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# The effectiveness and cost-effectiveness of parent training/education programmes for the treatment of conduct disorder, including oppositional defiant disorder, in children

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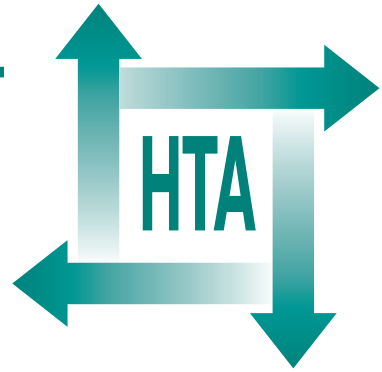



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# The effectiveness and cost-effectiveness of parent training/education programmes for the treatment of conduct disorder, including oppositional defiant disorder, in children

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# NHS R&D HTA Programme

The research findings from the NHS R&D Health Technology Assessment (HTA) Programme directly influence key decision-making bodies such as the National Institute for Health and Clinical Excellence (NICE) and the National Screening Committee (NSC) who rely on HTA outputs to help raise standards of care. HTA findings also help to improve the quality of the service in the NHS indirectly in that they form a key component of the 'National Knowledge Service' that is being developed to improve the evidence of clinical practice throughout the NHS.

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The research reported in this monograph was commissioned and funded by the HTA Programme on behalf of NICE as project number 03/21/01. The protocol was agreed in October 2003. The assessment report began editorial review in July 2004 and was accepted for publication in December 2004. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the referees for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

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# Abstract

## The effectiveness and cost-effectiveness of parent training/education programmes for the treatment of conduct disorder, including oppositional defiant disorder, in children

J Dretzke,[1*] E Frew,[2] C Davenport,[1] J Barlow,[3] S Stewart-Brown,[4] J Sandercock,[1] S Bayliss,[1] J Raftery,[2] C Hyde[1] and R Taylor[1]

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**Objectives:** To assess the clinical and cost-effectiveness of parent training programmes for the treatment of children with conduct disorder (CD) up to the age of 18 years.

**Data sources:** Electronic databases.

**Review methods:** For the effectiveness review, relevant studies were identified and evaluated. A quantitative synthesis of behavioural outcomes across trials was also undertaken using two approaches: vote counting and meta-analysis. The economic analysis consisted of reviewing previous economic/cost evaluations of parent training/education programmes and the economic information within sponsor's submissions; carrying out a detailed exploration of costs of parent training/education programmes; and a *de novo* modelling assessment of the cost-effectiveness of parent training/education programmes. The potential budget impact to the health service of implementing such programmes was also considered.

**Results:** Many of the 37 randomised controlled trials that met the review inclusion and exclusion criteria were assessed as being of poor methodological quality. Studies were clinically heterogeneous in terms of the population, type of parent training/education programme and content, setting, delivery, length and child behaviour outcomes used. Both vote counting and meta-analysis revealed a consistent trend across all studies towards short-term effectiveness (up to 4 months) of parent training/education programmes (compared with control) as measured by a change in child behaviour. Pooled estimates showed a statistically significant improvement on the Eyberg Child Behaviour Inventory frequency and intensity scales, the Dyadic Parent–Child Interaction Coding System and the Child Behaviour Checklist. No studies reported a statistically significant result favouring control over parent training/education programmes. There were few statistically significant differences between different parent training/education programmes, although there was a trend towards more intensive interventions (e.g. longer contact hours, additional child involvement) being more effective. The cost of treating CD is high, with costs incurred by many agencies. A recent study suggested that by age 28, costs for individuals with CD were around 10 times higher than for those with no problems, with a mean cost of £70,019. Criminality incurs the greatest cost, followed by educational provision, foster and residential care and state benefits. Only a small proportion of these costs fall on health services. Using a 'bottom-up' costing approach, the costs per family of providing parent training/education programmes range from £629 to £3839 depending on the type and style of delivery. Using the conservative assumption that there are no cost savings from treatment, a total lifetime quality of life gain of 0.1 would give a cost per quality-adjusted life-year of between £38,393 and £6288 depending on the type of programme delivery and setting.

**Conclusions:** Parent training/education programmes appear to be an effective and potentially cost-effective therapy for children with CD. However, the relative effectiveness and cost-effectiveness of different models (such as therapy intensity and setting) require further investigation. Further research is required on the impact of parent training/education programmes on the quality of life of children with CD and their parents/carers, as well as on longer term child outcomes.

# Contents

# Glossary and list of abbreviations

Technical terms and abbreviations are used throughout this report. The meaning is usually clear from the context, but a glossary is provided for the non-specialist reader. In some cases, usage differs in the literature, but the term has a constant meaning throughout this review.

## Glossary

**Conduct disorder (CD)** Defined in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM IV) as a repetitive and persistent pattern of aggressive, defiant or antisocial behaviour, as manifested by the presence of at least three or more of the specific criteria in the past 12 months with a least one criterion present in the past 6 months.

**Oppositional defiant disorder (ODD)** ODD is defined by a pattern of negativistic, defiant, disobedient and hostile behaviour toward authority figures as evident in such behaviour as temper tantrums, argumentativeness, refusing to comply with requests and deliberately annoying others. ODD shares many of the typical behaviours included in the diagnosis of conduct disorder.

**Parent training/education programme** A programme which aims to help parents develop a range of skills, in order to identify, define, observe and respond to problem behaviour in new ways. 'Programme' indicates that the intervention is structured with key components documented, so that it can be reliably applied by different workers with appropriate training. The programmes are generally focused and short-term (often 8–22 weeks). Typically parents attend the sessions without children.

**Parent training/education: group based** Programme conducted with groups of parents and one or two therapists in different settings (clinic, community).

**Parent training/education: individual** A one-to-one programme where parents are seen individually by a therapist; conducted in a clinic or similar or at the parents' home.

**Parent training/education: self-administered** Parents self-administer the programme, e.g. by reading a manual or watching a set of videos; conducted at home or in a group setting in a clinic or similar; no therapist is present.

## List of abbreviations

| | |
|---|---|
| A&E | accident and emergency |
| ADHD | attention deficit/hyperactivity disorder |
| ANCOVA | analysis of covariance |
| BAC | Becker/Bipolar Adjective Checklist |
| BPQ | Behar Preschool Behaviour Questionnaire |
| CAMHS | Child and Adolescent Mental Health Services |
| CBCL | Child Behaviour Checklist |
| CD | conduct disorder |
| CI | confidence interval |
| CT | child training |

*continued*

## List of abbreviations *continued*

| | |
|---|---|
| DPICS | Dyadic Parent–Child Interaction Coding System |
| DSM | *Diagnostic and Statistical Manual of Mental Disorders* |
| ECBI | Eyberg Child Behaviour Inventory |
| ES | effect size |
| HSQ | Home Situations Questionnaire |
| ICD | *International Classification of Diseases* |
| ICER | incremental cost-effectiveness ratio |
| ITT | intention-to-treat |
| MANOVA | multiple analysis of variance |
| NSF | National Service Framework |
| ODD | oppositional defiant disorder |
| ONS | Office of National Statistics |
| OR | odds ratio |
| PCT | Primary Care Trust |
| PDR | Parent Daily Report |
| PET | Parent Effectiveness Training |
| PSS | Personal Social Services |
| PT | parent training |
| QALY | quality-adjusted life-year |
| QoL | quality of life |
| RBPC | Revised Behaviour Problem Checklist |
| RCT | randomised controlled trial |
| STEP | Systematic Training for Effective Parenting |
| TT | teacher training |

All abbreviations that have been used in this report are listed here unless the abbreviation is well known (e.g. NHS), or it has been used only once, or it is a non-standard abbreviation used only in figures/tables/appendices in which case the abbreviation is defined in the figure legend or at the end of the table.

# Executive summary

## Aim

The aim of this review was to assess the clinical and cost-effectiveness of parent training programmes for the treatment of children up to the age of 18 years, with conduct disorder (CD).

## Description of proposed service

Parent training/education programmes are short-term, structured interventions, which aim to help parents develop their parenting skills in order to manage children's problem behaviour more successfully. The programmes run on average for 10–12 weeks (with 1–2-hour weekly sessions) and their key components are documented and repeatable. Most programmes are behavioural and their primary focus is to address the causes of problem behaviour, although many programmes will also incorporate components that focus on relationship issues. The programmes can be group or individual based, with a therapist or counsellor facilitating the training, and can take place in a variety of settings (e.g. clinics or community centres). The programmes can also be self-administered using workbooks or videos. In a majority of programmes the focus of the intervention is on the parents only, although a few programmes exist that include children and/or teachers in the intervention.

## Epidemiology and background

CD is a severe externalising disorder among children and adolescents (up to the age of 18) characterised by a constellation of persistent antisocial behaviours. Symptoms of CD overlap with those of oppositional defiant disorder (ODD) and attention deficit/hyperactivity disorder (ADHD), although these conditions also have characteristics that are distinct from either clinical condition independently. CD is the commonest psychiatric disorder of childhood (prevalence of around 5%) and the most common reason for referral for psychological and psychiatric treatment in children. Boys are more commonly affected than girls. CD is stable across time within both families and individuals and prognosis is poor, with behaviour problems in childhood predicting a range of deleterious outcomes in adulthood, including delinquency and criminal behaviour. Although a diverse range of treatments has been used to treat CD, there has to date been an absence of clearly effective interventions.

## Method

For the effectiveness review, relevant studies were identified and evaluated. A quantitative synthesis of behavioural outcomes across trials was also undertaken using two approaches: vote counting and meta-analysis. The economic analysis consisted of reviewing previous economic/cost evaluations of parent training/education programmes and the economic information within sponsor's submissions; carrying out a detailed exploration of costs of parent training/education programmes; and a *de novo* modelling assessment of the cost-effectiveness of parent training/education programmes. The potential budget impact to the NHS/Personal Social Services (PSS) in England and Wales was also considered if parent training/education programmes were to be implemented.

## Number and quality of studies

Evidence was available from 37 randomised controlled trials (RCTs) that met the review inclusion and exclusion criteria. Overall, there was a lack of methodological detail, particularly concerning randomisation and allocation concealment, and as a result a majority of studies were assessed as being of poor methodological quality. Studies were clinically heterogeneous in terms of the population, type of parent training/education programme and content, setting, delivery, length and child behaviour outcomes used.

## Direction of evidence

Both vote counting and meta-analysis revealed a consistent trend across all studies towards short-term effectiveness (up to 4 months) of parent

training/education programmes (compared with control) as measured by a change in child behaviour (based on parent reports and independent observations of child behaviour). Pooled estimates showed a statistically significant improvement on the Eyberg Child Behaviour Inventory frequency and intensity scales, the Dyadic Parent–Child Interaction Coding System and the Child Behaviour Checklist. No studies reported a statistically significant result favouring control over parent training/education programmes. There were few statistically significant differences between different parent training/education programmes, although there was a trend for more intensive interventions (e.g. longer contact hours, additional child involvement) to be more effective.

## Costs of CD

The cost of treating CD is high, with costs incurred by many agencies. A recent study suggested that by age 28, costs for individuals with conduct disorder were around 10 times higher than for those with no problems, with a mean cost of £70,019. Criminality incurs the greatest cost, followed by educational provision, foster and residential care and state benefits. Only a small proportion of these costs fall on the NHS.

## Costs of parent training/education programmes

Using a 'bottom-up' costing approach, the costs per family of providing parent training/education programmes range from £629 to £3839 depending on the type and style of delivery. These costs assume that a health visitor is employed to implement the parent training/education programmes on a salary of £25,015 per year, a high level of supervision is provided and, for group delivery, two health visitors will deliver the programme with an average attendance of eight families per group. It was not possible to translate results from RCTs into direct estimates of utility gain, and there were no long-term comparative data to permit the estimation of plausible lifetime gains. Utility gains from successful treatment are likely to affect utility for parents, siblings and others in addition to the affected child. Using the conservative assumption that there are no cost savings from treatment, a total lifetime quality of life gain of 0.1 would give a cost per quality-adjusted life-year of between £38,393 and £6288 depending on the type of programme delivery and setting.

## Limitations of model

The modelling involves a number of strong assumptions, hence the results should be viewed with caution.

## Notes on the generalisability of the findings

The majority of studies were undertaken in either North America or Australia, and the results may not therefore be generalisable to the UK. A number of studies that undertook longer term follow-up, albeit uncontrolled, suggest that the benefit in child behaviour following parent training/education programmes appears to be maintained over time.

## Conclusion

On the balance of evidence, parent training/education programmes appear to be an effective and potentially cost-effective therapy for children with CD. However, the relative effectiveness and cost-effectiveness of different models of parent training/education programmes (such as therapy intensity and setting) require further investigation.

## Need for further research

This review suggests that parent training/education programmes have not, to date, been widely evaluated in the UK. Further research is required on the impact of parent training/education programmes on the quality of life of children with conduct disorder and their parents/carers, the impact of parent training/education programmes on longer term child outcomes (such as educational achievement and criminality) and the effectiveness and cost-effectiveness of different models of parent training/education programmes.

# Chapter 1

## Aim of the review

The aim of this review was to assess the clinical and cost-effectiveness of parent training programmes in the treatment of children up to the age of 18 years, with conduct disorder (CD). More specifically the aims of the review were to:

- examine the clinical effectiveness of parent/training education programmes in terms of their impact on children's behaviour or proxy measures of children's behaviour
- summarise the available data concerning the cost-effectiveness of parent/training education programmes.

# Chapter 2
# Background

## Description of underlying health problem

CD is a severe externalising disorder among children and adolescents characterised by a constellation of antisocial behaviours. Although instances of antisocial behaviour are seen in varying degrees in most children, those with CD show a persistent pattern of antisocial behaviour and a significant impairment in everyday functioning at home or in school or behaviours that are regarded as unmanageable by others.[1]

### Definitions

CD is defined as a constellation of antisocial behaviours and the two most common definitions are described in the American *Diagnostic and Statistical Manual of Mental Disorders* (DSM)[2] and the WHO *International Classification of Diseases* (ICD).[3] The DSM definition is the one most commonly used. It has undergone major revision over the past few decades to reflect changes in thinking concerning what should be defined as mental illness.[1] In the 4th edition of DSM (DSM IV), the diagnostic category conduct disorder is defined as a repetitive and persistent pattern of aggressive, defiant or antisocial behaviour, as manifested by the presence of at least three or more specific criteria in the past 12 months with at least one criterion present in the past 6 months. These criteria include aggression towards people or animals, destruction of property, deceitfulness or theft and serious violations of rules. The disturbance of behaviour causes clinically significant impairment in social, academic or occupational functioning. In DSM IV, CD is subdivided into childhood onset (before 10 years of age) and adolescent-type onset (onset at 10 years of age or later). Criteria are not met if the individual is aged 18 years or older.

Some of the behaviours characteristic of CD can be found in other diagnostic categories of DSM IV, including oppositional defiant disorder (ODD), adjustment disorder with disturbance of conduct and antisocial personality disorder. ODD is the common pattern of antisocial behaviour in younger children. It is defined by a pattern of negativistic, defiant, disobedient and hostile behaviour toward authority figures as evident in such behaviour as temper tantrums, argumentativeness, refusing to comply with requests and deliberately annoying others. The more severe behaviours of CD such as aggression towards others and destruction of property are usually not evident. Onset is usually before the age of 8.[1,2]

In ICD-10, the diagnostic category of CD is based on excessive levels of fighting or bullying, cruelty to animals or other people, severe destructiveness to property, fire setting, stealing, repeated lying, truancy from school and running away from home, unusually frequent and severe temper tantrums, defiant provocative behaviour and persistent severe disobedience. Any one of these categories, if marked, is sufficient for the diagnosis, but isolated dissocial acts are not. Exclusion criteria include uncommon but serious underlying conditions such as schizophrenia, mania, pervasive developmental disorder hyperkinetic disorder and depression. This diagnosis is not recommended unless the duration of the behaviour described above has been 6 months or longer. The ICD-10 criteria specify that judgements concerning the presence of conduct disorder should take into account the child's developmental level. Temper tantrums, for example, are a normal part of a 3-year-old's development and their mere presence would not be grounds for diagnosis.

The ICD-10 classification system distinguishes several different categories of CD: CD that is confined to the family (involving dissocial or aggressive behaviour confined to the home and/or to interactions with members of the nuclear family or immediate household); socialised CD (persistent dissocial or aggressive behaviour occurring in individuals who are generally well integrated into their peer group) and unsocialised CD (persistent dissocial or aggressive behaviour with a significant pervasive abnormality in the individual's relationships with other children).

### Risk factors

Predictive risk factors for CD include prior antisocial behaviour, peer rejection, male sex, antisocial parents, early aggression, low family socio-economic status, psychological characteristics (e.g. high activity level or short attention span),

parental discipline practices (e.g. inconsistent or punitive), low interest in education, large family size, non-traditional family structure or abusive parents.[4,5] Parental discipline practices (e.g. inconsistent and/or punitive), poor supervision and rejection or hostility towards the child are key risk factors, accounting for 30–40% of the variance in CD in some epidemiological studies.[6] The remedial nature of these latter risk factors has driven the development of parent training/education programmes for the treatment of CD. Protective factors include female sex, a resilient temperament (e.g. good coping skills), anxiety, supportive relationships with adults, family commitment to social values and stable community institutions.[4] In practice, there are often various combinations of risk and protective factors present.

## Diagnosis

The diagnosis of CD and related conditions is made on the basis of observed and reported behaviours as defined in either the DSM or the ICD classification system (see 'Definitions' above). The use of such criteria is, however, not entirely unproblematic because the behaviours are distributed unimodally in the population (note: the distribution is skewed rather than normal). This means that the diagnosis is based on the presence of a constellation of behaviours that cross a threshold, which may vary from time-to-time as thinking about mental disorders changes. Such an approach raises many questions, such as why three symptoms are the minimum required rather than four or five and why a duration of 6 (ICD-10) or 12 (DSM) months as opposed to more or less time is specified.[1] The threshold also excludes from treatment large numbers of children who do not receive a clinical diagnosis, but who may nevertheless have a range of problems that interfere with their own development and that of other children. A diagnosis of CD using clinical diagnostic criteria, however, does not guarantee a homogeneous group of children because diagnosis may involve only a small number of symptoms from a much larger number of possible symptoms.[1] Therefore, although in theory the conditions that need to be met for CD to be diagnosed are clearly defined, these issues make the diagnosis less clear-cut in practice.

In addition, the symptoms of CD overlap with those of ODD and attention deficit/hyperactivity disorder (ADHD). This is problematic because the co-morbid conditions have characteristics that are distinct from either clinical condition independently.[1] Further, the use of the same symptoms across all age groups, irrespective of the fact that younger children do not engage in the type of activities that pose problems for older children, is also problematic.[1]

Much of the research that has been carried out to date has been undertaken on children with varying levels of antisocial behaviour who have been identified via a variety of methods including clinical interviews, standardised measures [e.g. Child Behaviour Checklist (CBCL)] and parent or teacher reports of problem behaviour.[1] Although these studies will include many children with CD, some of the children involved would not meet diagnostic criteria (e.g. DSM IV),[1] and it has been suggested that they may therefore overestimate the prevalence of CD.

## Prevalence

CD is the commonest psychiatric disorder of childhood[5] and the most common reason for referral for psychological and psychiatric treatment.[1] Based on a survey by the Office of National Statistics (ONS) from 1999,[7] 5.3% of all children and adolescents between the ages of 5 and 15 had clinically significant CDs [ODD, CD (family context), unsocialised CD, socialised CD or another CD]. The overall rate of mental disorders was 9.5% (CD 5.3%, anxiety disorder 4.3%, hyperkinetic disorder 1.4% and other less common disorders 0.5%; overall rate includes some children with more than one type of disorder). Thus, roughly 50% of all children with a mental disorder have a CD.

The rates for England and Wales are similar (5.4% for England and 5.3% for Wales). For an average Primary Care Trust (PCT) with a population of 170,000, this results in a figure of 9180 children aged 5–15 with a CD in England and 9010 in Wales. Higher rates of CD compared with the average were found in boys compared with girls and in 11–15-year-old boys compared with 5–10-year-old boys. Higher rates were also found in black children; in families with lone parents, stepchildren or ≥ 5 children; or where parents had few qualifications, a low income, were unemployed or were social sector tenants. *Table 1* lists percentages of prevalence for different subgroups compared with the average prevalence of CD. Some caution must be exercised when interpreting these figures as differences are not always attributable to one factor alone but are due to an interaction of multiple factors. Some groups also have small sample sizes (particularly for ethnicity and social class).

***TABLE 1*** *UK prevalence of conduct disorder in different subgroups*[7]

| | Subgroup | Sample size (*n*) | Prevalence (%) in subgroup |
|---|---|---|---|
| Overall prevalence | | 10,438 | 5.3 |
| Age and sex | Boys 5–10 | 2909 | 6.5 |
| | Boys 11–15 | 2310 | 8.6 |
| | Boys 5–15 | 5219 | 7.4 |
| | Girls 5–10 | 2921 | 2.7 |
| | Girls 11–15 | 2299 | 3.8 |
| | Girls 5–15 | 5219 | 3.2 |
| Ethnicity | White | 9474 | 5.4 |
| | Black | 271 | 8.6 |
| | Indian | 224 | 2.1 |
| | Pakistani and Bangladeshi | 196 | 3.0 |
| | Other groups | 265 | 3.9 |
| Family structure | Lone parent | 2368 | 9.8 |
| | All couples | 8070 | 4.0 |
| | Married couples | 7264 | 3.6 |
| | Cohabiting couples | 806 | 7.8 |
| | Family with step-children | 946 | 10.5 |
| | Four children in household | 828 | 8.4 |
| | Five or more children in household | 300 | 12.8 |
| Education, employment, income | No parental qualifications | 2390 | 9.8 |
| | Neither parents working | 1411 | 12.5 |
| | Household income £100–199 per week | 1770 | 10.4 |
| | Receipt of disability benefit | 750 | 10.7 |
| Social class | Unskilled | 511 | 10.1 |
| | Never worked | 201 | 15.5 |
| Tenure, accommodation | Social sector tenants | 2713 | 11.2 |
| | Terraced house | 3203 | 7.5 |
| Region | England | 9018 | 5.4 |
| | Wales | 527 | 5.3 |
| | Scotland | 892 | 4.6 |

CDs were significantly co-morbid with hyperactivity disorders [odds ratio (OR) = 38.43] [95% confidence interval (CI) 26.87 to 54.96] and with other conditions such as ODD. This finding has been confirmed by other studies which show, for example, that among clinically referred youths who meet criteria for CD, 84–96% also meet criteria for ODD.[8] Children with CD were also more likely to have a physical complaint than children with no disorder (64% compared to 54%).

The ONS survey was based on a clinical evaluation of parent, teacher and child data collected by lay interviewers from questionnaires designed by the Department of Child and Adolescent Psychiatry, Institute of Psychiatry, London. Rates are based on the diagnostic criteria for research using the ICD-10 Classification of Mental and Behavioural Disorders[3] with strict impairment criteria. Figures are weighted to take into account differential sampling, non-response by age, sex and region and are adjusted to take into account missing teacher data. The total sample size was 10,438.

The prevalence of behaviour problems is also high amongst preschool children, but at this age the diagnosis of CD is uncommon. One study showed that the prevalence of behaviour problems in a primary care paediatric sample was 8.3%. A further study showed the rate of behaviour problems in 3-year-old children to be similar in both rural and urban populations at around 13% of the sample.[10] One study of preschool children in New Zealand showed a prevalence rate of 22.5%,[11] although a lower diagnostic threshold was used in this study than is usual.

Rates of psychiatric disorder among preschool children from low-income families are higher than those in community (population-based) samples, but comparable to rates for low-income school-age children and adolescents.[12]

### Stability

In addition to having a high prevalence, behaviour problems tend to be stable over time[13–19] and the stability is greater the earlier the problems begin.[14] In one study, for example, antisocial behaviour at age 13 was predicted by externalising behaviour at age 3 and behaviour problems at age 5.[14] There are, however, important sex differences in the stability of behaviour problems, boys being much more likely than girls to continue to exhibit problem behaviours.[20]

Conduct disorder is fairly stable across time **within families** in addition to **within individuals** and the continuity is evident across multiple generations. Both parental and grandparental factors predict the level of aggression shown in the next generation of children.[6]

### Prognosis

The prognosis for children with CD is poor, and behaviour problems in childhood predict a range of deleterious outcomes in adulthood. These include delinquency and criminal behaviour, school drop-out and poor educational achievement, alcoholism, drug abuse, poor work and marital outcomes, domestic violence and child abuse and a range of psychiatric disorders.[17,18,21,22] About 40% of 7- and 8-year-olds with CD become recidivist delinquents as teenagers, and over 90% of recidivist juvenile delinquents had had CD as children.[5] As the condition is relatively intractable when diagnosed in adolescence and stable over time, many antisocial youths require treatment well into adulthood.[1]

### Costs to society

Antisocial behaviour is the most costly of all mental health problems of childhood.[13] The costs to society include the costs of the trauma, disruption and psychological problems caused to others who are victims of crime or aggression in homes, schools and communities, together with the financial costs of services to treat the individuals with CD. These include community youth justice services, courts, prison services, social services, foster homes, psychiatric services, accident and emergency (A&E) services, alcohol and drug misuse services, in addition to unemployment and other benefits.

## Current service provision

### Current range of treatments for conduct disorder

A diverse range of treatments have been used to treat CD, including individual and group therapy, behaviour therapy, residential treatment, pharmacotherapy and psychosurgery, in addition to a range of 'innovative community-based treatments'.[1] Despite the range of treatments available, there has to date been an absence of clearly effective interventions for the treatment of CD.

### Current service utilisation

A survey from the Great Britain National Study showed that children with CD had significantly higher lifetimes rate of service utilisation in particular as regards social and education services compared with children with other psychiatric disorders.[23] The ONS survey showed that compared with children with no disorder, children with CD are more likely to use NHS services (see *Table 2*).

Children and adolescents with a diagnosis of CD are likely to come into contact with a range of services. These include special educational provision such as classes and individual tutoring for children with early behaviour problems in addition to specialist residential schools for children with more severe problems, mental health services for treatment such as psychotherapy or medication in addition to family-based treatments, or inpatient psychiatric treatment where necessary. These children are also likely to be in contact with the judicial system if their antisocial behaviour involves delinquency, crime or drug use, the more severe cases receiving a prison sentence.

***TABLE 2*** *Use of services for any reason over a 12-month period*

| Services | Children with CD (%) | Children with no mental health disorder (%) |
|---|---|---|
| Any GP contact | 45 | 35 |
| Any A&E visit | 27 | 17 |
| Any inpatient stay | 9 | 5 |
| Any outpatient visit or day patient stay | 27 | 18 |

### Current service cost

The cost of services for children with CD is high.[24] The most recent study showed that by age 28, costs for individuals with a diagnosis of CD meeting diagnostic criteria were 10.0 times higher than for those with no problems (95% CI 3.6 to 20.9) and 3.5 times higher than for those with conduct problems not meeting diagnostic criteria (95% CI 1.7 to 6.2). Mean individual total costs of service use up to age 28 were £70,019 for the CD group (mean difference from no problem group £62,898; £22,692 to £117,896) and £24,324 (£16,707; £6594 to £28,149) for the conduct problem group, compared with £7423 for the no-problem group. In all groups crime incurred the greatest cost, followed by extra educational provision, foster and residential care and state benefits. This study allowed for only a limited range of healthcare costs and made no attempt to estimate the costs to society borne by the victims of antisocial behaviour. Parental social class had a relatively small effect, and although substantial independent contributions came from being male, having a low reading age and attending more than two primary schools, CD still predicted the greatest cost.[24]

## Description of intervention

### Parent training/education programmes

The identification of risk factors for CD that showed links with parenting stimulated the development of interventions to help parents change. Parent training/education programmes, and the behavioural programmes in particular, are based on the assumption that child behaviour is a function of the contingencies occurring in the family between the parent and the child, and that the basic process contributing to child behaviour problems is a parenting skills deficit. Hence the main goal of many parent training/education programmes is the development of a range of skills, and parents are helped to identify, define, observe and respond to problem behaviour in new and more adaptive ways. The use of groups to train parents began in the 1970s, and a rapid expansion of group-based parent training/education programmes has taken place in a number of countries over the past 10 years[25] with the growing involvement of voluntary organisations in the provision of such programmes. Smith[26] suggests that this growth in parent training/education programmes owes much to earlier research and practice in the USA, in particular the Systematic Training for Effective Parenting (STEP) developed by Dinkmeyer and McKay[27] and Parent Effectiveness Training (PET) developed by Gordon.[28] Although the structure of parent training/education programmes has continued to evolve over the past two decades, the majority of parent training/education programmes continue to intervene solely with the parent. A minority of programmes involve children in some of the sessions, and some home–school-linked parent training/education programmes provide sessions for both parents and children independently.

There are two main approaches to parent training/education programmes – behavioural and relationship. Behavioural programmes focus on teaching parenting skills to remedy the causes of problem behaviour, for example ignoring the latter and praising cooperative behaviour, building a relationship with the child through child-led play and establishing consistent boundaries with 'time out' for infringement. Relationship programmes aim to help parents understand their own emotional world and behaviour in addition to that of their child and to improve communication with their child. These categories are not exclusive and many contemporary programmes combine elements of both. 'Programme' indicates that the intervention is structured and its key components documented, so that it can be reliably applied by different workers with appropriate training. The programmes are focused and short-term (often 8–22 weeks), may be conducted in a variety of settings (hospital, community, office or home) and may be conducted in groups or individually. They involve an element of experiential learning and require parents to put what they have learnt in the session into practice as homework. However, programmes targeted at individual parents/families should be distinguished from general one-to-one counselling, of which some advice on parenting may be a part, such as might be provided by health visitors. This is not to deny the potential importance of such activity or that health visitors may be appropriate personnel to deliver parent training/education programmes. Smith's[26] survey of parent training/education programmes in the UK showed that there is a diverse group of providers offering both behavioural and relationship parent training/education programmes.

### Identification of participants/criteria for treatment

Programmes are offered to parents whose children have been identified as having early signs or clinical level behaviour problems. These parents have very often been referred to the health visitor

or psychologist, for example, following parental and/or teacher concerns about the child's behaviour. Parents may be invited to take part in a programme on the basis of a parent report alone or following screening using one of the many available screening instruments or clinical diagnosis.

## Length of treatment

The average frequency and duration of most parent/training education/education programmes are 2-hourly weekly sessions provided over the course of 10–12 weeks. This may vary but the upper limit seldom exceeds 20 weeks.

Although the majority of parent-training/education programmes are provided on a group basis (with an average of 6–10 participants per group), psychologists in particular may provide this type of intervention on a one-to-one basis in a clinical setting. Parent training/education programmes may also be delivered on a self-administered basis, in which parents are encouraged to view videotapes or read training materials (books and leaflets) in the home setting.

## Personnel involved

The main providers of group-based parent training/education programmes currently include psychologists, therapists/counsellors, social workers and community workers. Groups are facilitated by one or two trained group leaders, some of whom may be parents who have been through programmes themselves and gone on to undertake group leadership training. In most programmes the group leaders require supervision at regular intervals.

## Setting

Parent/training education programmes are currently provided in a variety of settings, including Child and Adolescent Mental Health Services (CAMHS) premises, health centres, clinics, community centres and schools. There is some evidence to suggest that community-based programmes are more effective than clinic-based programmes.[29] The basic requirements are that the programme is provided in a congenial setting which is accessible for parents. The accommodation should also provide the necessary provision for crèche facilities.

## Anticipated costs

The cost of parent training/education programmes depends primarily on the method by which the programme is delivered (e.g. group, individual or self-administered basis), the opportunity costs of the staff involved (e.g. health visitor, social worker, psychologist) including whether the programme is provided by statutory or non-statutory sectors, and the accommodation costs.

A recent review of the five main ways in which parent training/education programmes are provided showed hourly costs ranging from £7.70 to £11.54 for eight clients (these costs are based on 1998–99 figures for a non-London district and include training and subsequent support of group facilitators, paper and accommodation resource costs, travel costs for facilitators and the accommodation and staffing of a crèche for the clients children). Data are given in *Table 3*.

A further study of the costs of parent support provided at family centres (managed by both statutory and non-statutory organisations) showed a cost of £6.37–13.95 per hour. The cost to participating parents is thought to be minimal, but maximally includes the cost of travelling to the programme, loss of earnings and the cost of childcare.

***TABLE 3*** *Costs of providing parent training/education programmes*

| Programme | Start up costs (training and initial follow-up) (£) | Programme costs per client per course (based on eight clients) (£) |
|---|---|---|
| Statutory centre based | 245 | 154 |
| Statutory private centre based | 245 | 230 |
| Non-statutory centre based | 225 | 166 |
| Statutory home based | 245 | 1121 |
| Non-statutory home based | 225 | 261 |
| Range (average) | 225–245 | 154–1121 (353) |

Reproduced from Dimond C, Hyde C. Parent Education Programmes for Children's Behaviour Problems, Medium to Long Term Effectiveness. Birmingham: West Midlands Development and Evaluation Service; 1999.[30]

# Chapter 3

# Review of existing reviews

## Search strategy

A scoping search was undertaken in accordance with a predefined protocol based on that used by ARIF (Aggressive Research Intelligence Facility, University of Birmingham). This involved searching the following electronic databases: Cochrane Library Issue 3, 2003, MEDLINE (Ovid) 1966–August week 1, 2003, and the National Research Register Issue 3, 2003. Terms relating to parent training/education programmes and conduct disorders were combined with a filter to capture systematic reviews where appropriate. Websites and databases of the main international health technology assessment organisations were also searched. A preliminary search of Caredata via the NeLSC was also undertaken. The aim of the scoping search was to identify existing reviews and other background material and estimate their volume and nature. This search also served to provide a core of background literature for the review of reviews, which was supplemented by a search for systematic reviews on EMBASE (Ovid) 1980–week 40, 2003. The results of the clinical effectiveness search performed for the main part of this report were also scanned for relevant reviews.

## Inclusion criteria

Only reviews meeting the following criteria were included:

1. A systematic search of the literature had been undertaken to identify intervention studies.
2. The review focused on the following:
   (a) Intervention: group- or individual-based parent training/education programmes that utilised a structured format.
   (b) Population: children <18 years of age.
   (c) Outcomes: any aspect of children's behaviour with the exception of reviews focusing explicitly on treatment for ADHD.

## Results

Fifty-one reviews were identified, but only 16 met the above criteria for inclusion.

The remainder of this chapter comprises a critical appraisal of these reviews, to assess the reliability of the data,[31] and a discussion of the findings. The following criteria were used to appraise the included studies: (i) whether the review addressed a focused clinical question; (ii) whether the criteria for article inclusion were specified; (iii) whether relevant studies were missed; (iv) whether the validity of the included studies was appraised (i.e. account was taken of different study designs); (v) whether the assessment of studies was reproducible (i.e. sufficient detail provided); (vi) whether the results were similar from study to study; (vii) whether the data from the included studies were presented (i.e. as opposed to the results simply being described); (viii) the precision of the results (i.e. the use of significance levels, and confidence intervals that include the possibility of no difference); (ix) whether the study addressed which groups of parents and children the results can be applied to; (x) whether all clinically important outcomes were assessed (i.e. the inclusion of outcomes other than just behaviour); and (xi) whether any assessment was undertaken as to whether the benefits of the intervention are worth the harms and costs.

### Are the results valid?

#### *Did the review address a focused clinical question?*

All 16 reviews addressed a focused clinical question, assessing the effectiveness of one or more parent training programmes, using a number of child and parent outcome measures. Whereas the majority of reviews ($n$ = 13) focused specifically on the effectiveness of parent training/education programmes, two included parent training/education programmes as part of a review of a broader range of programmes such as psychosocial treatments for conduct disordered children (Brestan and Eyberg, 1998),[32] and family-based crime prevention programmes (Farrington and Welsh, 2003).[33] Of the 13 reviews specifically evaluating parent training/education programmes, some focused on specific age groups, such as <5 years (Barlow, 1999,[34] Bryant *et al.*,1999;[35] Tucker, 1997[36]), 3–10 years (Barlow and Stewart-Brown, 2000;[37] Richardson and Joughin, 2002[38]) and 6–12 years (Farmer *et al.*, 2002[39]). One review focused specifically on the effectiveness of parent

training/education programmes for parents with intellectual disabilities (Feldman, 1994[40]) and a further review focused on parents of 'mentally retarded' children (Hornby and Singh, 1983[41]). Three reviews compared the effectiveness of different types of parenting programme, such as behavioural; Adlerian and PET (Cedar and Levant, 1990;[42] Mooney, 1995;[43] Todres and Bunston, 1993[44]), and three further reviews focused explicitly on behavioural programmes (Hornby and Singh, 1983;[41] Serketich and Dumas, 1996;[45] Tucker, 1997[36]). Only one review addressed the medium and long-term effectiveness of parent training programmes (Dimond and Hyde, 1999[30]).

***Were the criteria for article inclusion appropriate?***

All apart from one review (Breiner and Beck, 1984[46]) specified the criteria for article inclusion. Some reviews utilised broad criteria (e.g. Cedar and Levant, 1990[42]) such as any study measuring the efficacy of PET, whereas others (e.g. Dimond and Hyde, 1999[30]) specified criteria concerning the methodology (e.g. design; size of sample; published/unpublished), the intervention (e.g. nature/theoretical basis of intervention – primary/secondary; behavioural/relationship; group or individual; focus on parents/children), the study population (e.g. age, disorder, intellectual disabilities) and the outcomes used to assess effectiveness (e.g. children's behaviour; self-esteem; delinquency). All of the criteria specified in the included reviews were consistent with the inclusion criteria for this review of reviews.

***Were relevant studies missed?***

Five of the included reviews do not provide any details concerning the searches that were undertaken to identify primary studies (Breiner and Beck, 1984;[46] Brestan and Eyberg, 1998;[32] Cedar and Levant, 1990;[42] Feldman, 1994;[40] Tucker, 1997[36]). It is not therefore possible to assess the likelihood that relevant studies were missed in these reviews.

The remaining reviews provide explicit descriptions of the searches that were undertaken. These range from extensive searches of up to 14 databases (e.g. Dimond and Hyde, 1999[30]) to more limited searches of important databases such as PsycINFO and *Dissertation Abstracts* (e.g. Serketich and Dumas, 1996[45]). The less comprehensive the search in terms of the number of databases searched, the more likely it is that relevant studies were missed. In addition, older reviews will not have included more recent studies. The most inclusive reviews are likely to be those that were (a) conducted recently and (b) have an inclusive search strategy in terms of the number of databases and years searched (Barlow and Stewart-Brown, 2000;[37] Barlow and Parsons, 2002;[47] Bryant *et al.*, 1999;[35] Dimond and Hyde, 1999;[30] Farmer *et al.*, 2002;[39] Farrington and Welsh, 2003;[33] Mooney, 1995;[43] Richardson and Joughin, 2002;[38] Todres and Bunston, 1993;[44] Serketich and Dumas, 1996[45]).

The results of three reviews were based predominantly on the findings of earlier reviews in the field in addition to searches for recent studies (Brestan and Eyberg, 1998;[32] Farrington and Welsh, 2003;[33] Richardson and Joughin, 2002[38]).

In all of the reviews, sources of unpublished and ongoing primary studies other than *Dissertation Abstracts* were not consulted. The exclusion of unpublished studies would be likely to overestimate the effectiveness of the intervention.

***Was the validity of the included studies appraised?***

One of the included reviews failed to provide any assessment of the validity of the primary studies (Tucker, 1997[36]), and appears to have included uncontrolled studies.

The results of seven of the included reviews were based solely on data obtained from randomised controlled trials (RCTs) or controlled studies (Barlow, 1999;[34] Barlow and Stewart-Brown, 2000;[37] Brestan and Eyberg, 1998;[32] Farmer *et al.*, 2002;[39] Farrington and Welsh, 2003;[33] Mooney, 1995;[43] Serketich and Dumas, 1996[45]). One review that used Levant's (1983)[48] five criteria of methodological adequacy showed that the better-designed studies produced a higher effect size for PET programmes (Cedar and Levant, 1990[42]). Seven of the 26 studies included in that review were classified as being methodologically adequate, but the seven studies were not specified.

In many of the reviews, the criteria by which the methodological adequacy of the studies was appraised were clearly specified (e.g. sample size, treatment length, random assignment, accuracy and validity), but the findings for each primary study were not presented (e.g. Richardson and Joughin, 2002;[38] Todres and Bunston, 1993;[44] Serketich and Dumas, 1996[45]), thereby making it difficult to assess the reliability of the findings. The appropriateness of the quality appraisal methods used in the individual reviews was not assessed by this review team.

***Was the assessment of studies reproducible?***
The assessment method was clearly stated and thereby reproducible in all but one review (Tucker, 1997[36]).

Further details concerning the steps taken to eliminate mistakes (random errors) and bias (systematic errors) were provided in four reviews (Barlow and Stewart-Brown, 2000;[37] Barlow and Parsons, 2002;[47] Cedar and Levant, 1990;[42] Serketich and Dumas, 1996[45]). For example, in one review the primary studies were reviewed separately by the first author and a research assistant, and inter-rater agreement was assessed using a kappa coefficient. Further disagreement was resolved by consultation (Serketich and Dumas, 1996[45]). In a second review, inter-rater reliability for the coding of the descriptive variables was assessed by the first author and an assistant, separately coding five randomly selected studies (Cedar and Levant, 1990[42]).

The remaining reviews did not include details about the way in which the primary studies were selected for inclusion or the appraisal process, and none of the overviews indicated whether blinding was undertaken for the purpose of assessment.

***Were the results similar from study to study?***
Tests of heterogeneity were undertaken only in one review (Barlow, 1999[34]) prior to the data being combined in a meta-analysis; in one further review, statistical tests of heterogeneity precluded the possibility of undertaking a meta-analysis (Dimond and Hyde, 1999[30]). Failure to test for heterogeneity is a significant omission where an average or 'typical' effect has been calculated. For example, in one case, an overall effect size of 0.328 was given, but no evidence was provided about either the clinical or statistical heterogeneity of the primary studies reviewed (Cedar and Levant, 1990[42]).

In two cases, correlation coefficients between effect sizes and a number of methodological and contextual variables were provided (Cedar and Levant, 1990;[42] Serketich and Dumas, 1996[45]) including sample size, number of groups/sessions and random assignment. However, once again, no analysis of the clinical heterogeneity of the populations in the primary studies was undertaken and no assessment of the impact of this on the summative data was produced.

Although many of the included reviews demonstrate considerable clinical heterogeneity in terms of the included populations and interventions in the primary studies, most reviews indicate similarity in the results obtained for each study.

## What are the results?

***What are the overall results of the review?***
The results of all included reviews are presented in Appendix 2. Four reviews provide summary measures of effectiveness following meta-analysis (Barlow and Parsons, 2002;[47] Cedar and Levant, 1990;[42] Farrington and Welsh, 2003;[33] Serketich and Dumas, 1996[45]).

Barlow and Parsons (2002)[47] report a non-significant trend based on parent reports favouring the intervention group [effect size (ES) –0.5, 95% CI –1.06 to 0.08), with independent observations of children's behaviour showing a significant result favouring the intervention group (ES –0.54, 95% CI –0.84 to –0.23) (Barlow and Parsons, 2002[47]). A meta-analysis of the limited follow-up data available shows a small non-significant trend favouring the intervention group (ES –0.24, 95% CI –0.56 to 0.09) (Barlow and Parsons, 2002[47]).

The second review shows no evidence of effectiveness (Cedar and Levant, 1990[42]). This review evaluates the effectiveness of one particular type of parenting programme known as PET, which focuses on relationships rather than children's behaviour, and does not recommend the use of either praise or 'time-out', which are two central tenets of behavioural programmes. This review does, however, show a significant impact on other outcomes including child self-esteem and parent attitudes.

Two further reviews show the effectiveness of parent training/education programmes in improving children's behaviour, 0.395 (95% CI 0.274 to 0.517) (Farrington and Welsh, 2003[33]) and 0.86 (Serketich and Dumas, 1996[45]), although the latter does not provide any CIs or other indication of uncertainty such as a standard error.

