	Group CBT, individual CBT, mixed group CBT + individual CBT	NA
Bernardy 2019 ⁶⁴	Chronic pain	NA	Low	3 (212)	Adults	Spain, USA, Canada	NA	Guide ungui interr CBT
Birnie 201868	Chronic pain	NA	Moderate	1 (20)	Children, adolescents	Greece	NA	CBT (non-p
Burgstaller 2014 ⁸¹	Chronic pain	NA	Moderate	4 (191)	Adults	USA, Norway, UK, the Netherlands	Individual CBT	NA
Caemmerer 2012 ⁸³	Excessive weight gain	Schizophrenia and schizoaffective, bipolar, schizotypal, depression and personality disorders	Critically low	1 (61)	Adults	NR	Individual CBT	NA
Cantor 2014 ⁸⁵	Fatigue	Fatigue	Critically low	1 (12)	Adults	NR	Individual CBT for social anxiety	NA

Condition

X

1

1

1

1

1

1

1

continued

HRQoL Depression Anxiety specific

1

X

1

X

X

x

1

x

1

1

≤

1

1

1

X

1

x

X

Comparator group

Non-active

(description)

WLC

WLC

WLC, TAU,

WLC, TAU

TAU

TAU

NR

WLC

attention control

Active

(description)

Education,

Internet

psychoeducation

with support

Exercise, FMS

education and

High-intensity

CBT

NA

NR

NA

information

medical dietary advice

Disease education NA

Low intensity (description)

CD-ROM CBT

Family internet-

based CBT +

online support,

internet-based CBT + e-mail/ telephone support

Guided or

unguided

internet-based CBT

non-psychologists)

CBT (delivered by Hypnosis

Outcome

Follow-up

Short-long 🗸

 \leq

 \leq

1

1

X

X

X

time

Long

Short

Short

Short

Short

Short

NR

Short-long X

				Number			CBT intervention gr	oup	Comparator grou	p	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Eccleston 2015 ¹³⁴	Chronic pain	NA	Moderate	1 (54)	Adults	The Netherlands	Individual CBT	NA	NA	WLC	Short	1	x	1	1
Farley 2012 ¹⁴¹	Excessive weight gain	Smoking	Moderate	1 (44)	Adults	USA	Weight gain individual CBT	NA	NA	TAU, standard cessation counselling + placebo	Long	X	X	x	1
Fleming 2016 ¹⁴⁹	' Chronic pain	NA	High	1 (54)	Adults	China	NA	Self-help listening to 10 minutes of CBT	Brain wave music therapy	No intervention	Short	≤	X	x	1
Frank 2014 ¹⁵⁷	Chronic pain	NA	Critically low	1 (701)	Adults	UK	NA	Group CBT + advice (delivered by physiotherapist)	Advice	NA	Long	1	x	X	1
George 2008 ¹⁶⁴	Chronic pain	NA	Moderate	1 (223)	Adults	NR	Individual CBT + physiotherapy	NA	Physiotherapy	WLC	NC	x	x	x	1
Greenwood 2016 ¹⁷⁶	Chronic pain	NA	Moderate	1 (130)	Adults	NR	Individual CBT + supervised exercise (TAU)	NA	NA	Supervised exercise (TAU)	Long	1	x	x	1
Gupta 2018 ¹⁸⁵	Chronic pain	NA	Critically low	1 (61)	Adults	NR	Group CBT using virtual reality	NA	NA	TAU (medication)	Short	1	1	x	x
Hajihasani 2018 ¹⁸⁷	Chronic pain	NA	Low	8 (404)	Adults	NR	Individual CBT + physical therapy	NA	Physical therapy	NA	NR	1	1	x	1
Hall 2018 ¹⁸⁸	Chronic pain	NA	Moderate	4 (1128)	Adults	UK	NA	Individual CBT, group CBT, mixed individual + group CBT (all physiotherapist led)	Spinal stability, physiotherapy, advice, advice + exercises	ΝΑ	Long	1	x	x	1
Harris 2015 ¹⁹⁴	Chronic pain	NA	Low	5 (305)	Adults, older adults	Germany, Australia, USA, Canada	Individual CBT + relaxation, group CBT + relaxation	NA	Relaxation, biofeedback, self-management CBT	WLC	Short-long	X	X	X	1
Hjorth 2014 ²¹⁰	Excessive weight gain	Schizophrenia	Critically low	1 (15)	Adults	NR	Group CBT	NA	NA	TAU	Short	x	x	x	1
Ho 2019 ²¹¹	Chronic pain	NA	Moderate	4 (457)	Adults	USA, UK, Canada	Individual CBT or group CBT for pain and/or insomnia	NA	Education, behavioural desensitisation (placebo)	Symptom monitoring, WLC	Short	≤	1	1	1

TABLE 29 Reviews with populations in ICD-11 primary: 21 Symptoms, signs or clinical findings, not elsewhere classified (continued)

		Comorbid/	ANACTAD-O	Number			CBT intervention gr	oup	Comparator grou)	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCIS (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Conditio specific
Iwasaki 2018 ²²²	Chronic pain	NA	Critically low	2 (256)	Adults	USA	Intensive individual CBT, brief individual CBT	Ν	NA	TAU	Long	x	x	x	1
	Excessive weight gain	NA	Low	1 (18)	Adults	Portugal	Individual CBT	NA	NA	WLC	Short	x	,	1	,
Kisely 2015 ²⁵¹	Chronic pain	NA	Moderate	8 (422)	NR	NR	Group CBT, individual CBT	Brief CBT (delivered by nurses)	Paroxetine only	TAU, WLC, placebo, assessment	Short	,	,	1	1
Larkin 2014 ²⁶⁵	Fatigue	Prostate cancer	Critically low	2 (85)	Adults	The Netherlands, Scotland	Individual CBT (delivered by therapists)	CBT (delivered by nurses)	Brief nursing intervention	TAU	Short	x	x	x	1
Liu 2012 ²⁸¹	Chronic pain	NA	Low	2 (275)	Adults	NR	NR	NA	NA	TAU, attention control	Long	x	1	x	1
Lonergan 2016 ²⁸⁵	Chronic pain	NA	Critically low	6 (501)	Children, adolescents	Australia, the Netherlands, Germany, USA	Family CBT	NA	Education, education + drug	TAU, WLC	Short-long	x	x	x	1
Macea 2010 ¹²⁹	Chronic pain	NA	Critically low	1 (51)	Adults	Sweden	NA	Internet-based CBT	NA	WLC	Short	x	x	x	1
McMahon 2013 ³⁰²	Chronic pain	NA	Moderate	1 (29)	Adults	NR	Individual CBT	NA	Education	NA	Short	1	1	1	1
Mehta 2018 ³⁰⁶	Chronic pain	NA	Low	22 (3014)	Adults	USA, Sweden, Australia, Spain, Germany, Canada, the Netherlands	NA	Internet-based CBT	High-intensity face-to-face CBT, positive psychology therapy, internet- based acceptance and commitment therapy	WLC, TAU, attention control, discussion groups, information	Short	x	1	1	1
Monticone 2015 ³¹⁷	Chronic pain	NA	Moderate	4 (226)	Adults	NR	Individual CBT (delivered by psychologist)	CBT ([delivered by health-care professional)	Physiotherapy or medication	WLC	Short	1	≤	≤	1
Niknejad 2018 ³³⁰	Chronic pain	NA	Critically low	2 (370)	Older adults	NR	Group CBT or individual CBT for pain	NA	Education	Symptom monitoring	Short	x	,	,	1
O'Keeffe 2016 ³⁴¹	Chronic pain	NA	Low	1 (80)	Adults	NR	NR	NA	Neck exercises	NA	Long	x	x	x	1

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339

				· ·		-	-			-					
		6		Number			CBT intervention gr	oup	Comparator group	p	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCIS (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Palermo 2010 ³⁵⁴	Chronic pain	NA	Low	2 (68)	Children, adolescents	NR	NA	Internet-based CBT and CD-ROM CBT	NA	WLC	Short	≤	X	x	1
Raggi 2018 ³⁷⁴	Chronic pain	NA	Critically low	4 (391)	Children, adolescents, adults	NR	NR	NA	Education, education + drug	NA	Short	≤	1	x	1
Ramond-Roquir 2014 ³⁷⁵	Chronic pain	NA	Moderate	3 (348)	Adults	USA, Sweden	NR	NA	Education	TAU, NR	Long	1	x	x	1
Randhawa 2016 ³⁷⁶	Chronic pain	NA	Low	1 (117)	Adults	USA	Individual CBT	NA	NA	TAU	Long	≤	1	≤	1
Richmond 2015 ³⁸²	Chronic pain	NA	Moderate	14 (2706)	Adults	NR	Individual or group CBT (delivered by psychologists)	Individual CBT or goup CBT (delivered by physiotherapist or other health-care professionals)	NA	TAU, WLC	Long	1	x	X	1
Sakamoto 2016 ³⁹²	Chronic pain	NA	Moderate	2 (127)	Adults	USA, UK	NR	NA	NA	No intervention	Short	1	x	1	,
Schofield 2006 ³⁹⁶	Chronic pain	NA	Critically low	1 (28)	Older adults	Canada	Individual CBT	NR	Attention support	NA	Short	x	x	x	1
Shamliyan 2013 ⁴⁰⁴	Chronic pain	NA	Low	1 (158)	Adults	Germany	Individual CBT minimal contact programme	NA	NA	Brochures	NR	≤	1	1	1
Shearer 2016 ⁴⁰⁰	Chronic pain	NA	Low	1 (80)	Adults	Italy	NA	CBT (delivered by physiotherapist)	Multimodal physiotherapy	NA	Long	1	x	x	1
Skelly 2018 ⁴¹³	Chronic pain	ΝΑ	Low	9 (1708)	Adults	Spain, USA, UK, Finland, NR	Group CBT, individual CBT, mixed group + individual CBT	Group CBT, individual CBT, mixed group + individual CBT (delivered by health-care professionals)	Drug, exercise	TAU, attention control, active management	Short-long	1	1	1	۶
Sprenger 2011 ⁴²⁶	Chronic pain	NA	Critically low	5 (225)	Children, adolescents	NR	Individual CBT, family CBT	Internet-based CBT	NR	NR	Short	x	x	x	1

TABLE 29 Reviews with populations in ICD-11 primary: 21 Symptoms, signs or clinical findings, not elsewhere classified (continued)

				Number			CBT intervention g	roup	Comparator grou	p	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCIs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Tang 2018 ⁴⁴⁰	Chronic pain	NA	Low	3 (404)	Children, adolescents	USA	NA	Internet-based CBT, family internet-based CBT	Internet-based education, specialised headache treatment programme	WLC	Short	x	1	1	J
Veehof 2016 ⁴⁷³	Chronic pain	NA	Low	2 (190)	Adults	NR	Group CBT	NA	Acceptance and commitment therapy, mindfulness- based stress reduction	NA	Short	≤	/	≤	1
Velleman 2010 ⁴⁷⁵	Chronic pain	NA	Critically low	4 (179)	Children, adolescents	NR	NA	Computerised CBT	Computerised education programme	WLC	Short	x	X	X	1
Verhagen 2009 ⁴⁸⁰	Chronic pain	NA	Moderate	2 (68)	Adults	NR	Individual CBT	NA	Drug, relaxation	NA	Short	x	1	1	1
Wendebourg 2017 ⁴⁹⁵	Fatigue	Multiple sclerosis	Low	3 (152)	Adults	UK, New Zealand, USA	Face-to-face individual CBT, face-to-face individual CBT + telephone contact	Internet-based CBT + telephone contact	Group intervention (not CBT), relaxation	No intervention	Short	,	,	x	1
Xu 2017 ⁵⁰⁸	Fatigue	Traumatic brain injury	Low	1 (12)	Adults	Australia	Individual CBT	NA	NA	WLC	Short	x	x	x	1

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data found; ', outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); CD-ROM, compact disc read-only memory; FMS, Fibromyalgia Syndrome; NA, not applicable; NR, not reported.

Condition specific

1

1

x

X

		- 111/		Number			CBT intervention gro	oup	Comparator grou	ıp	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCIs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	
Al Sayegh 2010 ³⁸	Injuries to the head	Head injury	Low	1 (16)	Adults	NR	Individual CBT adapted to account for difficulties with attention, concentration, fatigue and memory, single session individual CBT + manual	NA	NA	WLC, TAU	Short	≤	J	J	,
Gómara-Toldrà 2014 ¹⁷²	Spinal cord injury	NA	Low	1 (61)	Adults	The Netherlands	Multidisciplinary individual CBT for coping with neuropathic pain	NA	NA	WLC	Short	1	X	x	

TABLE 30 Reviews in ICD-11 primary: 22 Injury, poisoning or certain other consequences of external causes

Low

Depression

1 (58)

Moderate 1 (77)

Adults

Adults

USA

USA

NA

NA

NA

Supportive

TAU

NA

Short

Short

X

1

X

data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); NA, not applicable; NR, not reported.

Single session

Individual CBT

therapist

individual CBT with

Sullivan 2018⁴³⁷ Intracranial NA

Thomas 2017⁴⁴⁹ Intracranial

injury

Health Technology Assessment 2021 Vol. 25 No. 9

Reviews falling under primary ICD-11 code 24 (*Table 31*) have been subdivided into those with mental conditions and those with physical conditions. The reviews are listed under each of their respective categories.