A 'vote-counting' technique was used to assess effectiveness in four further reviews that do not provide summary ESs, but do provide data from the included primary studies (Barlow, 1999;[34] Dimond and Hyde, 1999;[30] Richardson and Joughin, 2002;[38] Todres and Bunston, 1993[44]), with Dimond and Hyde[30] explicitly using this approach instead of meta-analysis due to heterogeneity. One review shows that group-based parent training/education programmes are effective in producing significant change in both parental perceptions and objective measures of children's behaviour (Barlow, 1999;[34] Barlow and Stewart-Brown, 2000[37]). A second review, that updated the Barlow review, confirmed these findings (Richardson and Joughin, 2002[38]).

A further review that examined whether these effects were maintained over time showed that parent training/education programmes are effective in producing medium- to long-term changes in children's behaviour (11 out of 15 studies statistically significant) and in parent well-being (six out of 8 studies statistically significant). It should be noted, however, that these findings were based on studies that utilised a wait list control in which the long-term changes were assessed only in the intervention group. These findings may therefore be due to regression to the mean. One further review that compared behaviour modification, PET and Adlerian programmes (the last two being relationship programmes) showed that the behaviour modification and Adlerian programmes produced the best results, and that the PET programmes have a much lower success rate (Todres and Bunston, 1993[44]). A key limitation of vote counting is that it fails to take into account the size of individual studies.

Eight reviews provide descriptive results only (Breiner and Beck, 1984;[46] Brestan and Eyberg, 1998;[32] Bryant *et al.*, 1999;[35] Farmer *et al.*, 2002;[39] Feldman, 1994;[40] Hornby and Singh, 1983;[41] Mooney, 1995;[43] Tucker, 1997[36]). Five of these reviews include results from studies utilising uncontrolled methodologies (Breiner and Beck, 1984;[46] Bryant *et al.*, 1999;[35] Feldman, 1994;[40] Hornby and Singh, 1983;[41] Tucker, 1997[36]), and are not discussed further here – see Appendix 2. Three reviews provide descriptive results from rigorous studies (Brestan and Eyberg, 1998;[32] Farmer *et al.*, 2002;[39] Mooney, 1995[43]). The first review shows that two types of parent training/education programme meet the stringent criteria for well-established effective programmes (i.e. videotape modelling and programmes based on Patterson and Gullion's 'Living with Children') (Brestan and Eyberg, 1998[32]). The second review, which is based on data from three primary studies only, produced ESs ranging from medium to large, with medium ESs being found for programmes that were implemented under usual practice conditions (Farmer *et al.*, 2002[39]). The third review compares three types of programme (i.e. behavioural, PET and STEP – the last two being relationship programmes) and shows that as regards child behaviour only the behavioural programmes show evidence of effectiveness, although Adlerian and PET programmes had an impact on self-esteem and STEP programmes impacted positively on children's grades and child's locus of control (Mooney, 1995[43]). The Adlerian, STEP and PET programmes show considerably more evidence of effectiveness, however, as regards parent attitudes (i.e. democratic and less restrictive/authoritarian attitudes) (Mooney, 1995[43]).

#### *How precise are the results?*

Eight reviews did not provide any summary effect estimate (Breiner and Beck, 1984;[46] Brestan and Eyberg, 1998;[32] Bryant *et al.*, 1999;[35] Farmer *et al.*, 2002;[39] Feldman, 1994;[40] Hornby and Singh, 1983;[41] Mooney, 1995;[43] Tucker, 1997[36]), and it is therefore not possible to assess the precision of the results.

Two reviews that provide a summary estimate of effectiveness following meta-analysis do not provide CIs (Cedar and Levant, 1990;[42] Serketich and Dumas, 1996[45]). The two further reviews that utilised a summative measure and that also provided CIs (Barlow and Parsons, 2002;[47] Farrington and Welsh, 2003[33]) are all significant, although in the first of these reviews, one out of two measures also includes the possibility of their being no difference (Barlow and Parsons, 2002[47]).

Two reviews were based on a 'vote-counting' technique in which the number of positive or negative findings for each outcome measure in each primary study were combined (Dimond and Hyde, 1999;[30] Todres and Bunston, 1993[44]). 'Vote counting', however, is a less reliable method of summarising data because no weighting is used to compensate for the differences between large and small studies, no evidence is available to assess the way in which either clinical or statistical significance is attributed to each outcome measure in each primary study and it is not possible to assess the magnitude of the effects. Furthermore, in one of these reviews (Todres and Bunston, 1993[44]), data from uncontrolled primary studies were included.

None of the reviews provided any clear evidence of the clinical significance of the ESs produced. This would have involved translating the numeric data provided into clinical descriptions of children's behaviour. However, the standardised instruments used in these studies have all been validated as clinical measures of children's behaviour, and an ES of 1.0 represents a highly significant clinical improvement.

## Will the results help in the future care of parents and children?

#### *Can the results be applied to other parents and children?*

Most of the included reviews were directed at parents of children with behaviour problems, and

it therefore seems likely that the results from these reviews can be generalised to other parents of children with problems of this nature. However, very little information was provided in any of the reviews concerning the parents to whom the programme was provided (i.e. as regards their socio-demographic and ethnic distribution, for example), with the exclusion of one review that was directed at parents with intellectual problems. This makes it difficult to assess to what extent the effectiveness of parent training/education programmes varies with the clinical scenario.

#### *Were all clinically important outcomes considered?*

Eleven of the included reviews focused exclusively on child behaviour problems or child delinquency. Six of the included reviews examined other clinically important outcomes such as parent attitudes and behaviour or other aspects of child well-being such as self-esteem (Breiner and Beck, 1984;[46] Feldman, 1994;[40] Hornby and Singh, 1983;[41] Mooney, 1995;[43] Todres and Bunston, 1993[44]).

Process outcome measures, which would have provided some indication of levels of satisfaction with parent training programmes, were rarely included in any reviews.

#### *Are the benefits worth the harm and costs?*

Only one of the included reviews examined the benefits of parent training/education programmes *vis-à-vis* the harm and costs (Dimond and Hyde, 1999[30]). The results of this review show that the costs of providing a parent training/education programme vary according to the model of service provided (e.g. group-based programmes provided by health visitors in statutory settings are the cheapest) but are on average in the region of £353 per client per course.

The potential disbenefits of parent training/education programmes for participants include the opportunity costs associated with loss of earnings, loss of leisure time or loss of non-paid work time such as childcare incurred as a result of attending sessions. The centre-based programmes may also incur travel costs. As regards the psychological costs, parent training/education programmes may involve the stigma sometimes associated with attending such a class, or distress/loss of self-esteem for clients unable to attend a programme.

The above review concludes that the low cost and low disbenefits of parent training/education programmes and the potentially large benefits and cost savings suggest that overall, the benefits of parent training/education programmes are worth the harm and costs.

## Summary

Six of the included reviews obtained a quality rating of at least eight out of a possible 11 (Barlow and Stewart-Brown, 2000;[37] Barlow and Parsons, 2002;[47] Dimond and Hyde, 1999;[30] Farrington and Welsh, 2003;[33] Richardson and Joughin, 2002;[38] Serketich and Dumas, 1996[45]). The results of the remaining reviews should be treated with more caution. Six of the seven reviews that achieved a high quality rating (eight or more) showed that parent training programmes are effective in improving children's behaviour.

The data from all of the included reviews suggest the following:

- **Type of parenting programme:** Three reviews compared the effectiveness of different types of parent training/education programme, e.g. behavioural, Adlerian and PET. The results show that behavioural parent training programmes are most effective in modifying children's behaviour as measured by a combination of both parent-report outcome measures and independent observations of children's behaviour. The result for Adlerian programmes, however, is more confusing – one review showed them to be effective whereas the other showed them to be ineffective. PET programmes are clearly less effective than the behavioural programmes in modifying children's behaviour, but have other positive benefits for children.
- **Age of child:** Six reviews addressed the effectiveness of parent training/education programmes for children within specific age bands. Three reviews addressed their effectiveness for children under 5 years of age. Only one of these was based on data from rigorous studies and this showed that based on independent observations of children's behaviour, parent training/education programmes are highly effective with children under 3 years of age. Both of the remaining reviews also support this conclusion. Two reviews examined the effectiveness of parent training/education programmes with children aged 3–10 years. Although neither of these reviews provides summary measures (e.g. meta-analyses), both provide evidence from rigorous

studies of the effectiveness of parent training/education programmes in improving children's behaviour. One further review examined the effectiveness of parent training/education programmes for children aged 6–12 years. The results of this review are based on three primary studies only, all of which provide evidence of effectiveness as regards children's behaviour with ESs ranging from medium to large.

- **Parents with intellectual disabilities:** Only one review examined the effectiveness of parent training programmes for parents with intellectual disabilities (IQs ranging from 50 to 79). This review provided descriptive findings only and was based on data from 7 studies of variable quality. This review shows that the mean percentage improvement in scores for child behaviours was low in most of the studies providing individual child data, and that further research is required.
- **Children with learning problems:** Only one review examined the effectiveness of parent training/education programmes for children with learning problems. The findings of this review are based on data from eight studies of variable quality. Two of five studies showed statistically significant results. These findings, once again, point to the need for further research involving the benefits of parent training/education programmes for children with learning problems.
- **Other outcomes:** Some reviews, particularly those that included primary studies evaluating the effectiveness of relationship programmes, reported positive effects on other aspects of children's mental health (e.g. self-esteem) and on parents' attitudes, behaviour and well-being. Reviews focusing specifically on these outcomes have not been included in the current review (see, for example, Barlow and Coren, 2002[49]).
- **Long-term effectiveness:** One review (Dimond and Hyde, 1999[30]) examined the medium- and long-term effectiveness of parent training/education programmes for children's behaviour problems. Fourteen out of 15 rigorous studies showed positive long-term effects between 1 and 10 years) on children's behaviour, 11 of which were statistically significant. There was also evidence of effectiveness in improving parental well-being (e.g. depression, self-esteem, parenting stress, parenting attitudes) in the medium to long term (e.g. 1–4.5 years), but no evidence of a positive effect on social outcomes (e.g. delayed pregnancy, further education, delinquency, drug use, police contacts, court records). Although the findings of this review suggest that parent training/education programmes are effective in the medium to long term in improving children's behaviour, the results were based on follow-up of intervention groups only and do not therefore provide firm evidence of long-term effectiveness.

This review also demonstrated the relatively low costs involved in parent training/education programmes when set against the potential cost savings, and the short- and long-term benefits to both the NHS and other statutory bodies, and to society as a whole. Thus, with a relatively small average cost per client (£353 per client per course), parent training/education programmes have the potential to produce large benefits and cost savings with few disbenefits.

A summary of the methodological adequacy of 16 systematic reviews on the effectiveness of parent training programmes and the results of the meta-analyses of the effectiveness of parent training programmes can be found in Appendix 2.

# Chapter 4

# Effectiveness

## Methods for reviewing effectiveness

### Search strategy

#### *Electronic databases*

Owing to the nature of the topic, databases ($n$ = 20) from the fields of medicine, social science and education were searched. Sensitive search strategies were employed in order to identify all potentially relevant studies. Text and MeSH words relating to the condition and intervention of interest were combined with filters for RCTs. There were no language restrictions. Full details of the search strategies can be found in Appendix 4.

The following electronic databases were searched:

- MEDLINE (Ovid) 1966–September week 3 2003
- EMBASE (Ovid) 1980–week 38, 2003
- CINAHL (Ovid) 1982–September week 3, 2003
- Cochrane Central Register of Controlled Trials (CENTRAL) Issue 3, 2003
- NHS Centre for Reviews and Dissemination HTA database
- ISI Proceedings (Science and Technology and Social Sciences and Humanities) 1990–September 2003
- Social Science Citation Index 1981–September 2003
- International Bibliography of Social Sciences (BIDS) 1966–September 2003
- ASSIA (Applied Social Sciences Index and Abstracts) 1987–September 2003
- ERIC (Educational Resources Information Center) (CSA) 1966–September 2003
- British Education Index (Dialog) 1976–June 2003
- Australian Education Index (Dialog) 1976–September 2003
- Sociological Abstracts (CSA) 1963–September 2003
- Social Sciences Abstracts (CSA) 1980–September 2003
- PsycINFO 1974–present (searched 7 October 2003)
- ZETOC (British Library) 1995–present (searched 7 October 2003)
- EPPI-Centre (Evidence for Policy and Practice Information and Co-ordinating Centre) databases 1995–present
- NCJRS (US National Criminal Justice Reference Service) databases 1970–September 2003
- EBMH (Evidence Based Mental Health) Online 1998–October 2003
- Caredata (Social Care Institute for Excellence's database) was searched using SCIE's enhanced in-house search facility.

#### *Ongoing/unpublished trials*

The National Research Register Issue 3, 2003, was searched to identify ongoing and unpublished research. Submissions from manufacturers, professional and patient groups and commentators were checked, and all parties were contacted with a preliminary list of included studies as an opportunity to highlight any potential omissions.

#### *Citation searches*

Citation lists of systematic reviews ($n$ = 16, see Chapter 3) and included studies ($n$ = 37) were checked.

### Inclusion and exclusion criteria

Two reviewers (JD, CH) initially scanned all identified citations, and hardcopies of potentially relevant studies were retrieved. Where there was disagreement on whether to retrieve a study, a third reviewer (CD) was consulted. An inclusion and exclusion pro-forma (see Appendix 3) was then used formally to include or exclude the retrieved studies. Two reviewers (JD, CD) applied the inclusion and exclusion criteria independently, with disagreements resolved by a third reviewer (JB). Reasons for exclusion were noted. Where there were insufficient details to make a decision, the authors of the study were contacted.

There are a broad range of programmes available for parents with conduct disordered children, some of which focus solely on parents and some of which involve children and/or teachers to a greater or lesser extent. It is, however, likely that the effectiveness of programmes targeting children/teachers in addition to parents would be different to that of programmes targeting parents only. Given that the different programmes aimed solely at parents are already diverse in their nature (e.g. length, setting, content), it was felt that adding another comparator (i.e. studies where the treatment includes children and/or teachers)

### *Inclusion criteria*

| | |
|---|---|
| Study design | RCTs |
| Population | Parents (or carers) of children or adolescents up to the age of 18 where at least 50% have a behavioural disorder (CD, ODD or other more or less severe behavioural problems); no exclusion on the basis of co-morbidities<br>Studies were included if:<br>1. a diagnosis of CD or ODD was made using DSM IV criteria or similar, or<br>2. if the children were in an elevated or clinical range of a behavioural scale (such as the ECBI), or<br>3. if the children were described as having behavioural problems, one or more of which would be recognised as being characteristic of conduct disorder or oppositional defiant disorder |
| Intervention | A parent-training/education programme<br>1. where the content is documented and repeatable and which is run over a defined time period, or<br>2. where the treatment focused exclusively on parents only<br>There were no restrictions regarding the theoretical basis of a programme, the length, setting or mode of delivery (e.g. group, individual or self-administered) |
| Comparator | Any; for example, a control group (e.g. waiting list) and/or a different parent training/education programme and/or a different intervention |
| Outcomes | At least one measure of child behaviour |

### *Exclusion criteria*

| | |
|---|---|
| Study design | Any other study design (e.g. quasi-randomised controlled trials, non-randomised controlled studies, non-controlled before-and-after studies) |
| Population | Children at risk of a behavioural disorder or children with another disorder only (e.g. ADHD, learning disabilities) with no evidence that they would fall into one of the categories (1–3) listed under the inclusion criteria |
| Intervention | A child-, family- or teacher-focused intervention; a non-structured parent-focused intervention such as a support group or informal home visits; a parent training/education programme in conjunction with another intervention (e.g. a parent training/education programme that also includes children in at least some of the sessions) |
| Comparator | No exclusion criteria apply |
| Outcomes | No measure of child behaviour |

would be beyond the scope of this report. Therefore, in order to be consistent, and to ensure that only similar interventions were being compared, we excluded all studies that did not focus solely on parents. This also applies to studies where children have attended sessions to give parents an opportunity to rehearse skills under therapist guidance. Where parent training with a child component is an additional comparator, and the study has also investigated parent training focused solely on parents, the results are reported in the section 'Assessment of effectiveness – parent training/education versus active comparator' p. 49).

Regarding the study populations, children were often described as having behaviour problems or as being disruptive, with a lack of formal assessment criteria being reported. Where this is the case, and where all other inclusion criteria were met, we included the study to avoid excluding potentially relevant studies. However, studies not reporting formal assessment criteria are considered as a subgroup for the purposes of (quantitative) data synthesis.

A flow diagram of the inclusion and exclusion process can be found in the section 'Quantity and quality of research availability' (p. 20).

## Data extraction strategy

Studies that met all inclusion criteria were data extracted by two reviewers (JD, CD) using prepiloted tables. Data relating to quality were independently checked (JS, RT). Data were extracted on main study characteristics [sample source, child characteristics, parent/family characteristics, intervention/comparator(s), outcome measures, size of study, length of intervention and number of assessments], study quality and results. Outcome data were extracted only for child behaviour-related outcome measures. The use of other outcome measures was noted.

## Quality assessment strategy

In order to evaluate the internal validity of the studies, the following quality criteria relating to selection bias, performance bias, detection bias and attrition bias were assessed (see also quality assessments, Appendix 8). The appropriateness of the statistical analyses was also assessed.

### *Selection bias*

- Method of randomisation (and appropriateness of method).
- Method of concealment of allocation (and appropriateness of method).
- Comparability of treatment groups at beginning of study (demographics, pretreatment behaviour scores).

### *Detection bias*

- Owing to the nature of the intervention, individuals administering the intervention cannot be blinded. It was therefore assessed, where applicable, whether outcome assessors were blinded (e.g. for independent observations of child behaviour).

### *Performance bias*

- Comparable management of study groups throughout the study (with the exception of the intervention), for example co-interventions, number and nature of assessments.

### *Attrition bias*

- Loss to follow-up (were all participants accounted for throughout the trial); the risk of attrition bias is likely to increase the greater the loss to follow-up is (we used an arbitrary cut-off point of 20%).
- Intention-to-treat (ITT) analysis (we define an ITT analysis as the inclusion of all available data in the analysis regardless of compliance with the intervention).
- Sensitivity analysis (defined as inputting a range of missing assessment data in order to investigate how results are altered as a result).

### *Other quality criteria*

- Statistical analyses (were the statistical analyses conducted by the authors clearly detailed and appropriate; if non-appropriate, was the validity of the results/conclusions compromised).
- Selective reporting of results/missing results.
- Reporting of *a priori* power calculations.

The potential threats to validity in each area of bias (1, selection; 2, performance; 3, detection; 4, attrition; and 5, appropriateness of statistical analysis) were listed for each study in order to estimate the overall quality and to gauge whether a sensitivity analysis should be performed around study quality. Where there were no (or insufficient) details, a conservative approach was adopted and the quality item was assessed as being absent. One point was given where a study failed to meet one or more quality criteria in the five areas mentioned above (a maximum 5 points would indicate very poor quality). Where the statistical analysis was only adequate rather than appropriate, 0.5 points were added. Studies with 1 point were classified as 'good' quality, studies with 2 as 'adequate', 3 as 'poor' and 4 as 'very poor'. No attempt was made to weight the various quality criteria. Authors were not contacted for additional information.

## Data analysis and synthesis

Given the nature of this review, the primary method of data synthesis was qualitative and in the form of detailed tabulation. However, we also undertook a quantitative synthesis of behavioural outcomes across trials. Two approaches were taken: vote counting and meta-analysis.

### *Vote counting*

All child behaviour-related outcome measures were listed for each study, together with the main direction of effect for each outcome (at each assessment point). It was noted where there were statistically significant ($p \leq 0.05$) differences in favour of the intervention (**positive**) or the control (**negative**), or no statistically significant difference (**neutral**). Studies comparing a parent training/education programme with a wait list control were grouped together, as were studies where two or more relevant interventions were compared. All descriptions of the direction of effect refer only to changes between (intervention and control) groups. Changes within groups over time (i.e. pre- and post-) have not been described. We excluded results from longer term follow-up

where this is reported for an intervention group only and not for the control group.

#### *Meta-analysis*

As vote counting does not take into account the study size and gives no estimate of the ES or of the uncertainty (CIs) around the estimate, we also performed meta-analysis. Meta-analysis was limited to those outcomes that were reported consistently across a high proportion of trials [i.e. Eyberg Child Behaviour Inventory (ECBI), Child Behaviour Checklist (CBCL), Dyadic Parent–Child Interaction Coding System (DPICS)] and where sufficient outcome data were reported. All meta-analyses were undertaken using a random effects model.

## Results

### Quantity and quality of research available

#### *Quantity of research*

The combined bibliographic database search yielded 3857 citations. An additional 218 potentially relevant citations were identified through the search of Caredata. A total of 3571 references were excluded, as they were clearly not relevant. An attempt was made to obtain the remaining 504 references in order formally to include or exclude them; 34 of these were not obtained in time (mainly reports from sources other than journals, poorly referenced publications, conference abstracts or publications not available from the British Library). Authors were contacted regarding 12 publications where a decision for inclusion or exclusion could not be made on the basis of the full text. Following replies from authors (50% response rate), six studies were excluded. There were no author replies regarding the other six studies, which were also excluded. A total of 166 studies were primary studies (with or without a control group) but were not RCTs and were therefore excluded. Some 146 publications were reviews, comments or general background to the topic. Sixty studies were RCTs, but the population was not relevant for this assessment.

A total of 45 studies were RCTs with a relevant population, but the outcome measure or intervention did not meet the inclusion criteria; 15 additional RCTs were excluded on the basis that the outcome measure or intervention was not relevant, or because the relevance of the population in these studies was unclear. The following reasons for exclusion apply to these two groups (60 studies):

**Intervention**

- Children included in (at least part of) treatment: $n = 31$.
- Intervention was not parent training/education programme (or not parent training/education programme only): $n = 15$.
- Intervention focused on teachers in addition to parents: $n = 4$.
- Intervention described as family focused: $n = 4$.
- Intervention not targeted at behavioural problems: $n = 1$.

**Outcome**

- No measure of child behaviour: $n = 5$.

Thirty-two studies from the database searches met all the inclusion and exclusion criteria. References for all excluded studies are listed, by reason for exclusion, in Appendix 5.

One additional relevant study was identified through citation searching (Karoly and Rosenthal, 1977[50]), bringing the total to 33 included studies.

Four authors were contacted regarding potentially relevant ongoing trials (identified from the National Research Register). Three authors replied: one trial had since been published and had been excluded by the review team[51] and two were not RCTs.[52,53] There was no reply from the remaining author.[54]

The large volume of retrieved full-text publications indicates the difficulty of including or excluding studies on the basis of abstracts only. Frequently the full text had to be read to identify sufficient detail particularly on the population and/or intervention to determine whether the study was relevant.

#### *Manufacturer/consultee submissions*

Four submissions were received from consultees (Parents Plus Programme, Webster-Stratton, Mellow Parenting and Triple P). Four additional relevant RCTs were identified: Behan *et al.*, 2001[55] (Parents Plus Programme); Webster-Stratton *et al.*, 2004;[56] Sanders *et al.*, 2004[57] (Triple P); and Turner and Sanders, 2004[58] (Triple P); this brought the total of included studies to 37. There were no RCTs referenced in the Mellow Parenting submission.

The Triple P submission cites an additional three key RCTs based on the relevance of the population to our research question. Sanders *et al.* (2000)[59]

has been included in the effectiveness review (on the basis that it included the self-administered Triple P intervention, which does not include children). Sanders and McFarland (2000)[60] was formally considered by the review team and excluded on the basis that the interventions being compared both included the child. Bor *et al.* (2002)[61] is a subgroup analysis from Sanders *et al.* (2000)[59] of children with conduct problems and ADHD and therefore not relevant to this review. Additional studies described as RCTs are presented in Appendices B.2, B.3 and B.4 of the Triple P submission. These studies were formally assessed for inclusion and exclusion by the review team on the basis of abstract or summary details, and were subsequently excluded. With the exception of Sanders *et al.* (2000)[59] (see above), no other studies met the inclusion criteria for the review. Four further studies evaluating Triple P interventions (where the child was not included) were identified through the databases search and have been included (Sanders *et al.*, 2000,[62] Hoath and Sanders, 2002;[63] Ireland *et al.*, 2003;[64] Connell *et al.*, 1997[65]).

#### *Other submissions (professional, patient, commentator)*

No additional relevant RCTs were identified in these submissions.

*Figure 1* shows the process of inclusion and exclusion.

#### *Main study characteristics*

The main characteristics of the included studies are given in *Table 4*.

#### *Study design*

All 37 studies were RCTs comparing between two and 6 groups. Sixteen studies[50,55,58,62,63,65–75] compared a parent training/education programme with a control group only; seven studies[64,57,76–80] compared a parent training/education programme with a different parent programme or another intervention (such as child training/education); eight studies[81–88] compared two or more parent programmes with a (wait list) control; six studies[56,59,89–92] compared a parent programme with one or more different interventions and a control group.

#### *Study size*

The total sample size consisted of 2581 children. Sample sizes for individual intervention/control groups within studies varied between four and 151. Based on the smallest group in each trial, the mean number of participants per group was 25.

#### *Sample source*

In the majority of studies ($n$ = 19), parents referred their children by responding to a media advertisement (e.g. newspaper, radio) or to fliers in community centres, medical practices, kindergartens, schools or similar. In one study,[64] children were either parent referred or were recruited from families on the waiting list at a Triple P clinic. In seven studies,[56,57,75,79,88,90,92] children were recruited via a combination of parent, school, social or medical services referrals. In three studies,[55,71,80] children were recruited from referrals to outpatient psychiatry clinics. In three studies,[68,77,83] recruitment was from referrals made by community agencies, schools or social services. In one study,[50] families were self-referred to a children's psychiatric facility; in one further study,[58] recruitment was from families presenting to community child health clinics requesting advice. There were no details of sample selection method in two studies.[87,91]

#### *Location*

The majority of studies ($n$ = 25) were conducted in the USA, eight in Australia,[57–59,62–65,83] two in Canada[74,90] and one each in Ireland[55] and the UK.[73]

#### *Characteristics of children*

The majority of studies ($n$ = 21) used scales such as the ECBI, CBCL or others to restrict inclusion to children that were above a cut-off point indicating caseness. Four studies[56,79,80,91] used DSM III, III-R or IV diagnoses of CD and/or ODD for the inclusion of their population, four further studies[55,65,78,89] used DSM diagnoses for inclusion of at least a proportion of their study population. Eight studies[50,66,70,74,81,84,85,92] used a description only, that is, the children were described generally as having behavioural problems or as being disruptive, but there was no attempt to classify or grade the behaviour.

It is likely that many of the children in the included studies do not have CD according to DSM diagnostic criteria, but instead have behaviour problems of varying severity. Children with CD and/or ODD are likely to meet the inclusion criteria in those studies using a cut-off on a behaviour inventory, but these studies will also include children who do not have this level of severity of problems. It is therefore also likely that some of the included children would have received a DSM diagnosis of CD and/or ODD had they been seen by a psychiatrist (children were recruited from referrals to outpatient psychiatry clinics in only three studies).

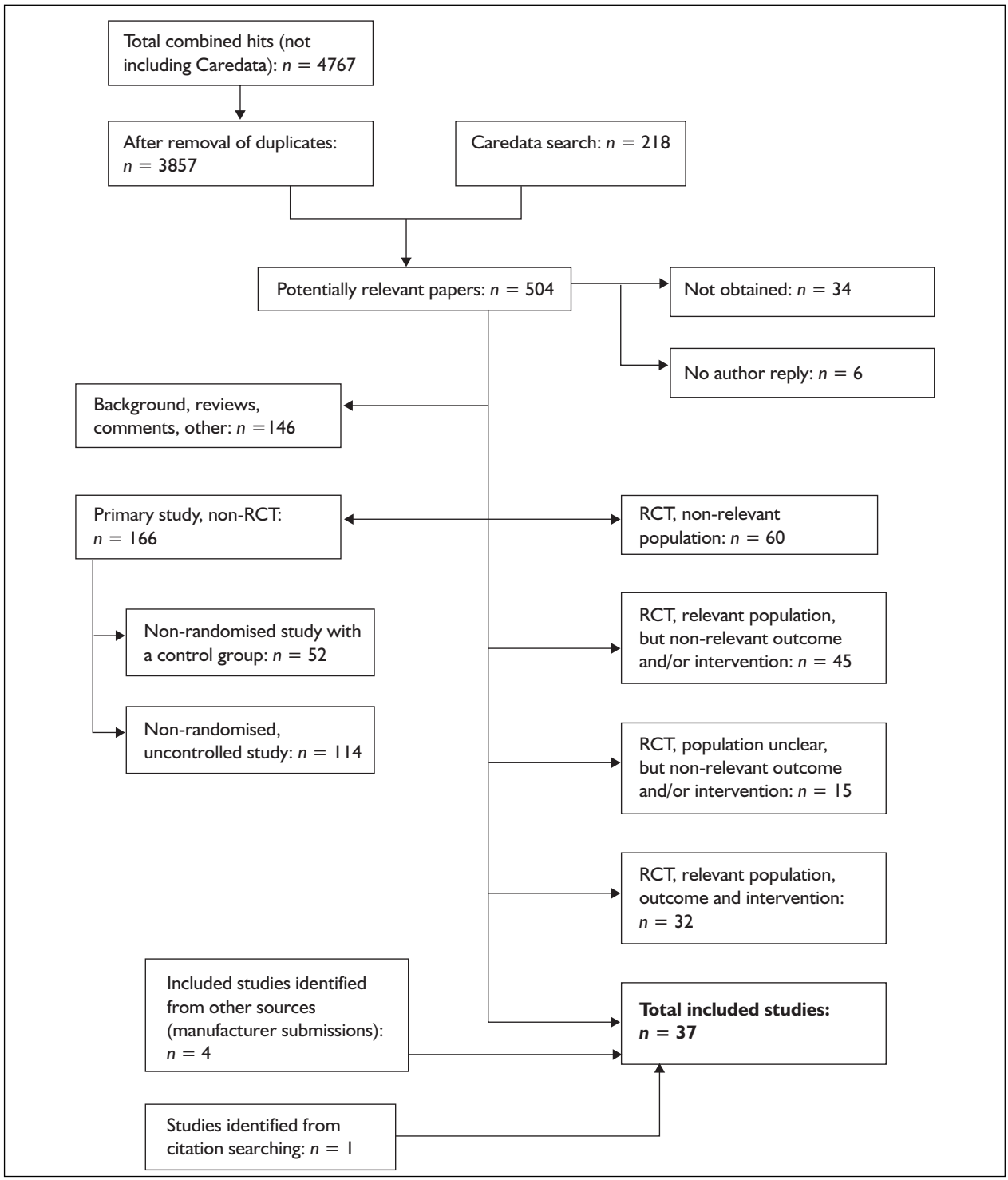



***FIGURE 1*** *Flowchart of study identification*

Although we did not seek studies with an ADHD population, we did not exclude studies including children with co-morbidities provided that >50% of children had a behavioural disorder, therefore seven studies were included where all[63,71] or some[55,56,65,78,91] children had ADHD. In an additional study,[66] children were stated to be on medication, but there were no further details.

Other co-morbidities were: moderate to severe behavioural and learning deficits,[66] anxiety disorder or a specific learning disability,[55] a difficult temperament[72] (as determined by the Parent Temperament Questionnaire) or a variety of co-morbidities[74] (learning disability, autism, Down syndrome, fragile X or cri du chat syndrome).