TABLE 31 Reviews with populations in ICD-11 primary: 24 Factors influencing health status or contact with health services

		· · · · · ·		Number			CBT intervention g	roup	Comparator grou	р	Outcome				
Study	Condition	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCTs (number of participants)		Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
Mental condition	s														
McDaid 2008 ³⁰⁰	Bereavement	NA	Moderate	1 (134)	Adolescents, adults	The Netherlands	Family CBT	NA	NA	TAU	Long	x	1	X	x
Physical condition	ns														
Moraes 2018 ³¹⁹	Care involving peritoneal dialysis	NA	Critically low	1 (24)	NR	NR	Individual CBT	NA	NR	NR	Short	x	≤	≤	1

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ≤, outcome searched for in the review, but no CBT data found; NA, not applicable; NR, not reported.

			• · · · · ·		Number			CBT intervent	tion group	Comparator g	roup	Outcome				
ICD-11 primary/ secondary	Condition description	Study	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCIs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time		. Depression	Anxiety	Condition specific
 Anxiety disorder Mood disorder OCD Symptoms involving the ear Sexual health 	 SAD Panic Phobia Depression Body dissatisfaction Tinnitus Male sexual dysfunction 	Andersson 2014 ⁴⁵	NA	Low	11 (934)	Adults	Australia, the Netherlands, Spain, Sweden, Switzerland, USA	NA	Internet-based CBT	High-intensity CBT	NA	Short	X	/	5	/
 Mood disorder General symptoms 	 Depression Pain 	Barrett 2016 ⁵⁸	Substance abuse	Critically low	1 (66)	Adults	USA	Integrated individual CBT for substance abuse disorder, depression and pain	NA	Twelve-step facilitation	NA	Long	X	\$	x	x
 Anxiety disorder Mood disorder OCD Sleep- wake disorder Symptoms involving the ear Sexual health General symptoms 	 SAD Panic Phobia Depression Body dissatisfaction Insomnia Tinnitus Male sexual dysfunction Pain/ fibromyalgia 	Carlbring 2018 ⁸⁷	NA	Low	16 (914)	Adults	Australia, the Netherlands, Spain, Sweden, Germany, USA	NA	Internet-based CBT	High-intensity CBT	NA	Short	x	,	/	1
 Anxiety disorder Mood disorder Feeding or eating disorder Sleep- wake disorder 	 Anxiety Depression Eating Sleep 	Farrand 2013 ¹⁴²	NA	Low	35 (2977)	Adults	NR	NA	Guided self-help CBT, minimal contact CBT, self-administered CBT	NA	WLC TAU Attention control	Short	X	•	1	1

TABLE 32 Reviews with populations from mixed physical and mental conditions

					Number			CBT interven	tion group	Comparator g	group	Outcome				
ICD-11 primary/ secondary	Condition description	Study	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)	Follow-up time	HRQoL	Depression	Anxiety	Condition specific
 Schizophrenia and other primary psychotic disorder Mood disorder Cognition Injuries to the head Neuro- developmental disorder 	 Bipolar Cognitive deficiency Brain injury Autism 	Kolubinski 2018 ²⁵⁶	Psychosis, bipolar, cognitive deficit, brain injury, learning disability, autism	Critically low	2 (562)	Adults	UK	Group CBT	NA	NA	WLC	Short	X	1	X	X
 Anxiety disorder Mood disorder General symptoms 	 Anxiety Depression Pain 	Osborn 2006 ³⁴⁸	Cancer survivors	Critically low	1 (34)	Adults	NR	Individual CBT	NA	NR	NR	Short	x	1	1	1
 Anxiety disorder General symptoms 	1. Anxiety 2. Pain	Ruiz 2012 ³⁸⁹	NA	Critically low	3 (258)	Adults	NR	Group CBT, individual CBT	NA	Acceptance and commitment therapy	NA	Short- long	1	1	1	1
 Mood disorder Sleep disorder Schizophrenia and other primary psychotic disorder 	 Depression Sleep Psychosis 	Yoshinaga 2015 ⁵¹⁵	NA	Critically low	2 (68)	NR	NR	Group CBT, individual CBT	NA	Group occupational therapy	TAU	Short	5	•	1	/

✓, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; ', outcome searched for in the review and RCT data identified, but unable to extract because of insufficient information (e.g. which individual studies contributed to this outcome, relevant data pooled with non-CBT or non-RCT studies); NA, not applicable; NR, not reported; OCD, obsessive-compulsive disorder; SAD, social anxiety disorder.

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TABLE 33 Summary table of reviews with populations from mixed physical conditions

		Comparis d/		Number			CBT intervention	group	Comparator group)	Outcome				
Study	Condition description	Comorbid/ specific symptoms	AMSTAR-2 quality rating	of RCTs (number of participants)	Age	Country of RCTs	High intensity (description)	Low intensity (description)	Active (description)	Non-active (description)		HRQoL	Depression	Anxiety	Condition specific
Bernard 2018 ⁶²	COPD, heart failure, cancer, chronic pain	NA	Critically low	8 (NR)	Adults	Brazil, the Netherlands, Pakistan, USA, international	CBT + exercise therapy (some group)	NA	Exercise therapy	NA	Short	x	1	1	1
van Beugen 2014 ⁴⁶⁷	Tinnitus, diabetes, chronic pain, cancer, headache, epilepsy, fatigue, functional gastrointestinal	NA	Low	19 (3974)	Adults	NR	NA	Internet- based CBT	NA	TAU, WLC	Short	1	1	1	J

, Outcome searched for in the review, and RCT data identified and extracted; X, outcome was not searched for in the review; NA, not applicable; NR, not reported;

Appendix 8 Gap maps of included systematic reviews grouped according to the condition each targeted, as per the ICD-11

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6	Who: sev	erity				Wha	t: inte	ensity	When: deliv	ered			Where: par	ticipants	recruited					Follov	v-up	
Secondary ICD-11 (number of reviews, RCTs, participants)	Subclinical	l Clinica	l Chronic	: Severe	Not reported	High		Not reported	Preventative			Not reported		GP primary	Outpatients	Inpatients	School/ university		Not reported	Short		Not reported
6B00-06: Anxiety or fear-related disorders [agoraphobia with panic disorder, GAD, panic, phobia, SAD, selective mutism, mixed anxiety disorders (GAD, panic, phobia, SAD, separation, selective mutism)], <i>n</i> = 50 reviews (346 RCTs; 24,078 participants)	0	30	1	1	20	42	10	1	2	48	0	0	5	2	8	4	6	0	35	41	10	1
6C40-51: Disorders due to substance use or addictive behaviours (gambling, gaming, hallucinogens, stimulants, substance use), $n = 6$ reviews (7 RCTs; 476 participants)	0	1	0	0	5	3	2	1	0	6	0	0	2	0	2	0	0	0	2	3	2	1
6C20-21: Disorders of bodily distress or bodily experience (somatoform/ MUS], $n = 2$ reviews (5 RCTs; 554 participants)	0	1	0	0	1	2	0	0	0	2	0	0	1	1	1	0	0	0	1	2	1	0
6B40-45: Disorders specifically associated with stress (acute stress disorders, adjustment disorders, post-traumatic stress disorder), n = 39 reviews (89 RCTs; 6110 participants)	4	17	0	1	18	37	3	0	3	36	0	0	11	2	6	1	6	1	22	35	7	0
6B80-85: Feeding or eating disorders [AN, BED, BN, mixed (AN, BN, BED, EDNOS)], n=25 reviews (87 RCTs; 7132 participants)	2	13	1	1	10	20	8	0	1	23	1	0	8	3	8	1	1	0	13	17	10	0

TABLE 34 Gap map of mental conditions (in ICD-11: 06 Mental, behavioural or neurodevelopmental disorders)

	Who: seve	erity				Wha	t: inte	ensity	When: deliv	ered		_	Where: par	ticipants	recruited					Follo	w-up	
Secondary ICD-11 number of reviews, RCTs, participants)	Subclinical	Clinical	Chroni		Not reported	High		Not reported	Preventative			Not reported	Community	GP primary	Outpatients	Inpatients	School/ university		Not reported	Short	Long	Not reported
SB80-85: Mental disorders associated with oregnancy, childbirth or the puerperium (during VF, antenatal depression, perinatal anxiety and depression, postnatal depression, $n = 19$ reviews (39 RCTs; 4737 participants)	0	7	0	0	12	15	6	1	3	16	0	0	4	0	0	2	0	0	13	18	1	1
5A60-80: Mood disorders bipolar or related disorder, depressive disorders, premenstrual dysphoric disorder, subthreshold depression, creatment-resistant depression), $n = 92$ reviews (272 RCTs; 42,676 participants)	9	43	4	3	39	76	29	2	8	84	4	0	14	11	19	6	7	2	48	72	26	1
6D70-72: Neurocognitive disorders, <i>n</i> = 1 review 1 RCT; 41 participants)	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0
6A00-06: Neurodevelopmental disorders (attention deficit hyperactive disorder), n = 5 reviews (13 RCTs; 746 participants)	0	3	0	0	2	5	1	0	0	5	0	0	0	0	1	0	0	0	4	5	0	0
6820-25: Obsessive- compulsive or related disorders (body dysmorphic disorder, nypochondriasis, OCD), n = 16 reviews (54 RCTs; 3117 participants)	0	9	0	1	7	13	5	0	0	16	0	0	1	4	2	0	1	0	12	16	3	0

Health Technology Assessment 2021 Vol. 25 No. 9

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TABLE 34 Gap map of mental conditions (in ICD-11: 06 Mental, behavioural or neurodevelopmental disorders) (continued)

	Who: seve	rity				Wha	t: into	ensity	When: deliv	ered			Where: pa	rticipants	recruited					Follo	w-up	
Secondary ICD-11 (number of reviews, RCTs, participants)	Subclinical	Clinical	Chronic		Not reported	High	Low	Not reported	Preventative			Not reported	Community	GP primary	Outpatients	Inpatients	School/ university	Institution	Not reported	Short		Not reported
6D10-11: Personality disorders and related traits, $n = 4$ reviews (7 RCTs; 603 participants)	0	2	0	0	2	4	0	0	0	4	0	0	0	0	3	0	0	0	1	3	1	0
6A20-25: Schizophrenia or other primary psychotic disorders (attenuated psychosis syndrome, delusional disorder, early-onset psychosis, psychosis), n = 31 reviews (135 RCTs; 14,924 participants)	0	14	0	1	16	31	0	0	6	24	1	0	3	1	10	8	0	0	17	20	14	0
Mixed mental (anxiety, addictive, bodily distress, depression, eating disorder, obsessive, stress), $n = 60$ reviews (447 RCTs; 57,213 participants)	1	31	1	1	28	40	26	1	2	58	0	0	16	8	18	3	11	0	26	53	13	1

AN, anorexia nervosa; BED, binge eating disorder; BN, bulimia nervosa; EDNOS, eating disorder not otherwise specified; GAD, generalised anxiety disorder; GP, general practitioner; IVF, in vitro fertilisation; MUS, medically unexplained symptoms; OCD, obsessive-compulsive disorder; SAD, social anxiety disorder. Purple denotes an evidence gap (i.e. no reviews were identified). Green indicates that the review did not report on this attribute.