***TABLE 4*** *Main study characteristics*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Adesso and Lipson, 1981, USA[81] | 16 children | Participants recruited through mass media announcements | • *Age/sex*<br>Between 2 and 10 years, mean 6.2; 56.2% boys<br>• *Disorder defined*<br>Target behaviours included non-compliance, temper tantrums, fighting with siblings, negativity, complaining, crying, going to bed, eating problems and spinning (descriptive only) | 1. Parent training/education: group – mothers only<br>***Approach: behavioural***<br>*Contact hours: 9 × 2–2.5-hour sessions (= 18–22.5 hours)*<br>*Setting: seminar-type facility*<br>*Delivered by: group leader (no further details)*<br>*Other resources: weekly homework assignments*<br>*Length: 9 weeks*<br>2. Parent training/education: group – fathers only<br>As above<br>3. Parent training/education: group – couples<br>As above<br>4. Wait list control | Baseline, post-treatment, 3-month follow-up (intervention groups only) |
| Barkley *et al.*, 2000, USA[89] | 158 children | Response to invitation | • *Age/sex*<br>Between 4.5 and 6 years, mean 4.8; 66% boys<br>• *Disorder defined*<br>Conners Parent Rating Scale (revised hyperactive–impulsive and conduct problem items) OR<br>DSM III-R criteria for ADHD and ODD | 1. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 10 sessions plus 5 booster sessions (number of hours not stated)*<br>*Setting: not stated*<br>*Delivered by: child psychologist*<br>*Other resources: no details*<br>*Length: 10 weekly sessions and 5-monthly booster sessions over an 8-month period*<br>2. Special treatment classroom delivered to children<br>3. Both 1 and 2<br>4. No treatment control | Baseline and post-treatment |
| Behan *et al.*, 2001, Ireland[55] | 50 parents | Referral to outpatient child psychiatry clinics | • *Age/sex*<br>Between 3 and 12 years, mean 7.2; 78% boys<br>• *Disorder defined*<br>28/50 diagnosed with CD or ODD (DSM IV)<br>All: referral for misconduct (non-compliance, oppositional behaviours, aggression or destructiveness)<br>19/50 had CD or ODD with ADHD | 1. Parent training/education: group<br>***Approach: behavioural (Parents Plus Programme)***<br>*Contact hours: 8 × 2 hours (= 16 hours)*<br>*Setting: treatment centre*<br>*Delivered by: child mental health professional*<br>*Other resources: 2 videos, facilitator's manual*<br>*Length: 8 weeks*<br>2. Wait list control | Baseline, post-treatment, 5.5-month follow-up (intervention group only) |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Connell *et al.*, 1997, Australia[65] | 23 children | Recruitment through newspapers/ information brochures | • *Age/sex*<br>Intervention: mean age 49.33 (SD 14.05); 7 males (58.3%) and 5 females. Control: mean age 53.18 (SD 11.26); 3 males (27.3%) and 8 female; 43.5% boys overall<br>• *Disorder defined*<br>Clinical range on ECBI<br>Using DSM IV, 13 (56%) of sample had ADHD, 14 (61%) had ODD and 3(13%) had CD | 1. Parent training/education: 1:1 – self-directed with parent-initiated free telephone calls<br>***Approach: behavioural (Triple P level 2)***<br>*Contact hours: telephone calls, weekly over 10 weeks with therapist: mean time per call 20 minutes (range 5–30 minutes)*<br>*Setting: home*<br>*Delivered by: 'therapist' – no further details given*<br>*Other resources: book and accompanying workbook: Every Parent (Sanders, 1992 – see original paper for details/citation)*<br>*Length: 10 weeks*<br>2. Wait list control | Baseline and post-treatment (+ 10 weeks) |
| Diament and Colletti, 1978, USA[66] | 22 children | Newsletter advertisement | • *Age/sex*<br>Mean 7.1 (range 4.0–12.6); % boys not stated<br>• *Disorder defined*<br>Described as manifesting moderate to severe behavioural and learning deficits | 1. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 8 × 1 1/2 hours weekly sessions = 12 hours*<br>*Setting: not stated*<br>*Delivered by: 1 × per group advanced clinical psychology graduates*<br>*Other resources: reading assignments/cassette recordings*<br>*Length: 8 weeks*<br>2. Wait list control | Baseline; post-treatment (8 weeks); post-intervention (3 months) |
| Gross *et al.*, 1995, USA[67] | 24 families | Parents recruited from medical centre and surrounding community | • *Age/sex*<br>Between 24 and 36 months; 83% boys<br>• *Disorder defined*<br>ECBI intensity score >125 and ECBI problem score >10 *OR*<br>>3.4 on Toddler Temperament Scale (TSS) | 1. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 10 weekly sessions (length not stated)*<br>*Setting: not stated*<br>*Delivered by: 1 or 2 (unclear which) individuals with Master's degree in psychiatric nursing*<br>*Other resources: weekly written homework assignments*<br>*Length: 10 weeks*<br>2. Wait list control | Baseline and post-treatment |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Hamilton and MacQuiddy, 1984, USA[82] | 27 mothers (some with spouses) | Response to announcements in local papers, radio stations and community daycare centres | • *Age/sex*<br>Between 2 and 7, mean age 3.7; 67% boys<br>• *Disorder defined*<br>Elevated range on ECBI (intensity score ≥127 or problem score ≥11) | 1. Parent training/education: self-administered<br>***Approach: behavioural***<br>*Contact hours: parent time 1 hour and 15 minutes; 15 minutes professional therapist contact for organisational meeting, 1 hour assistant time for data collection*<br>*Setting: home*<br>*Delivered by: self-administered*<br>*Other resources: self-instructional manual, audiotape, signal seat*<br>*Length: 6 weeks*<br>2. Parent training/education: self-administered<br>*All as above*<br>*Other resources: self-instructional manual, audiotape, seat without signal attachment*<br>3. Wait list control | Baseline, post-treatment, 2-month follow-up (intervention groups only) |
| Hoath and Sanders, 2002, Australia[63] | 21 families | Community outreach campaign, adverts in local papers, newsletters, fliers, paediatricians' offices, recruitment through schools, GPS, paediatricians | • *Age/sex*<br>Between 60 and 119 months. Intervention group: mean age 95.8 months (SD 13.28); 7 males, 2 females. Control: mean age 89.6 months (SD 18.65); 80% boys<br>• *Disorder defined*<br>All parents reported concerns about child behaviour<br>Mean ECBI pre-intervention: intervention group 164 (SD 28.13); control 159 (SD 41.08).<br>All diagnosed with ADHD | 1. Parent training/education: group<br>***Approach: behavioural (Triple P)***<br>*Contact hours: mean 8 hours group intervention (5 × ~2 hour weekly sessions) and 94 minutes telephone consultation (4 × 20–30-minute weekly telephone consultations)*<br>*Setting: local primary schools with option for 'after hours' sessions to encourage attendance*<br>*Delivered by: psychologist completing postgraduate training*<br>*Other resources: workbook, 'tip sheets'*<br>*Length: 10–12 weeks*<br>2. Wait list control | Baseline, post-treatment, 3-month post-intervention (intervention group only) |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Hughes and Wilson, 1988, Australia[83] | 50 children | Recruitment from referrals made to a community agency | • *Age/sex*<br>Mean age 12.1. years (SD 2.4); 34 males (81%); 8 females (19%)<br>• *Disorder defined*<br>At least 4 problems on the Conduct Problem subscale of the Behaviour Problem Checklist and conduct problems for at least 1 year | 1. Parent training/education: one-to-one focusing on communication skills/problem solving<br>***Approach: relationship***<br>*Contact hours; 7 × weekly 1.5 hour sessions = 10.5 hours*<br>*Setting: not reported*<br>*Delivered by: psychologists and social workers who had completed training or nearly completed training*<br>*Other resources: written guidelines for therapists*<br>*Length: 7 weeks*<br>2. Parent training/education: one-to-one focusing on contingency management.<br>***Approach: behavioural***<br>*Contact hours: 7 × weekly 1.5 hour sessions = 10.5 hours*<br>*Setting: not reported*<br>*Delivered by: psychologists and social workers who had completed training or nearly completed training*<br>*Other resources: written guidelines for therapists*<br>*Length: 7 weeks*<br>3. Wait list control | Baseline and post-treatment (~7 weeks) |
| Ireland *et al.*, 2003, Australia[64] | 44 couples | Parents on the waiting list at Triple P clinic, response to newspaper articles, flyers | • *Age/sex*<br>Between 2 and 5, mean age 3.65; 24 boys (65%)<br>• *Disorder defined*<br>All mothers were concerned about their child's disruptive behaviour 46% of mothers and 43% of fathers rated their child's behaviour within the clinically elevated range on the ECBI | 1. Parent training/education: group (standard)<br>***Approach: behavioural***<br>*Contact hours: 8 hours group plus 1–2 hours telephone*<br>*Setting: Parenting and Family Support Centre*<br>*Delivered by: psychologist*<br>*Other resources: workbook, video, telephone*<br>*Length: 8 weeks*<br>2. Parent training/education: group (enhanced)<br>***Approach: behavioural and relationship***<br>*Contact hours: 11 hours plus 1–2 hours telephone*<br>*Setting: Parenting and Family Support Centre*<br>*Delivered by: psychologist*<br>*Other resources: workbook, video, telephone*<br>*Length: 8 weeks* | Baseline, post-treatment, 3-month follow-up |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Irvine *et al.*, 1999, USA[68] | 303 parents | Children referred by school or social service agency staff; children with more than 3 risk factors were invited to participate | • *Age/sex*<br>Mean age 12.2 (SD 1.1); 61% boys<br>• *Disorder defined*<br>Children with ≥ 3 risk factors on the scale by Bry *et al.*, 1988 (see original paper for details/citation), 55% above CBCL borderline score (>60) pretreatment | 1. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 18–14 hours plus weekly phone call to each family*<br>*Setting: office at research institute*<br>*Delivered by: group leader (various backgrounds, e.g. social service agency workers, school counsellors)*<br>*Other resources: child care facilities, snacks and drinks, small prizes, $10–40 (depending on attendance) as incentive for parents*<br>*Length: 12 weeks*<br>2. Wait list control | Baseline, post-treatment, 3-month follow-up (6-month and 1-year follow-up intervention group only) |
| Kacir and Gordon, 1999, USA[69] | 38 mothers | Participants volunteered (response to letters) | • *Age/sex*<br>Between 12 and 18, average age 14; 19 boys (50%)<br>• *Disorder defined*<br>22 (58%) in clinically elevated range on the ECBI Total Problems Score; mean score 11.68, SD = 8.1 | 1. Parent training/education: self-administered<br>***Approach: behavioural and relationship***<br>*Contact hours: median number of sessions 3*<br>*Setting: Ohio University Psychology Clinic*<br>*Delivered by: self-administered*<br>*Other resources: Macintosh Power PC and monitor, TV monitor and a Pioneer Laserdisk player, workbook*<br>*Length: programme completed in average of 2 weeks*<br>2. Wait list control | Baseline, 1 month, 4 months |
| Karoly and Rosenthal, 1977, USA[50] | 17 families | Self-referral to a children's psychiatric facility | • *Age/sex*<br>Between 3 and 14, average age 7.5; 82% boys<br>• *Disorder defined*<br>Children with 'behaviour problem' (e.g. non-compliance, temper tantrums or aggressive behaviour); descriptive only | 1. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 10 weekly meetings (hours not stated)*<br>*Setting: not stated*<br>*Delivered by: experienced parent training group leaders, PhD psychologists (aides)*<br>*Other resources: not stated*<br>*Length: 10 weeks*<br>2. Wait list control | Baseline, post-treatment, 1-month follow-up (home observation only) |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Knapp and Deluty, 1989, USA[76] | 49 mothers | Announcements in local newspapers and sent to paediatricians or announcements sent by the Headstart programme | • *Age/sex*<br>Aged 3–8, mean 4.7; 60% boys (of those who completed)<br>• *Disorder defined*<br>More problem behaviours on a composite of the RBPC subscale scores than 'normal' population | 1. Parent training/education: group (role play focus)<br>***Approach: behavioural approach***<br>*Contact hours: 8 sessions (number of hours not stated)*<br>*Setting: not stated*<br>*Delivered by: therapist (doctoral level clinical psychology graduate student)*<br>*Other resources: none*<br>*Length: 8 weeks*<br>2. Parent training/education: group (discussion focus)<br>***Approach: behavioural***<br>*Contact hours: 8 sessions (number of hours not stated)*<br>*Setting: not stated*<br>*Delivered by: therapist (doctoral level clinical psychology graduate student)*<br>*Other resources: none*<br>*Length: 8 weeks* | Baseline, post-treatment, 2-months follow (RPBC only) |
| Lewis, 1986, USA[70] | 20 mothers | Parents responded to newspaper and radio advertisements | • *Age/sex*<br>Aged between 2 and 8; number of boys not stated<br>• *Disorder defined*<br>Adjustment difficulties such as poor peer relationships, hyperactivity, aggressiveness or non-compliant behaviour (descriptive only) | 1. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 36 hours*<br>*Setting: Not stated*<br>*Delivered by: 2 trainers (graduates enrolled in Master's degree in counselling)*<br>*Other resources: book, handouts*<br>*Length: 6 weeks*<br>2. Wait list control | Baseline and post-treatment |
| Long *et al.*, 1993, USA[71] | 32 parents | Recruitment from an outpatient clinic | • *Age/sex*<br>Between 6 and 11 years, mean 8.13 (SD 1.54); 81% boys<br>• *Disorder defined*<br>In elevated range of ECBI<br>All children with ADHD | 1. Parent training/education: self-administered<br>***Approach: behavioural***<br>*Contact hours: no details*<br>*Setting: home*<br>*Delivered by: self-administered*<br>*Other resources: behaviour management protocol*<br>*Length: no details*<br>2. Standard treatment only | Baseline and post-treatment (2 months after enrolment) |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Magen and Rose, 1994, USA[84] | 56 parents | Announcements to social service agencies and others and placing advertisements in local newspapers | • *Age/sex*<br>Mean age 7 (eligible between 5 and 11); 70% boys<br>• *Disorder defined*<br>Problems with aggressive or non-compliant behaviour (descriptive) | 1. Parent training/education: group (behavioural focus)<br>***Approach: behavioural***<br>*Contact hours: 16 hours*<br>*Setting: not stated*<br>*Delivered by: 1 or 2 group leaders*<br>*Other resources: no details*<br>*Length: 8 weeks*<br>2. Parent training/education: group (problem-solving focus)<br>***Approach: behavioural***<br>*Contact hours: 16 hours*<br>*Setting: not stated*<br>*Delivered by: 1 or 2 group leaders*<br>*Other resources: no details*<br>*Length: 8 weeks*<br>3. Wait list control | Baseline, post-treatment, 3-month follow-up |
| Pevsner, 1982, USA[77] | 15 couples | Referred to clinic by community agencies | • *Age/sex*<br>Between 5 and 13 years, mean age 9; 67% boys<br>• *Disorder defined*<br>Evidence of at least 3 behaviour problems as shown by Patterson's Behaviour Check List | 1. Parent training/education: group (parent training/education plus group behaviour therapy)<br>***Approach: behavioural***<br>*Contact hours: 32.5 hours*<br>*Setting: clinic*<br>*Delivered by: author of study (no further details)*<br>*Other resources: no details*<br>*Length: 10 weeks*<br>2. Individual family therapy<br>*Contact hours: 10 hours*<br>*Setting: clinic*<br>*Delivered by: behaviour therapist*<br>*Other resources: no details*<br>*Length: 10 weeks* | Baseline, post-treatment, 6-month follow-up |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Sanders *et al.*, 2004, Australia[57] | 98 families | Recruitment through referral from Families, Youth and Community Care Queensland, family doctors, community child health services and self-referrals (media outreach campaign) | • *Age/sex*<br>Between 2 and 7 years, mean age 4.4; 'equal representation of males and females'<br>• *Disorder defined*<br>Above ECBI cut-off on intensity (≥ 127) and problem (≥ 11) scales | 1. Parent training/education: group (standard behavioural family intervention)<br>***Approach: behavioural (Triple P)***<br>*Contact hours: 9–10 hours*<br>*Setting: not stated*<br>*Delivered by: either (clinical) psychologist, social worker or teacher*<br>*Other resources: workbook, homework*<br>*Length: 8 weeks*<br>2. Parent training/education: group (enhanced behavioural family intervention)<br>***Approach: behavioural (Triple P)***<br>*Contact hours: 17-18 hours*<br>*Setting: not stated*<br>*Delivered by: as above*<br>*Other resources: as above*<br>*Length: 12 weeks* | Baseline, post-treatment and 6 months |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Sanders *et al.*, 2000, Australia[59] | 305 families | Response to community outreach campaign (newspapers, posters, flyers) | • *Age/sex*<br>Aged 3–4 years; 68% boys<br>• *Disorder defined*<br>In elevated range on ECBI (intensity score ≥ 127 or problem score ≥ 11) | 1. Parent training/education: self-administered (Self-help Triple P)<br>***Approach: behavioural***<br>*Contact hours: N/A*<br>*Setting: home*<br>*Delivered by: self-administered*<br>*Other resources: workbook*<br>*Length: 15-17 weeks*<br>2. Parent training/education: individual (Standard Triple P)<br>***Approach: behavioural***<br>*Contact hours: 10 hours*<br>*Setting: local community health and neighbourhood centres*<br>*Delivered by: trained practitioner*<br>*Other resources: book, workbook*<br>*NB: children present at sessions*<br>*Length: 15–17 weeks*<br>3. Parent training/education: individual (Enhanced Triple P)<br>***Approach: behavioural***<br>*Contact hours: 14 hours*<br>*Setting: local community health and neighbourhood centres*<br>*Delivered by: trained practitioner*<br>*Other resources: book, workbook*<br>*Length: 15–17 weeks*<br>*NB: children present at sessions*<br>4. Wait list control | Baseline, post-treatment, 1-year follow-up (intervention families only) |
| Sanders *et al.*, 2000, Australia[62] | 56 parents | Recruitment through newspaper and distribution of information brochures | • *Age/sex*<br>Between 2 and 8, mean age 55.6 months; 58.9% boys<br>• *Disorder defined*<br>Mean pre-intervention scores in clinically elevated range of the ECBI (problem score) | 1. Parent training/education: self-administered<br>***Approach: behavioural (Triple P)***<br>*Contact hours: N/A*<br>*Setting: home*<br>*Delivered by: self-administered*<br>*Other resources: 12 videotapes, accompanying tip sheet*<br>*Length: 6 weeks*<br>2. Wait list control | Baseline, post-treatment and at 6-month follow-up (intervention group only) |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Sheeber and Johnson, 1994, USA[72] | 40 mothers | Subjects recruited via flyers and advertisements | • *Age/sex*<br>Between 3 and 5, mean age 4; 60% boys<br>• *Disorder defined*<br>Children rated as being in the elevated range of the CBCL (score >60) | 1. Parent training/education: group<br>***Approach: relationship***<br>*Contact hour: 13.5–18 hours*<br>*Setting: not stated*<br>*Delivered by: first author of study (no further details)*<br>*Other resources: manual*<br>*Length: 13–16 weeks*<br>2. Wait list control | Baseline, post-treatment and at 8 weeks post-treatment |
| Siegert and Yates, 1980, USA[85] | 30 parents | Response to newspaper advertisements or recruited by community leaders | • *Age/sex*<br>Aged 5–15; number of boys not stated<br>• *Disorder defined*<br>Behaviour problems such as frequent disobedience in family settings (descriptive only) | 1. Parent training/education: individual<br>***Approach: behavioural***<br>*Contact hours: 1 introductory meeting, 2 baseline meetings, 5 hours training*<br>*Setting: home*<br>*Delivered by: master's degree-level therapist*<br>*Other resources: none*<br>*Length: 8 weeks*<br>2. Parent training/education: individual<br>***Approach: behavioural***<br>*Contact hours: 1 introductory meeting, 2 baseline meetings, 5 hours training*<br>*Setting: office*<br>*Delivered by: master's degree-level therapist*<br>*Other resources: none*<br>*Length; 8 weeks*<br>3. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 1 introductory meeting, 2 baseline meetings, 7.5 hours training*<br>*Setting: office*<br>*Delivered by: 2 master's degree-level therapists*<br>*Other resources: none*<br>*Length: 8 weeks*<br>4. Wait list control | Baseline and post-treatment or weekly measurements; 4-month follow-up (rating of child's behaviour only) |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Spaccarelli *et al.*, 1992, USA[86] | 126 parents | Recruitment by flyers posted in a medical centre, local clinics and schools | • *Age/sex*<br>($n$ = 53), mean age 6.2; 57% boys (of those who completed)<br>• *Disorder defined*<br>Children rated, on average, as being in elevated range of ECBI (problem scale >11, intensity scale >127) | 1. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 10 hours plus 6 hours problem-solving skills*<br>*Setting: Medical Centre's Department of Psychiatry*<br>*Delivered by: therapist (first author of study)*<br>*Other resources: videotapes*<br>*Length: 10–16 weeks*<br>2. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 10 hours plus 6 hours therapist-facilitated discussion*<br>*Setting: Medical Centre's Department of Psychiatry*<br>*Delivered by: therapist (first author of study)*<br>*Other resources: videotapes*<br>*Length: 10–16 weeks*<br>3 Wait list control | Baseline, post-treatment and 8–19-week follow-up (intervention groups only) |
| Strayhorn and Weidman, 1991, USA[78] | 98 parents and 105 children | Meetings at Head-start Centres, advertisements, referrals from paediatricians and mental health professionals | • *Age/sex*<br>Mean age 3 years 9 months at start of study; 36 (43%) males, 48 females<br>• *Disorder defined*<br>All children described as having behavioural problems; 32% met >5/9 criteria for ODD<br>39% of children met >8/14 DSM III-R criteria for ADHD | 1. Parent training: self-administered videotapes (unclear if in group setting)<br>***Approach: behavioural***<br>*Contact hours: not reported*<br>*Setting: not reported*<br>*Delivered by: not reported*<br>*Other resources: pamphlet on parenting suggestions*<br>*Length: not reported*<br>2. Individual parent and child training<br>*Contact hours: average parent participated in ~12.5 hours of training.*<br>*Setting: not reported*<br>*Delivered by: research assistant paraprofessionals*<br>*Other resources: stories and plays for parents to use with child at home*<br>*Length: not reported* | Baseline and 1 year post-treatment |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Sutton, 1995, UK[73] | 23 families | Article in a local newspaper, professionals also invited to make referrals | • *Age/sex*<br>17 males (74%); 6 females 1 × 8 years, 2 × 7 years, 1 × 6 years, 2 × 5 years, 17 × 4 years;<br>• *Disorder defined*<br>At baseline 21 (83%) of children were considered 'disordered' according to the Child Behaviour Questionnaire | 1. Parent training/education: 1:1 (telephone contact)<br>***Approach: behavioural***<br>*Contact hours: 1 × phone call per week over 8 weeks. ≥ 2 follow-up calls (1–12 weeks post-training). Each call lasted between 5 and 40 minutes. Mean contact time per family 2 hours 56 minutes (no range reported). Mean number of calls 13 (range 7–31)*<br>*Setting: clients' home*<br>*Delivered by: author of paper; no details stated*<br>*Other resources: weekly booklets sent to parents*<br>*Length: 8 weeks + 2 follow-up calls*<br>2. Wait list control | Baseline and post-intervention (8 weeks) |
| Tassé *et al.*, 2001, Canada[74] | 27 adolescents | Recruitment through a number of centres and organisations for learning and other disabilities | • *Age/sex*<br>Between 13 and 20, mean age 15.3 (2.4); 67% boys (of those who completed)<br>• *Disorder defined*<br>Adolescents with learning disabilities and aggressive behaviour | 1. Parent training/education: group<br>***Approach: behavioural and relationship***<br>*Contact hours: 6 days (number of hours not stated)*<br>*Setting: not stated*<br>*Delivered by: 1–2 trainers*<br>*Other resources: not stated*<br>*Length: 6 weeks*<br>2. Wait list control | Baseline and post-treatment |
| Taylor *et al.*, 1998, Canada[90] | 110 families | Parents referred to a Family Centre (some self-referred, some referred by school, medical or social service professionals) | • *Age/sex*<br>Between 3 and 8 years, mean 5.6; 72.7% boys<br>• *Disorder defined*<br>Mean problem and intensity scores on the ECBI in clinically elevated range | 1. Parent training/education: group (plus one individual session)<br>***Approach: behavioural***<br>*Contact hours: 24.75–31.5 hours (group); 1.5 hours (individual)*<br>*Setting: Mental Health Centre*<br>*Delivered by: 2 therapists*<br>*Other resources: no details*<br>*Length: 17 weeks*<br>2. Individual (eclectic)<br>*Contact hours: average 8 hours (range 1-40)*<br>*Setting: Mental Health Centre*<br>*Delivered by: therapist*<br>*Other resources: no details*<br>3. Wait list control | Baseline, 4 months post-treatment |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Turner and Sanders, 2004, Australia[58] | 30 families | Families presenting to community child health clinics requesting advice on child behaviour problems or developmental issues | • *Age/sex*<br>Between 2 and 5 years, mean 3.25; 53% boys<br>• *Disorder defined*<br>46.7% clinical range ECBI, 33.3% elevated range; 66.7% clinical range PDR, 16.7% elevated range | 1 Parent training/education: individual (face-to-face, last session face-to-face or telephone)<br>***Approach: behavioural (Triple P)***<br>*Contact hours: 1.5–2 hours*<br>*Setting: not stated*<br>*Delivered by: nurse*<br>*Other resources: booklet, tip sheet, videos*<br>*Length: 7 weeks*<br>2. Wait list control | Baseline, post-treatment, 6 months (intervention group only) |
| Webster-Stratton *et al.*, 2004, USA[56] | 159 children | ~30% families self-referred; 20% teacher referred; 38% physician referred | • *Age/sex*<br>Mean age 70.99 months (SD 11.47); 143 (90%) males; 10% females;<br>• *Disorder defined*<br>Above cut-off for conduct problems on ECBI (10) and meet DSM IV criteria for ODD.<br>18% of sample scored in clinical range on the CBCL attention problems subscale (ADHD) and 25% were taking stimulant medication for ADHD | 1. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 22–24 weekly 2-hour sessions (44–48 hours)*<br>*Setting: clinic*<br>*Delivered by: therapists (1–2) (MSc or PhD in mental health-related field and experience with behaviour problem children and family therapy)*<br>*Other resources: none detailed*<br>*Length: 4–6 months*<br>2. Parent training/education and teacher training (PT + TT). Parent training as detailed above +:<br>*Contact hours: group –4 days (42 hours) + 1 meeting at school*<br>*Setting: clinic + 1 meeting at school*<br>*Delivered by: therapists (1–2) (MSc or PhD in mental health-related field and experience with behaviour problem children and family therapy)*<br>*Other resources: substitute teachers were paid for in order that teachers could attend*<br>*Length: 4–6 months*<br>3. Child training (CT)<br>*Contact hours: 18–19 3 hour sessions over 6 months (group)*<br>*Delivered by: therapists (1–2) (Msc or PhD in mental health-related field and experience with behaviour problem children and family therapy)*<br>*Other resource: weekly homework assignments. Weekly letters to parents and teachers, good behaviour weekly charts to parents and teachers, bonus rewards*<br>*Length: 4–6 months*<br>4. Child training and teacher training (CT + TT)<br>CT and TT as detailed above.<br>5. Parent training and child training and teacher training (PT + CT + TT)<br>CT and TT and PT as detailed above.<br>6. Wait list control | Pre- and post-intervention (8–9 months) |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Webster-Stratton and Hammond, 1997, USA[91] | 97 families | None given except 'primary referral problem was child misconduct' | • *Age/sex*<br>Mean age 68.9 months (SD 14.32); 72 males (74%) 25 females<br>• *Disorder defined*<br>ECBI problem score >2SD above the mean. Child also had to meet DSM III-R criteria for ODD and CD. ADHD but numbers not reported | 1. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 22–24 weekly 2-hour sessions (44–48 hours)*<br>*Setting: clinic*<br>*Delivered by: therapists (1–2) (MSc of PhD in mental health-related field and experience with behaviour problem children and family therapy)*<br>*Other resources: none detailed*<br>*Length: 22–24 weeks*<br>2. Child training (CT)<br>*Contact hours: 22 × 2-hour sessions over 6 months*<br>*Setting: clinic*<br>*Delivered by: as above*<br>*Other resources: videos; weekly letters to parents and teachers, colouring books, cue cards, cartoons, stickers. Therapist supervision, therapist manuals*<br>*Length: 6 months*<br>3. Child training and parent training/education (CT + PT)<br>Combination of 1 and 2 above.<br>4. Wait list control | Pre-intervention; 2 months post intervention (~6–8 months, 1-year follow-up (intervention groups only) |
| Webster-Stratton, 1994, USA[79] | 85 families | Self-referred (50%) or professionally referred (50%) | • *Age/sex*<br>Mean age 58.72 months (SD 12.91); 74.4% boys (of those who completed)<br>• *Disorder defined*<br>Clinically significant number of behaviour problems according to the ECBI and diagnosis (DSM III–V) of CD, ODD or both | 1 Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 12–13 × 2-hour sessions (24–26 hours)*<br>*Setting: clinic*<br>*Delivered by: therapist*<br>*Other resources: videotape programmes, handouts*<br>*Length: 12–13 weeks*<br>2. Parent training/education: group<br>***Approach: behavioural and relationship***<br>*Contact hours: as above plus 14 additional 2-hour sessions (52–54 hours)*<br>*Setting: clinic*<br>*Delivered by: therapist*<br>*Other: videotape programmes, handouts*<br>*Length: 26–27 weeks* | Baseline, post-treatment (12–13 weeks), and post-treatment (26–27 weeks) |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Webster-Stratton, 1992, USA[75] | 100 families | Self-referred 46%, professional referral 54% | • *Age/sex*<br>Between 3 and 8 years, mean 60.3 months; 72% boys<br>• *Disorder defined*<br>Mean number of pretreatment behaviour problems according to the ECBI was in the clinic range; confirmed by home observations | 1. Parent training/education: self-administered (in group setting)<br>***Approach: behavioural***<br>*Contact hours: 10 hours*<br>*Setting: clinic*<br>*Delivered by: self-administered; secretary gave instructions*<br>*Other resources: manual*<br>*Length: 10 weeks*<br>2. Wait list control | Baseline and post-treatment, 1-year follow-up (intervention group only) |
| Webster-Stratton, 1990, USA[87] | 47 families | No details | • *Age/sex*<br>Between 3 and 8 years, mean age 5; 79% boys (of those who completed)<br>• *Disorder defined*<br>Clinically significant number of behaviour problems according to ECBI (>11 on problem score) | 1. Parent training/education: self-administered (in group setting)<br>***Approach: behavioural***<br>*Contact hours: 10 sessions*<br>*Setting: clinic*<br>*Delivered by: self-administered*<br>*Other resources: 10 videotape programmes*<br>*Length: 12 weeks*<br>2. As above, plus individual therapist contact<br>***Approach: behavioural***<br>*Contact hours: 2 × 1-hour appointments plus possibility of calling therapist at any time*<br>*Setting: clinic*<br>*Delivered by: therapist (clinician with doctorate in child psychology)*<br>*Other resources: none*<br>3. Wait list control | Baseline and 1 month post-treatment |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Webster-Stratton *et al.*, 1988, USA[88] | 114 families | Self-referred (43%) or professionally referred (57%) | • *Age/sex*<br>Between 3 and 8 years, mean 4 years 6 months; 69% boys<br>• *Disorder defined*<br>Children rated as having a clinically significant number of behaviour problems on the ECBI | 1. Parent training/education: self-administered videotape training (in group setting)<br>***Approach: behavioural***<br>*Contact hours: 10–12 × 1-hour sessions (= 10–12 hours)*<br>*Setting: clinic*<br>*Other resources: 10 videotape programmes*<br>*Length: 10–12 weeks*<br>2. Parent training/education: group [therapist showed videotapes (as above), followed by group discussion]<br>***Approach: behavioural***<br>*Contact hours: 10–12 × 2 hour sessions (= 20–24 hours)*<br>*Setting: clinic*<br>*Delivered by: therapist (psychologist or social worker)*<br>*Other resources: 10 videotape programmes*<br>*Length: 10–12 weeks*<br>3. Parent training/education: group (group discussion with therapist)<br>***Approach: behavioural***<br>*Contact hours: 10–12 × 2 hour sessions (= 20–24 hours)*<br>*Setting: clinic*<br>*Delivered by: therapist (psychologist or social worker)*<br>*Other resources: none*<br>*Length: 10–12 weeks*<br>4. Wait list control | Baseline, 1 month post-treatment (1- and 3-year follow-up for intervention groups only) |

*continued*

***TABLE 4*** *Main study characteristics (cont'd)*

| Study | Study size | Sample source | Children's characteristics | Interventions | Assessments |
|---|---|---|---|---|---|
| Webster-Stratton, 1984, USA[92] | 40 children | Families referred by professionals | • *Age/sex*<br>Mean age 4 years 8 months;<br>25 (71.5%) males, 10 females.<br>• *Disorder defined*<br>Referral problem 'child oppositional behaviours' | 1. Parent training/education: group<br>***Approach: behavioural***<br>*Contact hours: 9 weekly sessions × 2 hours = 18 hours*<br>*Setting: hospital clinic*<br>*Delivered by: doctorally trained psychologist with previous experience of counselling and parent training/education*<br>*Other resources: videotape modelling*<br>*Length: 9 weeks*<br>2. 1:1 parent and child (not parent training/education programme)<br>*Contact hours: 9 weekly sessions × 2 hours = 18 hours*<br>*Setting: hospital clinic*<br>*Delivered by: doctorally trained psychologist with previous experience of counselling and other resources: one-way mirror and bug-in-ear for parents rehearsing with children*<br>*Length: 9 weeks*<br>3. Wait list control | Baseline and 3 months |
| Wells and Egan, 1988, USA[80] | 24 families | Routine outpatient child psychiatry clinic referrals | • *Age/sex*<br>Between 3 and 8, no further details<br>• *Disorder defined*<br>DSM III diagnosis of ODD and child display of ≥ 50% non-compliance to parental commands in clinic observation | 1. Parent training/education: individual<br>***Approach: behavioural***<br>*Contact hours: 8–12 sessions (number of hours not clear)*<br>*Setting: clinic*<br>*Delivered by: therapist*<br>*Other resources: none*<br>*Length: 8-12 sessions, not clear over which time period*<br>2. Systems Family Therapy | Baseline and post-treatment |

*SD, standard deviation*

In the majority of studies, children were aged ≤12 ($n$ = 23). Seven studies did not report an upper age limit; in these studies, the mean ages reported were between 3.75 and 6.2. These studies are likely to include a majority of children under 12. Children over the age of 12 are included in seven studies [mean age 9 (range 5–13),[77] mean age 12.1,[83] mean age 12.2,[68] mean age 14 (range 12–18),[69] range 5–15[85] (mean not stated), mean age 15.3 (range 13–20)[74] and mean age 7.5 (range 3–14)[50]]. Based on those studies where the information was available ($n$ = 32), ~68% of the children were boys.

Many of the symptoms of CD and ODD overlap and ODD is a common precursor of CD.[2] The diagnosis of CD increases with age; children aged 10–15 are more likely to be diagnosed with CD than children aged 5–10.

Four studies reported on prior treatments: a proportion of families had previously sought professional help,[81] one child had been on a behaviour modification programme,[66] eight mothers had received counselling with their child[69] and all children were receiving methylphenidate.[71] Many studies excluded children involved in any treatment at the time of recruitment.

### *Characteristics of parents/families (***Table 5***)*

We did not exclude studies on the basis of any parent characteristics. Details were recorded on those factors likely to contribute to the likelihood of a child having CD, in order to document characteristics of parent populations covered by this review.

It is difficult to assess whether the most representative populations are being targeted due to lack of details in many studies. Key population features of studies included in this review are the high proportion of single parents in many studies, a predominance of white Caucasian parents and possibly an over-representation of middle class and highly educated parents.

### *Participation of mothers/fathers in programme*

In the majority of studies, mothers were the primary focus, with only a proportion of fathers also attending (the extent of father attendance was not always clear; similarly, it was not always clear whether one or both parents were completing the parent report measures). Four studies[69,70,76,81] clearly included mothers only for at least one of their interventions, and two studies[67,81] clearly included couples. Only one small study (four parents per group) examined the effectiveness of parent training/education programmes directed at fathers only.[81] Eleven studies[56,59,64,65,67,72,75,79,87,88,91] reported results for mothers and fathers separately.

### *Characteristics of non-completers*

Eight studies reported on characteristics of non-completers compared with completers. The following characteristics for non-completers were identified:

- Significantly younger, from lower socio-economic groups, with less social support and higher levels of life stress.[55]
- Significantly less education; however, children rated as being significantly less inattentive and aggressive on the CBCL.[89]
- Non-completers were more lax (Laxness Scale of Parenting Scale Adolescent Version), had higher levels of depression (Beck Depression Inventory), showed higher over-reactivity (Parenting Scale Adolescent Version) and had children with better peer relations.[68]
- Significantly lower education, poorer score on the Parenting Situations Test and more problems reported on the ECBI.[86]
- Non-completers rated more settings in the community as problematic (child behaviour on the Home and Community Problem Checklist), scored higher on the Parenting Scale Laxness Scale and were observed to engage in more negative interaction prior to the intervention.[58]
- Mothers with higher ratings of negative affect (Depression Anxiety Stress Scales) less likely to complete post-assessment for Enhanced Triple P intervention, but more likely to complete post-assessment in the waiting list condition; mothers with higher ratings of disagreement with their partners more likely to complete post-assessment in wait list condition; non-completing mothers (but not fathers) rated their child's behaviour as more problematic; fathers who did not complete the post-assessment were more likely to have higher negative effect and higher aversive parenting (Parenting Scale); at 1-year follow-up, there were higher negative affect ratings for mothers who did not complete, and there were higher ratings of negative child behaviour.[59]

One study found that completers had higher levels of dysfunction on the Parenting Problem Checklist (intensity) and Parenting Scale (verbosity).[64] The remaining study found no difference in demographic or dependent variables.[75]

***TABLE 5*** *Parent and family characteristics*

| Risk factor | Details total population |
|---|---|
| Age/sex | Mothers were generally in their early to mid-30s, fathers slightly older; there were no studies specifically on teenage parents |
| Socio-economic status | Range of socio-economic groups represented in at least a proportion of studies; trend for some to include more middle class/more highly educated families |
| Single-parent household | • No/few single parents [6 studies[64,67,70,77,81] ('primarily married'[72])]<br>• <20% single parents (2 studies[65,73])<br>• 20–30% single parents (7 studies[55,56,58,59,62,68,80])<br>• 30–40% single parents (13 studies[50,57,63,82,83,75,76,79,84,86–88,90])<br>• One study: 26.7–38.5% single parents[91]<br>• >40% single parents (3 studies[69,78,92])<br>• One study: 35–49% single parents[89]<br>• 'Almost equal numbers of single- and two-parent families'[85]<br>No details in three studies[66,71,74] |
| Parental co-morbidity | Alcohol/drug abuse (7 studies[57,59,75,79,87,88,90]):<br>• Between 3 and 44.9% alcohol and/or drug abuse (in immediate family)<br>Depression (6 studies[58,75,78,79,88,90]):<br>• Between 14.3 and 45.5% of parents had mild to moderate depression<br>Other (4 studies):<br>• Clinically significant levels of marital conflict[64]<br>• 8 mothers receiving counselling with child or family[69]<br>• Evidence of maternal–familial distress[72]<br>• One or more family adversity factors and 55% mothers, 37% fathers with family history of psychiatric illness[59]<br>Absence of morbidities only reported:<br>• Parents not intellectually disabled[63]<br>• Absence of major pathology or mental retardation[83]<br>• Free of severe psychopathology[50]<br>• No severe marital problems, thought disorders, delusional problems, substance abuse, no therapy[77]<br>No details in 21 studies |
| Ethnicity | • All or predominantly (>90%) Caucasian (8 studies[50,59,64,66,69,73,82,84])<br>• 80% or more Caucasian (4 studies[67,68,76,91])<br>Other (5 studies):<br>• 43.2% white, 34.6% Hispanic, 17.3% black, 5% other[86]<br>• 64% black, 31% white, 5% other[78]<br>• Not Euro-American between 4.2 and 14.4%[56]<br>• 96% Canadian[74]<br>• 100% fathers, 92% mothers born in Canada[90]<br>No details in 20 studies |
| Abusive parents | No abuse (1 study):<br>• Absence of acute risk factors including child subject to physical harm[83]<br>Presence of abuse, or potential for abuse (7 studies):<br>• 14 children either currently or previously involved with child protective services[69]<br>• 56% mothers, 29% fathers elevated scores on Child Abuse Potential Inventory[59]<br>• Between 25.6 and 33.8% of mothers experienced spouse abuse[79,87,88]<br>• 43% of parents described as abusive[92]<br>• Between 13.1 and 14% prior involvement with Child Protective Services[87]<br>• 5% contact with statutory authority for suspected abuse or neglect and/or parent expressed concerns regarding difficulty in controlling their anger in relation to their child's behaviour[57,88]<br>No details in 29 studies |
| Parental discipline practices | No details in any studies |
| Social isolation | Multi-dimensional Scale of Perceived Social Support scores: 66.69 (treatment group), 60.15 (control), 58.80 (drop-outs; lower score signifies less support)[55]<br>No details in 36 studies |

### Types of intervention and setting

Programmes were either self-administered (by the parent) or consisted of group-based or one-to-one sessions with one or two therapists.

The majority of studies included group-based (therapist-led) training as at least one of their interventions ($n$ = 24[50,55–57,63,64,66–68,71,72,74,76,77,79,81,84–86,88–92]). These sessions were generally based around a manual, workbook or videos and involved group discussions, role play or modelling. Homework assignments or handouts were frequently used. In two studies,[64,68] parents made supplemental telephone calls to therapists. Most group programmes took place over a period of 6–13 weeks, some were slightly longer (17 weeks,[90] 22–24 weeks[91]or 4–6 months[56]) and one was spread out over 8 months.[89] Contact hours were generally between 8 and 20 (usually 1 or 2 hours once a week), with the more intensive programmes having between 24 and 28 contact hours.[56,74,77,79,90,91]

The self-administered programmes consisted of parents watching a set of videos at home[62] or as a group in a clinic setting (with no therapist or other group leader present);[75,87,88] the setting was unclear for one study.[78] Other self-administered interventions consisted of parents reading a workbook or protocol at home,[59,71] using a computer with a workbook in a clinic setting[69] or using a manual, audiotape and a 'time-out' child seat at home.[82] The time spent by parents on these programmes was 10 hours for three studies,[75,87,88] 6 weeks (hours not stated),[62] 15–17 weeks (hours not stated)[59] or three sessions of unstated duration.[69] The length and number of sessions were not reported for three studies.[71,78,82]

The individual programmes consisted of one-to-one contact of parent and therapist, either by telephone,[65,73] face-to-face in the clinic or office[80,85,87] or at home[85] or a combination of face-to-face and telephone contact[58] (setting not stated for one study[83]). Contact times were around 3 hours in total for the telephone calls, 8–12 hours for the face-to-face contacts and 1.5–2 hours for the combined face-to-face and telephone contact. In one study,[87] 2 hours of therapist contact supplemented a self-administered programme.

The programmes have been categorised according to behavioural or relationship approaches (or both), where this appears to be the primary focus of the programme based on the description in the paper. This does not exclude a programme from having elements of other theoretical frameworks. The majority of programmes were based on a behavioural approach ($n$ = 31). Of the remaining studies, two used a relationship-based programme as at least one of the interventions;[72,83] the other four[64,69,74,79] used programmes that had elements of both behavioural and relationship approaches.

Where studies compare a programme with a control, this was almost always a wait list control (where parents were told that they would receive the treatment after a delay). In one study,[89] interventions were compared with no treatment (not clear if this was a wait list control) and in one study[71] this was standard treatment (which both groups received).

### Delivery of intervention

In seven studies,[63,66,67,70,76,82,85] the intervention was delivered by an individual of graduate or Master's level (in psychology or similar); in four studies,[56,87,91,92] therapists were described as experienced in the area and generally had PhDs. In two studies,[64,89] the intervention was delivered by a (child) psychologist and in five studies,[55,57,68,83,88] there were a variety of individuals delivering the intervention [(clinical) psychologists, social workers, school counsellors, teachers, child mental health professionals]. In one study,[58] the intervention was delivered by a nurse; in one further study[50] the intervention was delivered by an experienced parent training group leader with a PhD psychologist as an aide. In 11 studies,[65,72–74,77,79–81,84,86,90] there were few details on who delivered the intervention ('therapist', 'group leader' or first author of the study). In the six remaining studies, the intervention was self-administered.

In four of the above studies,[50,57,70,90] the intervention was delivered by two therapists and a further five[56,67,74,84,91] studies stated that there were one or two therapists (not clear how many actually used). In the remaining studies the intervention was delivered by one therapist.

### Outcome measures

There were 43 different child behaviour-related measures in total, and studies used between one and eight outcome measures each (average 2.8 measures per study). The most commonly used measures were the ECBI. (19 studies[57–59,62–65,67,69,71,75,79,82,86–88,90–92]), the CBCL (11 studies[55,68,72,75,79,87–92]), Parent Daily Reports (PDRs, 12 studies[57–59,65,68,72,75,87,88,90–92]) and the DPICS (7 studies[67,75,79,87,88,91,92]). Other outcome measures used by at least three studies

were the Behar Preschool Behaviour Questionnaire (BPQ),[75,78,88,91] the Becker/Bipolar Adjective Checklist (BAC),[66,82,83] the (Revised) Behaviour Problem Checklist [(R)BPC],[76,83,84] and the Home Situations Questionnaire (HSQ).[71,73,89] Only two studies[78,89] used DSM or ICD criteria post-treatment.

Of the 43 child behaviour measures, 21 were parent report measures, 11 were independent observations and six were teacher reports. Five measures combined reports from parents, observers and/or teachers. Two of these were composite measures made up of a number of individual measures (used in Webster-Stratton *et al.*, 2004;[56] see Appendix 6 for details). Parent report measures were employed most frequently (59% of all measures used were parent reports, 23% were independent observations, 12% were teacher reports and 6% were combinations). No studies used proxy measures (such as school attendance) as a measure of child behaviour.

A description of all child behaviour-related outcome measures can be found in Appendix 7.

Outcome measures were applied at baseline and at post-treatment (once the programme had been completed). Five studies[66,50,69,72,84] conducted a further follow-up assessment in both intervention and control groups on (at least one of) the same outcome measures (between 1 and 4 months post-treatment). Eleven studies conducted further follow-up assessments for intervention groups (parent training/education programmes or other active interventions), at 2–3 months,[64,76,81,82] between 8 and 19 weeks,[86] 6 months,[57,77] 1 year,[59,78] 1 and 3 years[88] and 2 years.[56] Six studies[55,58,62,63,68,75] conducted a follow-up assessment on one intervention group only (no comparators). One study[78] had only one common assessment point for both groups at 1 year.

Other outcome measures relating, for example, to parental behaviour, parental depression, parental stress, parental competency, parental knowledge, parental self-esteem, family adjustment and consumer satisfaction are listed in Appendix 6. No data have been extracted on these measures.

### *Quality assessment*

*Table 6* shows the quality assessment of the included studies. Studies have been ordered according to overall quality [see the section 'Quality assessment strategy' (p. 17) for method of quality assessment].

#### *Selection bias*

All studies failed to meet (or to provide sufficient detail on) at least one of the quality criteria in this area. Only three studies[56,65,69] reported an adequate method of randomisation and two[88,92] reported an adequate method of concealment. Given the general lack of detail in this area, it is not possible to assess whether the other studies were appropriately randomised. It is possible that studies that may otherwise have been ineligible owing to inappropriate randomisation have been included owing to a lack of detail. Two initially included studies (Scott *et al.*, 2001;[93] Reid *et al.*, 2001[94]) were subsequently excluded as they did not report sufficient detail to ascertain that randomisation was used. Most studies ($n$ = 32) had groups that were comparable at baseline in at least one respect (demographics and/or pretreatment behaviour measures). Five studies[50,63,73,78,86] failed to provide any information on comparability of groups. Given that the study groups were generally small, it is likely that some imbalances arose by chance even where appropriate methods of randomisation were used.

#### Performance bias

Only two studies[78,91] failed to provide any information on the comparable treatment of groups throughout the trial. All other studies provided information on at least one aspect (number of assessments or use of co-interventions).

#### Detection bias

Only one study[81] failed to provide any details on blinding of outcome assessment. All other studies (where applicable) gave details on how independent observers were blinded to the treatment condition when assessing outcomes.

#### Attrition bias

The majority of studies ($n$ = 25) either did not perform an ITT analysis ($n$ = 5) or there were insufficient details to determine whether this was undertaken ($n$ =20). ITT is defined as the use of all available data on all randomised subjects regardless of compliance with the intervention. Using an ITT approach is likely to give a better estimate of the effectiveness of a programme in a real-life setting (as invariably not all parents will attend all sessions). Excluding data has the potential to bias results by exaggerating treatment effects, suggesting differences where there are none or even reversing the direction of effect. Performing an ITT analysis does not address the problem of missing data. The impact of missing data may be

***TABLE 6*** *Quality assessment*

| Study | Selection bias | | | Performance bias | Detection bias | Attrition bias | | Analysis | Overall quality |
|---|---|---|---|---|---|---|---|---|---|
| | **Adequate method of randomisation** | **Adequate method of concealment** | **Comparability of groups[a]** | **Comparable treatment of groups[b]** | **Blinding of outcome assessment** | **Loss to follow-up <20%[c]** | **ITT analysis or sensitivity analysis[d]** | **Statistical analysis appropriate[e]** | **Number of threats to validity/ overall quality** |
| Barkley *et al.*, 2000, USA[89] | No details | No details | ✓ | ✓ | ✓ | ✓ (1.9%) | ✓ | ✓ | 1<br>Good |
| Connell *et al.*, 1997, Australia[65] | ✓ | No details | ✓ demographics<br>× some pretreatment measures | ✓ | N/A | ✓ (4%) | ✓ | ✓ | 1<br>Good |
| Webster-Stratton *et al.*, 2004, USA[56] | ✓ | No details | ✓ | ✓ overall (one family in the control condition received 4 sessions of therapy) | ✓ | ✓ (0.6–5.7%) | ✓ | ✓ | 1<br>Good |
| Hoath and Sanders, 2002, Australia[63] | No details | No details | × | ✓ | N/A | × (20%) | No details | ✓ | 2<br>Adequate |
| Sanders *et al.*, 2000, Australia[59] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | ✓ | ✓ (16.7%) | ✓ | ✓ | 2<br>Adequate |
| Webster-Stratton and Hammond, 1997, USA[91] | No details | No details | ✓ | No details | ✓ | ✓ (2%) | ✓ | ✓ | 2<br>Adequate |
| Diament and Colletti, 1978, USA[66] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | ✓ | ✓ (0%) | ✓ | Adequate | 2.5<br>Adequate–poor |
| Behan *et al.*, 2001, Ireland[55] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | N/A | × (20%) | No details | ✓ | 3<br>Poor |
| Gross *et al.*, 1995, USA[67] | No details | No details | ✓ demographics<br>× pretreatment measures | ✓ assessments<br>No details co-interventions | ✓ | × (29%) | × | ✓ | 3<br>Poor |

*continued*

***TABLE 6*** *Quality assessment (cont'd)*

| Study | Selection bias | | | Performance bias | Detection bias | Attrition bias | | Analysis | Overall quality |
|---|---|---|---|---|---|---|---|---|---|
| | Adequate method of randomisation | Adequate method of concealment | Comparability of groups[a] | Comparable treatment of groups[b] | Blinding of outcome assessment | Loss to follow-up <20%[c] | ITT analysis or sensitivity analysis[d] | Statistical analysis appropriate[e] | Number of threats to validity/ overall quality |
| Hamilton and MacQuiddy, 1984, USA[82] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | ✓ | No details | No details | ✓ | 3<br>Poor |
| Hughes and Wilson, 1988, Australia[83] | No details | No details | × demographics<br>✓ pretreatment outcome measures | ✓ assessments<br>No details co-interventions | N/A | ✓ (16%) | × | ✓ | 3<br>Poor |
| Ireland *et al.*, 2003, UK[64] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | N/A | × (27.3%) | No details | ✓ | 3<br>Poor |
| Irvine *et al.*, 1999, USA[68] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | N/A | ✓/× (15.8–34%) | ✓ | ✓ | 3<br>Poor |
| Kacir and Gordon, 1999, USA[69] | ✓ | No details | ✓ | ✓ assessments<br>No details co-interventions | N/A | No details | ✓ | ✓ | 3<br>Poor |
| Knapp and Deluty, 1989, USA[76] | Unclear | No details | ✓ | ✓ assessments<br>No details co-interventions | ✓ | ✓ (18.4%) | Unclear | ✓ | 3<br>Poor |
| Lewis, 1986, USA[70] | No details | No details | ✓ demographics<br>No details pre-treatment behaviour measures | ✓ assessments<br>No details co-interventions | ✓ | No details | No details | ✓ | 3<br>Poor |
| Magen and Rose, 1994, USA[84] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | N/A | No details | No details | ✓ | 3<br>Poor |
| Pevsner, 1982, USA[77] | No details | No details | ✓ demographics<br>No details pretreatment behaviour measures | ✓ assessments<br>No details co-interventions | N/A | × (25%) | No details | N/A (no statistical analyses for relevant outcome) | 3<br>Poor |

*continued*

***TABLE 6*** *Quality assessment (cont'd)*

| Study | Selection bias | | | Performance bias | Detection bias | Attrition bias | | Analysis | Overall quality |
|---|---|---|---|---|---|---|---|---|---|
| | **Adequate method of randomisation** | **Adequate method of concealment** | **Comparability of groups[a]** | **Comparable treatment of groups[b]** | **Blinding of outcome assessment** | **Loss to follow–up <20%[c]** | **ITT analysis or sensitivity analysis[d]** | **Statistical analysis appropriated** | **Number of threats to validity/ overall quality** |
| Sanders *et al.*, 2004, Australia[57] | No details | No details | ✓ | ✓ assessments<br>No-details co-interventions | ✓ | × (24.5%) | No details | ✓ | 3<br>Poor |
| Sanders *et al.*, 2000, Australia[62] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | N/A | No details | No details | ✓ | 3<br>Poor |
| Sheeber and Johnson, 1994, USA[72] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | N/A | ✓/× (4.9–24.4%) | No details | ✓ | 3<br>Poor |
| Siegert and Yates, 1980, USA[85] | No details | No details | ✓ demographics<br>No details pretreatment behaviour measures | ✓ assessments<br>No details co-interventions | N/A | ✓ (6.7–16.7%) | × | ✓ | 3<br>Poor |
| Spaccarelli *et al.*, 1992, USA[86] | No details | No details | No details | ✓ assessments<br>No details co-interventions | N/A | × (58%) | No details | ✓ | 3<br>Poor |
| Strayhorn and Weidman, 1991, USA[78] | Unclear | No details | No details | No details | ✓ | × (20%) | ✓ | ✓ | 3<br>Poor |
| Tassé *et al.*, 2001, Canada[74] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | N/A | ✓ (11%) | ✓ | × | 3<br>Poor |
| Turner and Sanders, 2004, Australia[58] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | ✓ | ✓ (16.7%) | No details | ✓ | 3<br>Poor |
| Webster-Stratton, 1994, USA[79] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | ✓ | ✓ (8.2–9.4%) | No details | ✓ | 3<br>Poor |

*continued*

***TABLE 6*** *Quality assessment (cont'd)*

| Study | Selection bias | | | Performance bias | Detection bias | Attrition bias | | Analysis | Overall quality |
|---|---|---|---|---|---|---|---|---|---|
| | **Adequate method of randomisation** | **Adequate method of concealment** | **Comparability of groups[a]** | **Comparable treatment of groups[b]** | **Blinding of outcome assessment** | **Loss to follow–up <20%[c]** | **ITT analysis or sensitivity analysis[d]** | **Statistical analysis appropriated** | **Number of threats to validity/ overall quality** |
| Webster-Stratton, 1992, USA[75] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | ✓ | ✓ (4%) | No details | ✓ | 3<br>Poor |
| Webster-Stratton, 1990, USA[87] | No details | No details | ✓ demographics<br>Unclear for pretreatment behaviour measures | ✓ assessments<br>No details co-interventions | ✓ | ✓ (8.5%) | No details | ✓ | 3<br>Poor |
| Webster-Stratton, *et al.*, 1988, USA[88] | Unclear | ✓ | ✓ | ✓ assessments<br>No details co-interventions | ✓ | ✓ (3.6–14.3%) | No details | ✓ | 3<br>Poor |
| Webster-Stratton, 1984, USA[92] | No details | ✓ | ✓ demographics<br>× baseline outcome measures (adjustment made in analysis) | ✓ assessments<br>No details co-interventions | ✓ | ✓ (6%) | × | ✓ | 3<br>Poor |
| Wells and Egan, 1988, USA[80] | No details | No details | No details demographics<br>✓ pretreatment measures | ✓ assessments<br>No details co-interventions | ✓ | × (20.8%) | No details | ✓ | 3<br>Poor |
| Long *et al.*, 1993, USA[71] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | N/A | ✓/× (15.6–31.2%) | ✓ | Adequate | 3.5<br>Poor–very poor |
| Taylor *et al.*, 1998, Canada[90] | No details | No details | ✓ | ✓ assessments<br>No details co-interventions | N/A | ✓/× (9.1–27.3%) | ✓/× depending on part of analysis | Adequate | 3.5<br>Poor–very poor |
| Adesso and Lipson, 1981, USA[81] | No details | No details | × demographics<br>✓ pretreatment measures | ✓ assessments<br>No details co-interventions | × | No details | No details | ✓ | 4<br>Very poor |

*continued*

***TABLE 6*** *Quality assessment (cont'd)*

| Study | Selection bias | | | Performance bias | Detection bias | Attrition bias | | Analysis | Overall quality |
|---|---|---|---|---|---|---|---|---|---|
| | **Adequate method of randomisation** | **Adequate method of concealment** | **Comparability of groups[a]** | **Comparable treatment of groups[b]** | **Blinding of outcome assessment** | **Loss to follow–up <20%[c]** | **ITT analysis or sensitivity analysis[d]** | **Statistical analysis appropriated** | **Number of threats to validity/ overall quality** |
| Karoly and Rosenthal, 1977, USA[50] | No details | No details | No details | ✓ assessments<br>No details co-interventions | ✓ | No details | No details | × | 4<br>Very poor |
| Sutton, 1995, UK[73] | No details | No details | No details | ✓ assessments<br>No details co-interventions | N/A | ✓ (0%) | × | × | 4<br>Very poor |

✓, Criterion met; ×, Criterion not met; NA, not applicable
[a] Baseline demographics and pretreatment behaviour measures.
[b] Other than intervention; number and type of assessments and co-interventions.
[c] At first reported outcome assessment.
[d] ITT: were all available data used regardless of attendance at programme?; sensitivity analysis: was a sensitivity analysis performed for missing data?
[e] Unlikely to compromise validity of results.

assessed through sensitivity analysis (e.g. imputing a range of data for best- and worst-case scenarios). Only one study (Irvine *et al.*, 1999[68]) attempted to account for attrition in this way.

Twenty studies[50,55,57,62–64,67–72,77,78,80–82,84,86,90] had a loss to follow-up of ≥ 20% (for at least some of the outcomes assessed) or provided no details on any losses.

**Statistical analyses**

The majority of studies ($n$ =30) performed appropriate statistical analyses, or where the analyses were not appropriate ($n$ =3[66,71,90]) this was deemed not to have a major effect on the results. Three studies[50,73,74] clearly used inappropriate methods (see Appendix 8 for details). One study[77] did not perform a statistical analysis on the results.

**Overall quality**

Overall, six studies[56,59,63,65,89,91] were assessed as having good or adequate quality. The remaining studies were of poor or very poor quality. It is important to state that even the better quality studies had few details on methods of randomisation and concealment, and that inadequate randomisation/concealment could have the potential to compromise the overall study quality regardless of how well the study was subsequently conducted. Given the overall lack of detail in this area, ratings of study quality should be treated very cautiously and be seen as an estimate of quality rather than a definitive rating. It is also important to note that poor reporting is not necessarily a reflection of poor methodological quality, and that we have taken a very conservative approach by rating a quality criterion as not met where there was a lack of information. Finally, assessment of quality is invariably subject to some interpretation. We have attempted to minimise this by having the quality of 50% of the studies independently assessed by a second reviewer, with disagreements resolved with a third reviewer.

#### *Results*

Tables with the direction of effect for all child behaviour-related outcomes reported in the 37 studies can be found in Appendix 9. The studies were split according to whether parent training/education programmes were compared with a control (30 studies) or whether a parent training/education programme was compared with a different parent programme or another active comparator (e.g. child training) (21 studies); 14 studies appear in both tables. Where additional outcome assessments (after the first post-treatment assessment) were performed, this has been highlighted.

## Assessment of effectiveness – parent training/education versus control

#### *Vote counting*

Of the 30 studies that compared parent training/education programmes with a control, six had a statistically significant result in favour of parent training/education programmes for all child behaviour outcome measures, 17 studies had a mix of positive and neutral (non-statistically significant difference) results and four studies had only neutral results. No studies found any statistically significant effects favouring control over parent training/education programmes. Three studies[50,74,83] did not report clear statistical comparisons.

*Table 7* shows the number of statistically significant positive results and neutral results for all outcome measures (counted individually; the detailed method of how outcomes were counted can be found in Appendix 10). A sensitivity analysis was performed according to type of programme, study size, quality, diagnostic criteria, children's age (all ≤ 12 or at least some >12) and type of assessment (independent observations). The number of studies and outcome measures on which each estimate is based is listed.

Overall, there is a clear trend towards effectiveness. Although studies are heterogeneous in terms of population, content of programme, length, setting, outcomes used and so on, the effect appears consistent. An attempt has been made to examine some of the factors that might be influencing the extent of effectiveness. Many studies have small sample sizes and therefore contribute largely to neutral results when only statistical significance is considered (in a vote-counting approach). Where larger studies were examined separately, there is a trend towards a larger number of outcomes showing statistical significance.

An examination of type of programme revealed that studies involving individual programmes show the fewest statistically significant results. This result is, however, based on only four studies (two of which used telephone contact only rather than face-to-face contact).

It is possible that the effectiveness of a parenting programme depends on the severity of the

***TABLE 7*** *Vote-counting parent training/education versus control for all child behaviour outcomes*

| | Positive (number of outcomes) | Neutral (number of outcomes) | Number of studies (number of outcomes) |
|---|---|---|---|
| **All studies** | (64) 53% | (57) 47% | 27[a][81,55,56,58,59,62,63,65–73,75,82,84–92] (121) |
| **Programme type** | | | |
| Group-based programme | (33) 52% | (30) 48% | 17[55,56,63,66–68,70,72,81,84–86,88–92] (63) |
| Individual (one-to-one) | (3) 25% | (9) 75% | 4[58,65,73,85] (12) |
| Self-administered | (21) 58% | (15) 42% | 8[59,62,69,71,75,82,87,88] (36) |
| **Sample size** | | | |
| Studies with >50 participants per group | (4) 80% | (1) 20% | 2[59,68] (5) |
| Studies with >40 participants per group | (11) 65% | (6) 35% | 4[59,68,75,86] (17) |
| Studies with >20 participants per group | (36) 62% | (22) 38% | 11[55,56,59,62,68,72,75,86,88,89,91] (58) |
| Studies with ≤ 20 participants per group | (28) 44% | (35) 56% | 16[58,63,65–67,69–71,73,81,82,84,85,87,90,92] (63) |
| **Diagnostic criteria used** | | | |
| DSM criteria (for all participants) | (6) 75% | (2) 25% | 2[56,91] (8) |
| DSM criteria (for all or a proportion of participants) | (8) 36% | (14) 64% | 5[55,56,65,89,91] (22) |
| DSM criteria (for a proportion of participants) | (2) 14% | (12) 86% | 3[55,65,89] (14) |
| DSM criteria (for all or a proportion of participants) or cut-off on inventory | (35) 58% | (25) 42% | 21[55,56,58,59,62,63,65,67–69,71–73,75,82,86–92] (60) |
| Cut-off on inventory only | (23) 62% | (14) 38% | 16[58,59,62,63,67–69,71–73,75,82,86–88,90] (37) |
| Description only of disorder (no formal classification) | (10) 59% | (7) 41% | 6[66,70,81,84,85,92] (17) |
| **Quality** | | | |
| Quality score of 1 or 2 (good or adequate) | (4) 42% | (2) 58% | 6[56,59,63,65,89,91] (26) |
| **Outcomes assessed** | | | |
| Independent observations only | (13) 38% | (21) 62% | 15[56,58,59,63,66,67,71,75,81,87–92] (34) |
| Age | | | |
| All included children aged ≤ 12 | (23) 62% | (14) 38% | 19[55,58,59,62,63,66,67,70–73,75,81,82,84,87–90] (37) |
| At least some of the included children aged >12 | (4) 57% | (3) 43% | 3[68,69,85] (7) |

[a] Where a statistical analysis had been performed and where the results were clear (27/30 studies).

disorder. We found different proportions of statistically significant results depending on whether more or less formal diagnostic criteria were used, although there was no apparent trend. Given the small number of studies that used DSM criteria, it is not clear if these findings are due to chance. Nevertheless, we found the same trend towards effectiveness for studies using DSM criteria as for studies overall. No statistically significant results favouring control over parent training/education programmes were found in any of the studies using DSM criteria for inclusion of (all or some of the) participants.

Both studies with children aged ≤ 12 and studies with at least some children aged >12 show similar trends towards effectiveness, although there were only three studies that included children age >12.

Studies with a good or adequate quality score [see the section 'Quantity and quality of research available' (p. 18) for quality assessment] appeared to show slightly fewer statistically significant results, as did studies where independent observations were used. Independent observations, by either outcome assessors or teachers, may be more objective than parent reports.

It should be noted that these observations are based on small sample sizes. Furthermore, studies that measured more outcomes (or investigated more than one parent programme versus control) will be given greater weight than studies that

measured only one outcome, because all outcomes have been counted individually.

**Longer term effects: parent training/education versus control**

Four studies[66,69,72,84] that performed an additional follow-up assessment on the same outcomes (following post-treatment assessment) found that treatment effects (statistically significant or not) were maintained. These longer term follow-up times were fairly short (2–4 months).

***Meta-analysis***

Meta-analyses were undertaken using the CBCL, the ECBI and DPICS, because these were the most consistently reported outcomes identified across trials. The data were combined by pooling the post-intervention scores and comparing the outcome across groups. It was not possible to use data based on the ideal analytical approach [analysis of covariance (ANCOVA) adjusting for baseline score] as few studies provided sufficient detail even where ANCOVA had been used for the analysis. Where studies included more than one eligible parent training/education intervention arm (e.g. self-administered parent training versus group parent training versus control), outcomes of the parent training/education arms were pooled in order to obtain a single comparison (parent training/education versus no parent training/education) for that trial. Where studies provided parent reported outcomes from both mothers and fathers, analyses were limited to maternal reports. ITT results were used where available; Gross *et al.*, 1995[67] reported early drop-outs from the intervention group separately; these data were combined with the intervention group to provide an ITT estimate for this trial. All pooling was undertaken using a conservative random effects model. Results are given in *Figures 2–5*.

These results show a consistent trend across studies for an improvement in CBCL and ECBI scores for parent training/education compared with control, with some heterogeneity across studies. Pooling across studies revealed a statistically significant improvement in both ECBI frequency and intensity subcategories, the CBCL and the DPICS measures.

## Assessment of effectiveness – parent training/education versus active comparator

***Vote counting***

In 10 studies,[56,57,64,76,81,84–86,89,92] there was no statistically significant difference in effectiveness (for any outcome) between the interventions compared; in nine studies,[59,78–80,82,87,88,90,91] some interventions were found to be statistically significantly more effective. In two studies,[77,83] no formal statistical analyses were performed.

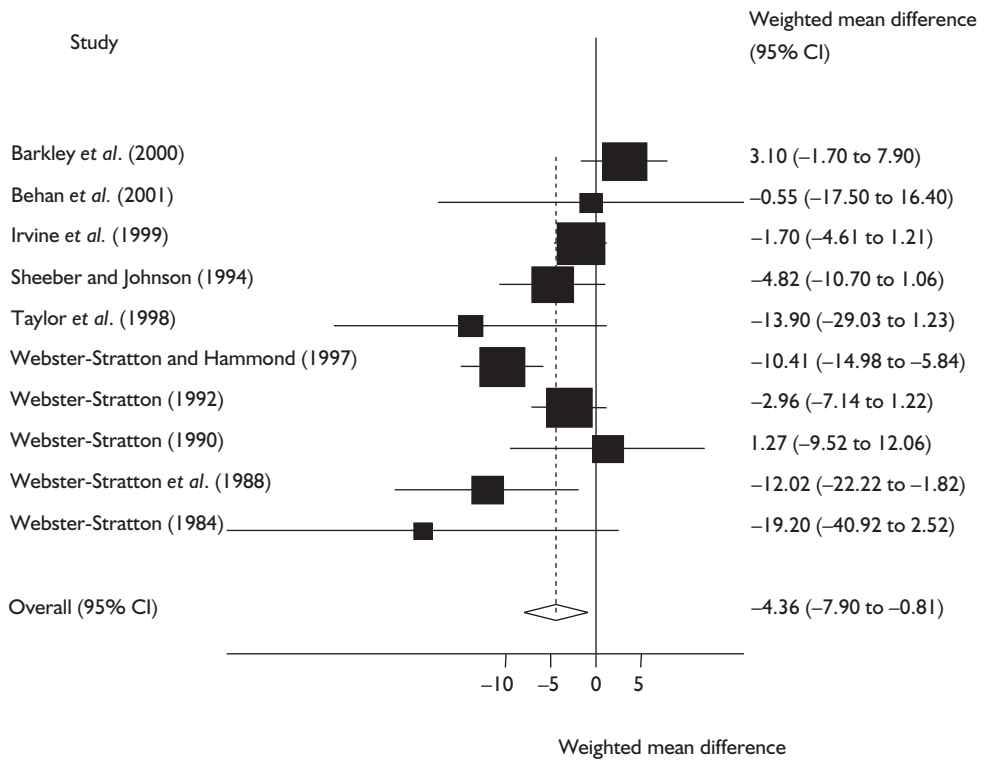
Various interventions were compared in the 10 studies that found no difference, pre- to post-treatment, between any comparators (*Table 8*).

A significantly different effect was found between the interventions as indicated in *Table 9*.

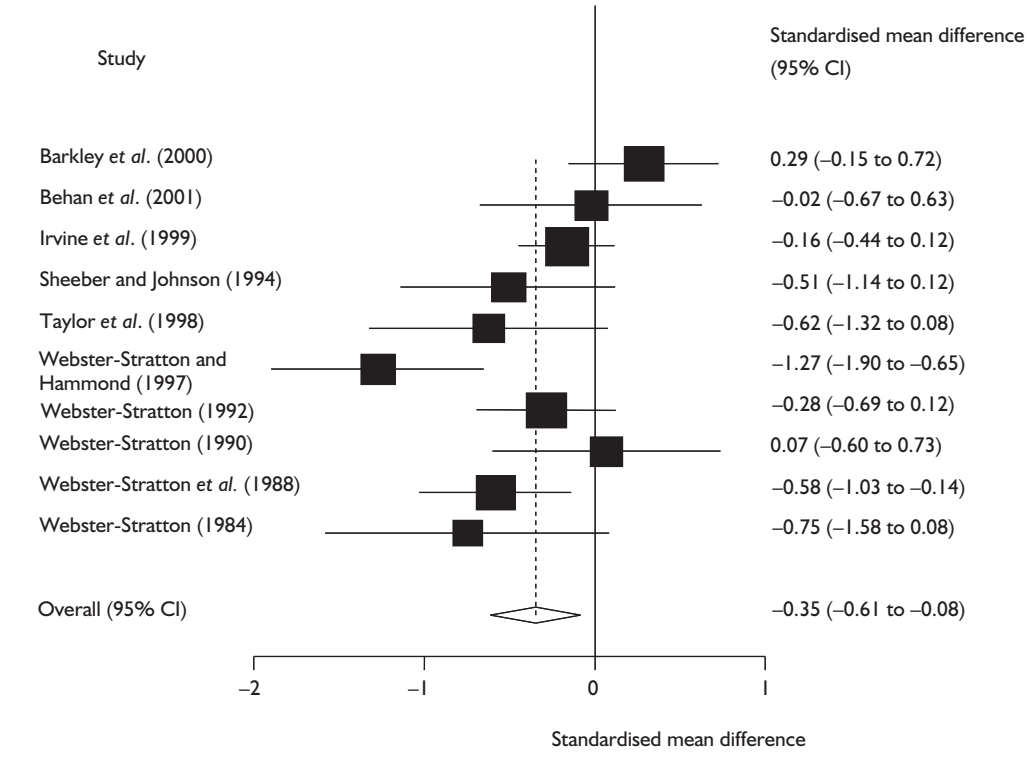
Overall, statistically significant differences between different active interventions were found for only 16% of outcomes, and this was frequently only for certain subscales of an outcome measure. Even for studies that did find that one intervention was significantly better than another, this was not consistent across different outcome measures or on different subscales of the same outcome measure. Given the large numbers of outcomes (with subscales) measured, some significant differences would be expected by chance.

In the studies that found no statistically significant differences at all, many of the parent training/education programmes were similar in their intensity and focus. It is likely that small differences in content or approach do not have much of an effect (the majority of studies use a behavioural approach). In contrast, some of the interventions compared are clearly different (e.g. parent training/education programmes versus child and teacher training). It may be the case that the studies were too small to show a difference in effect, or that different treatments are simply similar in their effectiveness.

Where studies did find significant differences (see *Table 9*), there was a trend for the more intensive interventions (in terms of contact hours and/or in additional treatment) to be more effective, although this was not consistent. All studies had populations where only children aged 12 or younger were included. Treatments with an additional child component also showed a trend towards being more effective. Self-administered programmes (with no additional treatments) appeared to be slightly less effective than those that included group or individual contacts. This trend is consistent for studies including populations with a DSM diagnosis only[79,80,91] or a DSM diagnosis for part of the population.[78] Given the overall heterogeneity between studies and the small sample sizes, it is difficult, however, to draw firm conclusions and the identified trends should be interpreted with caution.



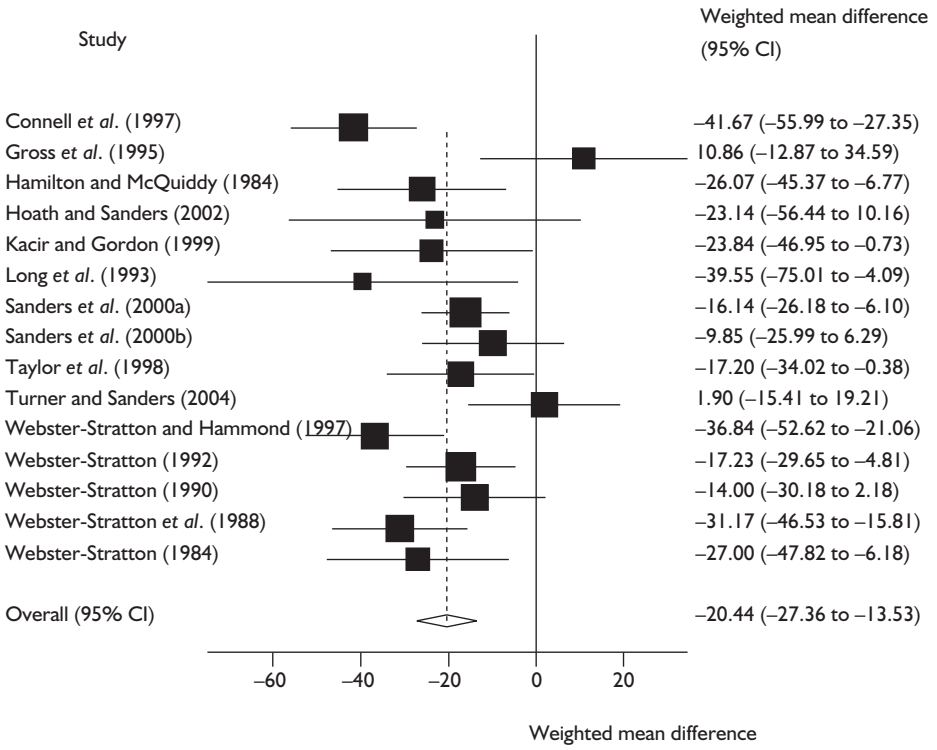

Test for heterogeneity: $\chi^2$ result 25.13 (df 9), $p = 0.003$



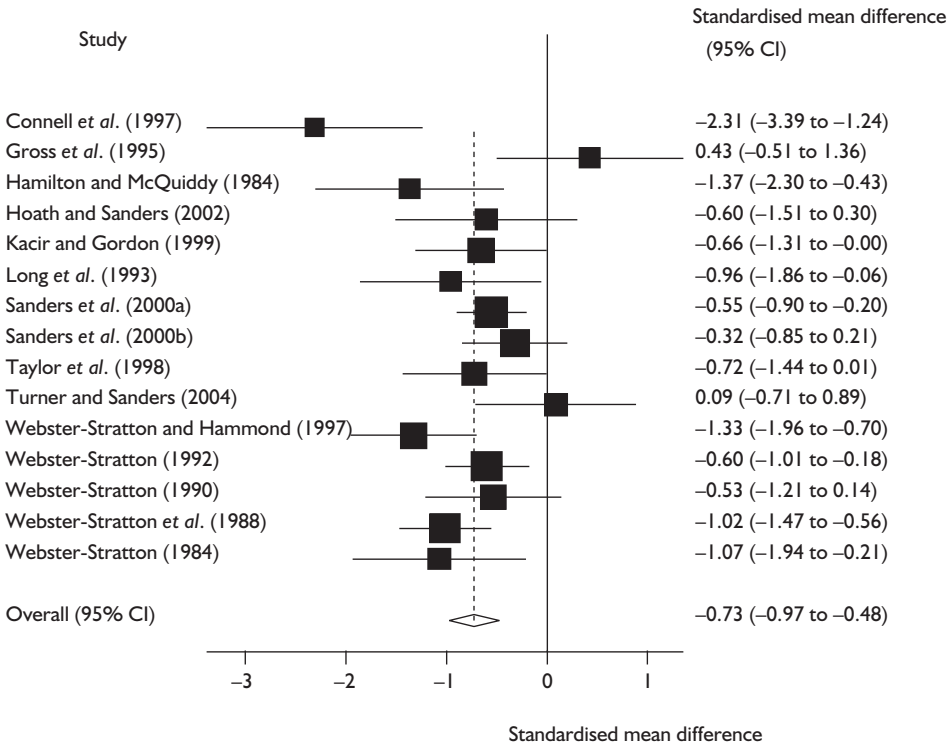

Test for heterogeneity: $\chi^2$ result 22.83 (df 9), $p = 0.007$



***FIGURE 2*** *CBCL: intervention vs control*

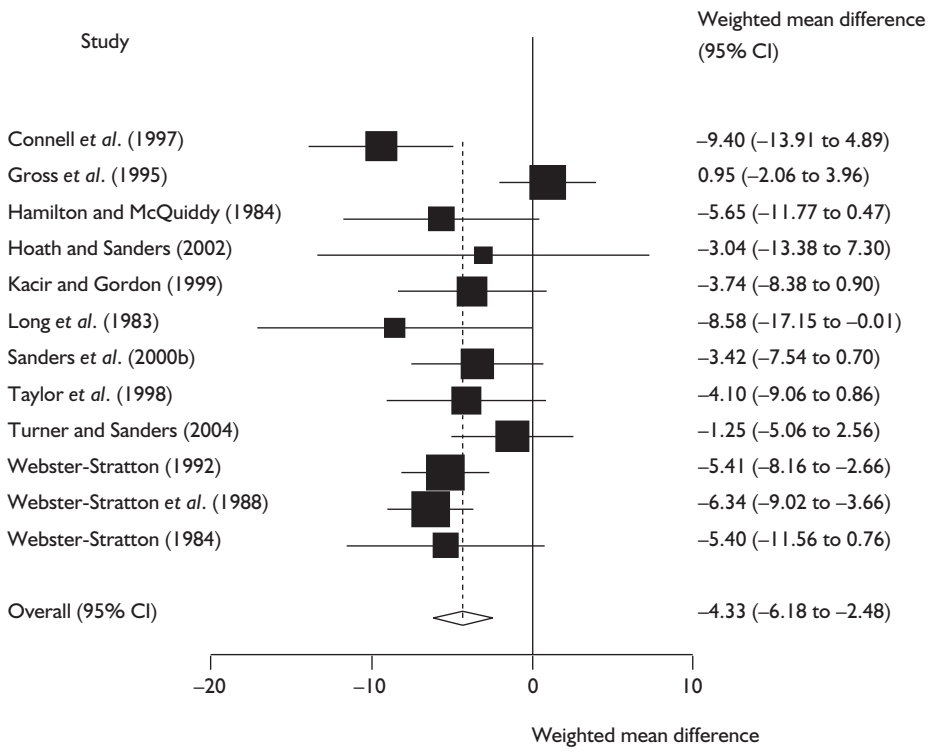



Test for heterogeneity: $\chi^2$ result 32.85 (df 14), $p = 0.003$

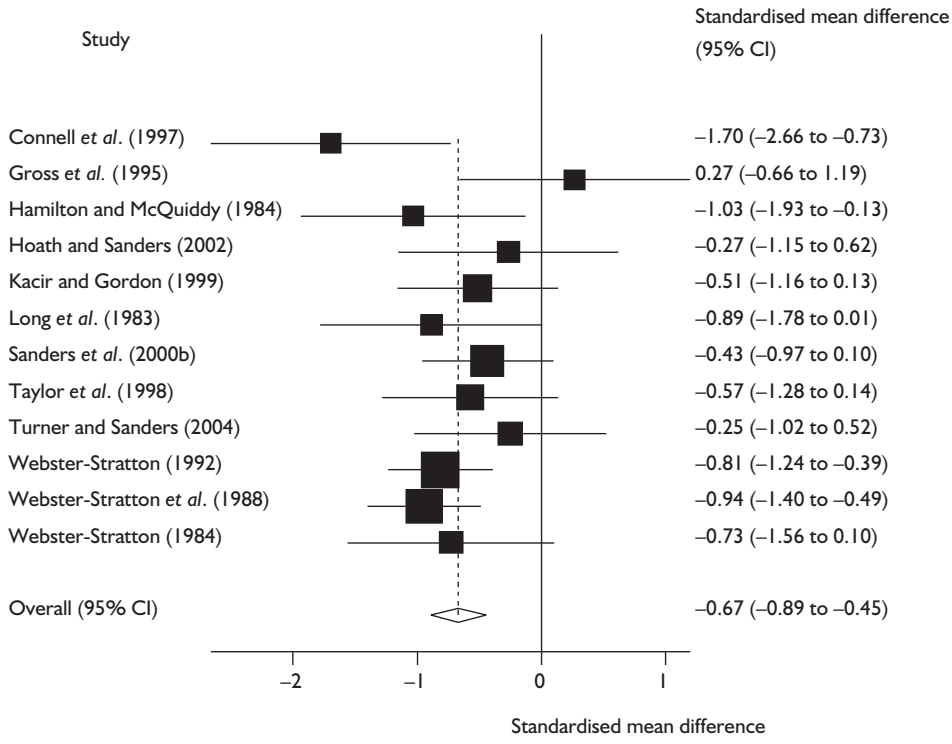



Test for heterogeneity: $\chi^2$ result 29.75 (df 14), $p = 0.008$

***FIGURE 3*** *ECBI intensity: intervention vs control*



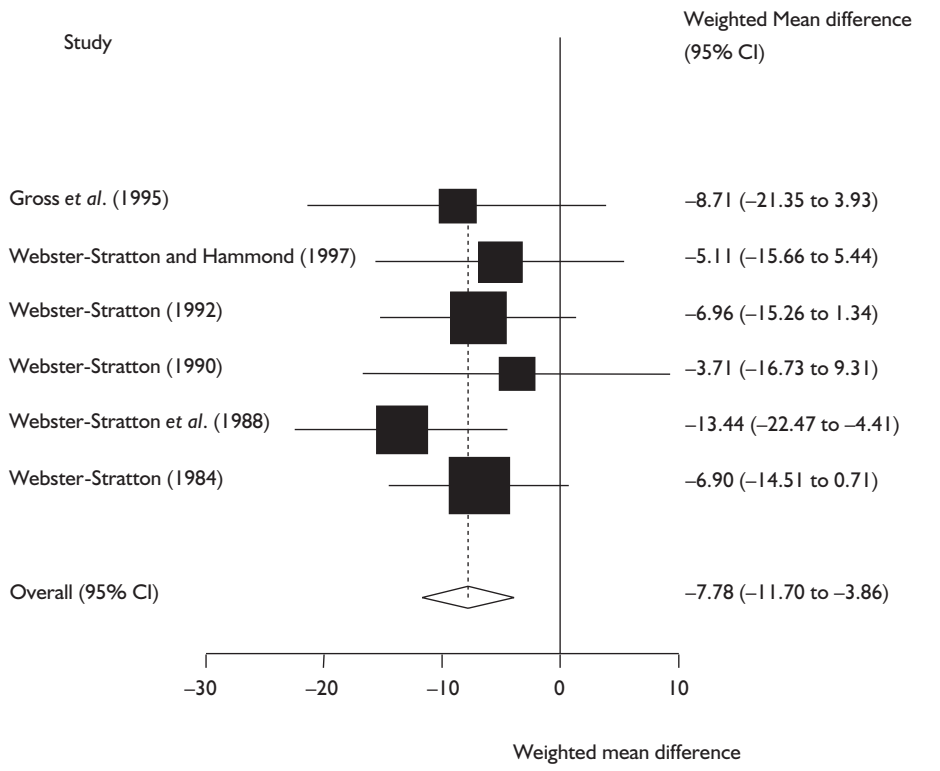

Test for heterogeneity: $\chi^2$ result 23.4 (df 11), $p = 0.016$



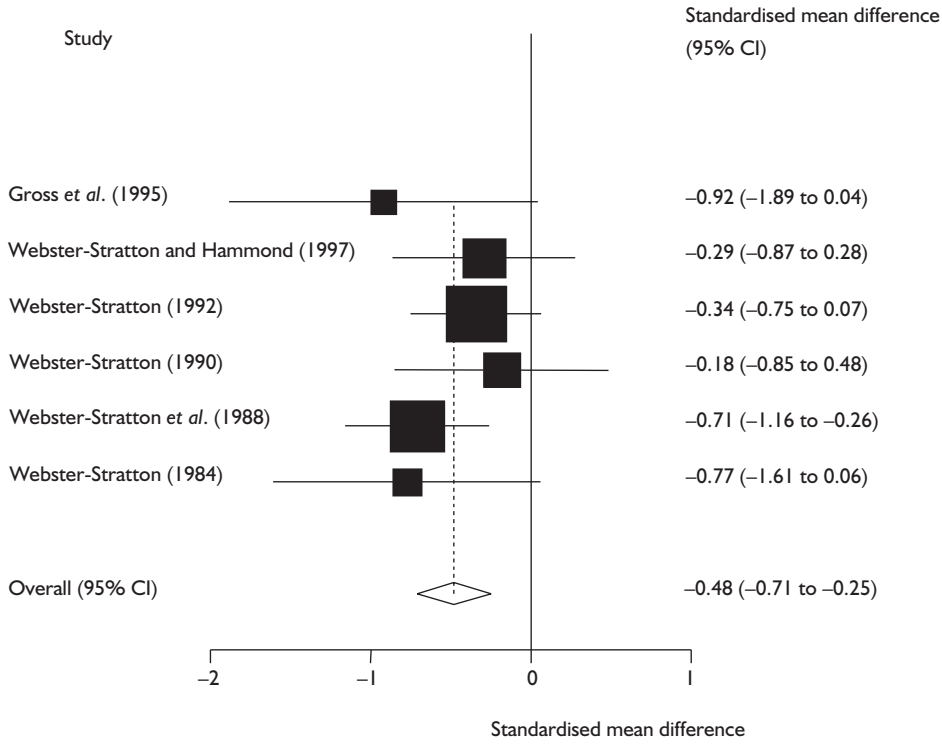

Test for heterogeneity: $\chi^2$ result 13.9 (df 11), $p = 0.239$



***FIGURE 4*** *ECBI frequency: intervention vs control*




Test for heterogeneity: $\chi^2$ result 2.24 (df 5), $p = 0.815$




Test for heterogeneity: $\chi^2$ result 3.88 (df 5), $p = 0.566$

***FIGURE 5*** *DPICS: intervention vs control*

***TABLE 8*** *Comparison of active treatments (where no difference found)*

| | |
|---|---|
| Mother parent training/education[81] | Father or couples parent training/education; same number of contact hours |
| Parent training/education[89] | Parent training/education plus special treatment classroom (delivered by teacher and aide to children) |
| Parent training/education (8 hours)[64] | Parent training/education (11 hours; additional group partner support sessions) |
| Parent training/education (role play focus)[76] | Parent training/education (discussion focus); same number of contact hours |
| Parent training/education (behavioural focus)[84] | Parent training/education (problem solving focus); same number of contact hours |
| Parent training/education (individual in home)[85] | Parent training/education (individual in office) or parent training/education (group in office); similar number of contact hours (2.5 more for group) (NB: formal statistical comparison for Issues Checklist only) |
| Parent training/education (group plus problem solving skills)[86] | Parent training/education (group plus therapist discussion); same number of contact hours |
| Parent training/education (group)[56] | Parent training/education and teacher training, or<br>• child training or:<br>• child training and teacher training, or<br>• parent training/education and child training and teacher training; programmes with more than one component are more intensive in terms of contact hours |
| Parent training/education (group)[92] | Individual parent and child sessions; same number of contact hours |
| Parent training/education (group), standard format[57] | Parent training/education (group), enhanced format (8 additional hours) |

**Longer term effects: parent training/education versus active comparator**

Overall treatment effects were maintained at longer term follow-up (2 months to 3 years) and there were little or no between-group differences in effectiveness. One study[59] noted some further significant decreases in problem behaviour from post-treatment to 1 year, and one study[56] noted deterioration in school behaviour from post-treatment to 1 year. As comparisons with control groups are not undertaken, it is difficult to assess how much of this maintenance is a result of the initial treatment or of other factors.

***Meta-analysis***

Given the heterogeneity in the parent training/education programmes and other active comparators, it was considered inappropriate to undertake a meta-analysis directly comparing these approaches.

## Summary of effectiveness

There was a clear trend towards effectiveness of parent training/education programmes compared with control. Based on a vote-counting approach, 53% of all outcomes assessed (in 27 studies) showed a statistically significant improvement in child behaviour. The remaining outcomes (47%) were neutral. This trend was consistent regardless of diagnostic criteria used (DSM or other), age of children or type of programme. Variations in the proportion of statistically significant results according to different study characteristics may be due to differences in effectiveness or due to chance (particularly where only a small number of studies contributed to the result). No study reported a statistically significant outcome favouring control over parent training/education programmes.

This pattern was confirmed by the meta-analyses of a small number of outcomes based on widely used and validated instruments (ECBI, CBCL, DPICS). Pooled estimates showed a significant improvement in the ECBI frequency and intensity scales, the CBCL and on the DPICS (child deviance). There were few statistically significant differences between different parent training/education programmes and/or other active interventions, although there was a trend for more intensive programmes (i.e. increased number of contact hours or a child component in addition to the parent component) to report more statistically significant outcomes.

***TABLE 9*** *Comparison of active treatments (where differences found)*

| **Intervention 1 statistically significantly better than** | **Intervention 2** | **For these outcomes** |
|---|---|---|
| *Parent training/education versus alternative parent training/education programme* | | |
| Parent training/education plus signal seat[82] | Parent training/education with seat (without signal attachment); same number of contact hours | 2/3 outcomes<br>ECBI intensity score<br>Compliance rates |
| Self-administered parent training/ education with additional therapist contact[87] | Self-administered parent training/ education | 1 subscale (4 outcomes in total)<br>Less deviant behaviour (DPICS) |
| Self-administered parent training/ education plus group discussion[88] | Self-administered parent training/ education | 1 sub-scale (5 outcomes total)<br>ECBI intensity |
| Self-administered parent training/ education plus group discussion[88] | Parent training/education group discussion (similar number of contact hours) | 2 sub-scales (5 outcomes total)<br>ECBI intensity<br>Target negative behaviour (DPICS) |
| *Parent training/education versus an alternative treatment* | | |
| Parent training/education (with child involvement)[59] | Parent training/education self-administered | 1/3 outcomes<br>PDR |
| Individual parent and child training[78] | Self-administered videotapes | 2 subscales (1 of two outcome measures) BPQ (teacher composite and teacher hyperactive subscales)) |
| Parent training/education (group)[90] | Eclectic treatment | 1 subscale (1 of 5 outcome measures)<br>ECBI intensity score |
| Parent training/education group[91] | Child training (similar number of contact hours) | 1 subscale (6 measures in total)<br>Ratio of child positive conflict management to negative |
| Child training[91] | Parent training/education group (similar number of contact hours) | 1 subscale (6 measures in total)<br>ECBI (frequency scale) |
| Child and parent training/education[91] | Parent training/education (fewer contact hours compared with combined treatment) | 1 subscale (6 measures in total)<br>Number of positive solutions (peer problem solving) |
| Child and parent training/education[79] | Parent training/education (fewer contact hours compared with combined treatment) | 1 subscale (4 measures in total)<br>Pro-social solutions proposed by children (SPST-R) |
| Individual parent training/education[80] | Systems family therapy | One outcome only measured<br>Level of compliance to good and total commands |

# Chapter 5
# Economic analysis

The chapter is organised into the following sections: (1) an overview of previous economic/cost evaluations of parent training/education programmes; (2) a review of the economic information within sponsor's submissions; (3) a detailed exploration of costs of parent training/education programmes; (4) a *de novo* modelling assessment of the cost effectiveness of parent training/education programmes; and (5) the potential budget impact to the NHS/Personal Social Services (PSS) in England and Wales if parent training/education programmes were to be implemented.

## Review of previous economic/cost evaluations of parent training/education programmes

### Search strategy

A comprehensive search for literature on the quality of life (QoL) in children with CD and their families and the costs and cost-effectiveness of parent training/education programmes was conducted. The following bibliographic databases were searched: Cochrane Library (NHS EED and DARE) Issue 3,2003, MEDLINE (Ovid) 1966–August week 4,2003 and EMBASE (Ovid) 1980–week 38, 2003. The September 2003 issue of the Office of Health Economics Evaluations Database was also searched. The search strategies used are given in Appendix 4. Internet sites of national economic units were also interrogated. A total of 690 papers were identified. Of these, 53 were regarded as potentially relevant. Two papers were classified as economic evaluations (i.e. assessed both costs and outcomes) of parent training/education programmes: Cunningham *et al*. (1995)[29] and Siegert and Yates (1980).[85] In addition to the summaries of these two studies presented below, further details can be found in Appendix 11.

Of the 51 remaining papers, 10 were cost papers, 10 discussion papers, one a QoL paper and 30 were regarded as non-relevant. The following section contains a summary of the above two cost-effectiveness studies and the five papers that provide estimates of resources/costs of parent training/education programmes from a UK perspective.

### Overview of included studies

#### *Cunningham* et al. *(1995)*[29]

This Canadian study compared a large group community-based parent training/education programme with a clinic-based individual parent training/education programme. The study was cluster block-randomised and involved 150 participants [community-based ($n$ = 48), clinic-based ($n$ = 46), control ($n$ = 56)].

Both the group community-based and individual clinic-based programmes were comprised of 11–12 weekly sessions. The programmes are based on a coping modelling problem-solving approach in which participants formulated solutions by observing videotapes depicting common child strategies, leaders modelled the solutions suggested by the parents, parents role played and new homework goals were set. To accommodate working parents, the sessions were offered at any time of day and evening.

Outcomes were measured using the Child Behaviour Checklist and Home Situations Questionnaire. The enrolment rate (percentage of parents agreeing to participate), adherence (percentage of scheduled sessions adhered to) and parent–child interactions were also observed for each type of programme. Results showed that the community-based programmes produced a greater improvement in behaviour scores than the clinic-based programme, and enhanced utilisation among 'English as Second Language' families, immigrant families and those with serious child management problems. Adherence rates did not differ between the two programmes.

Costs were classified into programme costs (that included initial set-up costs, cost per session and costs for 12 sessions of clinic-based and community-based programme costs), costs incurred by participants and secondary costs. A detailed breakdown of costs is provided. Owing to travel time, mileage costs, space requirements, additional set-up time and longer sessions, it was found that a community-based group programme cost approximately three times more than a clinic-based individual programme. Despite this, having 18 families within each group meant that community groups were more than six times more

cost-effective per family than clinic-based individual programmes. The travel costs incurred by participants were significantly higher for clinic-based participants. Secondary costs did not differ significantly between the two programmes.

The study estimates that for the 150 families participating in the study (assuming 100% uptake), the direct costs would be US$120,412.50 for the clinic-based programme and US$18,678.28 for the community-based programme.

This study provides a useful description of the cost and outcome differences between an individual clinic-based and a community-based programme. Nevertheless, it is unclear exactly how the unit costs attached to the resources were derived. In addition, cost to the participants included charges for the service. The study was conducted in Canada and enrolment and adherence rates may therefore differ from those in the UK.

***Siegert and Yates (1980)[85]***

This paper reports the cost-effectiveness of three different delivery systems. Using random assignment, 30 self-referred parents were allocated to either individual 'in-office' ($n$ = 7), individual 'in-home' ($n$ = 8), group 'in-office' ($n$ = 7) or control ($n$ = 8) delivery systems. Individual in-home and individual in-office groups met for 1 hour at each weekly session. Parents within the group session met for 1 hour and 30 minutes at each weekly session.

Outcomes were measured using target behaviour frequency reduction (from parent and therapist perspective), in which the mean percentage reduction in negative target behaviour for each delivery session was calculated. In comparison with control, all three delivery systems improved problem behaviour (mean 86% reduction). There was, however, no difference in effectiveness between individual in-office, individual in-home and group in-office delivery systems. Non-participant observation to check the validity of parent observation was not implemented owing to resource constraints.

Detailed costs were recorded as operations costs (personnel, facilities, equipment, materials), opportunity costs (operations, volunteered personnel time) and comprehensive costs (client costing – treatment fees and time and travel). It was found that when a narrow perspective was adopted based on operation costs alone, group delivery was the least costly. When this perspective was broadened to include the opportunity and client costs, the individual in-home delivery was favoured. Overall, this paper provides useful information on the costs of parent training/education programmes disaggregated by type of delivery. This study was conducted in the USA and the findings may not therefore be applicable to the UK.

***Beecham and Topan (1997[95])***

This UK study briefly describes the service utilisation of children with preschool CD. No control or comparison group was used.

Data are available for 195 children and the mean cost of a treatment service is estimated to be £14.40 (for all service types). No detail is provided as to the source of these costs or how they were calculated.

Outcome data using the clinicians' ratings of the children's responses to treatment are provided, but it is not clear exactly how this was done. In addition, the cost–outcome comparisons have not been adjusted for severity of illness or other characteristics at the beginning of treatment.

The cost and outcome data are presented in an aggregate form, which provides little information on the economics of treating children with CD.

***Knapp* et al. *(2002)[96]***

Service use and other cost-related data are provided for a sample of adults who were treated as children for co-morbid CD. Forty-nine adults were asked to recall service utilisation since 17 years of age, and costs are presented as annual figures. Service use data are assigned unit costs obtained from a standard national source.[97]

Costs are grouped according to type of service use: hospital inpatient, hospital outpatient, psychiatric hospital inpatient, psychiatric hospital outpatient, criminal justice services, and so on. The distribution of annualised service costs is skewed with a median of £326 and a range of £5–7532. Details on the calculation of annual service costs are described in the study. Costs associated with crimes committed are also found to have a wide variation: 61% of the sample had no crime costs, and the maximum and mean annualised crime costs were £2208 and £232, respectively.

This UK study reports costs of treatment of CD in a form that can be useful for modelling purposes. However, the sample size upon which these costs are calculated is small ($n$ = 49). Furthermore, given the retrospective basis of this study, its estimates are likely to be prone to recall bias.