TABLE 35 Gap map of mental conditions (in other ICD-11 categories)

Primary and secondary ICD-11 (number of	Who: seve	erity				Wha	t: inte	ensity	When: deliv	ered			Where: par	ticipants	recruited					Follov	v-up	
reviews, RCTs, participants)	Subclinical	Clinical	Chronic	Severe	Not reported	High	Low	Not reported	Preventative	Standard		Not reported		GP primary	Outpatients	Inpatients	School/ university	nstitution	Not reported	Short		Not reported
21. Symptoms, signs or clinical findings, not elsewhere classified: mental, behavioural symptoms (aggression, caregivers stress, fear of cancer, fear of falling, suicidal behaviour), n = 8 reviews (17 RCTs; 2817 participants)	0	2	0	1	6	2	5	1	1	7	0	0	1	0	1	0	0	0	6	6	1	1
24. Factors influencing health: associated with absence, loss or death of others (bereavement through suicide), n = 1 review (1 RCT; 134 participants)	0	0	0	0	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0

TABLE 36 Gap map of physical conditions

	Who: seve	erity				What	t: inte	ensity	When: deliv	ered			Where: par	ticipants	recruited					Follo	w-up	
Primary ICD-11 (number of reviews, RCTs, participants)	Subclinical	Clinical	Chronic		Not reported	High		Not reported	Preventative	Standard	Relapse prevention	Not reported	Community	GP primary	Outpatients	Inpatients	School/ university	Institution	Not reported	Short	: Long	Not reported
01 Certain infectious or parasitic diseases (HIV/AIDS), n = 1 review (1 RCT; 46 participants)	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0
02 Neoplasms (chemotherapy, malignant breast), <i>n</i> = 8 reviews (21 RCTs; 3204 participants)	0	6	0	0	2	8	0	0	0	8	0	0	0	0	1	0	0	0	7	6	4	0
05 Endocrine, nutritional or metabolic diseases (diabetes mellitus, diabetic neuropathy), n=3 reviews (8 RCTs; 1061 participants)	0	1	0	0	2	3	1	0	0	3	0	0	0	0	2	0	0	0	1	2	2	0
07 Sleep-wake disorders (insomnia disorders), n = 22 reviews (125 RCTs; 14,315 participants)		8	2	0	12	15	10	0	0	22	0	0	6	1	2	0	1	0	15	19	6	0
08 Diseases of the nervous system (epilepsy or seizure, neuromuscular disorders, non-epileptic seizures, Parkinson's disease, post-viral fatigue syndrome), $n = 14$ reviews (54 RCTs; 5883 participants)	0	5	0	0	9	14	1	0	0	14	0	0	1	1	4	2	0	0	8	10	5	0
10 Diseases of the ear or mastoid process (hyperacusis, tinnitus), n = 3 reviews (9 RCTs; 534 participants)	0	0	0	0	3	2	2	0	0	3	0	0	0	0	0	0	0	0	3	3	1	0

	Who: seve	rity				Wha	t: inte	ensity	When: delive	ered			Where: par	rticipants	s recruited					Follo	v-up	
Primary ICD-11 (number of reviews, RCTs, participants)	Subclinical	Clinical	Chronic	Severe	Not reported	High		Not reported	Preventative	Standard		Not reported	Community	GP primary	Outpatients	Inpatients	School/ university	Institution	Not reported	Short	Long	Not reported
2 Diseases of the espiratory system asthma), <i>n</i> = 2 reviews 7 RCTs; 174 participants]	0	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	2	2	0	0
13 Diseases of the ligestive system dentofacial parafunctional lisorders, irritable bowel disorder/syndrome, oral nucositis), <i>n</i> = 9 reviews 27 RCTs; 2079 participants)	0	2	0	0	7	4	6	0	0	9	0	0	1	2	4	0	0	0	5	9	2	0
14 Diseases of the skin atopic eczema, vitiligo), a = 3 reviews (3 RCTs; 37 participants)	0	1	0	0	2	3	0	0	0	3	0	0	2	0	0	0	0	0	1	2	1	0
L6 Diseases of the genitourinary system menopausal hot flushes, nenopause), $n = 4$ reviews (5 RCTs; 860 participants)	0	0	0	0	4	4	0	0	0	1	0	0	0	0	0	0	0	0	4	4	0	0
17 Conditions related o sexual health (male erectile dysfunction), o = 1 review (0 RCTs; o participants)	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1
21 General symptoms, igns or clinical findings: atigue, <i>n</i> = 4 reviews 7 RCTs; 261 participants)	0	0	0	0	4	4	2	0	0	4	0	0	0	0	1	1	0	0	3	4	0	0

Primary ICD-11 (number	Who: sev	erity				Wha	t: inte	ensity	When: deliv	ered			Where: par	rticipants	s recruited					Follov	v-up	
of reviews, RCTs,	Subclinical	Clinica	l Chronic	Severe	Not reported	High		Not reported	Preventative	Standard		Not reported	Community	GP primary	Outpatients	Inpatients	School/ university	Institution	Not reported	Short	Long	Not reported
21 General symptoms, signs or clinical findings: pain (back pain, chronic non-cancer pain, chronic pain, headaches and migraines, fibromyalgia, leukaemia, lumbar fusion surgery, neck pain, non- specific chest pain, spinal pain and injury, OA, orthodontic treatment, RA, RAP, sickle cell disease pain, tempro mandibular disorder), n = 42 reviews (156 reviews; 17,105 participants)	0	11	9	0	22	30	18	0	2	39	1	0	10	4	15	3	3	1	22	31	16	0
21 General symptoms, signs or clinical findings: weight gain, $n = 4$ reviews (4 RCTs; 138 participants)	0	2	0	0	2	4	0	0	0	4	0	0	1	0	0	0	0	0	3	3	1	0
22 Injury, poisoning or certain other consequences of external causes (intracranial injury, spinal cord injury), <i>n</i> = 4 reviews (4 RCTs; 212 participants)	0	2	0	1	1	4	0	0	1	3	0	0	1	0	2	3	0	0	1	4	0	0
24 Factors influencing health status (peritoneal dialysis), <i>n</i> = 1 review (1 RCT; 24 participants)	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0
Mixed physical conditions (COPD, cancer, chronic pain, diabetes, epilepsy, headache, heart failure, fatigue, functional gastrointestinal, tinnitus), n = 2 reviews (27 RCTs; 3974 participants)	0	0	1	0	1	1	1	0	0	2	0	0	1	0	0	0	0	0	1	2	0	0

TABLE 36 Gap map of physical conditions (continued)

AIDS, acquired immunodeficiency syndrome; GP, general practitioner; HIV, human immunodeficiency virus; OA, osteoarthritis; RA, rheumatoid arthritis; RAP, recurrent abdominal pain.

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TABLE 37 Gap map of mixed mental and physical conditions

Primary physical/ secondary mental	Who: seve	erity				What	: inte	nsity	ity When: delivered				Where: participants recruited Follow-up									
ICD-11 category (number of reviews, RCTs, participants)	Subclinical	Clinical	Chronic		Not reported	High		Not reported	Preventative		Relapse prevention		Community	GP primary	Outpatients		School/ university	Institution	Not reported	l Short		Not reported
Physical: brain injury, conditions related to sexual health, chronic pain, diseases of the ear or mastoid process, sleep-wake disorders; mental: anxiety, autism, bipolar, bodily distress, depression, eating disorders, learning disability, psychosis, stress disorders, $n = 8$ (71 RCTs; 5813 participants)	0	2	0	0	6	5	3	0	0	8	0	0	3	0	4	1	0	0	3	7	2	0

Appendix 9 Health-related quality of life

Sensitivity analysis: review quality

The sensitivity analysis was conducted with an additional 10 reviews that had been rated as being of low or critically low quality on the AMSTAR-2. Therefore, the sensitivity analysis was conducted with 34 reviews (76 RCTs, 7466 participants).^{32,39,63,82,165,188,193,219,220,231,235,236,270,275,276,279,286,299,317,329,343,347,356,371,409. ^{413,445,446,464,467,469,513,518,521} Inclusion of lower-quality reviews increased the estimate of effect (SMD 0.28, 95% CI 0.17 to 0.38) and produced higher levels of heterogeneity ($I^2 = 71\%$) (*Figure 15*).}

Sensitivity analysis: prioritisation of mental subscales

We re-ran the PMA, replacing the physical component scores with the mental component scores from the SF-12/SF-36 in the two reviews that presented both the physical and mental component scores.^{220,464} The replacement did not change the overall effect or heterogeneity rating for the HRQoL outcome (SMD 0.24, 95% CI 0.14 to 0.33; $I^2 = 38\%$) (*Figure 16*).

Synthesis of reviews reporting change scores

Data were presented as change scores for the HRQoL outcome in four reviews (four RCTs, 185 participants).^{158,246,406,523} Each review represented a different condition: digestive system diseases (irritable bowel syndrome), mixed mental problems (anxiety and depression), pain (neck and whiplash) and respiratory system diseases (asthma). Pooled results showed a moderate effect in favour of CBT (SMD 0.58, 95% CI 0.15 to 1.00; $l^2 = 66\%$) (*Figure 17*).

Synthesis of reviews reporting dichotomous outcomes

Only one review (two RCTs, 145 participants) reported HRQoL outcome results as RRs.¹⁷⁰ This review in nervous system disorder (post-viral fatigue syndrome) identified a large effect for CBT (SMD 1.57, 95% CI 0.78 to 2.37) (*Figure 18*).

APPENDIX 9

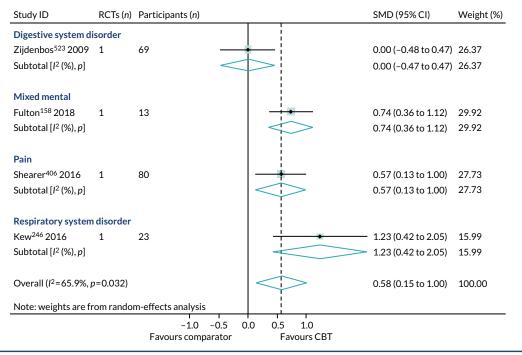
Study ID	RCTs (n)	Participants (n)	SMD (95% CI)	Weight (9
Addiction Harada ¹⁹³ 2018 Subtotal [<i>I</i> ² (%), <i>p</i>]	1	160	0.19 (-0.25 to 0.63) 0.19 (-0.25 to 0.63)	2.67 2.67
Aggression Ali ³⁹ 2015 Subtotal [<i>I</i> ² (%), p]	1	140	0.02 (-0.32 to 0.35) 0.02 (-0.32 to 0.35)	3.33 3.33
Anxiety disorder Dlthuis ³⁴³ 2016 (Panic) Dlthuis ³⁴³ 2016 (GAD) Păsărelu ³⁵⁶ 2017 Jsmani ⁴⁶⁴ 2017 Zhou ⁵²¹ 2018 Subtotal (I ² = 35.3%, p=0.	4 5 1 1 1 186)	176 360 54 238 100	0.45 (0.15 to 0.75) 0.57 (0.35 to 0.78) 0.68 (0.13 to 1.22) 0.21 (-0.04 to 0.47) 0.65 (0.25 to 1.05) 0.47 (0.30 to 0.65)	3.54 4.11 2.14 3.84 2.90 16.54
Bodily distress disorder van Dessel ⁴⁶⁹ 2014 Subtotal [<i>I</i> ² (%), <i>p</i>]	1	72	0.36 (-0.11 to 0.82) 0.36 (-0.10 to 0.83)	2.53 2.53
Digestive system disorde . ⁱ²⁷⁹ 2014 . ⁱ²⁷⁸ 2018 Subtotal (I ² =0.0%, p=0.5	1 1	NR 199	-0.07 (-0.58 to 0.44) 0.10 (-0.18 to 0.38) 0.06 (-0.18 to 0.31)	2.30 3.67 5.98
Mixed mental Mayo-Wilson ²⁹⁹ 2013 Vg ³²⁹ 2018 Fhabrew ⁴⁴⁵ 2018 Fhabrew ⁴⁴⁶ 2018 Subtotal (I ² = 35.3%, p=0.	1 1 1 201)	115 240 61 22	-0.06 (-0.48 to 0.36) 0.38 (0.13 to 0.64) 0.24 (-0.27 to 0.74) -0.29 (-1.13 to 0.55) 0.17 (-0.10 to 0.45)	2.78 3.84 2.33 1.20 10.16
Mixed physical van Beugen ⁴⁶⁷ 2014 Subtotal [<i>I</i> ² (%), <i>p</i>]	3	171	1.11 (0.79 to 1.44) 1.11 (0.78 to 1.43)	3.37 3.37
Mood disorder Butler ⁸² 2018 Gertler ¹⁶⁵ 2015 jaz ²²⁰ 2018 leyanantham ²³¹ 2017 Orgeta ³⁴⁷ 2014 Subtotal (<i>l</i> ² = 0.0%, <i>p</i> = 0.8	1 1 5 1 09)	67 74 242 197 39	$\begin{array}{c} 0.35 \ (-0.31 \ to \ 1.01) \\ 0.06 \ (-0.39 \ to \ 0.52) \\ 0.08 \ (-0.17 \ to \ 0.32) \\ 0.22 \ (-0.06 \ to \ 0.51) \\ 0.39 \ (-0.24 \ to \ 1.02) \\ 0.16 \ (-0.00 \ to \ 0.32) \end{array}$	1.69 2.59 3.89 3.64 1.80 13.61
<mark>Neoplasms</mark> /e ⁵¹³ 2018 Subtotal [<i>I</i> ² (%), <i>p</i>]	8	1628	0.57 (0.44 to 0.69) 0.57 (0.44 to 0.69)	4.63 4.63
Nervous system disorder Price ³⁷¹ 2008 Subtotal [<i>I</i> ² (%), <i>p</i>]	r 1	125	0.39 (0.03 to 0.74) 0.39 (0.03 to 0.74)	3.19 3.19
Neurodevelopmental dis Lopez ²⁸⁶ 2018 Subtotal [<i>I</i> ² (%), <i>p</i>]	order 2	64	0.21 (-0.29 to 0.71) 0.21 (-0.29 to 0.71)	2.35 2.35
2ain Abbott ³² 2017 Bernardy ⁶³ 2013 Hall ¹⁸⁸ 2018 Monticone ³¹⁷ 2015 Skelly ⁴¹³ 2018 (Knee OA) Subtotal (I ² = 65.1%, p=0.		136 362 1128 26 111	0.43 (-0.21 to 1.06) 0.28 (-0.11 to 0.68) 0.06 (-0.07 to 0.18) 0.83 (0.06 to 1.59) -0.37 (-0.74 to 0.00) 0.14 (-0.15 to 0.43)	1.78 2.93 4.63 1.37 3.07 13.78
Psychosis Hutton ²¹⁹ 2014 Iones ²³⁵ 2018 Iones ²³⁶ 2018 Jaws ²⁷⁰ 2018 Zhao ⁵¹⁸ 2015 Subtotal (I ² = 10.9%, p=0.	2 1 9 1 344)	168 37 28 592 64	0.09 (-0.21 to 0.39) 0.07 (-0.58 to 0.72) 0.84 (0.10 to 1.58) 0.04 (-0.12 to 0.19) 0.20 (-0.30 to 0.70) 0.10 (-0.05 to 0.25)	3.54 1.73 1.44 4.47 2.36 13.54
5tress disorder .ewis ²⁷⁵ 2018 5in ⁴⁰⁹ 2017 Subtotal (I ² =45.4%, p=0.	2 1 176)	221 49	0.60 (0.08 to 1.12) 0.07 (-0.49 to 0.63) 0.35 (-0.17 to 0.86)	2.26 2.07 4.33
Overall (I ² = 70.7%, p = 0.0 Note: weights are from ra			0.28 (0.17 to 0.38)	100.00

FIGURE 15 Sensitivity analysis for quality in HRQoL outcomes. GAD, generalised anxiety disorder; OA, osteoarthritis.

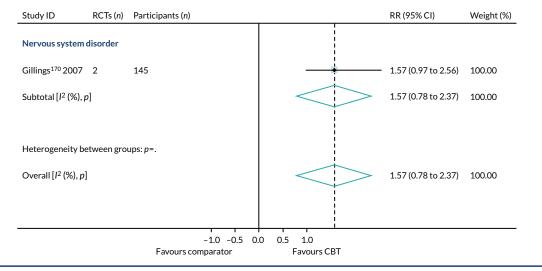
Study ID	RCTs (n)	Participants (n)		SMD (95% CI)	Weight (%)
Addiction Harada ¹⁹³ 2018 Subtotal [<i>I</i> ² (%), <i>p</i>]	1	160 —		0.19 (-0.25 to 0.63) 0.19 (-0.25 to 0.63)	3.47 3.47
Aggression Ali ³⁹ 2015 Subtotal [I ² (%), p]	1	140	•	0.02 (-0.32 to 0.35) 0.02 (-0.32 to 0.35)	5.06 5.06
Anxiety disorder Olthuis ³⁴³ 2016 (GAD) Olthuis ³⁴³ 2016 (Panic) Usmani ⁴⁶⁴ 2017 Subtotal (I ² =85.1%, p=0	5 4 1 0.00)	360 176 238 —		0.57 (0.35 to 0.78) 0.45 (0.15 to 0.75) -0.04 (-0.29 to 0.22) 0.33 (-0.05 to 0.71)	7.78 5.68 6.71 20.17
Bodily distress disorder van Dessel ⁴⁶⁹ 2014 Subtotal [<i>I</i> ² (%), <i>p</i>]	1	72		0.36 (-0.11 to 0.82) 0.36 (-0.10 to 0.83)	3.20 3.20
Mixed mental Mayo-Wilson ²⁹⁹ 2013 Thabrew ⁴⁴⁵ 2018 Thabrew ⁴⁴⁶ 2018 Subtotal (l^2 =0.0%, p =0.4	1 1 1 499)	115 61 22		-0.06 (-0.48 to 0.36) 0.24 (-0.27 to 0.74) -0.29 (-1.13 to 0.55) 0.02 (-0.28 to 0.32)	3.71 2.82 1.19 7.71
Mood disorder Gertler ¹⁶⁵ 2015 Ijaz ²²⁰ 2018 Jeyanantham ²³¹ 2017 Orgeta ³⁴⁷ 2014 Subtotal ($l^2=0.0\%$, $p=0.7$	1 1 5 1 761)	74 <u> </u>		0.06 (-0.39 to 0.52) 0.32 (0.06 to 0.57) 0.22 (-0.06 to 0.51) 0.39 (-0.24 to 1.02) 0.25 (0.08 to 0.42)	3.30 6.76 6.00 1.97 18.03
Nervous system disord Price ³⁷¹ 2008 Subtotal [I ² (%), p]	er 1	125		0.39 (0.03 to 0.74) 0.39 (0.03 to 0.74)	4.68 4.68
Neurodevelopmental d Lopez ²⁸⁶ 2018 Subtotal [I ² (%), p]	isorder 2	64 —		0.21 (-0.29 to 0.71) 0.21 (-0.29 to 0.71)	2.86 2.86
Pain Abbott ³² 2017 Bernardy ⁶³ 2013 Hall ¹⁸⁸ 2018 Monticone ³¹⁷ 2015 Subtotal (l ² =46.7%, p=0	3 6 4 1).131)	136 — 362 1128 26		0.43 (-0.21 to 1.06) 0.28 (-0.11 to 0.68) 0.06 (-0.07 to 0.18) 0.83 (0.06 to 1.59) 0.25 (-0.03 to 0.53)	1.94 4.04 10.49 1.39 17.85
Psychosis Hutton ²¹⁹ 2014 Jones ²³⁵ 2018 Jones ²³⁶ 2018 Zhao ⁵¹⁸ 2015 Subtotal (I ² =13.8%, p=0	2 1 1 1 0.323)	168 - 37 - 28 - 64 -		0.09 (-0.21 to 0.39) 0.07 (-0.58 to 0.72) 0.84 (0.10 to 1.58) 0.20 (-0.30 to 0.70) 0.20 (-0.06 to 0.46)	5.68 1.86 1.48 2.87 11.89
Stress disorder Lewis ²⁷⁵ 2018 Sin ⁴⁰⁹ 2017 Subtotal (I ² =45.4%, p=0	2 1).176)	221 49		0.60 (0.08 to 1.12) 0.07 (-0.49 to 0.63) 0.35 (-0.17 to 0.86)	2.69 2.39 5.08
Overall (I^2 =37.6%, p=0. Note: weights are from rand		nalveis		0.24 (0.14 to 0.33)	100.00
Note, weights are from rand	ioni-enects a	-1.0 -0.5 Favours comparator	0.0 0.5 1.0 Favours CBT		

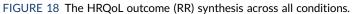
FIGURE 16 The HRQoL sensitivity analysis: prioritisation of mental subscales.

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Appendix 10 Depression

Primary analysis

Within-condition heterogeneity varied between 0% (6D10-11: Personality disorders) and 86.3% (6A60-80: Mood disorders) and across-condition heterogeneity was 81%. The across-condition heterogeneity was too high for us to pool across the ICD-11 category subgroups (*Figure 19*).

Publication bias

No publication bias was detected using funnel plots (*Figure 20*) and Egger's test showed no small-study effects (p = 0.87).

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APPENDIX 10

Study ID	RCTs (n	Participants (n)	SMD (95% CI)	Weight (%)
Aggression Ali ³⁹ 2015 Subtotal [I ² (%), p] with estimated predictive interval	1	144	-0.03 (-0.35 to 0.30) -0.03 (-0.35 to 0.30) (. to .)	2.28 2.28
Body Distress disorder van Dessel ⁴⁰⁹ 2014 Subtotal [/²(%), p] with estimated predictive interval	1	156	0.81 (0.46 to 1.16) 0.81 (0.46 to 1.16) (. to .)	2.23 2.23
Eating disorder Gnaderi ⁵⁷ 2018 Hay ⁵⁴² 2001 Hay ¹⁵⁹ 2009 Hay ¹⁵⁷ 2015 Poinay ³⁵⁸ 2014 Subtotal ($^{+2}$ 38,3%, p =0.166) with estimated predictive interval	2 3 1 1 2	125 111 158 31 52	0.03 (-0.32 to 0.38) 0.24 (-0.14 to 0.62) -0.14 (-0.46 to 0.17) -0.37 (-1.08 to 0.34) 0.52 (-0.03 to 1.08) 0.06 (-0.18 to 0.30) (-0.60 to 0.73)	2.22 2.15 2.31 1.40 1.72 9.81
Mixed mental Davies ¹¹⁷ 2014 Farrand ¹⁴³ 2015 Gould ¹⁵⁵ 2012 Mayo-Wilson ⁵⁹⁹ 2013 Thabrew ⁴⁵⁵ 2018 Thabrew ⁴⁵⁵ 2018 Subtotal (162 22.1%, p =0.183) with estimated predictive interval	4 1 3 2 1 3 2	198 190 172 174 339 74	$\begin{array}{c} -0.33 \left(-1.09 \ {\rm to} \ 0.43\right) \\ 0.29 \left(-0.06 \ {\rm to} \ 0.63\right) \\ 0.18 \left(-0.46 \ {\rm to} \ 0.82\right) \\ -0.25 \left(-0.58 \ {\rm to} \ 0.08\right) \\ -0.45 \left(-1.41 \ {\rm to} \ 0.12\right) \\ -0.46 \left(-1.25 \ {\rm to} \ 0.18\right) \\ 0.56 \left(-1.25 \ {\rm to} \ 0.37\right) \\ -0.55 \left(-0.26 \ {\rm to} \ 0.16\right) \\ -0.55 \left(-0.26 \ {\rm to} \ 0.43\right) \end{array}$	1.30 2.24 1.53 2.28 1.29 2.53 0.37 11.53
Mood disorder Akechi ²² 2008 Andrews ⁴² 2018 Beltman ²⁹ 2010 [COPD] Beltman ²⁹ 2010 [HV] Beltman ²⁹ 2010 [Hearl disase+clinical dep] Beltman ²⁹ 2010 [Hearl disase+subclinical dep] Hetrick ⁴²⁹ 2018 Hetrick ⁴²⁹ 2018 Jearl disases+subclinical dep] Hetrick ⁴²⁹ 2016 Jearl disases+subclinical dep] Jearl disases+subclinical dep] Hetrick ⁴²⁹ 2016 Jearl disases+subclinical dep] Jearl disas	1 27 1 1 1 1 1 1 1 2 1 1 5 1 1 1 1 4	92 5642 238 13 16 18 56 53 55 53 55 53 55 53 55 53 55 53 55 53 55 55	$\begin{array}{c} -0.56 \ (-0.98 \ to \ -0.14) \\ 0.67 \ (0.51 \ to \ 0.81) \\ 0.03 \ (-0.23 \ to \ 0.28) \\ 0.52 \ (-0.60 \ to \ 1.64) \\ 0.52 \ (-0.60 \ to \ 1.64) \\ 0.51 \ (-0.21 \ to \ 1.27) \\ -0.51 \ (-0.35 \ to \ 2.6) \\ -0.61 \ (-0.21 \ to \ 1.27) \\ -0.61 \ (-0.16 \ to \ 1.27) \ (-0.16 \ to \ 1.2$	2.05 2.64 2.45 0.80 2.14 1.64 2.34 2.61 2.64 2.44 2.66 2.48 2.40 2.07 2.36 1.57 2.36 1.57 2.04 2.09 35.81
Nervous system disorder Price ³⁷¹ 2008 Subtotal [/²(%), p] with estimated predictive interval	3	177	0.03 (-0.44 to 0.50) 0.03 (-0.44 to 0.50) (. to .)	1.93 1.93
Neurodevelopmental disorder Lopez ²⁸⁶ 2018 Subtotal $[1^{c}(S), p]$ with estimated predictive interval	2	66	0.85 (0.37 to 1.33) 0.85 (0.37 to 1.33) (. to .)	1.90 1.90
Obsessive disorder Dettore ²⁵² 2015 Dettore ²⁵² 2029 Of Kearney ²⁶² 2006 Themson ²⁶² 2007 Subtotal (/°=87.7%, p=0.000) with estimated predictive interval	5 1 1 2		-0.33 (-0.67 to 0.01) 1.65 (0.75 to 2.55) 0.77 (0.20 to 1.33) 0.82 (-0.23 to 1.88) 0.67 (-0.25 to 1.58) (-3.52 to 4.86)	2.25 1.07 1.70 0.87 5.89
Pain Bernardy ⁴³ 2013 Verhagen ⁴⁴⁰ 2009 Subtotal ($l^{2}=0.0\%$, $p=0.568$) Inestimable predictive distribution with <3 stud	11 1 ies		0.28 (-0.02 to 0.58) 0.07 (-0.58 to 0.73) 0.24 (-0.03 to 0.52) (- to -)	2.35 1.50 3.85
Personality disorder Gibbon ¹⁶⁸ 2010 Stoffers ⁴²² 2012 Subtotal (I ² =0.0%, p=0.697) Inestimable predictive distribution with <3 stud	1 1	43 99	0.25 (-0.35 to 0.85) 0.11 (-0.29 to 0.50) 0.15 (-0.18 to 0.48) (- to -)	1.62 2.12 3.74
Pregnancy associated disorder Lau ²⁶⁷ 2017 Subtotal [$l^{2}(\%), p$] with estimated predictive interval	6	530	0.69 (0.51 to 0.87) 0.69 (0.51 to 0.87) (. to .)	2.60 2.60
Psychosis Jones ²³³ 2012 Jones ²³⁵ 2018 Subtotal ((² + 92.0%, p=0.000) Inestimable predictive distribution with < 3 stud	2 1 ies		0.52 (0.13 to 0.90) 1.52 (1.11 to 1.92) 1.01 (0.04 to 1.99) (- to -)	2.15 2.10 4.24
Respiratory system disorder Kew ³⁴⁵ 2016 Subtotal [$l^{2}(\%), p$] with estimated predictive interval	3	83	0.41 (-0.05 to 0.87) 0.41 (-0.05 to 0.87) (. to .)	1.95 1.95
Stress (caregiver) Scott ⁴⁰¹ 2016 Subtotal [l^2 (%), p] with estimated predictive interval	4	505	0.27 (0.02 to 0.52) 0.27 (0.02 to 0.52) (. to .)	2.46 2.46
Stress disorder Arends ⁵⁰ 2012 Gillies ¹⁶⁹ 2016 Kim ³⁶⁹ 2013 Lewis ²⁷³ 2018 Partel ³²⁷ 2014 Purgato ³⁷³ 2018 Sin ⁶⁹⁹ 2017 Subtotal (l^2 =37.7%, p =0.141) with estimated predictive interval	1 1 1 1 1 2	$ \begin{array}{c} 54\\ 36\\ 57\\ 18\\ 16\\ 28\\ 48\\ 48\\ 48\\ 48\\ 48\\ 48\\ 48\\ 48\\ 48\\ 4$	$\begin{array}{c} 0.08 \ (-0.55 \ {\rm to} \ 0.70) \\ -0.59 \ (-1.27 \ {\rm to} \ 0.09) \\ 0.03 \ (-0.49 \ {\rm to} \ 0.55) \\ 1.04 \ (0.11 \ {\rm to} \ 1.96) \\ 0.19 \ (-0.80 \ {\rm to} \ 1.18) \\ 0.37 \ (-0.38 \ {\rm to} \ 1.13) \\ -0.27 \ (-0.38 \ {\rm to} \ 1.30) \\ 0.05 \ (-0.29 \ {\rm to} \ 3.8) \\ (-0.77 \ {\rm to} \ 0.87) \end{array}$	1.57 1.45 1.81 1.03 0.95 1.31 1.69 9.79
Overall (l^2 =81.0%, p =0.000) with estimated predictive interval Note: weights are from random-effects analysis			0.23 (0.11 to 0.35) (-0.51 to 0.97)	100.00
		-1.0 -0.5 0.0 0.5 1.0 Favours comparator Favours CBT		

FIGURE 19 Primary analysis of the secondary outcome: depression from 'higher-quality' reviews.