### *Knapp* et al. *(1999)*[98]

The costs of CD over 12 months are presented for a small pilot sample of 10 children (4–10 years). Mothers of the children were interviewed and asked to recall service utilisation.

Costs are provided for activities and services used by the children over and above 'normal' utilisation. The costs are categorised into those that fall on the NHS, local authority social services, local authority education and the voluntary sector. Costs for lost employment, housework burden, extra repairs and child allowances/benefits are also included. The full costs (including direct costs and indirect costs borne by families) per family averaged £13,109 (excluding child allowances/benefits) and £15,370 (including child allowances/benefits). While it is clear how the costs for this study were estimated and the sources of information are well described, the sample size is nevertheless small ($n$= 10).

### *Scott* et al. *(2001)*[24]

This study describes the costs used over and above basic service provision for a sample of children with CD aged 10 and followed up to the age of 28. Costs are calculated for six domains: foster and residential care in childhood, special educational provision, state benefits received in adulthood, breakdown of relationship (domestic violence and divorce), and a limited range of health services and crime. Unit costs are obtained from national sources for health and social care services, criminal justice and benefit receipts.

Mean costs of services are presented for each domain for individuals aged from 10 to 28 years. The largest proportion of cost fell on the criminal justice service (annual cost = £2490 at 1998 prices). Healthcare costs were low (annual cost = £653 at 1998 prices) because only a small proportion of the children actually received mental health services. The paper considers only a small proportion of the costs that fall on the NHS as a result of CD; adult and child, child hospital in-patient costs and costs associated with abortion or miscarriage.

This study provides detailed long-term cost figures for the impact of CD on health and wider services. Nevertheless, the results are based on a relatively small number of children with CD who were recruited from a borough of London that is socially deprived, with high levels of antisocial behaviour, and therefore may not be generalisable.

### *Dimond and Hyde (1999*[30]*)*

This is a West Midlands Development and Evaluation Service (DES) report reviewing parent education programmes for children's behaviour problems. The report aims to assess the evidence for the effectiveness of parent training/education programmes focusing on medium- to long-term effectiveness, that is, >1-year post-intervention. Three studies are included in the report by Dimond and Hyde[30] [Cunningham *et al.* (1995),[29] Siegert and Yates (1980)[85] and Webster-Stratton (1989)[99]], but the costs from these studies are not used further in this report because these studies were not conducted in the UK.

Cost estimates of providing parent training/education programmes are provided from a UK perspective using local cost data. The report describes five ways in which parent education programmes may be provided: (1) statutory (government provided) centre-based; (2) statutory private centre-based; (3) non-statutory (provided by voluntary/charitable organisation) centre-based; (4) statutory home-based; and (5) non-statutory home-based. Models are based on a course of 10 sessions over 20 hours.

The report states that costs are estimated using independently assessed unit costs, but the reference is not cited. Travel costs for statutory staff (health visitors) are set at £1 for home visits, which is a conservative estimate. The training costs are extracted from local costings within the 'Handling Children's Behaviour' course run by health visitors in Shropshire. It is not clear how these training costs have been aggregated. Accommodation costs (i.e. cost of room utilisation within buildings) are also extracted from local costs in Shropshire, but again the actual source of costing is not clear.

This report presents costs for parenting training programmes within a UK setting using UK resources, and therefore presents an analysis that is potentially useful for estimating the cost of implementing parent training/education programmes in a UK setting from a NHS/PSS perspective.

## Summary

No systematic analyses of the financial impact of conduct disorder prior to the study published by Scott *et al.* (2001)[24] were identified. The nature of conduct disorder is such that it impacts on a wide range of services and agencies in addition to the healthcare sector. Only two economic analyses of parent training/education programmes for

children with CD were identified. Neither of these evaluations was conducted in a UK setting and included costing data from a Canadian and or US source. Dimond and Hyde[30] estimated the cost of providing parent training/education programmes using five different delivery models. Although these estimates provide useful UK-based data, more detail is required on the method and sources of costing. No other costing data exist for parent training/education programmes and, in particular, no other data on the different delivery systems.

## Review of sponsor submissions

Only two of the sponsor submissions included information relevant to the economics of parent training/education programmes for children with CD.

### Triple-P Positive Parenting Programme

This submission[100] is made by an academic group of Australian psychologists. Triple-P is a multilevel system of parenting support, tailored to the different needs and preferences of individual families. It incorporates five levels of intervention for parents of children from birth to 12 years. Delivery formats include standard practitioner-delivered individual interventions, group programmes, self-directed and telephone-assisted programmes. It is a family intervention system designed for the treatment and prevention of CD in children. The economic analysis within the submission evaluates the introduction of Triple-P on a population basis and estimates the additional resource costs as a prevention/early intervention programme. The evidence of effectiveness is based on five RCTs that appear to have been run by Triple-P founders.

The economic evaluation is focused primarily on cost, and suggests that given the population provision (i.e. providing the programme to the entire 2–12-year-old population), Triple-P would pay for itself owing to averting costly cases of CD. The cost of each case that might be averted is reported along with sensitivity analyses.

Costs include those of providing Triple-P. The costs of averted cases of CD are based on a single UK study (Scott, 2001)[24] (reviewed above) that followed up a group of 10-year-olds with CD to age 28. This showed that the bulk of the costs of CD fell on the criminal justice system.

The approach to cost–effectiveness is a cost-benefit analysis. The estimates produced from the submission have been excluded from the report for two reasons:

**1. Measurement of effect**
The estimate of effectiveness used in the cost–benefit analysis is based on an average effect size taken from two studies. The interventions used in these studies encompass levels 3–5 Triple P. Level 3 Triple P targets parents of children with mild to moderate behavioural problems, level 4 targets parents of children with severe behavioural problems and level 5 targets parents of children with severe behavioural problems and experiencing family dysfunction. However, two out of the four interventions considered in these studies included the child. The effectiveness estimate used in the cost–benefit analysis is therefore not based on the definition of parent training/education programmes used in this review.

**2. Levels of intervention**
The population considered for estimation of costs of providing the programme is the entire 2–12-year-old population receiving various combinations of levels 1–5 and is not restricted to intervention in those children with CD, ODD or other more or less severe behavioural problem as stated in the review protocol. Although it would be possible from the submission to disaggregate the costs of providing levels 3–5 from the costs of providing 1–5, these costs include costs associated with the involvement of children in the intervention.

### Mellow Parenting

The following is based on data obtained from two reports (Mellow Parenting submission;[101] Hallam *et al.*, 2003 Mellow Parenting[102]).

Mellow Parenting is described as an intensive 4-month package during which parents attend a whole day every week (18 weeks).[103] As described in the submission documents, Mellow Parenting is a structured 14-week intervention that is targeted at families with children under 5. The child and parent attend for a full day each week and the parents attend a training group while the children attend a children's group in the morning. Parents, children and staff then take lunch together and undertake activities designed to promote parent–child interaction. In the afternoon, the children return to their group and the parents take part in a parenting workshop.

As the submission report states that children are involved, the Mellow Parenting submission fails to

meet the inclusion criteria for this assessment of no direct child involvement in the parent training/education programme. It was therefore not included in any subsequent economic analysis. It is worth noting, however, that the costs described in the Mellow Parenting report are considerably higher than the costs described in the previous reviewed documents.

### Summary

Two sponsor submissions contained economic information on parent training/education programmes. Although reviewed in detail, these submissions were excluded from further consideration on the grounds that they either failed to take a NHS/PSS perspective (Triple-P) or included children as part of the parent training/education programme (Mellow Parenting).

## Analysis of costs of parent training/education programmes

### From previous studies

This section provides more detail on the costs of implementing parent training/education programmes for children with CD, based on the three previous studies that examined the costs of parent training/education programmes: Siegert and Yates (1980),[85] Cunningham *et al*. (1995)[29] and Dimond and Hyde (1999).[30] In this section, the published estimates of costs are reviewed and recalculated (where necessary) to present the costs of different forms of parent training/education programmes. These revisions were undertaken to provide the authors initially with estimates of the likely costs of implementing parent training/education programmes and also to allow an assessment of how these costs vary between the reports reviewed above.

The cost of implementing parent training/education programmes has been modelled as an additional cost to the NHS. No cost savings have been assumed, the rationale behind this approach being that any cost savings to the NHS resulting from parent training/education programmes are likely to be in the long term and likely to be proportionally small compared with the cost savings that fall on other sectors within society, such as the criminal justice sector (Scott, 2001).[24] The exclusion of cost savings results in conservative estimates of costs and cost-effectiveness, that is, a potential underestimate of true costs. All costs have been converted to UK Sterling (FT.com exchange rates, February 2003) and are estimated in 2002–03 UK pounds (inflation indices: Netten and Curtis, 2003[104]). Parent training/education is classified as either individual/group or clinic/community based. The costs are presented as 'cost per session' estimates and 'cost per family' estimates.

#### *Cunningham* et al. *(1995)*[29]

The costs in *Table 10* include the cost of room bookings, travel costs, registration, set-up costs, materials, telephone calls and staff costs. The data include the costs associated with families not completing the programme (adherence rates). However, the paper[29] does not provide information on the actual response and attendance rates for each type of delivery (only that they did not differ significantly). The sample on which these costs were based was also highly selected (high risk unreferred community sample). The calculations assume that these costs are for a 100% uptake rate; to investigate the impact of a reduction in participation rates upon the cost per family estimates the calculations can be redone. The cost estimates are altered to £33 and £10 per family by reducing the uptake rate; to 80% and £34 and £11 with an uptake rate of 60% for clinic-based individual and community-based group programmes, respectively.

#### *Siegert and Yates (1980)*[85]

The sample size presented in the paper[85] is small, with a maximum of eight individuals contained

***TABLE 10*** *Cost estimates from Cunningham* et al. *(1995)*[29]

| | Type of programme | | | | | |
|---|---|---|---|---|---|---|
| | Individual clinic-based costs (£) | | | Community group-based costs[a] (£) | | |
| | Fixed | Variable | Participant | Fixed | Variable | Participant |
| Resource cost per session | 1 | 32 | 4 | 66 | 95 | 32 |
| Resource cost per family[b] | | 33 | | | 9 | |

[a] Averaged over 18 families.
[b] NHS costs.

***TABLE 11*** *Cost estimates from Siegert and Yates (1980)*[85]

| | Cost per session (£) | | | |
|---|---|---|---|---|
| | **Operation costs (personnel, facilities, equipment, material costs)** | **Opportunity costs (volunteered time, donated equipment/materials)** | **Client costs (travel time, attendance time, childcare costs)** | **Total costs** |
| Individual in-office | 141 | 325 | 111 | 578 |
| Individual in-home | 119 | 214 | 105 | 437 |
| Group in-office[a] | 766 | 1517 | 1506 | 3790 |
| | *Cost per family (£)* | | | |
| Individual in-office | 141 | | | |
| Individual in-home | 119 | | | |
| Group in-office[a] | 109 | | | |

[a] Assumes seven families per session.

***TABLE 12*** *Cost estimates from Dimond and Hyde (1999)*[30]

| Types of programme | Cost per session[a] (£) | Cost per family[b] (£) |
|---|---|---|
| Group-based statutory (health visitor) – government centre building | 176 | £220 |
| Group-based statutory – private building | 249 | £311 |
| Group-based voluntary (voluntary staff) – home visiting | 185 | £234 |
| Individual-based statutory – home visiting | 134 | £1337 |
| Individual-based voluntary – home visiting | 58 | £579 |

[a] The costs include the start-up and staff costs, accommodation and travel costs and follow-up costs.
[b] The costs include a patient capacity of eight families per session.

within each group. The representativeness of the cost data (*Table 11*) therefore has to be questioned. However, the study protocol did recruit individuals using standard recruitment tools that would be adopted under normal practice and non-response data were included in the analysis. Two of the parents terminated the programme early, one in the in-office group and one in the in-home setting; data from both subjects were included in the analysis. It is interesting to explore the effect of a greater number of families participating within each session. If we assume that the maximum number of families that potentially can participate is 12, then the total cost per family for the 'group in-office' delivery changes to £405 (assuming the operations and the opportunity costs remain the same). If we focus on just the operations cost, then the amount reduces to £64 per family.

The operations costs for all delivery systems are low. Siegert and Yates[85] also mention that the operation costs associated with group delivery would have been lower if one instead of two therapists had been used. The in-home delivery system is more expensive as the therapist required a babysitter for their child plus transportation costs. Both the group and individual in-office systems required facilities and this cost amounted to more for the individual in-office than for the group in-office.

### *Dimond and Hyde (1999)*[30]

This report based the cost calculations on UK sources of unit costs and classified the delivery of parent training/education programmes into five categories (*Table 12*).

## Assessment group's cost estimates

The 'cost per session' and 'cost per family' estimates reported in the previous section provide an initial assessment of the likely costs of providing parent training/education programmes. However, the wide variation in the type of parent training/education programmes that have been valued in the literature (and in the sponsor submissions) indicated the need for an independent 'bottom-up' costing. Using expert opinion alongside information obtained from the literature, the following 'bottom-up' approach presents the components of a parent training/education programme that resemble an

***TABLE 13*** *Group community-based setting*

| Resource use | Description | Unit costs (£) | Estimate of cost per course (£) | Source |
|---|---|---|---|---|
| Staff costs | 2 × facilitators (health visitors/equivalent) 4 hours each per week allowing for set up and debrief. Travel time: assume 30 minutes each way. 100 hours in total | 53 per hour (clinic contact) | 5300 | Resource use: expert opinion<br>Unit cost: Netten and Curtis, 2003[104] |
| Supervision costs | Assume 1-hour joint supervision for facilitators each week. Assume 30 minutes travel each way. 20 hours in total | 53 per hour (clinic contact) | 1060 | Resource use: expert opinion.<br>Unit cost: Netten and Curtis, 2003[104] |
| Travel costs | 20 visits for 2 facilitators. 10 visits for supervisor. 50 visits in total. | 1.17 per visit | 59 | Unit cost: Netten and Curtis, 2003[104] |
| Crèche | Average cost of crèche (per hour) taken from Knapp report presenting crèche costs for 3 centres – assume 40 hours in total to allow set up and tidy up costs. | 4.50 per hour | 180 | Unit cost: Knapp report (appendices of Mellow parenting submission[101]) |
| Course packs | Workbook for parents | 10 per pack | 80 | Estimate |
| Costs of room hire | Cost of hiring room in community centre | 51.33 per session | 513 | Unit cost: Dimond and Hyde[30] estimate inflated using Retail Price Index |
| Total cost | | | 7192 | |
| **Cost per family** | **Assuming 8 families per group**<br>**Assuming 12 families per group** | | **899**<br>**603** | |

'average' programme. Unit costs are then assigned using standard sources.[104]

*Tables 13–15* present our cost analysis. The parent training/education programmes have been grouped according to whether they are delivered as an individual or a group programme and by type of setting (community/clinic/home). We have assumed that the parent training/education programmes will be delivered over 10 weeks with a 2-hour session every week (20 hours in total). The group programmes are facilitated by two staff members employed on a salary thought to be equivalent to a health visitor. One staff member administers the individual programme. To allow for setting up and debrief time, an extra 2 hours per week have been added to the facilitators' time. Supervision is provided for 1 hour every session for group therapy and 30 minutes for individual therapy. A sensitivity analysis is conducted to explore the effect of these assumptions.

Salary expenditure forms the main element of the costs associated with running a parent training/education programme. In the above calculations, we have assumed that a health visitor will be employed to implement the parent training/education programme on a salary of £25,015 per year.[104] For group delivery, we have assumed that two health visitors will be providing the programme. [For the purposes of sensitivity analysis, these assumptions can be relaxed to take account of the possibility that there may be an alternative health professional employed to implement the programme on a lower salary and only one member of staff will provide the programme. Using the salary costs presented in the Dimond and Hyde[30] report (inflated using NHS Pay Index), the effect of this lower salary on the cost per family for each programme can be estimated. In addition, the above calculations also assume a high level of supervision for both the group and the individual programmes; it could be that supervision at this level is not provided. Consequently, supervision can be removed to explore the overall effect on cost. When lower costs and no supervision are provided, the cost per family estimates reduce to £393 (group community-based), £267 (group clinic-based) and £2753 for an individual home-based programme.]

## Summary

The 'bottom-up' approach to costing the parent training/education programmes has produced cost

***TABLE 14*** *Group clinic-based setting*

| Resource use | Description | Unit costs (£) | Estimate of cost per course (£) | Source |
|---|---|---|---|---|
| Staff costs | 2 × facilitators (health visitors/equivalent) 4 hours each per week allowing for set up and debrief. No travel time assumed. 80 hours in total | 53 per hour (clinic contact) | 4240 | Resource use: expert opinion. Unit cost: Netten and Curtis, 2003[104] |
| Supervision costs | Assume 1-hour joint supervision for facilitators each week. No travel time assumed. 10 hours in total | 53 per hour (clinic contact) | 530 | Resource use: expert opinion Unit cost: Netten and Curtis, 2003[104] |
| Travel costs | No travel assumed. | No cost | No cost | |
| Crèche | Average cost of crèche (per hour) taken from Knapp report presenting crèche costs for 3 centres – assume 40 hours in total to allow set up and tidy up costs. | 4.50 per hour | 180 | Unit cost: Knapp report (appendices of Mellow Parenting submission[101]) |
| Course packs | Workbook for parents | 10 per pack | 80 | Estimate |
| Costs of room hire | Cost of hiring room in community centre | No cost | No cost | |
| Total cost | | | 5030 | |
| **Cost per family** | **Assuming 8 families per group**<br>**Assuming 12 families per group** | | **629**<br>**423** | |

***TABLE 15*** *Individual home-based setting*

| Resource use | Description | Unit costs (£) | Estimate of cost per course (£) | Source |
|---|---|---|---|---|
| Staff costs | 1 × facilitator (health visitors/equivalent) 3 hours per week allowing for set up and pack up. Travel time: assume 30 minutes each way. 40 hours in total | 76 per hour (home visits) | 3040 | Resource use: expert opinion Unit cost: Netten and Curtis, 2003[104] |
| Supervision costs | Assume 5 hours' worth of supervision over 10 weeks. Travel: time assume 30 minutes each way. 10 hours in total | 76 per hour (home visits) | 760 | Resource use: expert opinion Unit cost: Netten and Curtis, 2003[104] |
| Travel costs | 20 visits for 1 facilitators. 5 visits for supervisor. 25 visits in total | 1.17 per visit | 29 | Unit cost: Netten and Curtis, 2003[104] |
| Crèche | No cost assumed | No cost | No cost | |
| Course packs | Workbook for parents | 10 per pack | 10 | Estimate |
| Costs of room hire | No cost assumed | No cost | No cost | |
| Total cost | | | 3839 | |
| **Cost per family** | | | **3839** | |

per family estimates that are at variance with the estimates described in the section 'From previous studies' (p. 61). *Table 16* summarises the cost per family estimates compared with those in the literature.

The bottom up approach provided an illustrative presentation of the likely costs of each type of parent training programme according to type of setting and style of delivery. *Table 16* shows that the bottom-up costing is considerably above the

***TABLE 16*** *Summary of 'cost per family' estimates*[a]

| Source | Group (£) | | | Individual (£) | | |
|---|---|---|---|---|---|---|
| | In-office | In-community | In-clinic | In-clinic | In-home | In-office |
| Cunningham[29] | | 9 | | 33 | | |
| Siegert and Yates[85] | 109 | | | | 119 | 141 |
| Dimond and Hyde[30] | | 220–311 | | | 579–1337 | |
| Bottom-up approach | | 603–899 | 423–629 | | 3839 | |

[a] £, 2003 prices; these estimates do not incorporate the cost to participants.

estimates produced in the literature and in the submissions. Owing to lack of clarity of the sources of costs from the literature, it was decided to apply the 'bottom-up' estimates to explore the likely cost-effectiveness of the parent training/education programmes.

We have not considered any 'indirect' cost savings to the NHS that might apply owing to reduction to antisocial behaviour. As a result, the further analyses applying these costs will produce conservative estimates of cost-effectiveness, that is, they are likely to be an underestimate of the 'true' cost-effectiveness.

## Estimating an incremental cost per 'success' and per quality-adjusted life-year (QALY)

This section estimates cost per responder by assuming different 'success' rates and per unit gain on the different outcome scales used in the literature. Additionally, we show how potential QoL gains attributed to a 'success' generate different values for the incremental cost-effectiveness ratio (ICER). The assumed QoL could be ascribed to the child, parents or society, or an amalgam of all three.

### Cost per responder

To calculate the cost per responder (responder is defined as a successfully treated child who has moved from having CD to not having CD as a result of the parent training/education programme), the cost per family estimates for each of the parent training/education programmes can be attached to plausible 'success' rates. Using the cost per family estimates, the total cost of providing each programme can then be calculated and used to estimate the cost per responder, assuming that parent training/education programmes achieve a success rate of 50, 10 and 5%. For the purposes of this analysis, it is assumed that the programmes achieve an 80% uptake. In a population of 1000, and at a rate of £898.98 per family, the total cost is therefore estimated to be £719,200 (£899 × 800). The cost per responder, at a 50% success rate, is estimated to be £1438 (£719,000/500). The results for each of the programmes and 'success' rates are presented in *Table 17*.

***TABLE 17*** *Cost per responder (£), assuming different levels of 'success' rate*

| 'Success' rate | | | |
|---|---|---|---|
| | 50% | 10% | 5% |
| Group community-based | 1,438 | 7,192 | 14,384 |
| Group clinic-based | 1,006 | 5,030 | 10,060 |
| Individual home-based | 6,143 | 30,714 | 61,429 |

Hence, as would be expected, the cost per responder depends on the 'success' rate and the type and setting of the programme. If the programme is administered as a group then the cost per responder will range from £1000 to £14,000 depending on the level of 'success' rate; however the individual delivery is more expensive with the cost per responder reaching £61,000 for a 5% 'success' rate.

### Cost per QALY gained

The majority of studies used either the ECBI or the Child Behaviour Checklist (CBCL) as the outcome measure [see the section 'Assessment of effectiveness – parent training/education versus control' (p. 47)]. To estimate the incremental cost per QALY gained for each type of parent training/education programme, the improvements in behaviour as measured by the ECBI and CBCL can be arbitrarily ascribed to improvements on the QALY scale. Each of these instruments measures a degree of antisocial behaviour.

***TABLE 18*** *Illustrative incremental cost per QALY estimates of parent training versus no intervention*[a]

| QoL improvement | Group community-based | Group clinic-based | Individual home-based |
|---|---|---|---|
| 0.01 | 89,898 | 62,875 | 383,925 |
| 0.025 | 35,959 | 25,150 | 153,570 |
| 0.05 | 17,980 | 12,575 | 76,785 |
| 0.1 | 8,990 | 6,288 | 38,393 |
| 0.2 | 4,495 | 3,144 | 19,196 |

[a] £, 2003 prices.

It is impossible to ascribe QoL improvements to improvements in antisocial behaviour as defined by the Eyberg and CBCL scales. To estimate QALYs, information is required in the form of utility values associated with different health states (the utility values are defined along a 0–1 scale in which 0 represents death and 1 represents perfect health/best possible health state). No studies measuring an improvement in QoL in utility values as a result of parent training/education programmes were identified in this systematic review. It may be useful to think of the improvement in antisocial behaviour as producing an improvement in QoL within a plausible range of values. Expert opinion may help indicate whether the QoL gains are reasonable.

In this analysis, we are assuming that the QoL gain accrues immediately after the programme and lasts for 1 year. The programme is costed over a period of 10 weeks. We acknowledge that QoL gains may well last longer, but we lack evidence on the long-term outcomes of successful treatment of children with CD. Lacking data on the temporal profile of successful treatment, a conventional time to event analysis is not possible. The limiting of the benefit to 1 year is a conservative (low) estimate of benefits, leading to higher incremental costs per QALY than might otherwise be the case.

*Table 18* presents the results for different levels of plausible QoL improvements as a result of parent training/education programmes, along with the cost per QALY estimates. To estimate the cost per QALY, the cost per family values for each type of parent training/education programmes are applied. For example, for a cost per family estimate of £899 and a QoL improvement equal to 0.01, the cost per QALY is estimated at £89,898 (£899/0.01).

These results indicate that at a 0.01 (or 1%) improvement in QoL, the ICER would be high for all three types of programme. At 0.025 (2.5%), the range would be between £35,000 and £25,000 for group programmes and £153,000 for an individual delivery. At 0.05 (5%) the group programmes would have an ICER of £13,000–18,000 but the individual programme would be £76,000. (To explore the effect on cost per QALY from using a facilitator on a lower salary with no supervision, the calculation can be redone using the lower cost per family estimates described in brackets at the end of the section 'Assessment group's cost estimates', p. 63. When the lower estimates are applied, for a 1% improvement, the ICER for group programmes is between £39,000 and £26,000; for individual programmes it is £275,000. At a 0.025 improvement in QoL, the ICER becomes £15,000–10,000 for group programmes and £110,000 for individual programmes.) Only with a QoL gain of 0.2 does the ICER for the individual-based therapy fall to around £20,000.

The QALY is a composite measure covering five patient-specific domains: mobility, self-care, usual activity, pain/discomfort and anxiety and depression. The ECBI and CBCL are condition-specific instruments that measure behavioural problems in children. Using these instruments, behaviour is recorded by observing difficult behaviour problems and the frequency with which they occur. Relative to the QALY, the ECBI and CBCL focus on specific domains of a person's health-related QoL, plausibly the anxiety and depression domain. It might be argued that relatively large changes would be required on the ECBI and CBCL to impact on the QALY.

A separate issue is whether the relevant outcome is that of the patient (child), the parents or society. The parents' QoL, and indeed that of society, seems likely to increase from an improvement in the ECBI and CBCL scale.

## Threshold analysis

An alternative method is to use a 'threshold analysis' approach to predict the QALY gain required for the programme to be regarded as cost-effective. By combining the cost per family

***TABLE 19*** *Cost (£) of one-point improvement in scale*

| | ECBI Frequency | ECBI Intensity | CBCL |
|---|---|---|---|
| Group community-based | 208 | 44 | 206 |
| Group clinic-based | 145 | 31 | 144 |
| Individual home-based | 887 | 188 | 880 |

***TABLE 20*** *QALY gains required (£30,000 threshold)*

| | Eyberg Frequency | Eyberg Intensity | CBCL |
|---|---|---|---|
| Group community-based | 0.0069 | 0.0015 | 0.0069 |
| Group clinic-based | 0.0048 | 0.0010 | 0.0048 |
| Individual home-based | 0.0300 | 0.0063 | 0.0293 |

estimates with a threshold cost per QALY value of £30,000, the QoL per unit change in each outcome scale can be estimated, and also the QALY gain required to meet the threshold value of £30,000 per QALY.

Using the cost per family figures reported previously, the summary outcome scores for each programme type can be combined with the cost to calculate the QALY gain necessary for the programme to be cost-effective.

Summary of cost per family estimates (upper estimates from *Table 16*):

- group community-based = £899
- group clinic-based = £629
- individual home-based = £3839.

The effectiveness review presents weighted mean difference scores for the improvement in behaviour as measured by the Eyberg Frequency/Intensity and CBCL [see the section 'Assessment of effectiveness – parent training/education versus control' (p. 47)]. Using these scores alongside the cost per family estimates, the cost of one-point improvement on each scale can be estimated. For example, the cost of a one-point improvement in the ECBI Frequency for the group community-based programme is estimated to be £208 (£899/4.33). A one-point improvement is thought to be an appropriate unit for each scale, as it is straightforward to estimate the QALY gain necessary for the relevant number of units within each scale. Compared with baseline, the cost of a one-point improvement on the Eyberg Frequency/Intensity and CBCL scales will be as given in *Table 19*.

Assuming a threshold value of £30,000 per QALY, above which the programme will not be funded, the cost of a one-point reduction in the Eyberg Frequency/Intensity and CBCL scale can be applied to calculate the QALY gain necessary for the programme to be cost-effective. For example, a one-point improvement on the Eyberg Frequency scale, given the costs of a group community-based programme, must be equal to 0.0069 QALYs (£208/£30,000) to make the programme cost-effective assuming a threshold value of £30,000. A one-point reduction in the Eyberg Frequency/Intensity and CBCL scale must therefore be equal to the QALY values for each programme given in *Table 20*.

Assuming a threshold value of £30,000 per QALY, a one-point improvement on the Eyberg Frequency scale must be equal to 0.0069 QALYs for the group community-based programme, 0.0048 QALYs for the group clinic-based programme and 0.0300 QALYs for the individual home-based programme. These QALY values vary depending on the outcome measure used, namely Eyberg Frequency, Eyberg Intensity or CBCL.

The above calculations have been repeated for different threshold cost per QALY ratios and the results are displayed in *Table 21*.

## Summary

Given the lack of published estimates of the cost-effectiveness of the relevant programmes, a *de novo* cost-effectiveness analysis was undertaken. From our analysis, it appears that the likely cost per family of parent training/education programmes (range £600–900 per family) might be higher than previously indicated in the literature. These costs

***TABLE 21*** *QALY gains required (different threshold values)*

| | | QALY gain required (QALYs) | | |
|---|---|---|---|---|
| | **Threshold (£)** | **Eyberg Frequency** | **Eyberg Intensity** | **CBCL** |
| Group community-based | 10,000 | 0.0208 | 0.0044 | 0.0206 |
| Group clinic-based | | 0.0145 | 0.0031 | 0.0144 |
| Individual home-based | | 0.0887 | 0.0188 | 0.0880 |
| Group community-based | 20,000 | 0.0104 | 0.0022 | 0.0103 |
| Group clinic-based | | 0.0072 | 0.0015 | 0.0072 |
| Individual home-based | | 0.0443 | 0.0094 | 0.0440 |
| Group community-based | 40,000 | 0.0052 | 0.0011 | 0.0051 |
| Group clinic-based | | 0.0036 | 0.0008 | 0.0036 |
| Individual home-based | | 0.0222 | 0.0047 | 0.0220 |

are conservative (i.e. likely to be overestimates of the true costs) in that any future cost savings due to reduced antisocial behaviour are ignored.

We have estimated the cost per successfully treated child, based on assumptions about the 'success' rate. This indicates a considerably higher cost per 'success' for individual treatments compared with group treatments, or that individual treatments would have to be roughly twice as effective as group treatments to offset their higher costs. We have also shown that estimates of QoL gains (regardless of who these are ascribed to) of around 0.025 (or 2.5%) would result in an ICER of between £35,000 and £25,000 for group parent training/education programmes and £153,000 for an individually delivered parent training/education programme. These QoL estimates are restricted to 1 year and represent a conservative estimate, that is, they are likely to be a potential underestimate of the true gain. Only with a QoL gain of 0.2 (or 20%) does the ICER for the individual-based therapy fall to around £20,000. Although such QALY gains with parent training/education programmes seem plausible, future research is required to demonstrate the 'true' relationship between behaviour change measures and utility.

It should be noted that our analyses of costs and cost-effectiveness are based on a number of assumptions and should therefore be interpreted with caution.

## Estimate of budget impact (from NHS/PSS perspective)

Assuming that parent training/education programmes for children with CD were to be implemented, we have estimated the global cost of providing parent training/education programmes in England and Wales by combining the cost data with estimates from population statistics (*Table 22*). To do this, a number of assumptions have been made and the estimates should therefore be treated with caution.

Costs were calculated separately for England and Wales using the cost estimates calculated from the previous 'bottom-up' analysis. Prevalence rates have been estimated from the literature.[7] This model assumes that currently no parent training/education programmes are available through the NHS and that therefore all costs are additional to the NHS. Costs considered are those that fall on the NHS only.

Following the first year of implementing parent training/education programmes, it is anticipated that a 'refresher' course will be offered to parents in the form of a reduced version of the original therapy. This is because it is difficult to envisage a scenario where parents receive training and then do not receive any follow-up support. If this was the case, year 1 figures would be based on prevalence estimates of CD and for subsequent years, cost estimates would be based on incidence figures. It is likely that parents who receive a course of training will at some point in the future be offered a refresher course to revise the skills learnt. To estimate the budget impact from offering this reduced version to parents, an arbitrary figure is assumed. It is estimated that the 'refresher' course will be offered to parents at 50% cost compared with the original therapies. Year 2 figures are presented in *Table 23*.

If all parents of children with CD in the UK were to be offered a parent training/education programme, the total cost would be between

***TABLE 22*** *Global cost of implementing parent training/education programmes (year 1)*

| | England | Wales | Total |
|---|---|---|---|
| **Numbers of children (aged 5–15)** | | | |
| Prevalence (5%) | 317,579 | 19,065 | 336,644 |
| Participation rate (80%) | 254,063 | 15,252 | 269,315 |
| Participation rate (60%) | 190,547 | 11,439 | 201,986 |
| **Potential additional cost of PTPs (group in-community delivery) (£)** | | | |
| Based on 8 families per group (80%) | 228,396,465 | 13,711,167 | 242,107,632 |
| Based on 8 families per group (60%) | 171,297,349 | 10,283,375 | 181,580,724 |
| **Potential additional cost of PTPs (group in-clinic delivery) (£)** | | | |
| Based on 8 families per group (80%) | 159,742,237 | 9,589,695 | 169,331,932 |
| Based on 8 families per group (60%) | 119,806,678 | 7,192,271 | 126,998,949 |
| **Potential additional cost of PTPs (individual in-home delivery) (£)** | | | |
| (80%) | 975,412,140 | 58,556,241 | 1,033,968,382 |
| (60%) | 731,559,105 | 43,917,181 | 775,476,286 |

***TABLE 23*** *Global cost of implementing parent training/education programmes (year 2)*

| | England | Wales | Total |
|---|---|---|---|
| **Numbers of children (aged 5–15)** | | | |
| Prevalence (5%) | 317,579 | 19,065 | 336,644 |
| Participation rate (80%) | 254,063 | 15,252 | 269,315 |
| Participation rate (60%) | 190,547 | 11,439 | 201,986 |
| **Potential additional cost of PTPs (group in-community delivery) (£)** | | | |
| Based on 8 families per group (80%) | 114,198,233 | 6,855,583 | 121,053,816 |
| Based on 8 families per group (60%) | 85,648,674 | 5,141,687 | 90,790,362 |
| **Potential additional cost of PTPs (group in-clinic delivery) (£)** | | | |
| Based on 8 families per group (80%) | 79,871,119 | 4,794,848 | 84,665,966 |
| Based on 8 families per group (60%) | 59,903,339 | 3,596,136 | 63,499,475 |
| **Potential additional cost of PTPs (individual in-home delivery) (£)** | | | |
| (80%) | 487,706,070 | 29,278,121 | 516,984,191 |
| (60%) | 365,779,553 | 21,958,590 | 387,738,143 |

£169 million and £1 billion in the first year and £84 million and £516 million in the second year (assuming 80% uptake). Of course, the potential cost would be substantially lower if less than 100% of the families with children with conduct disorder were to be offered this type of therapy. The cost is also sensitive to the type of setting (community/clinic) and the method of delivery (individual/group).

# Chapter 6

# Implications for other parties

CD and other types of behaviour problems such as ODD cause considerable disruption and trauma to siblings and parents, peers at school (who may be victims of their bullying and whose learning may be affected by disruption in the classroom) and the members of the wider community (who may be victims of acts of vandalism, violence and burglary). As the disorder persists into adulthood in a high proportion of cases, a single child with CD can have a detrimental effect on the QoL of a very large number of other people. Because CD is associated with poor educational outcomes and poor social skills, the condition predisposes to unemployment, poverty, social deprivation, relationship instability, domestic violence and abuse of the next generation. It therefore plays a part in the aetiology of social inequalities in health. It follows that effective treatment for CD has the potential to improve the health and QoL, not just of the affected child, but of a wide range of other people. At present there are no mechanisms for estimating the extent of these wider benefits and it has therefore not been possible to take them into account in the cost-effectiveness analyses presented here.

Effective treatment also has the potential to deliver considerable cost savings to the government in terms of youth justice and prison costs and also costs of social services, extra educational provision, foster and residential care and state benefits. More subtle savings to the national purse are very likely to accrue but are harder to quantify. For example, emerging studies from the USA and Canada now suggest that anti-childhood poverty measures on their own are ineffective in improving key 'inequalities' outcomes for children (cognitive development, social behaviour, emotional well-being). [A new generation of welfare reform studies that explicitly address the effects of providing increased income to working-poor families with young children shows conclusively that in the absence of positive effects on young children's home environments, parental mental health and on parenting, increases in family income and reduction in poverty alone are not sufficient to benefit young children (e.g. Lin *et al.*, 1998;[105] Morris and Michalopoulous, 2000.[106] Cited in National Research Council Institute of Medicine, 2000[107]).] The provision of treatment for CD that improves parenting behaviours has the potential to enhance the effectiveness of such costly fiscal measures.

Parent training/education programmes are brief (i.e. usually less than 10 weeks) interventions and the costs or disbenefits for families appear to be low relative to the potential benefits. Parents who attend group-based programmes report benefits to their QoL from social interaction and support from other parents which extend beyond the benefits of increased skill in parenting.[108] The implication of implementing parent training/education programmes, however, is that families may incur costs such as loss of earnings if parent training/education programmes are not made available at times that are convenient to parents (e.g. in the evening/weekends), the costs of childcare if they do not include crèche facilities and the costs of travel if they are not provided in local community settings that are both congenial and convenient environments.

Concerns have been expressed regarding the social, legal and ethical basis of compelling parents of persistent offenders to attend parent training/education programmes through the use of Parenting Orders. Further concerns have been expressed about the appropriateness of parent training/education programmes for parents of children from minority ethnic groups. It has been suggested that programmes suitable for majority groups may disregard important cultural norms and taboos. The research available to date suggests that, if programmes are provided in a sensitive way, these concerns are unfounded.[108,109] Parents on Parenting Orders have reported, after attending a programme, that they felt compulsion was justified, and parents from a wide range of ethnic minority groups report benefiting from both culturally sensitive and routine parent training/education programmes. Programmes provided by inexpert facilitators who are not empathetic and respectful to parents, however, have the potential to do harm to parents from both majority and minority ethnic groups.

# Chapter 7

# Factors relevant to the NHS

The Children's National Service Framework (NSF) has as one of its central aims to meet the needs of children and young people with mental health problems in order to improve their life chances within family, social and educational settings,[110] and CD is the most common childhood mental health problem. Implementing the Children's NSF will require access to high-quality, evidence-based parent training/education programmes and the delivery of such service by well-trained and well-supported staff.

Standard One of the Mental Health NSF relates to the promotion of mental health and the prevention of mental illness. Because of the high level of mental health problems experienced by children with CD in adulthood, effective treatment of CD in childhood has a role to play in Standard One Programmes. Standard Two requires that individuals with common mental health problems have access to effective treatments. Parent training/education programmes are now one of the few interventions that have been shown to be effective for the treatment of behaviour problems, particularly in children less than 12 years of age.

At present, there are no NHS targets specifically relating to CD, but the treatment of this important mental health problem has the potential to contribute to national targets to reduce suicide, particularly in young men.

The economic impact of CD within the UK involves many other agencies in addition to the NHS, and the delivery of parent training/education programmes on a national basis would benefit from coordination and integration across health, education, social care, youth justice and voluntary sector agencies. Local Multiagency Child and Adolescent Mental Health Services (CAMHS) Development Strategies are being established to improve the coordination of services across agencies. Such strategies could ensure that the diversity (in terms of severity and duration) of children's behaviour problems are provided for, and that all children have equal access to such programmes across the country.

The provision of parent training/education programmes for CD would support the implementation of a number of recent policy documents which point to the need for interventions to support families and enhance parenting skills. The Green Paper 'Every Child Matters'[111] recognises the need for 'a stronger focus on parenting and families', and urges services to pay more attention to the 'critical relationship between children and their parents'. The White Paper 'Saving Lives: Our Healthier Nation (1999)'[112] highlights the need to promote mental health in children and to develop parenting skills at a community and individual level. There is, in addition, a raft of other policy documents that also highlight the need for interventions aimed at preventing mental health problems through the use of **early interventions** aimed at **improving parenting**. These include The Crime and Disorder Act (Home Office, 1999);[113] the 'On Track' Initiative; Protecting Children, Supporting Parents (Department of Health, 2000);[114] Quality Protects, Early Years Development Plans (Department for Education and Employment, 1997);[115] the National Childcare Strategy (Department for Education and Employment, 1998);[116] and Tackling Health Inequalities (Department of Health, 2001).[117]

The United Nations Convention on the Rights of the Child has placed obligations on governments to support parenting (UNICEF, 1989).[118]

Although there is consensus concerning the need for interventions to support parenting and treat behaviour problems, and evidence concerning the effectiveness of parent training/education programmes in this role, there is not, as yet, agreement concerning which of the many programmes currently available, should be provided. Both the Webster-Stratton and the Triple-P Programmes are evidence based and currently provided in the UK. The evidence base for the many relationship programmes is not secure. It is likely, however, that different programmes offer different insights and opportunities for parents to learn and although standardisation might seem attractive to policy makers it might have a detrimental effect on outcomes. For this reason, there is an urgent need to conduct UK trials on the impact of relationship programmes in the treatment of CD.

Commissioners would also need to bear in mind the need of some groups of parents for more intensive input. Programmes such as Mellow Parenting,[119] which is run for one full day per week over the course of 4 months, involves other activities in addition to the psychodynamically informed group work, and is directed at families where the quality of parenting is causing concern.[103] This programme has been developed with preschool children in mind and is effective in enabling the removal of children's names from the Child Protection Register. It is likely to be highly effective not only in the treatment of CD but also in its prevention.[119]

Several of the parent training/education programmes used to treat CD have also been shown to be effective in the prevention of such disorders and their value to the NHS needs to be considered in this light in addition to their potential for treatment. Early intervention in parenting is widely regarded as being more effective than late intervention. There is therefore an urgent need for a NICE review of parent training/education programmes in the prevention of conduct disorder and other childhood mental health problems.

Parent training/education programmes are currently provided by a range of professionals and non-professionals in a range of settings. There is considerable geographical variation in the availability of such parent support services and significant gaps in provision nationally, particularly for families of children over the age of 5 years.[120] There is also a lack of co-ordination within and between services for children with CD and some indication that evidence-based programmes are being modified and used in an *ad hoc* manner.[121]

Effective provision of parent training/education programmes depends on the availability of a well-trained workforce. As identified in Chapter 5, provision by inadequately skilled facilitators is potentially harmful. Recent research in the UK on services for preschool children with behaviour problems showed that some of the main providers of services were not being adequately prepared and supported in the role.[122] Workforce capacity and training issues are therefore fundamentally important to the provision of parent training/education programmes. Programme leaders could, however, be recruited from social and education services in addition to Youth Opportunity Teams and from the voluntary or charitable sector.

# Chapter 8
# Discussion

## Main results: effectiveness

Thirty-seven RCTs met the inclusion criteria of the clinical effectiveness review. In terms of overlap with sponsor submissions, three of the included studies addressed parent training/education interventions under the umbrella of the Triple-P submission (four additional relevant studies assessing Triple-P interventions were identified by the review team) whereas none addressed Mellow Parenting.

A total of 30 included studies compared parent training/education programmes with control on child behaviour. No studies were found that included proxy measures of child behaviour such as school attendance or criminality. We found consistent evidence of an improvement in child behaviour with parent training/education programmes. Based on a vote-counting approach, 53% of all outcomes assessed showed a statistically significant improvement ($p \leq 0.05$) in child behaviour. None showed a significant worsening in outcome. The remaining outcomes all showed a non-significant difference between groups. This trend was found both for studies ($n = 5$) using DSM criteria for inclusion of participants and for those not using formal criteria. Many of the studies reporting more neutral outcome were small and therefore likely to be underpowered to detect differences between groups. The improvement in child behaviour with parent training/education was confirmed by meta-analyses for both parent-reported outcomes (CBCL, –4.36, 95% CI, –7.90 to –0.81; ECBI Intensity, –20.44, 95% CI, –27.36 to –13.53; ECBI Frequency, –4.33, 95% CI, –6.18 to –2.48) and for independently observed outcome measure (DPICS, –7.78, 95% CI –11.70 to –3.86). These findings are consistent with previous systematic reviews.