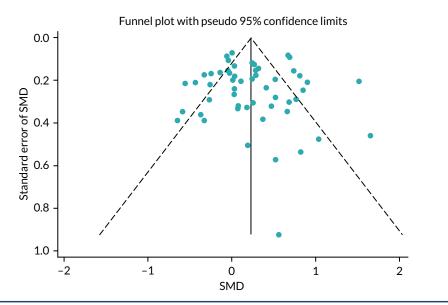


FIGURE 20 Depression funnel plot (end-point data from high-quality reviews).

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Appendix 11 Anxiety

Publication bias

There was no evidence of publication bias, nor of small-study effects (Egger's test p = 0.70) (Figure 21).

Subgroup analysis

Cognitive-behavioural therapy intensity

The pooling of 28 meta-analyses collected from reviews of high-intensity CBT (face to face with a highly trained CBT therapist) found a modest effect in favour of CBT (SMD 0.28, 95% CI 0.15 to 0.42; $I^2 = 54.3\%$) (Figure 22).

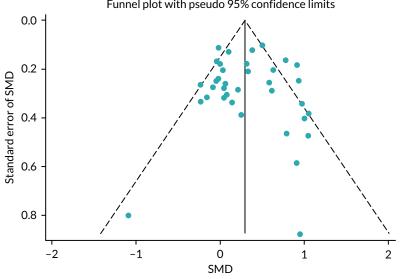
We identified five reviews^{87,306,343,360,521} (11 RCTs, 503 participants) that directly compared high- with low-intensity CBT interventions on anxiety outcomes in 6B00-06: Anxiety, 6A60-80: Mood and pain [tinnitus 21 Symptoms and signs not otherwise specified (MG30 pain)] conditions. In this subset of direct comparisons, there was no difference between high- and low-intensity CBT (SMD 0.03, 95% CI -0.14 to 0.21; $I^2 = 20\%$) (Figure 23).

Type of comparators

The pooling of 14 meta-analyses collected from reviews of CBT compared with an active comparator (i.e. another type of therapy) found a non-significant effect of CBT (SMD 0.19, 95% CI -0.00 to 0.37; $I^2 = 48.6\%$). The pooling of 20 meta-analyses collected from reviews of CBT compared with a nonactive comparator (e.g. WLC) found a modest effect in favour of CBT (SMD 0.37, 95% CI 0.19 to 0.55; $I^2 = 64.3\%$) (Figure 24).

Duration of follow-up

The pooling of 10 meta-analyses collected from reviews that collected long-term follow-up data (> 12 months post intervention) found a modest effect of CBT (SMD 0.38, 95% CI 0.15 to 0.60; $I^2 = 65.9\%$). The pooling of 26 meta-analyses collected from reviews that collected only short-term follow-up data (< 12 months) found a similar effect in favour of CBT (SMD 0.27, 95% CI 0.12 to 0.43; I² = 59.4%) (Figure 25).



Funnel plot with pseudo 95% confidence limits

FIGURE 21 Anxiety funnel plot (end-point data from high-quality reviews).

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Study ID R	CIs (n) Participar	ts (n) Health category	SMD (95% CI)	Weight (
High					
Akechi ³⁷ 2008	1	92	Mood disorder	0.33 (-0.08 to 0.74)	4.63
Carpenter ⁸⁹ 2018	1	43	Anxiety disorder	0.97 (0.30 to 1.64)	2.76
Eccleston ¹³⁴ 2015	1	54	Pain	-0.08 (-0.62 to 0.45)	3.59
Gibbon ¹⁶⁸ 2010	1	43	Personality disorder	0.07 (-0.52 to 0.67)	3.17
Gould ¹⁷⁵ 2012	3	172	Mixed mental	0.21 (-0.35 to 0.76)	3.46
Hetrick ²⁰⁵ 2016	1	384	Mood disorder	0.50 (0.30 to 0.71)	6.67
James ²²⁷ 2015	4	395	Anxiety disorder	0.91 (-0.24 to 2.06)	1.22
Jones ²³⁴ 2012	1	40	Psychosis	0.04 (-0.58 to 0.67)	3.02
Jones ²³⁵ 2018	1	65	Psychosis	- 0.93 (0.45 to 1.42)	3.97
Jones ²³⁶ 2018	1	71	Psychosis	-0.02 (-0.48 to 0.45)	4.14
Kew ²⁴⁶ 2016	3	142	Respiratory system disorder	0.25 (-0.51 to 1.02)	2.30
Kim ²⁴⁹ 2013	1	57	Stress disorder	-0.23 (-0.75 to 0.29)	3.72
Kreslins ²⁵⁹ 2015	7	283	Anxiety disorder	1.00 (0.21 to 1.80)	2.18
_opez ²⁸⁶ 2018	2	66	Neurodevelopmental disorder	0.58 (0.08 to 1.08)	3.86
Macdonald ²⁹¹ 2016	4	296	Mixed mental	0.38 (0.14 to 0.61)	6.38
Montero-Marin ³¹⁵ 2018 [Mixed]		431	Anxiety disorder	0.95 (-0.77 to 2.67)	0.60
Montero-Marin ³¹⁵ 2018 [Phobia]		44	Anxiety disorder	-0.16 (-0.78 to 0.46)	
D'Kearney ³⁴⁰ 2006	1	48	Obsessive disorder	0.61 (0.05 to 1.18)	3.38
Orgeta ³⁴⁷ 2014	2	65	Mood disorder	-0.05 (-0.54 to 0.44)	
Price ³⁷¹ 2008	2	124	Nervous system disorder	-0.00 (-0.36 to 0.35)	
Schwartze ³⁹⁷ 2016	1	50	Obsessive disorder	1.05 (-0.50 to 0.59)	
Sin ⁴⁰⁹ 2017	1	9	Stress disorder	-1.09 (-2.66 to 0.48)	
Stoffers ⁴³² 2012	1	, 99	Personality disorder	0.03 (-0.37 to 0.42)	
Thabrew ⁴⁴⁵ 2018	1	61	Mixed mental	0.06 (-0.45 to 0.56)	
Thomson ⁴⁵⁰ 2007	2	103	Obsessive disorder	0.79 (-0.12 to 1.70)	
Jsmani ⁴⁶⁴ 2017	1	238	Anxiety disorder	0.10 (-0.16 to 0.35)	
Verhagen ⁴⁸⁰ 2009	1	41	Pain	0.14 (-0.52 to 0.79)	
van Dessel ⁴⁶⁹ 2014	1	156	Body distress disorder	0.91 (0.55 to 1.26)	5.16
Subtotal ($I^2 = 54.3\%$, $p = 0.000$)	1	150		0.28 (0.15 to 0.42)	100.00
Low					
Ali ³⁹ 2015	1	143	Aggression	-0.04 (-0.37 to 0.28)	14.85
Farrand ¹⁴³ 2015	1	190	Mixed mental	0.31 (-0.04 to 0.66)	
Kisely ²⁵¹ 2015	1	36	Pain	-0.23 (-0.89 to 0.42)	
-ewis ²⁷⁵ 2018	1	18	Stress disorder	1.05 (0.12 to 1.98)	6.81
Olthuis ³⁴³ 2016 (OCD)	1	32	Obsessive disorder	1.05 (0.30 to 1.79)	8.75
Olthuis ³⁴³ 2016 (PTSD)	2	104	Stress disorder	0.63 (0.23 to 1.02)	13.81
Purgato ³⁷³ 2018	1	159	Mixed mental	0.78 (0.46 to 1.10)	14.97
Thabrew ⁴⁴⁶ 2018	2	319	Mixed mental	-0.02 (-0.24 to 0.20)	16.36
Dverall ($I^2 = 78.4\%$, $p = 0.000$)	-			0.38 (0.07 to 0.69)	100.00
Note: weights are from random-ef	ffects	analysis			

FIGURE 22 Anxiety subgroup analysis (end-point data from high-quality reviews): CBT intensity. OCD, obsessive-compulsive disorder; PTSD, post-traumatic stress disorder.

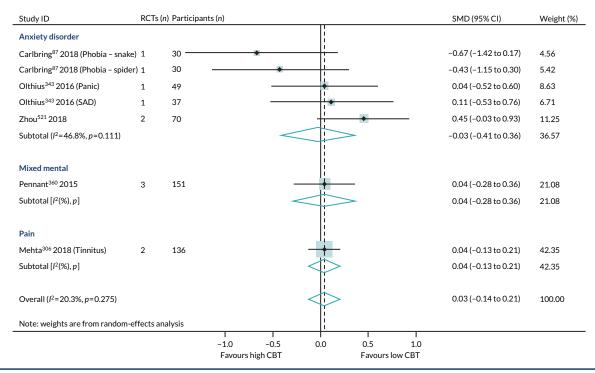


FIGURE 23 Anxiety: high- vs. low-intensity CBT direct comparison PMA. SAD, seasonal affective disorder.

Age

The pooling of seven meta-analyses collected from child and adolescent populations (aged < 18 years) found an effect in favour of CBT (SMD 0.37, 95% CI 0.12 to 0.62; $l^2 = 67\%$). The pooling of 26 meta-analyses collected from adult populations (aged 18–65 years) found a significant effect in favour of CBT (SMD 0.32, 95% CI 0.15 to 0.48; $l^2 = 64\%$). The pooling of two meta-analyses collected from older adult populations (aged > 65 years) found a non-significant effect of CBT on anxiety outcomes (SMD 0.06, 95% CI -0.30 to 0.43; $l^2 = 0\%$) (*Figure 26*).

Sensitivity analysis

As the heterogeneity across the conditions' subgroups was too large, we did not pool effects across conditions (*Figure 27*).

Synthesis of reviews reporting change scores

Four lower-quality reviews (four RCTs, 255 participants) reported anxiety outcome data as change scores.^{56,105,336,457} These included reviews of 6B00-06: Anxiety, 6A60-80: Mood and 08 Diseases of the nervous system. The heterogeneity was too high ($I^2 = 88\%$) to pool across reviews (*Figure 28*).

Synthesis of reviews reporting dichotomous outcomes

The lower-quality review of Noble *et al.*³³² (one RCT, 27 participants), classified under mixed mental conditions (anxiety and depression), reported anxiety data as risk differences and showed an effect in favour of CBT (SMD 0.36, 95% CI 0.01 to 0.71). The lower-quality review of Stoll *et al.*⁴³³ (one RCT, 112 participants), targeting anxiety disorders, presented anxiety outcome data as ORs and reported an effect in favour of CBT (SMD 1.01, 95% CI 0.96 to 1.06) (*Figure 29*).

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Study ID	RCTs	(n) Participar	s (n) Health category	SMD (95% CI)	Weigh
Active					
James ²²⁷ 2015	4	395	Anxiety disorder	0.91 (-0.24 to 2.06)	2.29
Jones ²³⁴ 2012	1	40	Psychosis	0.04 (-0.58 to 0.67)	5.93
Jones ²³⁵ 2018	1	65	Psychosis	0.93 (0.45 to 1.42)	7.99
Kim ²⁴⁹ 2013	1	57	Stress disorder	-0.23 (-0.75 to 0.29)	7.43
Lewis ²⁷⁵ 2018	1	18	Stress disorder	◆ 1.05 (0.12 to 1.98)	3.27
Lopez ²⁸⁶ 2018	2	66	Neurodevelopmental disorder		7.75
Montero-Main ³¹⁵ 2018 (Mixed)	2	431	Anxiety disorder	• 0.95 (-0.77 to 2.67)	1.10
Montero-Main ³¹⁵ 2018 (Phobia)	1	44	Anxiety disorder	-0.16 (-0.78 to 0.46)	5.97
Price ³⁷¹ 2008	2	124	Nervous system disorder	-0.00 (-0.36 to 0.35)	10.77
Schwartze ³⁹⁷ 2016	1	50	Obsession disorder	0.05 (-0.50 to 0.59)	7.02
Thabrew ⁴⁴⁵ 2018	1	61	Mixed mental	0.06 (-0.45 to 0.56)	7.67
Thabrew ⁴⁴⁶ 2018	2	319	Mixed mental	-0.02 (-0.24 to 0.20)	14.07
Usmani ⁴⁶⁴ 2017	1	238	Anxiety disorder	0.10 (-0.16 to 0.35)	13.21
Verhagen ⁴⁸⁰ 2009	1	41	Pain	0.14 (-0.52 to 0.79)	5.54
Subtotal (<i>I</i> ² =48.6%, <i>p</i> =0.021)			\diamond	0.19 (-0.00 to 0.37)	100.00
Non-active					
Akechi ³⁷ 2008	1	92	Mood disorder	0.33 (-0.08 to 0.74)	6.04
Ali ³⁹ 2015	1	143	Aggression	-0.04 (-0.37 to 0.28)	6.84
Carpenter ⁸⁹ 2018	1	43	Anxiety disorder	• 0.97 (0.30 to 1.64)	3.93
Eccleston ¹³⁴ 2015	1	54	Pain	-0.08 (-0.62 to 0.45)	4.91
Farrand ¹⁴³ 2015	1	190	Mixed mental	0.31 (-0.04 to 0.66)	6.65
Gibbon ¹⁶⁸ 2010	1	43	Personality disorder	0.07 (-0.52 to 0.67)	4.43
Hetrick ²⁰⁵ 2016	1	384	Mood disorder	0.50 (0.30 to 0.71)	7.98
Jones ²³⁶ 2018	1	71	Psychosis	-0.02 (-0.48 to 0.45)	5.52
Kew ²⁴⁶ 2016	3	142	Respiratory system disorder	- 0.25 (-0.51 to 1.02)	3.36
Kisely ²⁵¹ 2015	1	36	Pain	-0.23 (-0.89 to 0.42)	4.03
Kreslins ²⁵⁹ 2015	7	283	Anxiety disorder	◆ 1.00 (0.21 to 1.80)	3.20
O'Kearney ³⁴⁰ 2006	1	48	Obsessive disorder	0.61 (0.05 to 1.18)	4.68
Olthuis ³⁴³ 2016 (OCD)	1	32	Obsessive disorder	◆ 1.05 (0.30 to 1.79)	3.47
Olthuis ³⁴³ 2016 (PTSD)	2	104	Stress disorder	- 0.63 (0.23 to 1.02)	6.19
Orgeta ³⁴⁷ 2014	2	65	Mood disorder	-0.05 (-0.54 to 0.44)	5.31
Purgato ³⁷³ 2018	1	159	Mixed mental	0.78 (0.46 to 1.10)	6.92
Sin ⁴⁰⁹ 2017	1	9	Stress disorder	-1.09 (-2.66 to 0.48)	1.12
Stoffers ⁴³² 2012	1	99	Personality disorder	0.03 (-0.37 to 0.42)	6.19
Thomson ⁴⁵⁰ 2007	2	103	Obsessive disorder	0.79 (-0.12 to 1.70)	2.67
van Dessel ⁴⁶⁹ 2014	1	156	Body distress disorder	0.91 (0.55 to 1.26)	6.58
Subtotal (<i>I</i> ² =64.3%, <i>p</i> =0.000)				0.37 (0.19 to 0.55)	100.00
Note: weights are from random-e	ffects	analysis			
				1	
			−1.0 −0.5 0.0 0.5 Favours comparator	1.0 Favours CBT	

FIGURE 24 Anxiety subgroup analysis (end-point data from high-quality reviews): type of comparators. Note that two reviews that included both active and non-active comparators are not included here. OCD, obsessive-compulsive disorder; PTSD, post-traumatic stress disorder.

Study ID	RUIS	(n) Participar	ts (n) Health category	SMD (95% CI)	Weigh
Long					
Farrand ¹⁴³ 2015	1	190	Mixed mental	- 0.31 (-0.04 to 0.66)	12.11
Gould ¹⁷⁵ 2012	3	172	Mixed mental	- 0.21 (-0.35 to 0.76)	8.27
Hetrick ²⁰⁵ 2016	1	384	Mood disorder	- 0.50 (0.30 to 0.71)	15.03
James ²²⁷ 2015	4	395	Anxiety disorder	• 0.91 (-0.24 to 2.06)	3.05
Jones ²³⁴ 2012	1	40	Psychosis	- 0.04 (-0.58 to 0.67)	7.28
Jones ²³⁵ 2018	1	65	Psychosis —	0.93 (0.45 to 1.42)	9.41
Jones ²³⁶ 2018	1	71	Psychosis	-0.02 (-0.48 to 0.45)	9.76
Thabrew ⁴⁴⁵ 2018	1	61	Mixed mental	0.06 (-0.45 to 0.56)	9.08
Usmani ⁴⁶⁴ 2017	1	238	Anxiety disorder	0.10 (-0.16 to 0.35)	14.06
van Dessel ⁴⁶⁹ 2014	1	156	Body distress disorder	0.91 (0.55 to 1.26)	11.95
Subtotal (<i>I</i> ² =65.9%, <i>p</i> =0.002)	-	100		0.38 (0.15 to 0.60)	100.00
Short			· · · · · · · · · · · · · · · · · · ·		
Akechi ³⁷ 2008	1	92	Mood disorder	— 0.33 (-0.08 to 0.74)	4.98
Ali ³⁹ 2015	1	143	Agression	-0.04 (-0.37 to 0.28)	5.70
Carpenter ⁸⁹ 2018	1	43	Anxiety disorder	0.97 (0.30 to 1.64)	3.14
Eccleston ¹³⁴ 2015	1	54	Pain	-0.08 (-0.62 to 0.45)	3.99
Gibbon ¹⁶⁸ 2010	1	43	Personality disorder	- 0.07 (-0.52 to 0.67)	3.57
Kew ²⁴⁶ 2016	3	142	Respiratory system disorder		2.67
Kim ²⁴⁹ 2013	3 1	57	Stress disorder	-0.23 (-0.75 to 0.29)	4.11
Kiselv ²⁵¹ 2015	1	36	Pain	-0.23 (-0.75 to 0.27) -0.23 (-0.89 to 0.42)	3.23
Kreslins ²⁵⁹ 2015	7	283	Anxiety disorder	→ 1.00 (0.21 to 1.80)	2.53
Lewis ²⁷⁵ 2018	1	18	Stress disorder	1.00 (0.21 to 1.80)	2.53
Lopez ²⁸⁶ 2018	2	66	Neurodevelopmental disorder	0.58 (0.08 to 1.08)	4.26
Macdonald ²⁹¹ 2016	4	296	Mixed mental		4.20 6.51
Montero-Marin ³¹⁵ 2018 (Mixed)		296 431	Anxiety disorder	0.38 (0.14 to 0.61)	
				● 0.95 (-0.77 to 2.67)	0.73
Montero-Marin ³¹⁵ 2018 (Phobia)		44	Anxiety disorder	-0.16 (-0.78 to 0.46)	3.43
O'Kearney ³⁴⁰ 2006	1	48	Obsessive disorder	0.61 (0.05 to 1.18)	3.78
Olthuis ³⁴³ 2016 (OCD)	1	32	Obsessive disorder	1.05 (0.30 to 1.79)	2.76
Olthuis ³⁴³ 2016 (PTSD)	2	104	Stress disorder	0.63 (0.23 to 1.02)	5.11
Orgeta ³⁴⁷ 2014	2	65	Mood disorder	-0.05 (-0.54 to 0.44)	4.33
Price ³⁷¹ 2008	2	124	Nervous system disorder	-0.00 (-0.36 to 0.35)	5.49
Purgato ³⁷³ 2018	1	159	Mixed mental	• 0.78 (0.46 to 1.10)	5.77
Schwartze ³⁹⁷ 2016	1	50	Obsessive disorder	0.05 (-0.50 to 0.59)	3.93
Sin ⁴⁰⁹ 2017	1	9	Stress disorder	-1.09 (-2.66 to 0.48)	0.86
Stoffers ⁴³² 2012	1	99	Personality disorder	0.03 (-0.37 to 0.42)	5.11
Thabrew ⁴⁴⁶ 2018	2	319	Mixed mental	-0.02 (-0.24 to 0.20)	6.64
Thomson ⁴⁵⁰ 2007	2	103	Obsessive disorder	• 0.79 (-0.12 to 1.70)	2.10
Verhagen ⁴⁸⁰ 2009	1	41	Pain	0.14 (-0.52 to 0.79)	3.23
Subtotal (I ² =59.4%, p=0.000)			\diamond	0.27 (0.12 to 0.43)	100.00
Note: weights are from random-et	ffects	analysis			
			-1.0 -0.5 0.0 0.5	I 1.0	

FIGURE 25 Anxiety subgroup analysis (end-point data from high-quality reviews): duration of follow-up. OCD, obsessive-compulsive disorder; PTSD, post-traumatic stress disorder.

369

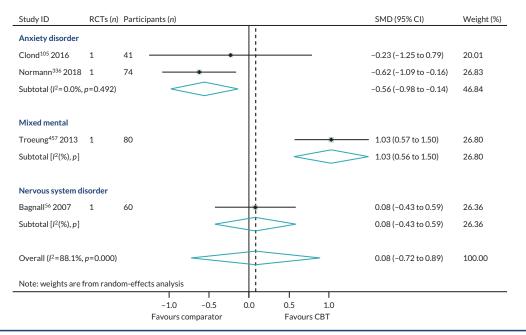
Study ID	RCTs (n	 Participants 	(n) Health category		SMD (95% CI)	Weight
Adults						
Akechi ³⁷ 2008	1	92	Mood disorder	+ +	0.33 (-0.08 to 0.74)	4.78
Ali ³⁹ 2015	1	143	Aggression		-0.04 (-0.37 to 0.28)	5.37
Carpenter ⁸⁹ 2018	1	43	Anxiety disorder	· · · · · · · · · · · · · · · · · · ·	0.97 (0.30 to 1.64)	3.18
Eccleston ¹³⁴ 2015	1	54	Pain	—	-0.08 (-0.62 to 0.45)	3.93
Farrand ¹⁴³ 2015	1	190	Mixed mental	⊢ ◆ ──	0.31 (-0.04 to 0.66)	5.23
Gibbon ¹⁶⁸ 2010	1	43	Personality disorder		0.07 (-0.52 to 0.67)	3.57
Jones ²³⁴ 2012	1	40	Psychosis	\	0.04 (-0.58 to 0.67)	3.43
Jones ²³⁵ 2018	1	65	Psychosis	I →	0.93 (0.45 to 1.42)	4.26
Jones ²³⁶ 2018	1	71	Psychosis	—	-0.02 (-0.48 to 0.45)	4.39
Kew ²⁴⁶ 2016	3	142	Respiratory system disorder		0.25 (-0.51 to 1.02)	2.73
Kim ²⁴⁹ 2013	1	57	Stress disorder	_	-0.23 (-0.75 to 0.29)	4.05
Lewis ²⁷⁵ 2018	1	18	Stress disorder	· · · · · · · · · · · · · · · · · · ·	1.05 (0.12 to 1.98)	2.12
Lopez ²⁸⁶ 2018	2	66	Neurodevelopmental disorder		0.58 (0.08 to 1.08)	4.17
Montero-Marin ³¹⁵ 2018 (Mixed)	2	431	Anxiety disorder		0.95 (-0.77 to 2.67)	0.79
Montero-Marin ³¹⁵ 2018 (Phobia)	1	44	Anxiety disorder	•	-0.16 (-0.78 to 0.46)	3.44
Olthuis ³⁴³ 2016 (OCD)	1	32	Obsessive disorder	•	- 1.05 (0.30 to 1.79)	2.82
Olthuis ³⁴³ 2016 (PTSD)	2	104	Stress disorder		0.63 (0.23 to 1.02)	4.89
Price ³⁷¹ 2008	2	124	Nervous system disorder	•	-0.00 (-0.36 to 0.35)	5.20
Purgato ³⁷³ 2018	1	159	Mixed mental	· · · · · · · · · · · · · · · · · · ·	0.78 (0.46 to 1.10)	5.43
Schwartze ³⁹⁷ 2016	1	50	Obsessive disorder	·	0.05 (-0.50 to 0.59)	3.88
Sin ⁴⁰⁹ 2017	1	9	Stress disorder	• · · · · · · · · · · · · · · · · · · ·	-1.09 (-2.66 to 0.48)	0.93
Stoffers ⁴³² 2012	1	99	Personality disorder	· • • • •	0.03 (-0.37 to 0.42)	4.89
Thomson ⁴⁵⁰ 2007	2	103	Obsessive disorder	· · · · · · · · · · · · · · · · · · ·	0.79 (-0.12 to 1.70)	2.19
Usmani ⁴⁶⁴ 2017	1	238	Anxiety disorder	·	0.10 (-0.16 to 0.35)	5.88
Verhagen ⁴⁸⁰ 2009	1	41	Pain		0.14 (-0.52 to 0.79)	3.26
van Dessel ⁴⁶⁹ 2014	1	156	Body distress disorder	· _ • _	0.91 (0.55 to 1.26)	5.18
Subtotal (I ² =63.6%, p=0.000)				\diamond ·	0.32 (0.15 to 0.48)	100.00
Children and adolescents						
Hetrick ²⁰⁵ 2016	1	384	Mood disorder	_ —	0.50 (0.30 to 0.71)	22.33
James ²²⁷ 2015	4	395	Anxiety disorder		0.91 (-0.24 to 2.06)	3.92
Kreslins ²⁵⁹ 2015	7	283	Anxiety disorder	• • • • • • • • • • • • • • • • • • •	- 1.00 (0.21 to 1.80)	7.05
Macdonald ²⁹¹ 2016	4	296	Mixed mental		0.38 (0.14 to 0.61)	21.30
O'Kearney ³⁴⁰ 2006	1	48	Obsessive disorder	↓	0.61 (0.05 to 1.18)	11.05
Thabrew ⁴⁴⁵ 2018	1	61	Mixed mental		0.06 (-0.45 to 0.56)	12.53
Thabrew ⁴⁴⁶ 2018	2	319	Mixed mental		-0.02 (-0.24 to 0.20)	21.82
Subtotal (<i>I</i> ² =67.1%, <i>p</i> =0.006)					0.37 (0.12 to 0.62)	100.00
Older adults						
Gould ¹⁷⁵ 2012	3	172	Mixed mental		0.21 (-0.35 to 0.76)	43.80
Orgeta ³⁴⁷ 2014	2	65	Mood disorder		-0.05 (-0.54 to 0.44)	56.20
Subtotal (l ² =0.0%, p=0.491)				\diamond	0.06 (-0.30 to 0.43)	100.00
Note: weights are from random-e	ffects ar	nalysis				
				-1.0 -0.5 0.0 0.5 1.0		
			Favours c	omparator Favours CBT		