Across the 21 studies that directly compared different methods of (predominantly behavioural) parent training/education programmes, there was little evidence of differences in outcome between programmes, although there was some evidence of an association between the magnitude of improvement in child behaviour and intensity of the programme (i.e. increased number of contact hours or a child component in addition to the parent component).

### Limitations in the evidence

There were a number of potential limitations in the studies reviewed: most of the included studies involve samples of children that had not been diagnosed as having CD using DSM criteria, and many studies recruited children using standardised behaviour inventories. Although many of these studies will have included children with CD, some will have included children with less severe behaviour problems. Most studies evaluated the effectiveness of parent training/education programmes with younger children (i.e. ≤ 12 years of age), were limited to short-term (i.e. < 13 weeks) follow-up, methodological detail was inadequately reported and only one study was conducted in the UK. Most studies investigated behavioural programmes; only three studies compared a relationship or a combined relationship and behavioural based programme with control.

A number of studies that undertook longer-term follow-up, albeit uncontrolled, suggest that the benefit in child behaviour following parent training/education programmes appears to be maintained over time. However, these results should be treated with caution as they may be due to a regression to the mean. The generally low standards of reporting made the assessment of study quality and potential for bias difficult and, as a result, the majority of studies were assessed as having poor methodological quality. This lack of consistent reporting across studies meant that it was not possible to assess formally the potential bias associated with the quality of the included studies.

The majority of studies were undertaken in either North America or Australia, and their results may not therefore be generalisable to the UK. Parent populations included in this review were mostly white Caucasians, with a high proportion of single-parent families and a possible over-representation of middle class families. In addition, a majority of study populations were self-referred, with only three studies recruiting families from referrals to outpatient psychiatric clinics; it is unclear how this compares with current UK referral practices. It is also unclear how the skill level of therapists delivering the intervention in the studies included in this report compares with UK practice.

### Limitations of the review

There was considerable heterogeneity in the included studies in terms of differences in their populations, parent training/education programmes, behavioural outcomes and therapist variables, hence there is a need for caution in comparing the results from different studies.

The systematic nature of this review means that we are likely to have identified the majority of published RCTs. The literature search was comprehensive, using a range of electronic databases and relatively broad search terms. Nevertheless, within the time constraints of this review we were unable to obtain the publications or reports for 34 references identified by searching. This was a small proportion (6.7%) of the total number of full text publications scanned. Assuming that the proportion of relevant (included) studies is similar for those studies retrieved (32/470; see *Figure 1*) and the unobtainable studies ($n$ = 34), it is possible that we could have missed 2–3 relevant studies. Even if the direction of effect in these studies was negative, however, it would not affect the overall results of this report based on 37 studies.

## Main results: cost-effectiveness

Two previously published cost-effectiveness analyses and a number of cost studies of parent training/education programmes for children with CD were identified. Neither of the cost-effectiveness analyses was conducted in a UK setting.

In addition, we were unable to use the economic evidence submitted in the two sponsor submissions as they failed to either include costs from the perspective of the NHS and PSS (Triple-P) or were based on a parent training/education intervention that directly involves children (Mellow Parenting).

The cost-effectiveness of parent training/education programmes to the NHS and PSS was based on our review estimates of effectiveness and our 'bottom-up' costing. On the basis of this analysis, the NHS and PSS cost per family could range from £629 for a group clinic-based parent training/education programme (assuming eight families per group) to £3839 for an individual home-based parent training/education programme. Based on QALY gains imputed from the change in behavioural outcomes [see the section 'Main results: effectiveness' (p. 75)], it was estimated that the cost-effectiveness of parent training/education programmes could range between £3144 and £89,898 per QALY for a group-based programme and between £19,196 and £383,925 per QALY for an individual home-based programme.

It should be emphasised that this cost-effectiveness analysis involves a number of strong assumptions and these results should therefore be viewed with caution.

## Suggested further research

This review suggests that parent training/education programmes have not, to date, been widely evaluated in the UK. In order to address the uncertainties identified in this report, further research is required on:

- The impact of parent training/education programmes on the QoL (and utility) of children with CD, their parents/carers and siblings and the wider community.
- The long-term impact of parent training/education programmes on child behaviour and the impact on long-term child outcomes such as educational achievement and criminality; however, consideration will need to be given to the ethics of withholding an intervention for which there is clear evidence of effectiveness in the short-term; well-designed observational studies (rather than RCTs) are likely to be the most appropriate source of such evidence.
- The effectiveness and cost-effectiveness of different models of parent training/education programmes, particularly programmes based on a relationship approach and programmes including a child component.
- The effectiveness and cost-effectiveness of parent training/education programmes for families from different social and ethnic backgrounds.
- The impact of parent training/education programmes on older children (aged 12–18 years).
- The role of fathers in parent training/education programmes (most studies to date have focused on mothers).

# Chapter 9
# Conclusions

Based on the evidence considered in this report, behavioural parent training/education programmes focusing solely on the parents appear to be an effective and potentially cost-effective therapy for children with CD. However, the relative effectiveness and cost-effectiveness of different models of parent training/education programmes (for example therapy intensity and setting) require further investigation.

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## About 'Home Unit'

The West Midlands Health Technology Assessment Collaboration (WMHTAC) produces rapid systematic reviews about the effectiveness of healthcare interventions and technologies, in response to requests from West Midlands NHS and the NCCHTA programme. Reviews usually take 3–6 months and aim to give a timely and accurate analysis of the quality, strength and direction of the available evidence, generating an economic analysis (where possible a cost–utility analysis) of the intervention.

## Contributions of authors

The report's authorship is as follows:
Protocol: Chris Hyde (Senior Clinical Lecturer in Public Health) with comments from all co-authors. Literature searching: Sue Bayliss (Information Specialist). Inclusion criteria: Chris Hyde, Janine Dretzke (Systematic Reviewer), Clare Davenport (Clinical Research Fellow), Emma Frew (Research Fellow in Health Economics). Data extraction: Janine Dretzke, Clare Davenport, Emma Frew, Josie Sandercock [Research Fellow (Medical Statistics)]. Economic Analysis: Emma Frew, Josie Sandercock. Statistical Advice: Josie Sandercock, Rod Taylor (Reader in Public Health). Drafting of the report: Janine Dretzke, Emma Frew, Jane Barlow (Primary Care Career Scientist), Rod Taylor, with contributions from Clare Davenport, Sarah Stewart-Brown (Professor in Public Health), Josie Sandercock, Sue Bayliss, James Raftery (Professor in Health Economics), Chris Hyde.

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# Appendix 1

# DSM IV definition of conduct disorder and oppositional defiant disorder

Conduct disorder is a psychiatric category that is defined as:

A. A repetitive and persistent pattern of aggressive, defiant or antisocial behaviour, as manifested by the presence of at least three or more of the following criteria in the past 12 months with at least one criterion present in the past 6 months.

   Aggression to people and animals
   1 often bullies, threatens or intimidates others
   2 often initiates physical fights
   3 has used a weapon that can cause serious physical harm to others (e.g. a bat, brick, broken bottle, knife, gun)
   4 has been physically cruel to people
   5 has stolen while confronting a victim (e.g. mugging, purse snatching, extortion, armed robbery)
   7 has forced someone into sexual activity

   Destruction of property
   8 has deliberately engaged in fire setting with the intention of causing serious damage
   9 has deliberately destroyed others' property (other than by fire setting)

   Deceitfulness or theft
   10 has broken into someone else's house, building or car
   11 often lies to obtain goods or favours or to avoid obligations (i.e. 'cons' others)
   12 has stolen items of non-trivial value without confronting a victim (e.g. shoplifting, but without breaking and entering; forgery)

   Serious violations of rules
   13 often stays out at night despite parental prohibitions, beginning before the age of 13 years.
   14 has run away from home overnight at least twice while living in parental or parental surrogates home (or once without returning for a lengthy period)
   15 is often truant from school, beginning before the age of 13 years

B. The disturbance of behaviour causes clinically significant impairment in social, academic, or occupational functioning.

C. If the individual is age 18 years or older, criteria are not met.

   Because conduct disorders vary widely in their clinical features, in DSM IV, they are divided into:

   Childhood-Onset Type: onset of at least one criterion of conduct disorder before 10 years of age. Adolescent-Onset Type: absence of any criteria characteristic of conduct disorder at 10 years of age or later.

   DSM IV has an additional category, oppositional defiant disorder (ODD), for persistently hostile defiant provocative and disruptive behaviour outside the normal range but without aggressive or dissocial behaviour. This disorder occurs mainly in children below 10 years of age.

## ICD-10

It also requires the presence of three symptoms from the list of 15 (above), and a duration of at least 6 months. There are four divisions of conduct disorder: socialised conduct disorder, unsocialised conduct disorder, conduct disorders confined to the family context and oppositional defiant disorder.

# Appendix 2

## Methodological adequacy and results of the meta-analyses of the effectiveness of parent training programmes

*Summary of the methodological adequacy of 16 systematic reviews on the effectiveness of parent training programmes*

| Criteria for methodological adequacy | Barlow (2002)[47] | Barlow (2000)[37] | Breiner (1984)[46] | Brestan (1998)[32] | Bryant (1999)[35] | Cedar (1990)[42] | Dimond (1999)[30] | Farmer (2002)[39] |
|---|---|---|---|---|---|---|---|---|
| **Validity** | | | | | | | | |
| Focused clinical question | + | + | + | + | + | + | + | + |
| Criteria for article inclusion | + | + | – | + | + | + | + | + |
| Relevant studies missed | Complete search | Complete search | Search not described | Limited search not described | Complete search | Search not described | Complete search | Complete search |
| Validity of included studies appraised | + | + | + | + | + | + | + | + |
| Assessments of studies reproducible | + | + | + | + | + | + | + | + |
| Results similar from study to study | + | + | + | + | + | + | + | + |
| **Results** | | | | | | | | |
| Overall results | + | + | Not presented | Not presented | Not presented | + | + | Not presented |
| Precision of results | + | + | – | – | – | + | + | – |
| **Application to other parents and children** | | | | | | | | |
| Application to parents and children | + | + | – | – | – | – | + | – |
| All clinically important outcomes | – | – | + | – | – | – | – | – |
| Benefits worth harm and costs | – | – | – | – | – | – | + | – |

| | Farrington (2003)[33] | Feldman (1994)[40] | Hornby (1983)[41] | Mooney (1995)[43] | Todres (1993)[44] | Richardson (2002)[38] | Serketich (1996)[45] | Tucker (1997)[36] |
|---|---|---|---|---|---|---|---|---|
| **Validity** | | | | | | | | |
| Focused clinical question | + | + | + | + | + | + | + | + |
| Criteria for article inclusion | + | + | + | + | + | + | + | + |
| Relevant studies missed | Complete search | Search not described | Complete search | Complete search | + | + | + | Search not described |
| Validity of included studies appraised | + | + | + | + | + | + | + | – |
| Assessments of studies reproducible | + | + | + | + | + | + | + | – |
| Results similar from study to study | + | + | + | + | + | + | + | + |
| **Results** | | | | | | | | |
| Overall results | + | Not presented | Not presented | Not presented | – | + | + | Not presented |
| Precision of results | + | – | – | – | – | + | + | – |
| **Application to other parents and children** | | | | | | | | |
| Application to parents and children | – | + | – | – | – | + | – | – |
| All clinically important outcomes | – | + | + | + | + | – | – | – |
| Benefits worth harm and costs | – | – | – | – | – | Some | – | – |

+, Yes; –, no.

*Meta-analyses of the effectiveness of parent training programmes*

| Study | Focus | Details | Search | Findings |
|---|---|---|---|---|
| Barlow and Parsons (2002), UK[47] | The effectiveness of group-based parent training/education programmes for children aged 0–3 years | **Number**: 5 studies<br>**Type**: RCTs only<br>**Outcome**: Child behaviour; sleep | Comprehensive search of a range of electronic databases including MEDLINE, EMBASE, PsycLIT | 1. Children's behaviour: ES –0.58 [95% CI –1.39 to –0.22]<br>2. Children's sleep: ES –0.4 [95% CI –0.9 to 0.1] |
| Barlow and Stewart-Brown (2000), UK[37] | The effectiveness of group-based parent training/education programmes for children aged 3–10 years | **Number**: 16 studies<br>**Type**: RCTs only<br>**Outcome**: Child behaviour | Comprehensive search of a range of electronic databases including MEDLINE, EMBASE, PsycLIT | No summary measures<br>Group-based parent training/education programmes are effective in producing significant change in both parental perceptions and objective measures of children's behaviour, and these changes are maintained in the short-term |
| Dimond and Hyde (1999), UK[30] | The medium- and long-term effectiveness of parent training/education programmes for children's behaviour problems | **Number**: 19 studies<br>**Type**: RCTs and pre–post studies<br>**Outcome**: Parental well-being; child behaviour; social outcomes | Comprehensive search of 14 databases and an Internet search | 1. Child behaviour: 14/15 studies showed positive results, 11 significant<br>2. Parent well-being: 8/8 studies showed a positive effect, 6 significant<br>3. Social outcomes: 11/11 studies a positive effect but many not significant<br>4. Cost–consequences analysis showed low cost and low disbenefits of pared education and potentially large benefits and cost savings – cost per QALY falls below the £20,000 cost per QALY threshold |
| Farrington and Welsh (2003), UK[33] | The effectiveness of family-based crime prevention programmes | **Number**: 10 studies<br>**Type**: Controlled studies<br>**Outcome**: Delinquency or antisocial child behaviour | Update of earlier review; therefore, searches from 1997<br>Recent reviews<br>Manual search of major journals in criminology and child psychopathology<br>Youth Update<br>Contact with leading researchers | Delinquency: 5/10 studies showed significant effect sizes ranging from 0.26 ($p < 0.67$) to 1.1 ($p < 0.001$)<br>Overall weighted mean ES: 0.395 [95% CI 0.274 to 0.517] |

*continued*

*Meta-analyses of the effectiveness of parent training programmes*

| Study | Focus | Details | Search | Findings |
|---|---|---|---|---|
| Richardson and Joughin (2002), UK[38] | The effectiveness of parent training programmes for young children with CD | **Number**: 2 reviews and 8 primary studies<br><br>**Type**: As above<br><br>**Outcome**: Children's behaviour | Electronic search of MEDLINE, PsycLIT EMBASE, Cochrane databases (1990–2000) | No summary measures; findings mostly based on two existing reviews[32,37]<br><br>Parent training/education programmes are effective in improving conduct disorders in young children |
| Serketich and Dumas (1996), (USA)[45] | Effectiveness of behavioural parent training to modify non-compliant behaviour in children: a meta-analysis | **Number**: 26 studies<br><br>**Type**: RCTs<br><br>**Outcome**: Children's behaviour | Comprehensive search of PsycLIT and Dissertation Abstracts<br>Reference lists of relevant articles<br>No further details | Mean ES for overall child outcome 0.86 (SD 0.36)<br>Mean ES for child outcome based on (a) parental report 0.84 (SD 0.38); (b) observer report 0.85 (SD 0.47); (c) teacher report 0.73 (SD 0.48)<br>Mean ES for parental adjustment 0.44 (SD 0.30) |
| Todres and Bunston (1993), USA[44] | The effectiveness of three types of parent training: behaviour modification, PET, Adlerian | **Number**: 62 studies:<br>18 behaviour modification;<br>24 PET;<br>20 Adlerian<br><br>**Type**: All study designs<br><br>**Outcome**: Parent attitude; knowledge; self-esteem; psychopathology; child-rearing practices; competence<br>Child behaviour; self-esteem; psychopathology; achievement, etc. | Electronic search of Sociofile and PsycLIT abstracts between 1975 and 1990 | Results on instruments used:<br>1. Behaviour modification<br>Positive: 49.1% ($n$ = 27)<br>Negative: 1.8% ($n$ = 1)<br>Mixed: 36.8% ($n$ = 22)<br>No change: 12.3% ($n$ = 7)<br>2. PET<br>Positive: 17.5% (n=11)<br>Negative: 1.6% (n=1)<br>Mixed: 60.3% (n=38)<br>No change: 20.6% (n=13)<br>3. Adlerian<br>Positive: 41.1% ($n$ = 23)<br>Negative: 0.0% ($n$ = 0)<br>Mixed: 28.5% ($n$ = 14)<br>No change: 30.4% ($n$ = 17) |

*continued*

| Study | Focus | Details | Search | Findings |
|---|---|---|---|---|
| **Average quality reviews – score of 6–7 in critical appraisal:** | | | | |
| Cedar and Levant (1990), USA)[42] | The effectiveness of PET compared with other forms of parent training | **Number**: 26 Studies<br><br>**Type**: Design specifications: (a) comparison group; (b) pre- and post-treatment measures; (c) quantitative measures<br><br>**Outcome**: Child behaviour outcomes; parent attitudes; parent behaviour; parent's course knowledge; child self-esteem | No search strategy specified | 1. Overall mean effect size of PET (based on post-test and follow-up assessments of every outcome measured in each study) (0.328) was significantly greater than the overall mean effect size of alternative treatments (0.138)<br>2. ES at follow-up (0.236) is lower than at post-test (0.351) (NS)<br>3. ES for better designed studies is higher for both PET (0.448) and alternative treatments (0.261)<br>4. Effect sizes for main PET outcome categories:<br>Parent course knowledge<br>Parent attitudes (0.406)<br>Parent behaviour (0.373)<br>Parent self-esteem (0.000)<br>Child attitudes (0.120)<br>Child behaviour (0.032)<br>Child self-esteem (0.378) |
| Feldman (1994), Canada[40] | The effectiveness of parent training/education programmes for parents with intellectual disabilities | **Number**: 20 studies of parent training/education programmes<br><br>**Type**: All designs<br><br>**Outcome**: Parental and child well-being | No search described | Descriptive findings only<br><br>Only 7 studies evaluated child behaviour outcomes<br><br>Quality of included studies extremely variable<br><br>Overall, initial training, follow-up and social validity results are encouraging. Generalisation and child outcome data are weak |
| Farmer *et al*. (2002), USA[39] | Review of the evidence base for treatment of childhood (age 6–12 years) externalising disorders | **Number**: 3 studies<br><br>**Type**: Controlled studies<br><br>**Outcome**: Child behaviour outcome measures | No search described | Only 3 studies included<br><br>ES ranging from large to medium, with medium ES found for implementation under usual practice conditions |

*continued*

*Meta-analyses of the effectiveness of parent training programmes*

| Study | Focus | Details | Search | Findings |
|---|---|---|---|---|
| Hornby and Singh (1983), NZ[41] | The effectiveness of behavioural group-based parent training/education programmes with parents of mentally retarded children | **Number**: 8 studies<br><br>**Type**: All designs<br><br>**Outcome**: Parent knowledge and attitudes; child behaviour | Computer search of Psychological Abstracts, ERIC, ECER and Exceptional Child Abstracts | Descriptive findings only<br><br>Quality of included studies extremely variable<br><br>All studies reported positive outcomes.<br>Children's behaviour: 2/5 studies showed statistically significant results<br>Parents' knowledge: 3/3 studies showed statistically significant results<br>Parents' attitudes: 1/3 studies showed statistically significant improvement in 1 of 5 subscales of attitude scale<br>Mother–child interaction: 1/2 studies showed significant improvement |
| **Poor quality reviews – score of ≤ 5 in critical appraisal:** | | | | |
| Breiner and Beck (1984), USA[46] | The effectiveness of individual and group-based behavioural parent training/education programmes for developmentally delayed children | **Number**: 13 studies<br><br>**Type**: Any design<br><br>**Outcome**: Child non-compliant and deviant behaviour | No search specified | Descriptive findings only<br><br>Quality of included studies extremely variable<br><br>Studies generally report success in modifying non-compliant behaviour |
| Brestan and Eyberg (1998), UK[32] | The effectiveness of psychosocial treatments for conduct disordered children | **Number**: 10 studies of parent training/education programmes<br><br>**Type**: Controlled studies<br><br>**Outcome**: Child behaviour | 1. Four existing reviews of data up to 1993<br>2. Search of databases between 1993 and 1995 | Descriptive findings only.<br><br>Chambless criteria for well-established treatments used.<br><br>Two interventions identified that met the stringent criteria for well-established treatments – videotape modelling parent training/education programmes and parent training programmes based on Patterson and Gullion's 'Living with Children' |

*continued*

*Meta-analyses of the effectiveness of parent training programmes*

| Study | Focus | Details | Search | Findings |
|---|---|---|---|---|
| Bryant *et al.* (1999), USA[35] | The effectiveness of interventions for preschoolers with aggressive and disruptive behaviour | **Number**: 17 studies<br><br>**Type**: Any design<br><br>**Outcome**: Child aggression and disruptive behaviour | No search strategy specified | Descriptive findings only<br><br>Quality of included studies extremely variable<br><br>Generally effective in the short-term, at least for some children and families, but few long-term studies conducted, showing less consistent benefits |
| Mooney (1995), USA[43] | The effectiveness of Adlerian, behavioural and PET parent training/education programmes | **Number**: 33 studies<br><br>**Type**: Controlled studies<br><br>**Outcome**: Parent and child well-being | Electronic search of PsycLIT (1974–1994) | Descriptive findings only.<br><br>*Effects on children*: Adlerian programmes significantly increased self-esteem but had minimal impact on behaviour. STEP increased grades and locus of control but not self-concept. PET improved self-esteem. Behavioural approaches extremely effective in altering deviant behaviour<br><br>*Effects on parents*: Adlerian and STEP programmes increased democratic and less restrictive/authoritarian attitudes. STEP also increased acceptance of child's individuality. PET increased liberal attitudes. Behaviour modification had less of an impact on parent attitudes but impacted on family cohesion and reduced parental dominance and non-acceptance behaviours. Adlerian training also reduced restrictive parental behaviours |
| Tucker (1997), USA[36] | Review of the effectiveness of behavioural parent training/education for parents with young children (aged <5 years) | **Number**: 27 studies<br><br>**Type**: all study designs<br><br>**Outcome**: Children's behaviour | No search described | Descriptive findings only<br><br>Quality of included studies extremely variable<br><br>Studies generally show that behavioural parent training is an effective early intervention strategy for families with young children |

# Appendix 3

## Inclusion and exclusion form

| | |
|---|---|
| Does the study appear potentially relevant, based on title and/or abstract? | Yes/No/Unclear |

If yes or unclear, retrieve full publication. Complete next section based on full publication.

**First author, date, country:**

| **Inclusion criteria** | **Criterion met?** | **Comment** |
|---|---|---|
| **Study design:**<br>Is the study a randomised controlled trial? | Yes<br>Unclear<br>Discuss<br>No | |
| If the study is *clearly* a controlled before and after study or an interrupted time series or a quasi-randomised study, then document this but do not continue. | | |
| **Population:**<br>Does the population consist of parents (or carers) of children or adolescents up to the age of 18? (or where there are individuals over 18, can data for a sub-group of individuals up to 18 be assessed?)<br>**AND:** | Yes<br>Unclear<br>Discuss<br>No | |
| Do at least 50% have a behavioural disorder (conduct disorder, ODD, or other less or more severe behavioural problem)?<br>(Note: exclude children at risk of behavioural problems only) | Yes<br>Unclear<br>Discuss<br>No | |

If study design and population criteria met, then complete both of the next sections:

| | | |
|---|---|---|
| **Outcomes**:<br>Has child behaviour been measured? | Yes<br>Unclear<br>Discuss<br>No | |
| **Intervention:**<br>Is one of the interventions a structured parent training/education programme only?<br>**AND:** Does one of the comparators consist of a different intervention (including a different parent training/education programme) or placebo?<br>**(OR:** is study evaluating additive effect of a parent training/education programme, i.e. treatment *x* versus treatment *x* plus parent programme)<br><br><u>Elements of a parent training/education programme:</u><br>– Parents only targeted<br>– Group or individual or self-administered<br>– Elements of the programme documented/repeatable<br>– Any theoretical background (e.g. behavioural, relationship, psychodynamic)<br>– Various settings (e.g. community centre, school, nursery) and funding mechanisms (e.g. NHS, LEA, self-funding, etc.) | Yes<br>Unclear<br>Discuss<br>No | |

If all questions answered with yes, include study.

# Appendix 4

# Search strategies

## Effectiveness searches

### Database: Cochrane Library 2003 Issue 3

#1 Exp PARENTS/ed
#2 Exp PARENT-CHILD RELATIONS/
#3 Exp PARENTING/
#4 (parent* next training)
#5 (parent* next education)
#6 (parent* next program*)
#7 (#1 or #2 or #3 or #4 or #5 or #6)
#8 exp CHILD BEHAVIOR/
#9 exp CHILD BEHAVIOR DISORDERS/
#10 exp CONDUCT DISORDER/
#11 (conduct next disorder*)
#12 (behavior next disorder*)
#13 (behaviour next disorder*)
#14 (challenging next behaviour)
#15 (challenging next behavior)
#16 (child* near behav*)
#17 (child* near conduct*)
#18 (#8 or #9 or #10 or #11 or #12)
#19 (#13 or #14 or #15 or #16 or #17)
#20 (#18 or #19)
#21 (#7 and #20)

### Database: MEDLINE (Ovid) 1966–September week 3 2003

1 randomized controlled trial.pt. (180428)
2 controlled clinical trial.pt. (64189)
3 randomized controlled trials.sh. (30308)
4 random allocation.sh. (49483)
5 double blind method.sh. (75732)
6 single-blind method.sh. (7563)
7 or/1-6 (306173)
8 (animal not human).sh. (2711623)
9 7 not 8 (291041)
10 clinical trial.pt. (367116)
11 exp clinical trials/ (150211)
12 (clin$ adj25 trial$).ti,ab. (94458)
13 ((singl$ or doubl$ or trebl$ or tripl$) adj25 (blind$ or mask$)).ti,ab. (74828)
14 placebos.sh. (23188)
15 placebo$.ti,ab. (80862)
16 random$.ti,ab. (269779)
17 research design.sh. (38055)
18 or/10-17 (643723)
19 18 not 8 (598751)
20 19 not 9 (317552)
21 comparative study.sh. (1068672)
22 exp evaluation studies/ (469890)
23 follow up studies.sh. (273155)
24 prospective studies.sh. (165735)
25 (control$ or prospectiv$ or volunteer$).ti,ab. (1369995)
26 or/21-25 (2755093)
27 26 not 8 (2108468)
28 27 not (9 or 20) (1690041)
29 9 or 20 or 28 (2298634)
30 (parent$ adj2 education).mp. (2196)
31 (parent$ adj2 training).mp. (536)
32 (parent adj2 program$).mp. (267)
33 exp parents/ed (5160)
34 exp PARENTING/ or exp Parent-Child Relations/ (30623)
35 mellow parenting.tw. (0)
36 triple p.mp. or exp Family Therapy/ (5597)
37 webster stratton.mp. (7)
38 parents plus.mp. (7)
39 newpin.mp. (4)
40 positive parenting.mp. (60)
41 or/30-40 (41167)
42 exp Child Behavior Disorders/ or exp Conduct Disorder/ (12849)
43 (conduct adj2 disorder$).mp. (1616)
44 (behavio?r$ adj2 disorder$).mp. (4370)
45 (behavio?r$ adj2 problem$).mp. (7756)
46 (challenging adj behavio?r).mp. (169)
47 (child$ adj3 behavi$).mp. (16778)
48 (child$ adj3 conduct$).mp. (3363)
49 or/42-48 (36010)
50 41 and 49 (5085)
51 9 and 50 (286)
52 9 or 20 (608593)
53 52 and 50 (435)
54 29 and 50 (1748)

### Database: EMBASE (Ovid) 1980–2003 week 38

1 randomized controlled trial/ (83840)
2 exp clinical trial/ (302068)
3 exp controlled study/ (1730647)
4 double blind procedure/ (51509)
5 randomization/ (8967)
6 placebo/ (68582)
7 single blind procedure/ (4684)
8 (control$ adj (trial$ or stud$ or evaluation$ or experiment$)).mp. (106882)
9 ((singl$ or doubl$ or trebl$ or tripl$) adj5 (blind$ or mask$)).mp. (70979)
10 (placebo$ or matched communities or

matched schools or matched populations).mp. (110946)
11 (comparison group$ or control group$).mp. (107350)
12 (clinical trial$ or random$).mp. (493646)
13 (quasiexperimental or quasi experimental or pseudo experimental).mp. (964)
14 matched pairs.mp. (1534)
15 or/1-14 (2078718)
16 (parent$ adj2 education).mp. (2114)
17 (parent$ adj2 training).mp. (641)
18 (parent adj2 program$).mp. (221)
19 parenting.mp. or exp Child Parent Relation/ (15460)
20 mellow parenting.mp. (0)
21 triple p.mp. (12)
22 exp FAMILY THERAPY/ (3259)
23 webster stratton.mp. (5)
24 exp Antisocial Behavior/pc, th [Prevention, Therapy] (1306)
25 parents plus.mp. (9)
26 newpin.mp. (3)
27 positive parenting.mp. (33)
28 or/16-27 (21742)
29 exp Child Behavior/ (6100)
30 (conduct adj2 disorder$).mp. (1620)
31 (behavio?r$ adj2 disorder$).mp. (4037)
32 (behavio?r$ adj2 problem$).mp. (6589)
33 (challenging adj behavio?r).mp. (222)
34 (child adj3 behavi$).mp. (7733)
35 (child$ adj3 conduct$).mp. (2928)
36 or/29-35 (23558)
37 28 and 36 (2991)
38 15 and 37 (1035)

## Database: CINAHL (Ovid) 1982–September week 3 2003

1 exp PARENTING EDUCATION/ or exp PARENTING/ (1739)
2 parent education.mp. (146)
3 (parent adj2 program$).mp. (121)
4 parent training.mp. (72)
5 or/1-4 (1975)
6 exp Clinical Trials/ (20154)
7 5 and 6 (46)
8 trial$.mp. or exp NONRANDOMIZED TRIALS/ or exp CLINICAL TRIALS/ or exp INTERVENTION TRIALS/ (27692)
9 5 and 8 (62)

## Database: Caredata (SCIE database) Searched 14 October 2003

*Searches using in-house interface kindly carried out on our behalf by Karen Winchester of SCIE.*
Search strategies used for CareData
Set 1 = 1601
BEHAVIOUR DISORDERS /CHALLENGING BEHAVIOUR /ANTI SOCIAL BEHAVIOUR [keywords]

[title/abstract]
conduct w3 disorder*
behaviour* w3 disorder* / behavior* w3 disorder*
behavior* w3 problem* / behaviour* w3 problem*
challenging w2 behavior / challenging w2 behaviour
child w3 behavi* / child* w3 conduct* /
oppositional defiant disorder

Set 2 = 1798
[keywords]
=PARENTAL EDUCATION / =FAMILY THERAPY / PARENTAL ROLE / PARENT CHILD RELATIONS

[title/abstract]
parent w3 education / parental w3 education / parents w3 education / parenting w3 education/
parent w3 training / parents w3 training / parental w3 training / parenting w3 training/
parent w3 program / parental w3 program / parents w3 program / parenting w3 program/
parent w3 programme / parental w3 programme / parents w3 programme / parenting w3 programme/
webster stratton / parents plus / newpin / postive parenting/

Set 3 = 651
[title/abstract]
randomised controlled trial* / randomized controlled trial* / controlled clinical trial* / random allocation / double blind method / single blind method / placebo* / clin* w3 trial* / research design / comparative study / evaluation study / evaluation studies / follow up studies / control* trial* / control stud* / control evaluation* / control experiment*/trial*

Set 6 = 13767
Research [keywords] or research [Title/abstract]

**Results:**
Set 10 = set 1 & set 2 = 218 (all records)

Set 11 = set 10 & set 3 = 4 (limiting with controlled trials etc)

Set 13 = set 10 & set 6 = 85 (limiting with general research)

## Database: PsycINFO 1974–2003 Searched 7 October 2003

Search strategy used with the above: parent# adj

training OR parenting# adj program# AND behavio?r#
Limited by form "Empirical study"

### Additional databases searched

These databases were also searched using various combinations of the following sets of textwords:

Set 1 (Parenting) OR (parent training) OR (parent education)
Set 2 (conduct) OR (behaviour) OR (behavior)
Set 3 (trial*) or (controlled) or (random*)

**Database: ASSIA (Applied Social Sciences Index and Abstracts) 1987–2003 (Cambridge Scientific Abstracts)** Searched 2 October 2003
**Database: AEI (Australian Education Index) (Dialog) 1976–June 2003** Searched 2 October 2003
**Database: BEI (British Education Index) (Dialog)1976–June 2003** Searched 2 October 2003
**Database: ERIC (Cambridge Scientific Abstracts) 1966–June 2003** Searched 6 October 2003
**Database: IBSS (International Bibliography of Social Science) (BIDS) 1966–2003** Searched 2 October 2003
**Database: EBMH (Evidence Based Mental Health) Online 1998–present** Searched 7 October 2003
**Database: ISI Proceedings (Science and Technology and Social Science and Humanities) (Web of Knowledge) 1990–present** Searched 7 October 2003
**Database: NCJRS (National Criminal Justice Reference Service) Abstracts database and virtual library 1970–2003** Searched 6 October 2003
**Database: SCI (Science Citation Index) 1981–2003** Searched 2 October 2003
**Database: SSCI (Social Science Citation Index) 1981–2003** Searched 2 October 2003
**Database: Social Services Abstracts (Cambridge Scientific Abstracts) 1980–2003** Searched 2 October 2003
**Database: Sociological Abstracts (Cambridge Scientific Abstracts) 1963–2003** Searched 2 October 2003
**ZETOC (British Library)** Searched 7 October 2003

## Cost-effectiveness searches

### Database: Cochrane Library 2003 Issue 3 (NHS EED)

As for effectiveness searches.

### Database: MEDLINE (Ovid) 1966–August week 4

1 economics/ (25976)
2 exp "costs and cost analysis"/ (107780)
3 cost of illness/ (5464)
4 exp health care costs/ (20964)
5 economic value of life/ (7100)
6 exp economics medical/ (9876)
7 exp economics hospital/ (12496)
8 economics pharmaceutical/ (1260)
9 exp "fees and charges"/ (21360)
10 (econom$ or cost or costs or costly or costing or price or pricing or pharmacoeconomic$).tw. (181552)
11 (expenditure$ not energy).tw. (7936)
12 (value adj1 money).tw. (330)
13 budget$.tw. (8297)
14 or/1-13 (285917)
15 (parent$ adj2 education).mp. (2190)
16 (parent$ adj2 training).mp. (536)
17 (parent adj2 program$).mp. (265)
18 exp PARENTING/ or exp Parent-Child Relations/ (30554)
19 parents/ed (3936)
20 or/15-19 (35678)
21 (conduct adj2 disorder$).mp. (1608)
22 (behavio?r$ adj2 disorder$).mp. (4356)
23 (challenging adj behavio?r).mp. (169)
24 (child$ adj3 behavi$).mp. (16746)
25 (child$ adj3 conduct$).mp. (3347)
26 (behavio?r$ adj2 problem$).mp. (7728)
27 (attention adj deficit).mp. (4490)
28 exp Child Behavior Disorders/ or exp Attention Deficit Disorder with Hyperactivity/ or adhd.mp. (19044)
29 or/21-28 (41787)
30 20 and 29 (4696)
31 14 and 30 (159)

### Database: EMBASE (Ovid) 1980–2003 week 38

1 cost benefit analysis/ (17622)
2 cost effectiveness analysis/ (33058)
3 cost minimization analysis/ (619)
4 cost utility analysis/ (1027)
5 economic evaluation/ (1867)
6 (cost or costs or costed or costly or costing).tw. (109929)
7 (economic$ or pharmacoeconomic$ or price$ or pricing).tw. (51834)
8 (technology adj assessment$).tw. (1036)
9 or/1-8 (164483)
10 (parent$ adj2 education).mp. (2114)
11 (parent$ adj2 training).mp. (641)
12 (parent adj2 program$).mp. (221)
13 parenting.mp. or exp Child Parent Relation/ (15460)

14 or/10-13 (17709)
15 9 and 14 (676)
16 (conduct adj2 disorder$).mp. (1620)
17 (behavio?r$ adj2 disorder$).mp. (4037)
18 (challenging adj behavio?r).mp. (222)
19 (child$ adj3 behavi$).mp. (14100)
20 (child adj3 conduct$).mp. (611)
21 (behavio?r$ adj2 problem$).mp. (6589)
22 (attention adj deficit).mp. (4548)
23 exp Child Behavior/ (6100)
24 or/16-23 (28966)
25 14 and 24 (3348)
26 25 and 9 (129)

### Database: Office of Health Economics Health Economic Evaluations (OHE HEED) database September 2003

Set 1. Parent training or parent education or parenting (5)

Set 2. attention deficit or adhd or conduct disorder or behavioural problems or challenging behaviour (22)

## Searches to inform modelling

### Database: MEDLINE (Ovid) 1966–August week 4 2003

1 decision support techniques/ (4415)
2 markov.mp. (2458)
3 exp models economic/ (3486)
4 decision analysis.mp. (1892)
5 cost benefit analysis/ (32941)
6 or/1-5 (41560)
7 (parent$ adj2 education).mp. (2190)
8 (parent$ adj2 training).mp. (536)
9 (parent adj2 program$).mp. (265)
10 exp PARENTING/ or exp Parent-Child Relations/ (30554)
11 parents/ed (3936)
12 or/7-11 (35678)
13 (conduct adj2 disorder$).mp. (1608)
14 (behavio?r$ adj2 disorder$).mp. (4356)
15 (challenging adj behavio?r).mp. (169)
16 (child$ adj3 behavi$).mp. (16746)
17 (child$ adj3 conduct$).mp. (3347)
18 (behavio?r$ adj2 problem$).mp. (7728)
19 exp Attention Deficit Disorder with Hyperactivity/ or attention deficit.mp. or exp Child Behavior Disorders/ (19627)
20 or/13-19 (41735)
21 12 and 20 (4695)
22 6 and 21 (11)
23 6 and 11 (14)
24 22 or 23 (19)

### Database: EMBASE (Ovid) 1980–2004 Week 05

1 markov.mp. (2133)
2 decision analysis.mp. (1709)
3 cost benefit analysis/ (17216)
4 exp STATISTICAL MODEL/ or exp MODEL/ (514465)
5 exp DECISION SUPPORT SYSTEM/ or exp DECISION MAKING/ or exp DECISION THEORY/ (22095)
6 (economic adj model$).mp. (422)
7 exp Health Economics/ (130756)
8 or/1-7 (660415)
9 (parent$ adj2 education).mp. (2091)
10 (parent$ adj2 training).mp. (632)
11 (parent adj2 program$).mp. (219)
12 parenting.mp. or exp Child Parent Relation/ (15234)
13 or/9-12 (17455)
14 (conduct adj2 disorder$).mp. (1597)
15 (behavio?r$ adj2 disorder$).mp. (4010)
16 (challenging adj behavio?r).mp. (220)
17 (child$ adj3 behavi$).mp. (13957)
18 (child adj3 conduct$).mp. (603)
19 (behavio?r$ adj2 problem$).mp. (6536)
20 (attention adj deficit).mp. (4456)
21 exp Child Behavior/ (5989)
22 or/14-21 (28616)
23 13 and 22 (3306)
24 8 and 23 (180)

## Quality of life searches

### Database: MEDLINE (Ovid) 1966–August week 4 2003

1 (parent$ adj2 education).mp. (2200)
2 (parent$ adj2 training).mp. (535)
3 (parent adj2 program$).mp. (268)
4 exp PARENTING/ or exp Parent-Child Relations/ (29938)
5 parents/ed (3989)
6 or/1-5 (35108)
7 (conduct adj2 disorder$).mp. (1660)
8 (behavio?r$ adj2 disorder$).mp. (4406)
9 (challenging adj behavio?r).mp. (178)
10 (child$ adj3 behavi$).mp. (16703)
11 (child$ adj3 conduct$).mp. (3284)
12 (behavio?r$ adj2 problem$).mp. (7864)
13 (attention adj deficit).mp. (4691)
14 exp Child Behavior Disorders/ or exp Attention Deficit Disorder with Hyperactivity/ or adhd.mp. (19364)
15 or/7-14 (42115)
16 6 and 15 (4741)
17 quality of life/ (39048)

18 life style/ (18844)
19 health status/ (22555)
20 health status indicators/ (7902)
21 or/17-20 (81347)
22 16 and 21 (59)

## Database: MEDLINE (Ovid) 1966–January Week 4 2004

1 quality of life/ (39048)
2 life style/ (18844)
3 health status/ (22555)
4 health status indicators/ (7902)
5 or/1-4 (81347)
6 exp Child Behavior/ or exp Child Behavior Disorders/ (19692)
7 exp Attention Deficit Disorder with Hyperactivity/ (7643)
8 exp Conduct Disorder/ (487)
9 or/6-8 (26466)
10 5 and 9 (266)