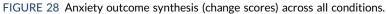
FIGURE 26 Anxiety subgroup analysis (end-point data from high-quality reviews): age. Note that one review that did not report the age group is not included here. OCD, obsessivecompulsive disorder; PTSD, post-traumatic stress disorder.

Study ID	RCTs (n)	Participants (n)					SMD (95% CI)	Weight (%)
Addiction Stevens ⁴²⁹ 2019 Subtotal [I ² (%), p]	2	121			•		0.55 (-0.53 to 1.63) 0.55 (-0.53 to 1.63)	0.62 0.62
Aggression Ali ³⁹ 2015 Subtotal [I ² (%), p]	1	143			>		-0.04 (-0.37 to 0.28) -0.04 (-0.37 to 0.28)	1.96 1.96
Anxiety disorder Adelman ³⁷ 2014 Carpenter ³⁹ 2018 Huang ²¹³ 2018 (SAD) Jame ⁵²⁷ 2015 Kreslins ²⁵⁹ 2015 Montero-Marin ⁵¹⁵ 2018 (Mixed) Montero-Marin ⁵¹⁵ 2018 (Phobia) Päärelu ³⁵⁶ 2017 Schwartze ³⁵⁹ 2017(Panic) Sing ⁴¹¹⁰ 2018 (SAD) Usmani ⁴⁶⁴ 2017 Wersebe ⁴⁷⁹ 2013 Subtotal (l ² =67.1%, p=0.000)	311472111115	88 43 395 283 431 44 54 12 111 149 238 238	Ξ	•			0.95 (0.48 to 1.41) 0.97 (-0.30 to 1.64) 0.54 (-0.10 to 1.19) 0.91 (-0.24 to 2.06) 1.00 (0.21 to 1.80) 0.95 (-0.77 to 2.67) -0.16 (-0.78 to 0.46) 0.38 (-0.15 to 0.22) 0.63 (-0.45 to 1.70) 1.36 (0.84 to 1.85) 0.94 (0.48 to 1.40) 0.10 (-0.16 to 0.35) 0.52 (0.21 to 0.82) 0.66 (0.39 to 0.92)	$\begin{array}{c} 1.61\\ 1.16\\ 0.97\\ 0.99\\ 1.25\\ 1.44\\ 0.63\\ 1.51\\ 1.62\\ 2.15\\ 2.02\\ 16.38\\ \end{array}$
Body distress disorder van Dessel ⁴⁶⁹ 2014 Subtotal [I ² (%), p]	1	156				>	0.91 (0.56 to 1.26) 0.91 (0.56 to 1.26)	1.89 1.89
Endocrine disorder Uchendu ⁴⁶³ 2017 Subtotal [I ² (%), p]	1	74					0.33 (-0.13 to 0.79) 0.33 (-0.13 to 0.79)	1.62 1.62
Mixed mental Farrand ¹⁴³ 2015 Giulmmarra ¹⁷¹ 2018 Gould ¹⁵² 2012 Macdonald ²⁵¹ 2016 Ng ²⁵² 2018 Purgato ³⁷² 2018 Rasing ²⁷⁷ 2017 Reavel ¹³⁷⁷ 2018 Spies ⁴⁵² 2013 Thabrew ⁴⁴⁶ 2018 Välimäki ⁴⁶⁶ 2017 Subtotal (l ² =70.6%, p=0.000)	1 3 3 4 1 1 6 1 2 1 2 1	190 366 172 296 63 159 471 38 104 61 319 187					$\begin{array}{c} 0.31 \left[-0.04 \ to \ 0.66\right)\\ 0.60 \left[-0.12 \ to \ 1.32\right)\\ 0.21 \left[-0.35 \ to \ 0.76\right)\\ 0.38 \left[0.14 \ to \ 0.61\right]\\ 1.39 \left[0.84 \ to \ 1.94\right]\\ 0.78 \left[0.46 \ to \ 1.10\right]\\ 0.19 \left[0.00 \ to \ 0.37\right]\\ 0.52 \left[-0.13 \ to \ 1.17\right]\\ 0.51 \left[-0.13 \ to \ 5.6\right]\\ 0.06 \left[-0.45 \ to \ 0.56\right]\\ 0.02 \left[-0.24 \ to \ 0.20\right]\\ 0.13 \left[-0.15 \ to \ 0.42\right]\\ 0.35 \left(0.16 \ to \ 0.53\right)\end{array}$	1.91 1.39 2.19 1.40 1.98 2.30 1.20 1.69 1.51 2.23 2.06 20.93
Mood dissorder Akechi ³⁷ 2008 Hetrick ²⁰⁵ 2016 Kavanagh ²⁴¹ 2009 Li ²⁷⁷ 2017 Orgeta ³⁴⁷ 2014 Subtotal (l ² =59.1%, p=0.044)	1 2 2 2	92 384 1152 115 65		+ • •			$\begin{array}{c} 0.33 \ (-0.08 \ to \ 0.74) \\ 0.50 \ (0.30 \ to \ 0.71) \\ 0.13 \ (-0.05 \ to \ 0.32) \\ 0.49 \ (0.10 \ to \ 0.88) \\ -0.05 \ (-0.54 \ to \ 0.44) \\ 0.30 \ (0.09 \ to \ 0.51) \end{array}$	1.74 2.26 2.30 1.80 1.54 9.64
Neoplasms Ye ⁵¹³ 2018 Subtotal [I ² (%), p]	5	1046			-	>	1.10 (0.93 to 1.27) 1.10 (0.93 to 1.27)	2.33 2.33
Nervous system disorder Larun ²⁶⁶ 2017 Price ³⁷¹ 2008 Subtotal (<i>I</i> ² =0.0%, <i>p</i> =0.727)	2 2	331 124		-			0.07 (-0.15 to 0.28) -0.00 (-0.36 to 0.35) 0.05 (-0.13 to 0.23)	2.24 1.90 4.13
Neurodevelopmental disorder Lopez ²⁸⁶ 2018 Subtotal [I ² (%), p]	2	66		-			0.58 (0.08 to 1.08) 0.58 (0.08 to 1.08)	1.52 1.52
Obsessive disorder O'Kearney ³⁴⁰ 2006 Olthuis ³⁴³ 2016 (OCD) Schwartz ⁵⁹⁷ 2016 Thomson ⁴⁵⁰ 2007 Subtotal (l ² =42.8%, p=0.155)	1 1 1 2	48 32 50 103		_ •		<u> </u>	0.61 (0.05 to 1.18) 1.05 (0.30 to 1.79) 0.05 (-0.50 to 0.59) 0.79 (-0.12 to 1.70) 0.56 (0.12 to 1.01)	1.37 1.03 1.42 0.80 4.61
Pain Eccleston ¹³⁴ 2015 Kisely ²⁵¹ 2015 Mehta ³⁰⁰ 2018 (Diabetes) Mehta ³⁰⁰ 2018 (Piahoromyalgia) Mehta ³⁰⁰ 2018 (Pain) Mehta ³⁰⁰ 2018 (RA) Mehta ³⁰⁰ 2018 (Piahoromyalgia) Skelly ⁴¹² 2018 (Kinee OA) Verhagen ⁴⁰⁰ 2009 Subtotal (I ² =73.7%, p=0.000)	1 11 16 2 1 1 1	54 36 91 950 378 30 113 111 41	_				$\begin{array}{c} -0.08 \ (0.62 \ to \ 0.45) \\ -0.23 \ (-0.89 \ to \ 0.42) \\ 0.86 \ (0.64 \ to \ 10.8) \\ 0.57 \ (0.31 \ to \ 0.83) \\ 0.53 \ (0.42 \ to \ 0.63) \\ 0.53 \ (0.42 \ to \ 0.64) \\ 0.52 \ (0.23 \ to \ 0.81) \\ 0.03 \ (-0.24 \ to \ 0.29) \\ 0.15 \ (-0.22 \ to \ 0.27) \\ 0.14 \ (-0.52 \ to \ 0.79) \\ 0.39 \ (0.21 \ to \ 0.58) \end{array}$	1.43 1.19 2.23 2.13 1.98 2.43 2.06 1.99 1.84 1.19 18.47
Personality disorder Gibbon ¹⁶⁸ 2010 Stoffers ⁴³² 2012 Subtotal (I ² =0.0%, p=0.903)	1 1	43 99		-			0.07 (-0.52 to 0.67) 0.03 (-0.37 to 0.42) 0.04 (-0.29 to 0.37)	1.30 1.78 3.08
Pregnancy association disorder Huang ²¹⁶ 2018 (Depression) Maguire ²⁹⁴ 2018 Subtotal (<i>I</i> ² =0.0%, <i>p</i> =0.499)	2 2	72 172					0.16 (-0.30 to 0.62) 0.40 (-0.14 to 0.94) 0.26 (-0.09 to 0.61)	1.61 1.43 3.04
Psychosis Jones ²³⁴ 2012 Jones ²³⁵ 2018 Jones ²³⁸ 2018 Subtotal (I ² =77.4%, p=0.012)	1 1 1	40 65 71			•		0.04 (-0.58 to 0.67) 0.93 (0.45 to 1.42) -0.02 (-0.48 to 0.45) 0.33 (-0.30 to 0.96)	1.25 1.55 1.60 4.40
Respiratory system disorder Kew ²⁴⁶ 2016 Subtotal [<i>I</i> ² (%), <i>p</i>]	3	142			•		0.25 (-0.51 to 1.02) 0.25 (-0.51 to 1.01)	1.00 1.00
Stress disorder Kim ²⁴⁹ 2013 Lewis ²⁷⁵ 2018 Olthuis ³⁴³ 2016 (PTSD) Sin ⁴⁰⁹ 2017 Subtotal (I ² =75.3%, p=0.007)	1 1 2 1	57 18 104 9	•	-		<u> </u>	-0.23 (-0.75 to 0.29) 1.05 (0.12 to 1.98) 0.63 (0.23 to 1.02) -1.09 (-2.66 to 0.48) 0.23 (-0.47 to 0.94)	1.47 0.77 1.78 0.34 4.37
Overall (l ² =76.3%, p=0.000) Note: weights are from random-et	ffects ana	·	–1.0 s comparator	-1.5 0.0	0.5 1.0 Favo	urs CBT	0.40 (0.30 to 0.50)	100.00

FIGURE 27 Anxiety sensitivity analysis (end-point data from all-quality reviews). OCD, obsessive-compulsive disorder; PTSD, post-traumatic stress disorder; SAD, seasonal affective disorder.