# Appendix 5

# Excluded studies

## Primary studies, controlled but not randomised


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# Appendix 6

## Main study characteristics

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Adesso and Lipson, 1981, USA[81] | Participants recruited through mass media announcements | • *Age/sex*<br>Between 2 and 10 years, mean 6.2; 56.2% boys<br>• *Disorder defined*<br>Target behaviours included non-compliance, temper tantrums, fighting with siblings, negativity, complaining, crying, going to bed, eating problems and spinning (descriptive only)<br>• *Co-morbidity/ treatment*?<br>No details<br>• *Previous treatment for behavioural problems*<br>4 families previously sought professional help for their children<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>No details<br>• *Socio-economic status*<br>Middle income level, mean educational level of 14.2 years<br>• *Single-parent household*<br>All couples<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group mothers only<br>• *Contact hours*<br>9 × 2–2.5 hour sessions (= 18–22.5 hours)<br>• *Setting*<br>Seminar-type facility<br>• *Delivered by*<br>Group leader (no further details)<br>• *Other resources*<br>Weekly homework assignments<br>2. • *Programme type*<br>Parent training/education: group fathers only<br>• *Contact hours*<br>9 × 2–2.5 hour sessions (= 18–22.5 hours)<br>• *Setting*<br>Seminar-type facility<br>• *Delivered by*<br>Group leader (no further details)<br>• *Other resources*<br>Weekly homework assignments<br>3. • *Programme type*<br>Parent training/education: group couples<br>• Contact hours<br>9 × 2–2.5 hour sessions (= 18–22.5 hours)<br>• *Setting*<br>Seminar-type facility<br>• *Delivered by*<br>Group leader (no further details)<br>• *Other resources*<br>Weekly homework assignments<br>4. • *Wait list control*<br>*Content based on:*<br>Behavioural approach<br>Rettig's manual 1973, *Living with Children* (Patterson and Gullion, 1971) | • *Child behaviour*<br>Change in one or two target behaviours<br>• *Other*<br>Parent satisfaction | • *Length of training*<br>9 weeks (2 weeks with control for baseline assessments, 7 weeks training)<br>• *Assessments*<br>Baseline, post-treatment, 3-month follow-up (intervention groups only – control group had commenced treatment by then)<br>• *Study size*<br>16 children |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Barkley *et al.*, 2000, USA[89]<br>[Study by Shelton *et al.* (2000)[89] reports 2 year follow-up results, but only for groups collapsed according to special treatment classroom or no special treatment classroom] | Parents invited to participate during kindergarten registration | • *Age/sex*<br>Between 4.5 and 6 years, mean age 4.8; 66% boys<br>• *Disorder defined*<br>Children rated above the 93rd percentile on the Conners Parent Rating Scale –Revised hyperactive-impulsive and conduct problem items; or: children had to have scores exceeding the DSM-III-R thresholds for ADHD and ODD<br>• *Co-morbidity/ treatment?*<br>No children were receiving psychotropic medicine<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean age mothers between 28.2 and 30.4 years, mean age fathers between 31.8 and 34.7 years<br>• *Socio-economic status*<br>Mean social class between 27.9 and 35.3 (mothers) and 39.0 and 46.5 (fathers) (scale not described)<br>Mean years of education between 12 and 13.2<br>• *Single-parent household*<br>Between 51% and 65% married<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>10 sessions plus 5 booster sessions (number of hours not states)<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>Child psychologist<br>• *Other resources*<br>No details<br>*Content based on:*<br>**Behavioural approach**<br>Barkley, 1987<br>2. • *Programme type*<br>Special treatment classroom delivered to children<br>• *Contact hours*<br>Unclear (conducted over several months)<br>• *Setting*<br>Classroom<br>• *Delivered by*<br>Teacher and aide (trained by master teacher and child psychologist)<br>• *Other resources*<br>Computer, educational software, bus transport<br>*Content based on:*<br>Multiple behavioural interventions (token system, group training, report cards)<br>3. • *Both 1 and 2*<br>4. • *No treatment control* | • *Child behaviour*<br>CBCL; Home Situations Questionnaire (HSQ), Child Behaviour Checklist – Teacher Report Form; Social Skills Rating Scale (SSRS) – behavioural problems subscale; Mother–child interactions (child behaviour: e.g. defiance, conflict, negativity, uncooperative); CBCL direct observation form, examiner's rating of child behaviour throughout testing, clinical diagnosis interview<br>• *Other:*<br>Parent rating of child behaviour: Normative Adaptive Behaviour Checklist, various parent self-ratings, teacher ratings and psychological testing, clinic behavioural observations, examiner ratings and classroom observations | • *Length of training*<br>10 weekly sessions and 5 monthly booster sessions over an 8-month period<br>• *Assessments*<br>Baseline and post-treatment<br>• *Study size*<br>158 children |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Behan *et al.*, 2001, Ireland[55] | Children referred to outpatient child psychiatry clinics | • *Age/sex*<br>Between 3 and 12 years, mean 7.2; 78% boys<br>• *Disorder defined*<br>Referral for misconduct (non-compliance, oppositional behaviours, aggression or destructiveness); 28/50 diagnosed with CD or ODD (DSM IV) with or without another disorder (no specific diagnosis for others)<br>• *Co-morbidity/ treatment?*<br>19/50 had CD or ODD with ADHD, anxiety disorder or a specific learning disability; 4/50 had another disorder only<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean age 36.7 years; 28 female, 22 male<br>• *Socio-economic status*<br>Socio-economic group 1 (10%), 2 (28%), 3 (24%), 4 (16%), 5 (12%), 6 (2%)<br>• *Single-parent household*<br>11 (22%) single<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>Multidimensional Scale of Perceived Social Support scores: 66.69 (treatment group), 60.15 (control), 58.80 (drop-outs) | 1. • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>8 × 2 hours (= 16 hours)<br>• *Setting*<br>Treatment centre<br>• *Delivered by*<br>Child mental health professional<br>• *Other resources*<br>2 videos, facilitator's manual<br>2. • *Wait list control*<br>*Content based on:*<br>**Behavioural approach**<br>Parents Plus Programme (video-assisted behavioural parent training/education) | • *Child behaviour*<br>Two domains of Parent Goal Scales (PGS; negative and positive child behaviour); Strengths and Difficulties Questionnaire (SDQ); CBCL<br>• *Other:*<br>One domain of Parent Goal Scales (personal parenting goals); Parenting Stress Index (PSI); Multi-dimensional Scale of Perceived Social Support (MSPSS) | • *Length of training*<br>8 weeks<br>• *Assessments*<br>Baseline, post-treatment, 5.5-month follow-up (intervention group only)<br>• *Study size*<br>50 parents |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Connell *et al.*, 1997, Australia[65] | Recruitment through rural newspapers and information brochures distributed through 'School of the Air', kindergartens, primary schools, pre-schools and general practitioners in rural areas of South East Queensland, Australia | • *Age/sex*<br>Intervention: mean age 49.33 years (SD 14.05), 7 males (58.3%) and 5 females<br>Control: mean age 53.18 (SD 11.26), 3 males (27.3%) and 8 females); 43.5% boys<br>• *Disorder defined*<br>Mothers had to rate child's behaviour within clinical range on ECBI<br>• *Co-morbidity/ treatment?*<br>Inclusion criteria specified no development delay or significant health impairment. Using DSM IV, 13 (56%) of sample had ADHD, 14 (61%) had ODD and 3(13%) had CD. Mothers asked not to participate in any other treatment programme whilst participating in study<br>• *Previous treatment for behavioural problems*<br>Not reported<br>• *Other risk factors*[a]<br>Not reported | • *Age/sex*<br>Ratio of mothers to fathers not reported. Intervention: mean age mothers 32.42 years (4.7), mean age fathers 37.42 years (7.13). Control: mean age mothers 31.45 years (4.11), mean age fathers 34.55 years (4.46).<br>• *Socio-economic status*<br>Based on father's occupational status and a 7-point occupational prestige scale – intervention 4.91; control 4.50. Education mothers: 1 (4%) <grade 10; 11(48%) grade 10–11; 2 (9%) grade 12; 7 (30%) tertiary. Education fathers: 0 (0%) <grade 10; 12 (52%) grade 10–11; 7 (30%) grade 12; 3 (13%) tertiary<br>• *Single-parent household*<br>2 (9%) reported to be separated or divorced<br>• *Parental co-morbidity*<br>Not reported<br>• *Ethnicity*<br>Not reported<br>• *Antisocial parents*<br>Not reported<br>• *Abusive parents*<br>Not reported<br>• *Parental discipline practices*<br>Not reported<br>• *Social isolation*<br>Not reported | 1. • *Programme type*<br>Parent training/education: 1:1 – self-directed with parent-initiated telephone calls (free calls)<br>• *Contact hours*<br>Telephone calls, weekly over 10 weeks with therapist: mean time per call 20 minutes (range 5–30 minutes)<br>• *Setting*<br>Home<br>• *Delivered by*<br>'Therapist' – no further details given<br>• *Other resources*<br>Book and accompanying workbook: *Every Parent* (Sanders, 1992)<br>2. • *Wait list control*<br>*Content based on:*<br>**Behavioural approach**<br>Triple-P level 2. Sanders (1992); Sanders, Lynch and Markie-Dadds (1994) | • *Child behaviour*<br>ECBI; Parent Daily Report Checklist (PDRC)<br>• *Other:*<br>Parenting Sense of Competence (PSOC); Parenting Scale (PS), Depression-Anxiety–Stress Scales (DASS); Consumer satisfaction measure | • *Length of training*<br>10 weeks<br>• *Assessments*<br>Baseline and post-treatment (+ 10 weeks)<br>• *Study size*<br>23 families with 23 children |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Diament and Colletti, 1978, USA[66] | Newsletter advertisement by the Association for Children with Learning Disabilities (ACLD) Morris county, NJ, USA. Participants were selected on a first-come, first-served basis | • *Age/sex*<br>Mean 7.1 years (range 4.0–12.6); % boys not stated<br>• *Disorder defined*<br>Described as manifesting moderate to severe behavioural and learning deficits (e.g. tantrums, aggression, disobedience and highly inappropriate verbalisations)<br>• *Co-morbidity/ treatment?*<br>10/22 children on 'medication' not specified. Average IQ 99. No children officially diagnosed as learning disabled; described as manifesting moderate to severe behavioural and learning deficits<br>• *Previous treatment for behavioural problems*<br>11/22 mothers had received 'psychological counselling' in relation to their children. No other information given<br>1/22 children had been involved in a behavioural modification programme at school<br>• *Other risk factors*[a]<br>None reported | • *Age/sex*<br>Mean 35.7 years (range 24–50)<br>• Socio-economic status<br>Ranged from 'middle to upper class'<br>• *Single-parent household*<br>Not reported<br>• *Parental co-morbidity*<br>Not reported<br>• *Ethnicity*<br>'No minority group families' participated<br>• *Antisocial parents*<br>Not reported<br>• *Abusive parents*<br>Not reported<br>• *Parental discipline practices*<br>Not reported<br>• *Social isolation*<br>Not reported | 1. • *Programme type*<br>Parent training/education: Group<br>• *Contact hours*<br>8 × 1 1/2 hours weekly sessions = 12 hours<br>• *Setting*<br>Not stated (lectures in groups of 5 or 6)<br>• *Delivered by*<br>1 × per group advanced clinical psychology graduates with previous experience in conducting behaviour modification workshops and working with children with learning disabilities.<br>• *Other resources*<br>Reading assignments taken from a programmed text *Parents are Teachers: a Child Management Programme* (Becker, 1997). Cassette recordings were provided for mothers who missed sessions<br>2. • *Wait list control*<br>*Content based on:*<br>**Behavioural approach**<br>Programmed text *Parents are Teachers: a Child Management Programme* (Becker, 1997) | • *Child behaviour*<br>Bipolar Adjective Checklist (BAC); ratings of target behaviours; behavioural observation of mother-child interaction<br>• *Other:*<br>Paper and pencil test for parents to test knowledge of child management; workshop and leader evaluation | • *Length of training*<br>8 weeks<br>• *Assessments*<br>Baseline; post-treatment (8 weeks); post-intervention (3 months)<br>• *Study size*<br>*n* = 22 mothers and 22 children |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Gross *et al.*, 1995, USA[67] | Parents recruited from an urban medical centre (HMO) and surrounding community | • *Age/sex*<br>Between 24 and 36 months; 83% boys<br>• *Disorder defined*<br>Mother or father rate ECBI intensity score >125 and ECBI problem score >10<br>*or*<br>Mother or father rate >3.4 on Toddler Temperament Scale (TSS)<br>• *Co-morbidity/ treatment?*<br>None reported<br>• *Previous treatment for behavioural problems*<br>None reported<br>• *Other risk factors*[a]<br>None reported | • *Age/sex*<br>Mean 32 years (SD 4.8) mothers and mean 33 years (SD 4.9) fathers<br>• *Socio-economic status*<br>Mean education 'some college'. 9 mothers (37.5%) and 1 father (4%) not employed at time of study. Median annual household income $45,000.<br>• *Single-parent household*<br>None reported (inclusion criteria were that both parents be willing to participate regardless of marital status)<br>• *Parental co-morbidity*<br>None reported<br>• *Ethnicity*<br>75% fathers and 80% mothers Caucasian<br>• *Antisocial parents*<br>Not reported<br>• *Abusive parents*<br>Not reported<br>• *Parental discipline practices*<br>Not reported<br>• *Social isolation*<br>Not reported | 1. • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>10 weekly sessions (length not stated)<br>• *Setting*<br>Not stated.<br>• *Delivered by*<br>Each group led by 1 or 2 (unclear which) individuals with master's degrees in psychiatric nursing.<br>• *Other resources*<br>Weekly written homework assignments<br>2. • *Wait list control*<br>*Content based on:*<br>**Behavioural approach**<br>Programme manual: Webster-Stratton, 1987. Targets 3–8-year-old children with a history of severe behaviour problems | • *Child behaviour*<br>ECBI; DPICS<br>• *Other:*<br>Toddler temperament scale (TTS); Toddler Care Questionnaire (TCQ); Center for Epidemiological Studies Depression Scale (CESD); Parenting Stress Index (PSI); parent satisfaction | • *Length of training*<br>10 weeks<br>• *Assessments*<br>Recruitment: ECBI, TTS, CESD<br>Pre-intervention: (<6 months): ECBI, TCQ, PSI; videotaped play session<br>Post-intervention: ECBI, TCQ, PSI, TTS, CESD, videotaped play session.<br>• *Study size*<br>24 families |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Hamilton and MacQuiddy, 1984, USA[82] | Interested parents responded to announcements in local papers, radio stations and community daycare centres | • *Age/sex*<br>Between 2 and 7 years, mean age 3.7; 67% boys<br>• *Disorder defined*<br>All children in elevated range on ECBI (intensity score ≥ 127 or problem score ≥ 11)<br>• *Co-morbidity/ treatment?*<br>No details<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>All mothers, some with spouses<br>• *Socio-economic status*<br>Social class: mean 2.7 Hollinghead's two-factor index (range from class I to V)<br>• *Single-parent household*<br>33% unmarried<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>25/27 Anglo (93%)<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: self-administered<br>• *Contact hours*<br>Parent time 1 hour and 15 minutes; 15 minutes of professional therapist contact for organisational meeting, 1 hour of assistant time for data collection<br>• *Setting*<br>Home<br>• *Delivered by*<br>Self-administered<br>• *Other resources*<br>Self-instructional manual, audiotape, Signal Seat<br>2. • Programme type<br>Parent training/education: self-administered<br>• *Contact hours*<br>As above<br>• *Setting*<br>Home<br>• *Delivered by*<br>Self-administered<br>• *Other resources*<br>Self-instructional manual, audiotape, seat without signal attachment<br>3. • Wait list control<br>*Content based on:*<br>**Behavioural approach**<br>Manual based on parent–child interaction training programme of Hanf (Forehand and McMahon, 1981; Hiers, *et al.*, 1977); Programmes differ in type of seat used: Signal Seat used for time-out period emits auditory signal if child leaves seat | • *Child behaviour*<br>ECBI; Becker Bi-polar Adjective Checklist, Daily Checklist; (1 area: % time child responded compliantly to direct commands)<br>• *Other:*<br>Daily Checklist (areas relating to parent behaviour); post-treatment evaluation questionnaire | • *Length of training*<br>6 weeks<br>• *Assessments*<br>Baseline, post-treatment, 2-month follow-up (intervention groups only)<br>• *Study size*<br>27 mothers (some with spouses) |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Hoath and Sanders, 2002, Australia[63] | Community outreach campaign to raise awareness of project/ research comprised adverts in local newspapers, newsletters, fliers, paediatricians offices. Recruitment through schools, GPs, paediatricians | • *Age/sex*<br>Between 60 and 119 months. Intervention group: mean age 95.8 months (SD 13.28); 7 males, 2 females. Control: mean age 89.6 months (SD 18.65); 9 males, 2 females). Overall 80% males. Total sample $n = 10$ intervention; $n = 11$ control; 80% boys<br>• *Disorder defined*<br>All parents reported concerns about child behaviour. Mean ECBI pre-intervention: intervention group 164 (SD 28.13); control 159 (SD 41.08)<br>• *Co-morbidity/ treatment?*<br>Clinical diagnosis ADHD + HoNOSCA clinical score >11 and behaviour sub-group score >3). 8/10 intervention group and 7/11control group on stimulant medication<br>• *Previous treatment for behavioural problems*<br>No details. No current behavioural treatment allowed.<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Intervention: mothers mean 37 years (SD 6.8), fathers 40 (SD 9.9). Control: mothers 37.7 (SD 5.9), fathers 40.2 (SD 7.3).<br>• *Socio-economic status*<br>Total family income: intervention: US$20 833 (SD 18 526); control US$38 550 (SD 25 646). Whole group: <12 years education1 2/20 (60%); College certificate 4/20 (20%); University: 4/20 (20%); apprenticeship 2/20 (10%).<br>• *Single-parent household*<br>Whole group 8/2 (40%).<br>• *Parental co-morbidity*<br>No details except inclusion criteria required parents not intellectually disabled<br>• *Ethnicity*<br>No details given<br>• *Antisocial parents*<br>No details given<br>• *Abusive parents*<br>No details given<br>• *Parental discipline practices*<br>No details given<br>• *Social isolation*<br>No details given | 1. • *Programme type*<br>Parent training/education: Group<br>• *Contact hours*<br>Mean 8 hours group intervention (5× ~2 hour weekly sessions) and 94 minutes telephone consultation (4× 20–30-minute weekly telephone consultations).<br>• *Setting*<br>Local primary schools with option for 'after hours' sessions to encourage attendance<br>• *Delivered by*<br>Psychologist completing postgraduate training in psychology trained by a senior psychologist<br>• *Other resources*<br>Workbook (every parents group workbook); 3× 'tip sheets' relating to ADHD; 1×'tip sheet' 'Supporting your partner and coping with stress'.<br>2. • *Wait list control*<br>*Content based on:*<br>**Behavioural approach**<br>Standard Group Triple-P (group + telephone) + targeting specific ADHD characteristics [minor modifications to standard group sessions and 3 written resources targeting ADHD ('tip sheets')] | • *Child behaviour*<br>ECBI; Sutter–Eyberg Student Behaviour Inventory – Revised (SESBI-R)<br>• *Other:*<br>Problem Setting and Behaviour Checklist (PSBC); Child Attention Problems Rating Scale (CAPS); the Parenting Scale (PS); Parenting Problem checklist (PPC); Relationship Quality Index (RQI); Depression–Anxiety-Stress Scales (DASS); Client Satisfaction Questionnaire (CSQ); Teachers: Child Attention Problems Rating Scale (CAPS) | • *Length of training*<br>10–12 weeks<br>• *Assessments*<br>Assessment data available for baseline, post-treatment (~12 weeks after completion of baseline) and 3-month post-intervention (intervention group). Assessment data available at baseline and 12 weeks post-baseline for control group. (Note: after 12 weeks the control group received the intervention)<br>• *Study size*<br>$n = 21$ 'families' of which 8 are single-parent families |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Hughes and Wilson, 1988, Australia[83] | Recruitment from referrals made to a community agency by the Department of Community Services, local community health centres and the Children's Court of New South Wales | • *Age/sex*<br>Mean 12.1 years (SD 2.4); 34 males (81%); 8 females (19%)<br>• *Disorder defined*<br>Inclusion criteria: listing by parents of at least 4 problems on the Conduct Problem subscale of the Behaviour Problem Checklist and conduct problems for at least 1 year; (1/3 sample appeared in court in previous year)<br>• *Co-morbidity/ treatment?*<br>Inclusion criteria: absence of other major disorders in child<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>42 families: 41 mothers and 11 fathers. Age not reported.<br>• *Socio-economic status*<br>Professional ($n$ = 8; 15.4%); clerical/technical ($n$ = 7; 13.5%); service industry ($n$ = 6; 11.5%); unskilled manual ($n$ = 7; 13.4%); home duties ($n$ = 10; 19.2%); receiving welfare ($n$ = 14; 27%)<br>• *Single-parent household*<br>$n$ = 16 (38%)<br>• *Parental co-morbidity*<br>Inclusion criteria included absence of major pathology or mental retardation of parents.<br>• *Ethnicity*<br>Not reported<br>• *Antisocial parents*<br>Not reported<br>• *Abusive parents*<br>Inclusion criteria included absence of acute risk factors including child subject to physical harm.<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: one-to-one focusing on communication skills/problem solving<br>• *Contact hours*<br>7 × weekly 1.5 hour sessions = 10.5 hours<br>• *Setting*<br>Not reported<br>• *Delivered by*<br>Psychologists and social workers who had completed training or nearly completed training<br>• *Other resources*<br>Written guidelines for therapists<br>*Content based on:*<br>**Relationship approach**<br>Robin, 1979; Gordon, 1970<br>2. • *Programme type*<br>Parent training/education: one to one focusing on contingency management<br>• *Contact hours*<br>7 × weekly 1.5 hour sessions = 10.5 hours<br>• *Setting*<br>Not reported<br>• *Delivered by*<br>Psychologists and social workers who had completed training or nearly completed training<br>• *Other resources*<br>Written guidelines for therapists<br>*Content based on:*<br>**Behavioural approach**<br>Patterson *et al*., 1975; Stuart, 1971<br>3. • *Wait list control* | • *Child behaviour*<br>Child Behaviour Problem Checklist (CBPC); Becker Adjective Checklist (BAC); average frequency of problems reported over a 2-week period using Parent Daily Report Diaries<br>• *Other:*<br>Parent Attitude Survey (PAS) (confidence, causation, acceptance, understanding and trust subscales); Piers Harris Children Self-Concept Scale | • *Length of training*<br>7 weeks<br>• *Assessments*<br>Baseline and post-treatment ~7 weeks<br>• *Study size*<br>50 families and 50 children; 8 failed to complete treatment and were excluded resulting in 42 children and 42 families |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Ireland *et al.*, 2003, Australia[64] | Parents on the waiting list at the Parenting and Family Support Centre's Triple-P clinic, response to newspaper articles, flyers in kindergartens, preschools, etc. | • *Age/sex*<br>Between 2 and 5 years, mean age 3.65; 24 boys (65%)<br>• *Disorder defined*<br>All mothers were concerned about their child's disruptive behaviour (descriptive), 46% of mothers and 43% of fathers rated their child's behaviour within the clinically elevated range on the ECBI<br>• *Co-morbidity/ treatment?*<br>No details on co-morbidity/treatment<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean age mothers 34 years, father 37; all couples<br>• *Socio-economic status*<br><12 years education, $n = 7$ (9.6%); high school completed, $n = 12$ (16.4%); further education, $n = 54$ (74%)<br>• *Single-parent household*<br>None<br>• *Parental co-morbidity*<br>Clinically significant levels of marital conflict over parenting<br>• *Ethnicity*<br>Predominantly Caucasian<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group (standard)<br>• *Contact hours*<br>8 hours group plus 1–2 hours telephone<br>• *Setting*<br>Parenting and Family Support Centre<br>• *Delivered by*<br>Psychologist<br>• *Other resources*<br>Workbook, video, telephone<br>2. • *Programme type*<br>Parent training/education: group (enhanced)<br>• *Contact hours*<br>11 hours plus 1–2 hours telephone<br>• *Setting*<br>Parenting and Family Support Centre<br>• *Delivered by*<br>Psychologist<br>• *Other resources*<br>Workbook, video, telephone<br>*Content based on:*<br>Standard group Triple-P: **Behavioural approach**<br>Enhanced group Triple-P (Triple-P as above plus two 90-minute Group Partner Support (GPS) sessions): **Behavioural approach plus relationship component** | • *Child behaviour*<br>ECBI<br>• *Other:*<br>The Parenting Scale (PS); Parent Problem Checklist (PPC); Depression–Anxiety–Stress Scale (DASS); Abbreviated Dyadic Adjustment Scale (ADAS); Marital Communication Inventory (MCI); ENRICH Marital Satisfaction Scale (EMS); Client Satisfaction Questionnaire | • *Length of training*<br>8 weeks<br>• *Assessments*<br>Baseline, post-treatment, 3-month follow-up<br>• *Study size*<br>44 couples (data only on 37 couples) |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Irvine *et al.*, 1999, USA[68] | Children referred by school or social service agency staff on the basis of a 12-item child risk factor checklist (Bry *et al.*, 1988); families of children with more than 3 risk factors were invited to participate | • *Age/sex*<br>Mean age 12.2 years (SD 1.1); 61% boys<br>• *Disorder defined*<br>Children with 3 or more risk factors on the scale by Bry *et al.*, 1988, 55% above CBCL borderline score (>60) pre-treatment<br>• *Co-morbidity/ treatment?*<br>No details<br>• *Previous treatment for behavioural problems*<br>Those already receiving counselling excluded<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean age 37.2 (SD 6.19); 94% mothers<br>• *Socio-economic status*<br>Education: grades 0–11 completed (12.5%), high school (35.5%), some college (41.5 %), college graduate or postgraduate (11%), unspecified ($n$ = 101)<br>Income: <US$10,000 (40.5%), $10,000–19,000 (19%), $20,000–29,000 (18.5%), ≥ $30,000 (27%), unspecified ($n$ = 51)<br>• *Single-parent household*<br>29% single mother or father<br>• *Parental co-morbidity*<br>No details<br>• Ethnicity<br>88% Caucasian<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>18–14 hours plus weekly telephone call to each family<br>• *Setting*<br>Office at research institute<br>• *Delivered by*<br>Group leader (various backgrounds, e.g. social service agency workers, school counsellors)<br>• *Other resources*<br>Childcare facilities, snacks and drinks, small prizes, $10-40 (depending on attendance) as incentive for parents<br>2. • *Wait list control*<br>*Content based on:*<br>**Behavioural approach**<br>Adolescent Transition Programme (ATP) (Dishion *et al.*, 1999); designed for parents experiencing mild to moderate behavioural problems with a middle school child | • *Child behaviour*<br>Parent Report of Problematic Interactions (child's behaviour); Parent Daily Reports (PDR); CBCL<br>• *Other:*<br>Parent Report of Problematic Interactions (parent's behaviour); Parenting Scale (PSA) – Adolescent version; Family Activities Scale; Taped Situations Test (TST); Inventory of Family Feelings (IFF); Beck Depression Inventory (BDI) | • *Length of training*<br>12 weeks<br>• *Assessments*<br>Baseline, post-treatment, 3-month follow-up (at the end of this, waiting list parents started treatment), 6-month follow-up (at this point the waiting list parents had had treatment), 1-year follow-up (again, waiting list parents had had treatment)<br>• *Study size*<br>303 parents |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Kacir and Gordon, 1999, USA[69] | Participants volunteered for programme (response to letters either mailed directly or through letter sent home with children) | • *Age/sex*<br>Between 12 and 18 years; average age 14; 19 boys (50%)<br>• *Disorder defined*<br>22 (58%) in clinically elevated range on the ECBI Total Problems Score; mean score 11.68, SD = 8.1<br>• *Co-morbidity/ treatment?*<br>No details on co-morbidity/treatment<br>• *Previous treatment for behavioural problems*<br>8 mothers receiving counselling with child or family (no further details)<br>• *Other risk factors*[a]<br>6 children had been referred to juvenile court | • *Age/sex*<br>Average age 40 years;, all mothers<br>• *Socio-economic status*<br>Some college education on average; median income level between $10,001 and $20,000<br>• *Single-parent household*<br>16/38 single or divorced<br>• *Parental co-morbidity*<br>8 mothers receiving counselling with child or family (no further details)<br>• *Ethnicity*<br>All Caucasian<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>Unclear: 14 children were either currently involved or had been previously involved with child protective services<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: self-administered<br>• *Contact hours*<br>N/A (median number of sessions: 3)<br>• *Setting*<br>Ohio University Psychology Clinic<br>• *Delivered by*<br>Self-administered<br>• *Other resources*<br>Macintosh Power PC computer and monitor, TV monitor and a Pioneer Laserdisk player, workbook<br>2. • *Programme type*<br>Wait list control<br>*Content based on*<br>**Behavioural and relationship approach**<br>Interactive videodisk parent training/education programme: Parenting Adolescents Wisely (PAW), workbook: Gordon *et al.*, 1996 | • *Child behaviour*<br>ECBI<br>• *Other:*<br>Parent Behaviour Questionnaire (PBQ); Parenting Knowledge Test | • *Length of training*<br>Programme completed in average of 2 weeks<br>• *Assessments*<br>Baseline, 1 month, 4 months<br>• *Study size*<br>38 mothers |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Karoly and Rosenthal, 1977, USA[50] | Self-referral to a children's psychiatric facility | • *Age/sex*<br>Between 3 and 14 years, mean age 7.5 years; 82 % boys<br>• *Disorder defined*<br>Children with 'behaviour problem' (e.g. non-compliance, temper tantrums or aggressive behaviour; descriptive only)<br>• *Co-morbidity/ treatment?*<br>Severely disturbed, brain-damaged or autistic children not included; no concurrent treatment<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>No details<br>• *Socio-economic status*<br>Median socio-economic status 3 (Hollingshead and Redlich five-point rating system, 1958); all parents had at least a 6th grade education<br>• *Single-parent household*<br>35% households with mother only<br>• *Parental co-morbidity*<br>Free of severe psychopathology<br>• *Ethnicity*<br>All white<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training: group (large and small group elements)<br>• *Contact hours*<br>10 weekly meetings (hours not stated)<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>Two experienced Parent Training Group leaders and two PhD psychologists who served as aides<br>• *Other resources*<br>Not stated<br>*Content based on:*<br>Behavioural approach<br>2. • *Programme type*<br>Wait list control | • *Child behaviour*<br>Eatontown Children's Psychiatric Center Problem List (1963); home observation of behaviour<br>• *Other*<br>Family Environment Scale (Moos, 1975) | • *Length of training*<br>10 weeks<br>• *Assessments*<br>Baseline and post-treatment, 1-month follow-up (home observation only)<br>• *Study size*<br>17 families |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Knapp and Deluty, 1989, USA[76] | Middle class mothers recruited by announcements in local newspapers and sent to paediatricians; lower class mothers recruited through announcements sent by the Headstart programme that one of their children attended | • *Age/sex*<br>Aged 3–8 years, mean age 4.7; 60% boys (of those who completed training)<br>• *Disorder defined*<br>More problem behaviours on a composite of the Revised Behaviour Problem Checklist (RBPC) subscale scores than were reported by parents of 92 'normal' 5–8-year-olds (previous study) or by teachers of kindergartens attending a public school (previous study)<br>• *Co-morbidity/ treatment?*<br>No details on co-morbidity/treatment<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>No details on age; all mothers<br>• *Socio-economic status*<br>27 middle class, 22 lower class as determined by the Four Factor Index of Social Status (Hollingshead, 1975) Lower class income between US$7400 for a family of 2 up to $16,900 for a family of 7<br>• *Single-parent household*<br>15/40 single<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>33 white, 7 black<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group (role play focus)<br>• *Contact hours*<br>8 sessions (number of hours not stated)<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>Therapist (doctoral level clinical psychology graduate student)<br>• *Other resources*<br>None<br>2. • *Programme type*<br>Parent training/education: group (discussion focus)<br>• *Contact hours*<br>8 sessions (number of hours not stated)<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>Therapist (doctoral level clinical psychology graduate student)<br>• *Other resources*<br>None<br>*Content based on:*<br>**Behavioural approach**<br>Use of behavioural techniques as described by Forehand and McMahon, 1981; focus on role play in one intervention vs same intervention but focus on discussion rather than role play | • *Child behaviour*<br>Negative child behaviour (total non-compliance and inappropriate behaviours); Revised Behaviour Problem Checklist (RBPC)<br>• *Other:*<br>Parenting Stress Index (PSI) – parent domain; Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PCSA) – maternal acceptance domain | • *Length of training*<br>8 weeks<br>• *Assessments*<br>Baseline, post-treatment, 2-months follow (RPBC only)<br>• *Study size*<br>49 mothers (details only on 40, excluding 9 drop-outs) |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Lewis, 1986, USA[70] | Parents responded to newspaper and radio advertisements | • *Age/sex*<br>Aged between 2 and 8 years; number of boys not stated<br>• *Disorder defined*<br>Adjustment difficulties such as poor peer relationships, hyperactivity, aggressiveness or non-compliant behaviour (descriptive only)<br>• *Co-morbidity/ treatment?*<br>No details on co-morbidity/treatment<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean ages 31.1 and 30.9 years (exp./control groups), all mothers<br>• *Socio-economic status*<br>Mean education 10.4 and 10.9 years (exp./control groups); mean income US$8200 and $9150<br>• *Single-parent household*<br>None<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>36 hours<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>2 trainers (graduates enrolled in Master's degree in counselling)<br>• *Other resources*<br>Book, handouts<br>2. • *Programme type*<br>Wait list control<br>*Content based on:*<br>**Behavioural approach**<br>Focus on behavioural principles; format followed procedure and material used by Auerbach (1968) and Patterson *et al.* (1975) | • *Child behaviour*<br>Child Behaviour Rating Scale (CBRS)<br>• *Other:*<br>Family Adjustment Test (FAT) | • *Length of training*<br>6 weeks<br>• *Assessments*<br>Baseline and post-treatment<br>• *Study size*<br>20 mothers |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Long *et al.*, 1993, USA[71] | Recruitment from an outpatient clinic | • *Age/sex*<br>Between 6 and 11 years, mean 8.13 (SD 1.54); 81% boys<br>• *Disorder defined*<br>In elevated range of ECBI (as indicated by control group post-treatment, and no significant differences between groups pre-treatment)<br>• *Co-morbidity/ treatment?*<br>All children with ADHD<br>• *Previous treatment for behavioural problems*<br>All receiving methylphenidate<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>No details<br>• *Socio-economic status*<br>Mean family income US$19,400 (SD: $15.250); mean number of years in education: mothers 12.20 (2.45), fathers 11.68 (3.59)<br>• *Single-parent household*<br>No details<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: self-administered<br>• *Contact hours*<br>No details<br>• *Setting*<br>Home<br>• *Delivered by*<br>Self-administered<br>• *Other resources*<br>Behaviour management protocol<br>2. • *Programme type*<br>Standard treatment only<br>*Content based on:*<br>**Behavioural approach**<br>Protocol (developed for this study) based on parent training/education model developed by Hanf (Forehand and Long, 1988; and Barkley, 1990); focus on use of social learning principles | • *Child behaviour*<br>ECBI; Home Situations Questionnaire (HSQ); Behaviour Rating Profile – Teacher Rating Scale (BRP-T)<br>• *Other:*<br>Conners Parent Rating Scale – Hyperactivity Index (CPRS-HI); Knowledge of Behavioural Principles as Applied to Children (KBPAC) | • *Length of training*<br>No details<br>• *Assessments*<br>Baseline and post-treatment (2 months after enrolment)<br>• *Study size*<br>32 parents |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Magen and Rose, 1994, USA[84] | Recruitment through announcements to social service agencies, schools, physicians and churches, and by placing advertisements in local newspapers | • *Age/sex*<br>Mean age 7 years (eligible between 5 and 11); 70% boys<br>• *Disorder defined*<br>Problems with aggressive or non-compliant behaviour (descriptive)<br>• *Co-morbidity/ treatment?*<br>No developmental disabilities<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Median age 37 years; 51 mothers, 5 fathers<br>• *Socio-economic status*<br>Mean number of years in education: 15; mean income: US$37,570, median income $32,000; 34 (60%) full-time employment, 14 part-time (25%), 8 (14%) homemaker/student<br>• *Single-parent household*<br>19 (34%) single or divorced<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>53 (94%) white, 2 (4%) Hispanic, 1 (2%) African American<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group (behavioural focus)<br>• *Contact hours*<br>16 hours<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>1 or 2 group leaders<br>• *Other resources*<br>No details<br>2. • *Programme type*<br>Parent training/education: group (problem solving focus)<br>• *Contact hours*<br>16 hours<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>1 or 2 group leaders<br>• *Other resources*<br>No details<br>3. • *Programme type*<br>Wait list control<br>*Content based on:*<br>Both: **behavioural approach**<br>Behavioural skills training or general problem-solving skills training | • *Child behaviour*<br>Revised Behaviour Problem Checklist (RBPC)<br>• *Other:*<br>Social Problem Solving Inventory (SPSI); behavioural role-play test of parenting skills; goal attainment scaling (GAS); post-session questionnaire (PSQ) | • *Length of training*<br>8 weeks<br>• *Assessments*<br>Baseline, post-treatment, 3-month follow-up<br>• *Study size*<br>56 parents |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Pevsner, 1982, USA[77] | Subjects selected from two-parent families referred to a clinic by community agencies for child behaviour problems | • *Age/sex*<br>Between 5 and 13 years, mean age 9; 67% boys<br>• *Disorder defined*<br>Evidence of at least 3 behaviour problems as shown by Patterson's Behaviour Check List (1975)<br>• *Co-morbidity/ treatment?*<br>Children excluded if autistic, psychotic, mentally retarded or brain damaged<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>15 couples, mean age mother 34.7 years, mean age fathers 38.8<br>• *Socio-economic status*<br>Mean years education: mothers 12.7, fathers 13.4; mean income US$21,856 (range: $11,000–40,000)<br>• *Single-parent household*<br>None<br>• *Parental co-morbidity*<br>No severe marital problems, no thought disorders or delusional problems, no substance abusers, no concurrent therapy<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group (parent training/education plus group behaviour therapy)<br>• *Contact hours*<br>32.5 hours<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Author of study (no further details)<br>• *Other resources*<br>No details<br>2. • *Programme type*<br>Individual family therapy<br>• *Contact hours*<br>10 hours<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Behaviour therapist<br>• *Other resources*<br>No details<br>*Content based on:*<br>**Behavioural approach**<br>Parent training/education based on Lindsley's (1966) precision teaching model, behaviour therapy focused on implementation of contingency management programmes | • *Child behaviour*<br>Change of 70% from baseline in target behaviour, maintained for two 7-day periods (where behaviour could occur only once a day, criterion achieved was set at behaviour occurring 5/7 days for 2 × 7-day periods); Behavioural Check List used pre-test only<br>• *Other:*<br>Knowledge of Behaviour Principles as Applied to Children (KBPAC) | • *Length of training*<br>10 weeks<br>• *Assessments*<br>Baseline, post-treatment, 6-month follow-up<br>• *Study size*<br>15 couples |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Sanders *et al.*, 2004, Australia[57] | Recruitment through referral from Families, Youth and Community Care Queensland, family doctors, community child health services and self-referrals (media outreach campaign) | • *Age/sex*<br>Between 2 and 7 years, mean 4.4; 'equal representation of male and females'<br>• *Disorder defined*<br>Above ECBI cut-off on intensity (≥ 127) and problem (≥ 11) scales<br>• *Co-morbidity/ treatment?*<br>Children with significant intellectual impairment excluded<br>• *Previous treatment for behavioural problems*<br>Families already receiving treatment excluded<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean age 33.33 years (SD 5.37) SBFI group; 34.18 (SD 6.34) EBFI group; predominantly female (93%)<br>• *Socio-economic status*<br>52% completed secondary education; 28% with annual family income less than AUS$25,000, 29% experiencing financial difficulties<br>• *Single-parent household*<br>Predominantly married (69%)<br>• *Parental co-morbidity*<br>6% use of illicit drugs, 3% abuse of alcohol<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>5% had contact with statutory authority for suspected abuse or neglect and/or parent expressed concerns regarding difficulty in controlling their anger in relation to their child's behaviour (elevated scores on subscales of the State-Trait Anger Expression Inventory)<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training: group (standard behavioural family intervention) plus 4 × 15–30-minute telephone consultation<br>• *Contact hours*<br>4 × 2 hours (8 hours) plus 1–2 hours telephone consultation<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>Either clinical psychologist, psychologist, social worker or teacher; facilitator and co-facilitator for each group<br>• *Other resources*<br>Workbook, homework<br>2. • *Programme type*<br>Parent training: group as above plus four sessions addressing risk factors associated with child abuse (enhanced behavioural family intervention)<br>• *Contact hours*<br>8 × 2 hours (16 hours) plus 1–2 hours telephone consultation<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>As above<br>• *Other resources*<br>As above plus additional workbook<br>*Content based on:*<br>**Behavioural approach**<br>Group Triple-P | • *Child behaviour*<br>Observation of child disruptive behaviour; ECBI; Parent Daily Report Checklist (PDRC); Home and Community Problem Checklist (HCPC)<br>• *Other*<br>Parent's Attributions for Child Behaviour (PACBM); State-Trait Anger Expression Inventory (STAXI); Parental Anger Inventory (PAI); Child Abuse Potential Inventory (CAPI); Parent Opinion Questionnaire (POQ); Parenting Scale (PS); Parent Sense of Competence (PSOC); Depression–Anxiety–Stress Scale (DASS); Parent Problem Checklist (PPC) | • *Length of training*<br>8 weeks (SBFI), 12 weeks (EBFI)<br>• *Assessments*<br>Baseline, post-treatment and at 6 months<br>• *Study size*<br>98 families |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Sanders *et al.*, 2000, Australia[59] | Response to community outreach campaign (newspapers, posters, flyers) in 3 low-income areas of Brisbane | • *Age/sex*<br>Aged 3–4 years, 68% boys<br>• *Disorder defined*<br>In elevated range on ECBI (intensity score ≥ 127 or problem score ≥ 11)<br>• *Co-morbidity/ treatment?*<br>No evidence of developmental disorders; no further details<br>• *Previous treatment for behavioural problems*<br>Not currently in contact with another professional agency<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Average 31 years for mothers, 34 for fathers<br>• *Socio-economic status*<br>Predominantly lower socio-economic class, 40% financial difficulties, 40% not completed high school<br>• *Single-parent household*<br>27%<br>• *Parental co-morbidity*<br>Not currently receiving therapy for psychological problems; not intellectually disabled, one or more family adversity factor (maternal depression, relationship conflict, low income, single parent); 7% mothers, 9% fathers family history of drug abuse, 55% mothers, 37% fathers family history of psychiatric illness<br>• *Ethnicity*<br>Predominantly Caucasian<br>• *Antisocial parents*<br>20% of mothers, 30% of fathers history of criminal activity<br>• *Abusive parents*<br>56% mothers and 29% fathers had elevated scores on the Child Abuse Potential Inventory<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: self-administered (Self-help Triple-P)<br>• *Contact hours*<br>N/A<br>• *Setting*<br>Home<br>• *Delivered by*<br>Self-administered<br>• *Other resources*<br>Workbook<br>2. • *Programme type*<br>Parent training/education: Individual (Standard Triple-P)<br>• *Contact hours*<br>10 hours<br>• *Setting*<br>Local community health and neighbourhood centres<br>• *Delivered by*<br>Trained practitioner<br>• *Other resources*<br>Book and workbook<br>NB: children present at sessions<br>3. • *Programme type*<br>Parent training/education: Individual (Enhanced Triple P)<br>• *Contact hours*<br>14 hours<br>• *Setting*<br>Local community health and neighbourhood centres<br>• *Delivered by*<br>Trained practitioner<br>• *Other resources*<br>Book and workbook<br>NB: children present at sessions<br>4. • *Wait list control*<br>*Content:*<br>**Behavioural approach**<br>Triple-P (Sanders, 1999) | • *Child behaviour*<br>Observed negative child behaviour; ECBI; Parent Daily Report (PDR)<br>• *Other:*<br>Parenting Scale (PS); parenting Sense of Competency Scale (PSOC); Parent Problem Checklist (PPC); Abbreviated Dyadic Adjustment Scale (ADAS), Depression–Anxiety–Stress Scales (DASS); Client Satisfaction Questionnaire (CSQ) | • *Length of training*<br>15–17 weeks<br>• *Assessments*<br>Baseline, post-treatment, 1-year follow-up (intervention families only)<br>• *Study size*<br>305 families |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Sanders *et al.*, 2000, Australia[62] | Recruitment through newspaper and distribution of information brochures in kindergartens, preschools and childcare centres | • *Age/sex*<br>Between 2 and 8 years, mean age 55.6 months; 58.9% boys<br>• *Disorder defined*<br>Mean pre-intervention scores in clinically elevated range of the EBCI (problem score)<br>• *Co-morbidity/ treatment?*<br>No chronic illness or disability<br>• *Previous treatment for behavioural problems*<br>No treatment for behavioural or psychological problems<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean age: mothers 33.6 years, fathers 36.6; 56 mothers, not clear how many fathers<br>• *Socio-economic status*<br>Mother's education: junior certificate ($n$ = 13), senior certificate ($n$ = 10), tertiary ($n$ = 15), university ($n$ = 18); Father's education: junior certificate ($n$ = 17), senior certificate ($n$ = 4), tertiary ($n$ = 12), university ($n$ = 16); Income: US$0–10,000 ($n$ = 1), $10,000–20,000 ($n$ = 10), $20,000–40,000 ($n$ = 12), $40,000–60,000 ($n$ = 11), $60,000–80,000 ($n$ = 15), >$80,000 ($n$ = 4)<br>• *Single-parent household*<br>25% single<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: self-administered<br>• *Contact hours*<br>N/A<br>• *Setting*<br>Home<br>• *Delivered by*<br>Self-administered<br>• Other *resources*<br>12 videotapes, accompanying tip sheet<br>2. • *Programme type*<br>Wait list control<br>*Content based on:*<br>**Behavioural approach**<br>Triple-P (Sanders, 1999) | • *Child behaviour*<br>ECBI<br>• *Other:*<br>Parenting Scale (PS); Parenting Sense of Competence (PSOC); Depression–Anxiety–Stress Scale (DASS); Parenting Problem Checklist (PPC); Abbreviated Acceptability Rating Profile (AARP) | • *Length of training*<br>6 weeks<br>• *Assessments*<br>Baseline, post-treatment and at 6-month follow-up (intervention group only)<br>• *Study size*<br>56 parents |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Sheeber and Johnson, 1994, USA[72] | Subjects recruited via flyers distributed to preschools and advertisements placed in local publications targeting families with young children | • *Age/sex*<br>Between 3 and 5 years, mean age 4; 60% boys<br>• *Disorder defined*<br>Children rated as being in the elevated range of the CBCL (score >60)<br>• *Co-morbidity/ treatment?*<br>Difficult temperament: rated by parent as having a minimum of 3/7 temperament characteristics (subscales of the Parent Temperament Questionnaire) 1 SD from the mean of a non-clinical sample; children with extreme aggressiveness excluded<br>• *Previous treatment for behavioural problems*<br>No children receiving mental health treatment or medication<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mothers, mean age 34 years (some fathers also participated)<br>• *Socio-economic status*<br>Mother and fathers mean educational level of 16 years, mean family income US$41,000<br>• *Single-parent household*<br>Primarily married<br>• *Parental co-morbidity*<br>Evidence of maternal–familial distress (Parenting Stress Index, Impact on Family Scale)<br>• *Ethnicity*<br>Primarily Caucasian<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>13.5–18 hours<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>1st author of study (no further details)<br>• *Other resources*<br>Manual<br>2. • *Programme type*<br>Wait list control<br>*Content based on:*<br>**Relationship approach**<br>Temperament-focused psychoeducational intervention based on Turecki and Tonner (1985), Chess (1986) and Thomas (1987) | • *Child behaviour*<br>CBCL; Parent Daily Report (PDR)<br>• *Other:*<br>Parent Temperament Questionnaire (PTQ); State-Trait Anxiety Inventory (STAI); Parenting Stress Index (PSI); Modified Impact on Family Scale (IFS); Cleminshaw-Guidubaldi Parent Satisfaction Scale; Parent Test of Temperament Knowledge (PTTK) | • *Length of training*<br>13–16 weeks<br>• *Assessments*<br>Baseline, post-treatment and at 8 weeks post-treatment<br>• *Study size*<br>40 mothers |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Siegert and Yates, 1980, USA[85] | Response to newspaper advertisements or recruited by community leaders | • *Age/sex*<br>Aged 5–15 years; number of boys not stated<br>• *Disorder defined*<br>Behaviour problems such as frequent disobedience in family settings (descriptive only)<br>• *Co-morbidity/ treatment?*<br>No details on co-morbidity/treatment; excluded if psychotic, brain damaged or severely mentally or physically handicapped<br>• *Previous treatment for behavioural problems*<br>Not stated<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Aged 26–46 years; 27 mothers, 3 fathers<br>• *Socio-economic status*<br>67% in upper socio-economic strata (Hollingwood criteria); 33% in lower strata; 80% had college or graduate degrees<br>• *Single-parent household*<br>'Almost equal number of single- and two parent families'<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: individual<br>• *Contact hours*<br>1 introductory meeting, 2 baseline meetings, 5 hours training<br>• *Setting*<br>Home<br>• *Delivered by*<br>Masters degree level therapist<br>• *Other resources*<br>None<br>2. • *Programme type*<br>Parent training/education: Individual<br>• *Contact hours*<br>1 introductory meeting, 2 baseline meetings, 5 hours training<br>• *Setting*<br>Office<br>• *Delivered by*<br>Masters degree level therapist<br>• *Other resources*<br>None<br>3. • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>1 introductory meeting, 2 baseline meetings, 7.5 hours training<br>• *Setting*<br>Office<br>• *Delivered by*<br>2 Master's degree level therapists<br>• *Other resources*<br>None<br>4. • *Wait list control*<br>*Content:*<br>**Behavioural approach**<br>Berkowitz's (1972) A–B–C's of Behaviour Modification: Leader's Guide | • *Child behaviour*<br>Daily frequency of target negative behaviours; issues checklist; rating of child's behaviour<br>• *Other*<br>Effectiveness assessed from therapist perspective (improvement, adherence), cost | • *Length of training*<br>8 weeks<br>• *Assessments*<br>Baseline and post-treatment or weekly measurements; 4-month follow-up (rating of child's behaviour only)<br>• *Study size*<br>30 parents |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Spaccarelli *et al.*, 1992, USA[86] | Recruitment by flyers posted in a medical centre, local clinics and schools | • *Age/sex*<br>Mean age ($n$ = 53) 6.2; 57% boys (of those who completed)<br>• *Disorder defined*<br>Children rated, on average, as being in elevated range of ECBI (problem scale >11, intensity scale >127)<br>• *Co-morbidity/ treatment?*<br>No details<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean age ($n$ = 53) 35.5 years; 47 mothers, 6 fathers<br>• *Socio-economic status*<br>($n$ = 81): Education: 21 (26%) high school or less, 32 (39.5%) some college, 27 (33.3%) BA or more, 1 (1.2%) missing data. Income: 15 (18.5%) <US$15,000, 28 (34.6%) $15,000–30,000, 35 (43.2%) >$30,000, 3 (3.7%) missing data<br>• *Single-parent household*<br>($n$ = 81): 27 (33.3%) single or divorced<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>($n$ = 81): 35 (43.2%) white, 28 (34.6%) Hispanic, 14 (17.3%) black, 4 (5%) others<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>10 hours plus 6 hours problem solving skills<br>• *Setting*<br>Medical Centre's Department of Psychiatry<br>• *Delivered by*<br>Therapist (1st author of study)<br>• *Other resources*<br>Videotapes<br>2. • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>10 hours plus 6 hours therapist-facilitated discussion<br>• *Setting*<br>Medical Centre's Department of Psychiatry<br>• *Delivered by*<br>Therapist (1st author of study)<br>• *Other resources*<br>Videotapes<br>3. • *Wait list control*<br>*Content based on:*<br>**Behavioural approach**<br>Parent training/education: Webster-Stratton (1981, 1986); problem-solving skills based on work by D'Zurilla and Goldfried (1971); therapist-facilitated discussion focused on strategies for applying skills learnt | • *Child behaviour*<br>ECBI; Parent Identified Problems Scale (PIP)<br>• *Other*<br>Parenting Situation Test (PST); Parent Behaviour Inventory –Part II (PBI); Parent Attitude Test (PAT); Parenting Stress Index (PSI, parenting domain) | • *Length of training*<br>Unclear; assume 10–16 weeks<br>• *Assessments*<br>Baseline, post-treatment and 8–19-week follow-up (intervention groups only)<br>• *Study size*<br>81 parents (some information only given for the 53 who completed; NB: 126 originally randomised, only 81 actually volunteered and completed pre-test measures) |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Strayhorn and Weidman, 1991, USA[78] | Low-income parents complaining of behavioural and emotional problems in their pre-school children recruited through meetings at Head-start Centres, advertisements on bulletin boards and in classified advertising flyers, referrals from paediatricians and mental health professionals and word of mouth | • *Age/sex*<br>Mean age 3 years 9 months at start of study; 36 (43%) males, 48 females<br>• *Disorder defined*<br>All children described as having behavioural problems; 32% met >5/9 criteria for ODD<br>• *Co-morbidity/ treatment?*<br>Children with vocabulary test scores 50 points below the mean were excluded; 39% of children met >8/14 DSMIII-R criteria for ADHD<br>• *Previous treatment for behavioural problems*<br>Not reported<br>• *Other risk factors*[a]<br>Not reported | • *Age/sex*<br>Not reported<br>• *Socio-economic status*<br>Not reported<br>• *Single-parent household*<br>58%<br>• *Parental co-morbidity*<br>45.5% parents mild depression; 26% moderate depression or greater on BDI<br>• *Ethnicity*<br>Children: 31% white; 64% black; 5% other.<br>• *Antisocial parents*<br>Not reported<br>• *Abusive parents*<br>Not reported<br>• *Parental discipline practices*<br>Not reported<br>• *Social isolation*<br>Not reported | 1. • *Programme type*<br>Parent-training (self-administered videotapes, unclear if in group setting)<br>• *Contact hours*<br>Not reported<br>• *Setting*<br>Not reported<br>• *Delivered by*<br>Not reported<br>• *Other resources*<br>Pamphlet on parenting suggestions<br>*Content based on:*<br>**Behavioural approach**<br>Patterson, 1982; Research Press, 1983.<br>2. • *Programme type*<br>Individual parent and child training.<br>• *Contact hours*<br>Average parent participated in ~12.5 hours of training.<br>• *Setting*<br>Not reported<br>• *Delivered by*<br>Research assistant paraprofessionals<br>• *Other resources*<br>Stories and plays for parents to use with child at home<br>*Content based on:*<br>Paterson, 1982; Research Press 1983; + material developed by the author | • *Child behaviour*<br>Behar Pre-school Behaviour (teacher and parent reports)<br>• *Other:*<br>Depression items from the CBCL; Parent Practices Scale; children's scores on the California Achievement Test (school-driven assessment) | • *Length of training*<br>Not reported<br>• *Assessments*<br>Baseline (all); 139 days post-assessment (parent training/ education); 33 days post-assessment (individual parent and child training); 1 year post-treatment (all)<br>• *Study size*<br>Original sample 98 parents and 105 children.<br>84 children and 77 parents included in this follow-up analysis |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Sutton, 1995, UK[73] | Parents invited to participate using an article in a local newspaper. Parents were then sent a paper to be signed by a professional to ensure the child was appropriately referred to the child management programme. Professionals also invited to make referrals | • *Age/sex*<br>1 × 8 yrs, 2 × 7 years, 1 × 6 yrs, 2 × 5 years, 17 × 4 years; mean age 4.6 years; 17 males (74%); 6 females<br>• *Disorder defined*<br>At baseline 21 (83%) of children were considered 'disordered' according to the Child Behaviour Questionnaire<br>• *Co-morbidity/ treatment?*<br>Not reported<br>• *Previous treatment for behavioural problems*<br>Not reported<br>• *Other risk factors*[a]<br>Not reported | • *Age/sex*<br>Not reported<br>• *Socio-economic status*<br>Not reported<br>• *Single-parent household*<br>4 (17%)<br>• *Parental co-morbidity*<br>Not reported<br>• *Ethnicity*<br>22 Caucasian; 1 Afro-Caribbean.<br>• *Antisocial parents*<br>Not reported<br>• *Abusive parents*<br>Not reported<br>• *Parental discipline practices*<br>Not reported<br>• *Social isolation*<br>Not reported | 1. • *Programme type*<br>Parent training/education: 1:1 (telephone contact)<br>• *Contact hours*<br>One telephone call per week over 8 weeks, ≥ 2 follow-up calls (1–12 weeks post-training). Each call lasted between 5 and 40 minutes. Mean contact time per family: 2 hours 56 minutes (no range reported). Mean number of calls: 13 (range 7–31)<br>• *Setting*<br>Clients' home<br>• *Delivered by*<br>Author of paper; no details stated<br>• *Other resources*<br>Weekly booklets sent to parents<br>2. • *Wait list control*<br>*Content based on:*<br>**Behavioural approach**<br>Sutton, 1992. | • *Child behaviour*<br>Child Behaviour Questionnaire (Rutter *et al.*, 1970); Home Situations Questionnaire; negative count; positive count; goal compliance<br>• *Other:*<br>Beck Depression Inventory (BDI); O'Dell, Tarler-Benlolo and Flynn questionnaire | • *Length of training*<br>8 weeks + 2 follow-up calls.<br>• *Assessments*<br>Baseline<br>Post-intervention (8 weeks)<br>• *Study size*<br>23 families |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Tassé *et al.*, 2001, Canada[74] | Recruitment through a number of centres and, organisations for learning and other disabilities | • *Age/sex*<br>Between 13 and 20 years, mean age 15.3 (SD 2.4); 67% boys (of those who completed)<br>• *Disorder defined*<br>Adolescents with learning disabilities and aggressive behaviour<br>• *Co-morbidity/ treatment?*<br>Learning disability: very severe 29%, severe 17%, moderate 37%, slight 17%; autism 29%, Down syndrome 8%, fragile X 4%, cri du chat syndrome 4%<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>21 mothers, 3 couples<br>• *Socio-economic status*<br>No details<br>• *Single-parent household*<br>No details<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>Adolescents, 96% ($n$ = 23); Canadian, 4% ($n$ = 1) 'Antillais'<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>6 days (number of hours not stated)<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>1–2 trainers<br>• *Other resources*<br>Not stated<br>2. • *Wait list control*<br>*Content based on:*<br>**Behavioural and relationship approach**<br>ICARE (Intervention pour comportements agressifs en REsidence/REadaptation); Tassé *et al.*, 1999 | • *Child behaviour*<br>L'Echelle Québéciose des Comportements Adaptatifs (EQCA)<br>• *Other*<br>Parenting Stress Index (PSI); Inventaire de Bien-Être J8-T; la Grille d'Évaluation des Comportements pour enfants Nisonger (GECEN) | • *Length of training*<br>6 weeks (in year 1, repeated in year 2)<br>• *Assessments*<br>Baseline and post-treatment<br>• *Study size*<br>Parents of 27 adolescents (only data from 24 used) – 13 in year 1 and 14 in year 2 |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Taylor *et al.*, 1998, Canada[90] | Parents referred to a Family Centre for assistance with child conduct problems (some self-refer, some referred by school, medical or social service professionals) | • *Age/sex*<br>Between 3 and 8 years, mean 5.6; 72.7% boys<br>• *Disorder defined*<br>Mean problem and intensity scores on the ECBI in clinically elevated range<br>• *Co-morbidity/ treatment?*<br>No details<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean age 33 (mothers), and 37 (fathers); 69 couples, 38 single mothers and 1 single father<br>• *Socio-economic status*<br>Median income Can $30,000, 15% of couples and 57% of single mothers income below $15,000 (poverty line), 44% of couples and 3% of single parents incomes above $50,000; 11% of couples and 50% of single parents in subsidised housing<br>• *Single-parent household*<br>37% single parents<br>• *Parental co-morbidity*<br>14% alcohol or drug abuse in immediate family, 48% of mothers reported some depression<br>• *Ethnicity*<br>100% fathers and 92% mothers born in Canada<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | 1. • *Programme type*<br>Parent training/education: group (plus one individual session)<br>• *Contact hours*<br>24.75 –31.5 hours (group), 1.5 hours (individual)<br>• *Setting*<br>Mental Health Centre<br>• *Delivered by*<br>2 therapists<br>• Other resources<br>No details<br>2. • *Programme type*<br>Individual (eclectic)<br>• *Contact hours*<br>Average 8 hours (range 1–40)<br>• *Setting*<br>Mental Health Centre<br>• *Delivered by*<br>Therapist<br>• *Other resources*<br>No details<br>3. • *Wait list control*<br>*Content based on:*<br>Parent training/education:<br>**Behavioural approach**<br>Parents and Children Treatment series (Webster-Stratton, 1992)<br>Eclectic: combination of various treatment approaches as normally offered by clinic, including child-focused treatment | • *Child behaviour*<br>ECBI, CBCL; Parent Daily Report (PDR); Achenbach Teacher Report Form (TRF); Matson Evaluation of Social Skills with Youngsters (MESSY)<br>• *Other*<br>Beck Depression Inventory (BDI); Dyadic Adjustment Scale (DAS); Support Scale, Brief Anger and Aggression Questionnaire, (BAAQ); Therapy Attitude Inventory | • *Length of training*<br>17 weeks<br>• *Assessments*<br>Baseline, post-treatment<br>• *Study size*<br>108 or 110 families (both figures reported); have assumed 110 is correct<br><br>NB: owing to randomisation procedure, results from only 55 families could be analysed for interventions and control and results from 92 families analysed for interventions |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Turner and Sanders, 2004, Australia[58] | Families presenting to three community child health clinics requesting information or advice on child behaviour problems or developmental issues | • *Age/sex*<br>Between 2 and 5 years, mean age 3 years, 3 months; 53% boys<br>• *Disorder defined*<br>46.7% clinical range ECBI, 33.3% elevated range; 66.7% clinical range PDR, 16.7% elevated range<br>• *Co-morbidity/ treatment?*<br>No reported developmental delay, major physical disability or severe chronic illness; no formal diagnosis of a developmental disorder or conduct disorder<br>• *Previous treatment for behavioural problems*<br>Child not taking medication or in contact with another professional for behavioural problems<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mothers: mean age 33.67 years (SD 5.49) intervention group, 43.07 (10.77) control group; fathers: mean age 35.27 years (SD 5.96) intervention group, 35.09 (3.05) control group; with the exception of one family, only mothers attended the sessions<br>• *Socio-economic status*<br>Mean occupational status, mothers: 4.5 (SD1.01) intervention group, 4.26 (SD 0.57) control group; fathers: 4.5 (SD 1.17) intervention group, 4.22 (SD 1.21) control group (7-point scale, 1 = highest socio-economic status); 63.3% with financial difficulties; 13.3% of mothers and 30% of fathers did not complete high school<br>• *Single-parent household*<br>20% sole parent<br>• *Parental co-morbidity*<br>20% of mothers depressed<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | **1.** • *Programme type*<br>Parent training: individual (face-to-face, last session face-to-face or telephone)<br>• *Contact hours*<br>3–4 × 1/2 hours (1.5–2 hours)<br>• *Setting*<br>Not stated<br>• *Delivered by*<br>Nurse<br>• *Other resources*<br>Booklet, tip sheet, videos<br>*Content based on:*<br>**Behavioural approach**<br>Primary Care Triple-P<br>**2.** • *Programme type*<br>Wait list control | • *Child behaviour*<br>Parent Daily Report (PDR); ECBI; Home and Community Problem Checklist (HCPC); observed child disruptive behaviour<br>• *Other*<br>Parenting Scale (PS); The Parenting Sense of Competence Scale; Depression–Anxiety–Stress Scales (DASS); Parent Problem Checklist (PPC); Abbreviated Dyadic Adjustment Scale (ADAS); Goal Achievement Scales (GAS); Parenting Experience Survey (PES); Client Satisfaction Questionnaire (CSQ) | • *Length of training*<br>~7 weeks<br>• *Assessments*<br>Baseline, post-treatment, intervention group only at 6 months<br>• *Study size*<br>30 families |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Webster-Stratton *et al.*, 2004, USA[56]<br>2-year follow-up in Reid *et al.*, in press, USA[122] (received via industry submission) | Families requesting treatment at University of Washington Parenting Clinic (specialising in treatment of children in conduct disorder). ~30% families self-referred; 20% teacher referred; 38% physician referred | • *Age/sex*<br>Mean age 70.99 months (SD 11.47); 143 (90%) males; 10% females<br>• Disorder defined<br>Inclusion criteria: child had to score above cut-off for conduct problems on ECBI (10) and meet DSM IV criteria for ODD<br>• *Co-morbidity/ treatment?*<br>Inclusion criteria included no history of psychosis, no intellectual deficit or physical impairment. 18% of sample scored in clinical range on the CBCL attention problems subscale (ADHD) and 25% were taking stimulant medication for ADHD. (Children with ADHD who had been on medication more than 6 months were included)<br>• *Previous treatment for behavioural problems*<br>Not reported<br>• *Other risk factors*[a]<br>Not reported | • *Age/sex*<br>Mean age of mothers across treatment and control conditions ranged from 35.78 to 39.52 years. Mean age of fathers across treatment and control conditions ranged from 37.80 to 39.91 years. No details of mother/father ratio given<br>• *Socio-economic status*<br>Across treatment and control conditions social score position (high score denotes lower social class) ranged from 25.42 to 32.6. Across treatment and control conditions family income ranged from US$29,000 to $69,999<br>• *Single-parent household*<br>41 (25.8%)<br>• *Parental co-morbidity*<br>Not reported<br>• *Ethnicity*<br>Across treatment and control conditions number of parents **not** Euro-American ranged from 14.4 to 4.2%.<br>• *Antisocial parents*<br>Not reported<br>• *Abusive parents*<br>Not reported<br>• *Parental discipline practices*<br>Not reported<br>• *Social isolation*<br>Not reported | **1.** • *Programme type*<br>Parent training/education (PT) group<br>• *Contact hours*<br>22–24 weekly 2-hour sessions (44–48 hours)<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Therapists (1–2) (MSc or PhD in mental health-related field and experience with behaviour problem children and family therapy)<br>• *Other resources*<br>None detailed<br>Content based on:<br>**Behavioural approach**<br>Webster-Stratton, Milhalic *et al.*, 2001<br>**2.** • *Programme type*<br>Parent training/education and teacher training (PT + TT). Parent training as detailed above +:<br>• *Contact hours*<br>Group: 4 days (42 hours) + 1 meeting at school.<br>• *Setting*<br>Clinic + 1 meeting at school<br>• *Delivered by*<br>Therapists (1–2) (MSc or PhD in mental health-related field and experience with behaviour problem children and family therapy)<br>• *Other resources*<br>Substitute teachers were paid for in order that teachers could attend<br>*Content based on:*<br>Webster-Stratton, 1994 | • *Child behaviour*<br>Child conduct problems at home composite score included measures from:<br>ECBI; CII-child; DPICS-R.<br>Child conduct problems at school composite score included measures from: TASB; teacher rating scales of PCSC; MOOSES; SHP | • *Length of training*<br>4–6 months<br>• *Assessments*<br>Pre- and post-intervention (8–9 months); 2-year follow-up intervention groups only<br>• *Study size*<br>159 families; 159 children (133 families for 2-year follow-up) |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| | | | | **3.** • *Programme type*<br>Child training (CT)<br>• *Contact hours*<br>18–19 3-hour sessions over 6 months (group)<br>• *Setting*<br>Clinic (Dinosaur School)<br>• *Delivered by*<br>Therapists (1–2) (Msc or PhD in mental health-related field and experience with behaviour problem children and family therapy)<br>• *Other resources*<br>Weekly homework assignments. Weekly letters to parents and teachers, good behaviour weekly charts to parents and teachers, bonus rewards<br>*Content based on:*<br>Webster-Stratton, 1990<br>**4.** • *Programme type*<br>Child training and teacher training (CT + TT)<br>CT and TT as detailed above<br>**5.** • *Programme type*<br>Parent training/education and child training and teacher training (PT + CT + TT)<br>CT and TT and PT as detailed above<br>**6.** • *Wait list control* | • *Other:*<br>Child social competence (TASB; SHP; DPIS); negative classroom management (classroom atmosphere measure); MOOSES; Teacher Coder Impressions Inventory; parent and teacher satisfaction; Parenting positive and negative composite score (parenting practices interview; DPICS-R; CII-parenting style) | |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Webster-Stratton and Hammond, 1997, USA[91] | None given except 'primary referral problem was child misconduct' | • *Age/sex*<br>Mean age 68.9 months (SD 14.32); 72 males (74%), 25 females<br>• *Disorder defined*<br>Inclusion criteria included parent reports of number of child behaviour problems on the ECBI problem score >2SD above the mean. Child also had to meet DSM III-R criteria for ODD and CD<br>• *Co-morbidity/ treatment?*<br>Sample contained children with ADHD but numbers not reported. Inclusion criteria included no current psychological treatment, no intellectual deficit, no physical impairment and no history of psychosis<br>• *Previous treatment for behavioural problems*<br>Not reported<br>• *Other risk factors*[a]<br>Not reported | • *Age/sex*<br>Across intervention and control groups mother's mean age ranged from 33.74 to 36.15 years; no details of ratio of males to females<br>• *Socio-economic status*<br>Across control and intervention groups social position score (higher scores denote lower position) ranged from 30.27 to 36.08. Family income: across intervention and control groups: annual income US<$9000 ranged from 0 to 15%; annual income $9000–20,999 ranged from 9.1 to 18.2%; annual income $21,000–39,999 ranged from 27.3 to 36.4%; annual income $40,000–69,999 ranged from 23.1–40.9%; annual income >$70,000 ranged from 13.6 to 22.7%<br>• *Single-parent household*<br>Across intervention and control groups ranged from 38.5 to 26.7%<br>• *Parental co-morbidity*<br>Not reported<br>• *Ethnicity*<br>85.6% of children were Caucasian<br>• *Antisocial parents*<br>Not reported<br>• *Abusive parents*<br>Not reported<br>• *Parental discipline practices*<br>Not reported<br>• *Social isolation*<br>Not reported | **1.** • *Programme type*<br>Parent training/education (PT) group<br>• *Contact hours*<br>22–24 weekly 2-hour sessions (44–48 hours)<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>As for CT above<br>• *Other resources*<br>None detailed.<br>*Content based on:*<br>**Behavioural approach**<br>Webster-Stratton, 1990<br>**2.** • *Programme type*<br>Child training (CT)<br>• Contact hours<br>22 × 2-hour sessions over 6 months<br>• Setting<br>Clinic<br>• Delivered by<br>Therapists (1–2) (MSc or PhD in mental health-related field and experience with behaviour problem children and family therapy)<br>• Other resources<br>Videos, weekly letters to parents and teachers, colouring books, cue cards, cartoons, stickers. Therapist supervision, therapist manuals<br>*Content based on:*<br>Webster-Stratton, 1991.<br>**3.** • *Programme type*<br>Child training and parent training/education (CT + PT)<br>Combination of 1 and 2 above.<br>**4.** • *Wait list control* | • *Child behaviour*<br>ECBI, intensity score; CBCL; Parent Daily Reports (PDR); Behar Preschool Behaviour Questionnaire (BPQ); Dyadic Parent–Child Interactive Coding System (DPICS–child variables); Peer Problem Solving Interaction Communication Affect Rating Coding System (PPS-I-CARE)<br>• *Other:*<br>Parenting Stress Index (PSI); Wally Child Social Problem Solving Detective Game; Dyadic Parent–Child Interactive Coding System (DPICS–parent variables); social validity measure; Parenting Problem Solving; consumer satisfaction questionnaire | • *Length of training*<br>CT 6 months; PT 22–24 weeks (~ 4 months)<br>• *Assessments*<br>Pre-intervention; 2 months post intervention (~6–8 months)<br>• *Study size*<br>97 families (CT, $n = 27$ children; PT, $n = 26$ families; CT and PT, $n = 22$; Control, $n = 22$) |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Webster-Stratton, 1994, USA[79] | Self-referred (50%) or professionally referred (50%) for child misconduct | • *Age/sex*<br>Mean age 58.72 months (SD 12.91); 74.4% boys (of those who completed)<br>• *Disorder defined*<br>Clinically significant number of behaviour problems according to the ECBI and diagnosis (DSM III–V) of CD, ODD or both<br>• *Co-morbidity/ treatment?*<br>No debilitating physical impairment, intellectual deficit or history of psychosis<br>• *Previous treatment for behavioural problems*<br>No treatment at time of referral<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean age 34.7 years (mothers) and 36.57 (fathers); 77 mothers, 58 fathers<br>• *Socio-economic status*<br>Median yearly income US$35,000 (12% at welfare level, 28.2% $9000–29,000, 59.0% >$29,000)<br>• *Single-parent household*<br>30.8% single<br>• *Parental co-morbidity*<br>44.9% alcohol or drug abuse in immediate family; 31.2% mothers and 22.4% fathers mild to moderate depression<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>33.8% mothers experienced spouse abuse<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | **1.** • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>12–13 2-hour sessions (24–26 hours)<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Therapist<br>• Other resources<br>Videotape programmes, handouts<br>**Behavioural approach**<br><br>**2.** • *Programme type*<br>Parent training/education: group<br>• *Contact hours*<br>As above plus 14 additional 2-hour sessions (52–54 hours)<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Therapist<br>• *Other*<br>Videotape programmes, handouts<br>**Behavioural and relationship approach**<br><br>*Content based on:*<br>Basic parent training/education programme (Webster-Stratton, 1993) versus basic plus broader based treatment component (cognitive social learning treatment) | • *Child behaviour*<br>ECBI; CBCL; Dyadic Parent-Child Interaction Coding system (DPICS – child related variable: total deviance); Child Social Problem Solving Test–Revised (SPST-R)<br>• *Other*<br>Marital Adjustment Test (MAT); Brief Anger Aggression Questionnaire (BAAQ); Parenting Stress Index (PSI); Dyadic Parent–Child Interaction Coding system (DPICS – parent related variables); Problem-Solving Interaction Communication Affect Rating Engagement System (PS-I CARE); Consumer Satisfaction Questionnaire | • *Length of training*<br>12–13 weeks (group 1), 26–27 weeks (group 2)<br>• *Assessments*<br>Baseline, post-treatment (12–13 weeks) and post-treatment (26–27 weeks)<br>• *Study size*<br>85 families (data on 78 only) |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Webster-Stratton, 1992, USA[75] | Self-referred 46%, professional referral 54% | • *Age/sex*<br>Between 3 and 8 years, mean 60.3 months; 72% boys<br>• *Disorder defined*<br>Mean number of pre-treatment behaviour problems according to the ECBI was in the clinic range; confirmed by home observations<br>• *Co-morbidity/ treatment?*<br>No debilitating physical impairment, intellectual deficit or history of psychosis<br>• *Previous treatment for behavioural problems*<br>No treatment at the time of referral<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>100 mothers (mean age 33.7 years), 62 fathers (mean age 35.8)<br>• *Socio-economic status*<br>Social class 5 ($n$ = 14), class 4 ($n$ = 17), class 3 ($n$ = 32), class 2 ($n$ = 23), class 1 ($n$ = 14) (Hollingshead and Redlich Index, higher value = lower status)<br>Income: welfare level 15 families, <US$28,999 $n$ = 32, >$29,000 $n$ = 53<br>• *Single-parent household*<br>34%<br>• *Parental co-morbidity*<br>41% of families reported alcoholism or drug abuse in immediate family, 37.4% of mothers and 14.3% of fathers reported mild to moderate depression<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>27% of mothers experienced spouse abuse<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | **1.** • *Programme type*<br>Parent training/education: self-administered (in group setting)<br>• *Contact hours*<br>10 hours<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Self-administered; secretary gave instructions<br>• *Other resources*<br>Manual<br>**2.** • *Wait list control*<br>*Content based on:*<br>**Behavioural approach**<br>Individually Administered Videotape Modelling Training (Webster-Stratton, 1988) | • *Child behaviour*<br>ECBI; CBCL; Child behaviours (total deviance); Parent Daily Reports (PDR); teacher report: Behar Preschool Questionnaire (BPQ)<br>• *Other*<br>Parenting Stress Index (PSI); mother and father behaviours, consumer satisfaction | • *Length of training*<br>10 weeks<br>• *Assessments*<br>Baseline and post-treatment, 1-year follow-up (intervention group only)<br>• *Study size*<br>100 families (100 mothers and 62 fathers) |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Webster-Stratton, 1990, USA[87] | No details | • *Age/sex*<br>Between 3 and 8 years, mean age 5; 79% boys (of those who completed)<br>• *Disorder defined*<br>Clinically significant number of behaviour problems according to ECBI (>11 on problem score)<br>• *Co-morbidity/ treatment?*<br>No debilitating physical impairment, intellectual deficit or history of psychosis<br>• *Previous treatment for behavioural problems*<br>No treatment at time of referral<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean age mothers 34.8 years, fathers 36.7 years; 43 mothers, 26 fathers<br>• *Socio-economic status*<br>Class 5 ($n$ = 2), class 4 ($n$ = 7), class 3 ($n$ = 18), class 2 ($n$ = 10), class 1 ($n$ = 6) (Hollingshead and Redlich's two-factor index)<br>• *Single-parent household*<br>39.5% single<br>• *Parental co-morbidity*<br>41.9% alcoholism or drug abuse in immediate family<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>25.6% of mother had experienced spouse abuse, 14.0% of mothers had prior involvement with Child Protective Services<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | **1.** • *Programme type*<br>Parent training/education: self-administered (in group setting)<br>• *Contact hours*<br>10 sessions<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Self-administered<br>• *Other resources*<br>10 videotape programmes<br>**2.** • *Programme type*<br>As above, plus individual therapist contact<br>• *Contact hours*<br>Two 1-hour appointments plus possibility of calling therapist at any time<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Therapist (clinician with doctorate in child psychology)<br>• *Other resources*<br>None<br>**3.** • *Wait list control*<br>*Content based on:*<br>**Behavioural approach**<br>Individually Administered Videotape Modelling Treatment (Webster-Stratton, 1987) | • *Child behaviour*<br>ECBI, intensity score only; CBCL; Parent Daily Report (PDR, child variables); Dyadic Parent–Child Interaction Coding System (DPICS, child variable)<br>• *Other*<br>Parent Daily Report (PDR, parent variables); Parenting Stress Index (PSI); Dyadic Parent–Child Interaction Coding System (parent variables); Consumer Satisfaction Questionnaire | • *Length of training*<br>12 weeks<br>• *Assessments*<br>Baseline and post-treatment<br>• *Study size*<br>47 families (47 mothers, 28 fathers) |