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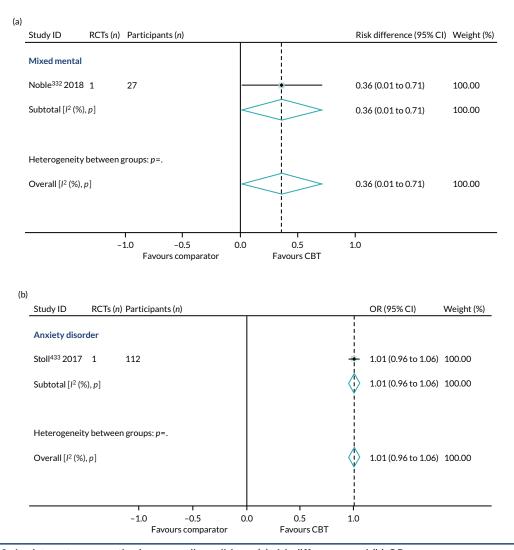


FIGURE 29 Anxiety outcome synthesis across all conditions: (a) risk difference; and (b) OR.

Appendix 12 Pain

Publication bias

No publication bias was detected using funnel plots (*Figure 30*), and Egger's test showed no small-study effects (p = 0.19).

Subgroup analysis

Cognitive-behavioural therapy intensity

The SMD generated across the high-intensity reviews was in favour of CBT (SMD 0.19, 95% CI 0.01 to 0.37; $l^2 = 18\%$) (Figure 31).

Type of comparators

We found an effect in favour of CBT across reviews in the non-active comparator group (SMD 0.59, 95% CI 0.07 to 1.11; $l^2 = 69\%$), but the effect was much smaller across reviews in the active comparator subgroup (SMD 0.14, 95% CI -0.11 to 0.38; $l^2 = 73\%$) (Figure 32).

Duration of follow-up

Both subgroups produced effects in favour of CBT. The effect was larger in the short-term follow-up group (SMD 0.32, 95% CI 0.04 to 0.59; $l^2 = 71\%$) than in the long-term follow-up group (SMD 0.19, 95% CI 0.08 to 0.31; $l^2 = 0\%$) (Figure 33).

Age

The standardised mean effect across the reviews conducted in adults was in favour of CBT (SMD 0.21, 95% CI 0.12 to 0.31; $l^2 = 0\%$) (Figure 34).

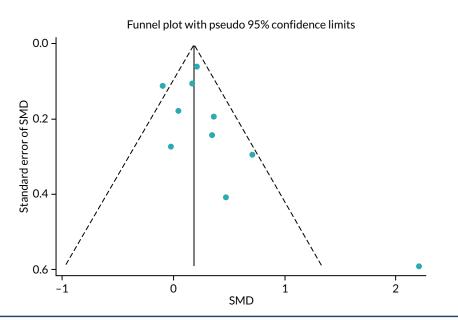


FIGURE 30 Pain funnel plot (end-point data from high-quality reviews).

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APPENDIX 12

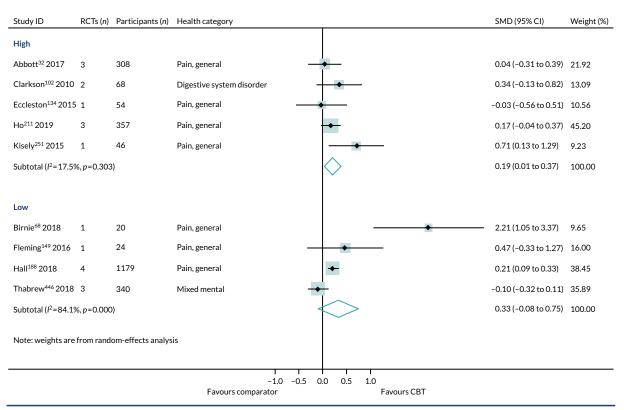


FIGURE 31 Pain subgroup analysis (end-point data from high-quality reviews): CBT intensity. Note that one review with combined high- and low-intensity CBT is not included here.

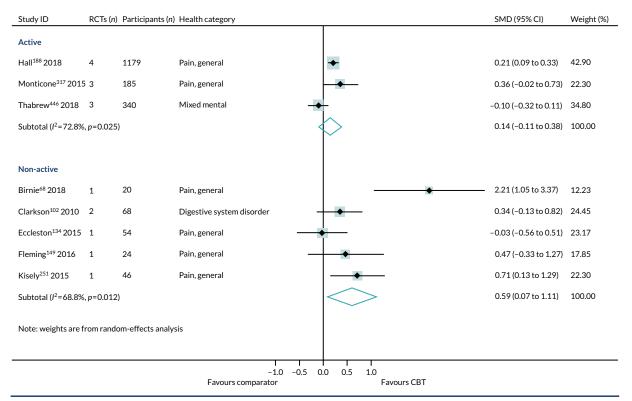


FIGURE 32 Pain subgroup analysis (end-point data from high-quality reviews): type of comparators. Note that two reviews with mixed active and non-active comparators are not included here.

Study ID	RCTs	(n) Participar	nts (n) Health category		SMD (95% CI)	Weight (%)
Long						
Abbott ³² 2017	3	308	Pain, general		0.04 (-0.31 to 0.39)	10.52
Hall ¹⁸⁸ 2018	4	1179	Pain, general	+	0.21 (0.09 to 0.33)	89.48
Subtotal (<i>I</i> ² =0.0%, <i>p</i>	=0.368	3)		\diamond	0.19 (0.08 to 0.31)	100.00
Short						
Birnie ⁶⁸ 2018	1	20	Pain, general		• 2.21 (1.05 to 3.37)	4.36
Clarkson ¹⁰² 2010	2	68	Digestive system disorder	+ •	0.34 (-0.13 to 0.82)	12.87
Eccleston ¹³⁴ 2015	1	54	Pain, general	_	-0.03 (-0.56 to 0.51)	11.62
Fleming ¹⁴⁹ 2016	1	24	Pain, general	—	0.47 (-0.33 to 1.27)	7.48
Ho ²¹¹ 2019	3	357	Pain, general	•	0.17 (-0.04 to 0.37)	18.91
Kisely ²⁵¹ 2015	1	46	Pain, general		0.71 (0.13 to 1.29)	10.84
Monticone ³¹⁷ 2015	3	185	Pain, general	- •	0.36 (-0.02 to 0.73)	15.14
Thabrew ⁴⁴⁶ 2018	3	340	Mixed mental	- • -	-0.10 (-0.32 to 0.11)	18.77
Subtotal (<i>I</i> ² =70.5%,	p=0.00)1)		\diamond	0.32 (0.04 to 0.59)	100.00
Note: weights are fr	om ran	dom-effects a	nalysis			
				-1.0 -0.5 0.0 0.5 1.0		
			Favours compara	ator Favours C	СВТ	

FIGURE 33 Pain subgroup analysis (end-point data from high-quality reviews): duration of follow-up.

Study ID	RCTs (n)	Participants (n)	Health category	SMD (95% CI)	Weight (%)
Adults					
Clarkson ¹⁰² 2010	2	68	Digestive system disorder	0.34 (-0.13 to 0.82)	4.05
Eccleston ¹³⁴ 2015	1	54	Pain, general	-0.03 (-0.56 to 0.51)	3.18
Fleming ¹⁴⁹ 2016	1	24	Pain, general	0.47 (-0.33 to 1.27)	1.43
Hall ¹⁸⁸ 2018	4	1179	Pain, general	0.21 (0.09 to 0.33)	63.62
Ho ²¹¹ 2019	3	357	Pain, general	0.17 (-0.04 to 0.37)	21.21
Monticone ³¹⁷ 2015	3	185	Pain, general	0.36 (-0.02 to 0.73)	6.51
Subtotal (<i>I</i> ² =0.0%, µ	o=0.816)		\diamond	0.21 (0.12 to 0.31)	100.00
Children and adole	scents				
Abbott ³² 2017	3	308	Pain, general	0.04 (-0.31 to 0.39)	39.23
Birnie ⁶⁸ 2018	1	20	Pain, general	2.21 (1.05 to 3.37)	18.64
Thabrew ⁴⁴⁶ 2018	3	340	Mixed mental	-0.10 (-0.32 to 0.11)	42.13
Subtotal (<i>I</i> ² =86.5%)	p=0.001)			0.39 (-0.27 to 1.04)	100.00
Note: weights are fi	om rando	m-effects analysis			
			-1.0 -0.5 0.0 0.5 1.0 Favours comparator Favours CBT		

FIGURE 34 Pain subgroup analysis (end-point data from high-quality reviews): age. Note that one review that did not report the age group is not included here.

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Sensitivity analysis

The across-condition pooled effect was in favour of CBT (SMD 0.21, 95% CI 0.11 to 0.31; $I^2 = 51\%$) for reducing pain intensity (*Figure 35*).

Synthesis of reviews reporting dichotomous outcomes

The review of Bernardy *et al.*⁶⁴ (one RCT, 118 participants) reported pain outcome data as risk difference and showed a non-significant effect for CBT (SMD 0.08, 95% CI –0.03 to 0.19) (*Figure 36a*). One review, Palermo *et al.*³⁵⁴ (two RCTs, 68 participants), presented pain outcome data as ORs. This review demonstrated a non-significant effect for CBT (SMD 7.99, 95% CI –2.72 to 18.70) (*Figure 36b*).

Study ID	RCTs	n) Participants (n)		SMD (95% Ci)	Weight (%
Digestive system disorder					
Clarkson ¹⁰² 2010	2	68 +	•	0.34 (-0.13 to 0.82)	
Subtotal [<i>I</i> ² (%), <i>p</i>]		4		0.34 (-0.13 to 0.82)	3.49
Mixed mental					
Thabrew ⁴⁴⁶ 2018	3	340		-0.10 (-0.32 to 0.11)	8.91
Subtotal [<i>I</i> ² (%), <i>p</i>]		\sim		-0.10 (-0.31 to 0.11)	8.91
Mixed mental and physical					
Osborn ³⁴⁸ 2006	1	34		0.02 (-0.56 to 0.60)	2.55
Subtotal [<i>I</i> ² (%), <i>p</i>]		\triangleleft	>	0.02 (-0.56 to 0.60)	2.55
Nervous system disorder					
Larun ²⁶⁶ 2017	1	43	1	0.03 (-0.57 to 0.63)	2.41
Subtotal [<i>I</i> ² (%), <i>p</i>]		\triangleleft	\geq	0.03 (-0.57 to 0.63)	2.41
Pain, general					
Abbott ³² 2017	3	308	-	0.04 (-0.31 to 0.39)	5.38
Birnie ⁶⁸ 2018	1	20 1	•	2.21 (-1.05 to 3.37)	0.73
Eccleston ¹³⁴ 2015	1	54	1 1	-0.03 (-0.56 to 0.51)	2.89
Fleming ¹⁴⁹ 2016	1	24	•	0.47 (-0.33 to 1.27)	1.46
Hall ¹⁸⁸ 2018	4	1179	←	0.21 (0.09 to 0.33)	12.26
Ho ²¹¹ 2019	3	357 –	←	0.17 (-0.04 to 0.37)	9.14
Iwasaki ²²² 2018	2	256 -	⊢	0.14 (-0.11 to 0.38)	7.96
Kisely ²⁵¹ 2015	1	46	+	0.71 (0.13 to 1.29)	2.56
Mehta ³⁰⁶ 2018 (Chronic pain)	6	950	+	0.41 (0.27 to 0.55)	11.55
Mehta ³⁰⁶ 2018 (RA)	2	351 -	←	0.17 (0.06 to 0.28)	12.61
Monticone ³¹⁷ 2015	3	185	•	0.36 (-0.02 to 0.73)	4.91
Skelly ⁴¹³ 2018 (Fibromyalgia)	1	40	• <u> </u>	0.11 (-0.47 to 0.73)	2.39
Skelly ⁴¹³ 2018 (Headaches)	1	36 +	i ◆	0.57 (-0.09 to 1.22)	2.08
Skelly ⁴¹³ 2018 (Knee OA)	1	111	←	0.18 (-0.19 to 0.56)	4.96
Veehof ⁴⁷³ 2016	2	190	<u>+</u>	0.02 (-0.70 to 0.74)	
Subtotal (<i>I</i> ² =47.5%, <i>p</i> =0.021)				0.25 (0.14 to 0.35)	82.65
Overall (I ² =50.5%, p=0.006)			\diamond	0.21 (0.11 to 0.31)	100.00
Note: weights are from random	-effects	analysis			
		-1.0 -0.5 0.0			
		Favours comparator	Favours CBT		

FIGURE 35 Pain sensitivity analysis (end-point data from all-quality reviews).



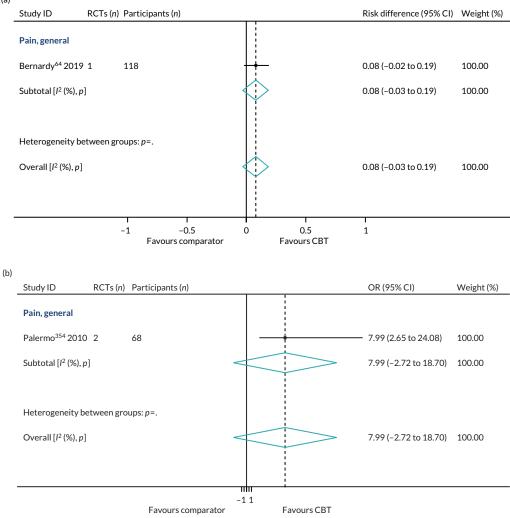


FIGURE 36 Pain outcome synthesis across all conditions: (a) risk difference; and (b) OR. Axes labels amended for space.

EME HS&DR HTA PGfAR PHR

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