*continued*

| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Webster-Stratton *et al.*, 1988, USA[88]<br><br>(1- and 3-year follow-up results reported in Webster-Stratton *et al.*, 1989[123] and Webster-Stratton, 1990[124] for intervention groups only) | Self-referred (43%) or professionally referred (57%) | • *Age/sex*<br>Between 3 and 8 years, mean 4 years, 6 months; 69% boys<br>• *Disorder defined*<br>Children rated as having a clinically significant number of behaviour problems on the ECBI<br>• *Co-morbidity/ treatment?*<br>No debilitating physical impairment, intellectual deficit or history of psychosis<br>• *Previous treatment for behavioural problems*<br>No treatment at time of referral<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mean age mothers 32.8 years, fathers 35.1; 114 mothers, 80 fathers<br>• *Socio-economic status*<br>Social class 5 ($n$ = 17), class 4 ($n$ = 26), class 3 ($n$ = 33), class 2 ($n$ = 24), class 1 ($n$ = 14) (Hollingshead and Redlich's two-factor index); Income: welfare level ($n$ = 21), <US$28,999 ($n$ = 31), >$29,000 ($n$ = 62)<br>• *Single-parent household*<br>35 (30.7%) single<br>• *Parental co-morbidity*<br>45 (39.5%) of families reported alcoholism or drug abuse in the immediate family; 33 (31.1%) of mothers reported some depression<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>36 (31.6%) of mothers had experienced spouse abuse; 15 (13.1%) of mothers reported prior involvement with Child Protective Services<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | **1.** • *Programme type*<br>Parent training/education: self-administered videotape training (in group setting)<br>• *Contact hours*<br>10–12 × 1-hour sessions (= 10–12 hours)<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Self-administered<br>• *Other resources*<br>10 videotape programmes<br>**2.** • *Programme type:*<br>Parent training/education: therapist showed videotapes (as above), followed by group discussion<br>• *Contact hours*<br>10–12 × 2 hour sessions (= 20–24 hours)<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Therapist (psychologist or social worker)<br>• *Other resources*<br>10 videotape programmes<br>3. • *Programme type:*<br>Parent training/education: group discussion with therapist<br>• *Contact hours*<br>10–12 × 2 hour sessions (= 20–24 hours)<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Therapist (psychologist or social worker)<br>• *Other resources*<br>None<br>**4.** • *Wait list control*<br>*Content based on:*<br>Behavioural approach<br>Videotape training (Webster-Stratton, 1981, 1987); content of all 3 programmes included a modification of the interactional model (Hanf and Kling, 1973; Kogan and Gordon, 1975) and non-punitive discipline approaches (Patterson, 1975; Forehand and McMahon, 1981) and problem-solving approaches (Spivack *et al.*, 1976) | • *Child behaviour*<br>ECBI; CBCL; Parent Daily Report (PDR, child variables); Dyadic Parent–Child Interaction Coding System (DPICS, child variable); Behar Preschool Behaviour Questionnaire (PBQ)<br>• *Other*<br>Parent Daily Report (PDR, parent variables); Parenting Stress Index (PSI); Dyadic Parent–Child Interaction Coding System (parent variables); Consumer Satisfaction Questionnaire | • *Length of training*<br>10–12 weeks<br>• *Assessments*<br>Baseline, post-treatment (1- and 3-year follow-up for intervention groups only)<br>• *Study size*<br>114 families |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Webster-Stratton, 1984, USA[92] | Families referred by paediatricians, psychiatrists, school or mental health personnel, nurses, parents to a psychiatric and behavioural clinic at a paediatric hospital advertising a specialised programme for the treatment and evaluation of children with conduct problems | • *Age/sex*<br>Mean age 4 years 8 months; 25 (71.5%) males; 10 females<br>• *Disorder defined*<br>Referral problem 'child oppositional behaviours'<br>• *Co-morbidity/ treatment?*<br>Inclusion criteria no physical impairment, intellectual deficit or history of psychosis<br>• *Previous treatment for behavioural problems*<br>Not reported<br>• *Other risk factors*[a]<br>Not reported | • *Age/sex*<br>Mothers mean age 30 years, fathers 32; 35 mothers and 16 fathers<br>• *Socio-economic status*<br>Mean socio-economic status score 51.8 (social class 4) (Hollingshead and Redlich, 1958) = lower to middle class. 11 (31%) receiving welfare; 11 (31%) annual income US$9000–20,000; 13 (37%) annual income >$20,000<br>• *Single-parent household*<br>$n = 19$ (54%).<br>• *Parental co-morbidity*<br>Not reported<br>• *Ethnicity*<br>Not reported<br>• *Antisocial parents*<br>Not reported<br>• *Abusive parents*<br>15 (43%)<br>• *Parental discipline practices*<br>Not reported<br>• *Social isolation*<br>Not reported | **1.** • *Programme type*<br>Parent training/education: group<br>9 weekly sessions × 2 hours = 18 hours<br>• *Setting*<br>Hospital clinic<br>• *Delivered by*<br>Doctorally trained psychologist with previous experience of counselling and parent training/education<br>• *Other resources*<br>Videotape modelling<br>*Content based on:*<br>**Behavioural approach**<br>Hanf and Kling, 1973; Kogan and Gordon, 1975<br>**2.** • *Programme type*<br>1: 1 parent **and** child (not parent training/education programme)<br>• *Contact hours*<br>9 weekly sessions × 2 hours = 18 hours<br>• *Setting*<br>Hospital clinic<br>• *Delivered by*<br>Doctorally trained psychologist with previous experience of counselling and parent training/education<br>• *Other resources*<br>One-way mirror and bug-in-ear for parents rehearsing with children<br>*Content based on:*<br>Hanf and Kling, 1973; Kogan and Gordon, 1975<br>**3.** • *Wait list control* | • *Child behaviour*<br>Achenbach Child Behaviour Checklist (CBCL); ECBI; Parent Daily Telephone Reports (PDR); Dyadic Parent–Child Interaction Coding System (DPICS)<br>• *Other:*<br>Consumer satisfaction questionnaire | • *Length of training*<br>9 weeks<br>• *Assessments*<br>Baseline<br>3 months<br>• *Study size*<br>40 families (40 children) |

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| Study | Sample source | Children's characteristics | Parent/family characteristics | Interventions | Outcome measures | Length of study, follow-up, study size |
|---|---|---|---|---|---|---|
| Wells and Egan, 1988, USA[80] | Routine outpatient child psychiatry clinic referrals | • *Age/sex*<br>Between 3 and 8 years, no further details<br>• *Disorder defined*<br>DSM III diagnosis of ODD and child display of ≥ 50% non-compliance to parental commands in clinic observation<br>• *Co-morbidity/ treatment?*<br>Children with mental retardation, psychoses, developmental disorders excluded<br>• *Previous treatment for behavioural problems*<br>No details<br>• *Other risk factors*[a]<br>No details | • *Age/sex*<br>Mothers (not clear how many fathers); no details on age<br>• *Socio-economic status*<br>No details<br>• *Single-parent household*<br>4 single mothers (unclear if of 24 or of 19)<br>• *Parental co-morbidity*<br>No details<br>• *Ethnicity*<br>No details<br>• *Antisocial parents*<br>No details<br>• *Abusive parents*<br>No details<br>• *Parental discipline practices*<br>No details<br>• *Social isolation*<br>No details | **1.** • *Programme type*<br>Parent training/education: individual<br>• *Contact hours*<br>8–12 sessions (number of hours not clear)<br>• *Setting*<br>Clinic<br>• *Delivered by*<br>Therapist<br>• *Other resources*<br>None<br>**2.** • *Systems Family Therapy (Minuchin, 1974; Haley, 1976)*<br>*Content based on:*<br>**Behavioural approach**<br>Social learning-based parent training/education programme developed by Hanf (evaluated by Forehand *et al.*, 1981) | • *Child behaviour*<br>Observation of compliance to good and to total commands<br>• *Other*<br>Observation of parental behaviour (attends and rewards, contingent attention, commands); Beck Depression Inventory (BDI); Spielberger Questionnaire; Locke Wallace Marriage Inventory | • *Length of training*<br>8–12 sessions, not clear over which time period<br>• *Assessments*<br>Baseline and post-treatment<br>• *Study size*<br>24 families |

[a] Risk factors in addition to male sex and previous treatment for a behavioural disorder include: prior antisocial behaviour, peer rejection and early aggression

# Appendix 7

## Child behaviour-related outcome measures

| Outcome measure | Description | Studies |
|---|---|---|
| **Relating to child behaviour:** | | |
| Behar Preschool Behaviour Questionnaire (BPQ) | **Teacher report.** The PBQ (Behar, 1977) is a teacher report instrument (of children aged 3–7); it includes 30 items, each rated on a 0–2 point scale; in addition to a total behaviour problem scale, there are 3 subscales: hostile–aggressive, anxious and hyperactive distractible; can also be used as a parent report instrument; test–retest reliability ranges from 0.60–0.99<br>Strayhorn and Weidman: scale altered to provide 7 choices ('no problem' to 'very large problem') | Strayhorn and Weidman, 1991, USA<br>Webster-Stratton and Hammond, 1997, USA<br>Webster-Stratton, 1992, USA<br>Webster-Stratton *et al.*, 1988, USA |
| Becker/Bipolar Adjective Checklist (BAC) | **Parent report.** Diament and Colletti; Hamilton and MacQuiddy; Patterson and Fagot (1967); 47-item, scaled checklist that yields scores on: tense disposition, withdrawn–hostile, aggression, intellectual deficiency, conduct problems; summary score correctly classified 90% of a sample of clinic referred and non-referred children (Lobitz and Johnson, 1975)<br>Hughes and Wilson: used summary scores of factors I, III and IV on Patterson's version of the Becker Adjective Checklist (Patterson *et al.*, 1975) | Diament and Colletti, 1978, USA<br>Hamilton and MacQuiddy, 1984, USA<br>Hughes and Wilson, 1988, Australia |
| Behavioural observations | **Independent observer report.** As described by Hiers *et al*. (1980); frequencies of parent and child behaviours recorded on a 'parent–child interaction data sheet'; two behavioural observation scores computed from each data sheet: negative child behaviour (total non-compliance and inappropriate behaviours) and positive parent behaviour (total of good commands, attends, labelled praise, unlabelled praise, physical praise and appropriate ignoring) | Knapp and Deluty, 1989, USA |
| Behavioural observations | **Independent observer report.** A modified version of that described by Cobb (1971) and Gordon and Keefe (1976); behaviour interactions between mother and child were coded on a 12-category coding system. Four categories of appropriate behaviour (approval, compliance, appropriate verbal interaction, and attending) and seven categories of inappropriate behaviour (physical negative, destructiveness, disapproval, noisy, inappropriate verbal interaction, self-stimulation and non-attending) | Diament and Colletti, 1978, USA |

*continued*

| Outcome measure | Description | Studies |
|---|---|---|
| Behaviour Problem Checklist (BPC) and Revised Behaviour Problem Checklist (RBPC) | **Parent report.** Peterson and Quay (1979) (Hughes and Wilson, 1988, Australia); Quay and Peterson (1983) (Knapp and Deluty, 1989); Quay and Peterson (1987) (Magen and Rose, 1994)<br>Self-report instrument that assesses parents' perceptions of the severity of child behaviour; items describe 89 behaviours that frequently occur in childhood; each item rated on a scale ranging from 'does not constitute a problem' (0) to 'constitutes a severe problem' (2); there are 4 major subscales on the RBPC: conduct disorder, socialised aggression, attention problems–immaturity and anxiety–withdrawal; two minor scales relate to psychotic behaviour and motor tension-excess; total score obtained by summing ratings for all six scales; higher score indicates more numerous and/or severe problems; inter-rater reliability, internal consistency and clinical utility are well established (Quay and Peterson, 1983) | Hughes and Wilson, 1988, Australia<br>Knapp and Deluty, 1989, USA<br>Magen and Rose, 1994, USA |
| Behaviour Rating Profile – Teacher Rating Scale (BRP-T) | **Teacher report.** Brown and Hamill (1983); 30- item scale completed by teacher; teacher indicates on a Likert-type scale how descriptive each of the statements is of the target child; instrument provides a measure of the intensity of behaviour problems; primary focus is on externalising behaviour problems; test–retest reliability is 0.91, internal consistency ranges from 0.87 to 0.98 (Brown and Hamill, 1983) | Long *et al.*, 1993, USA |
| Changes in target behaviour | **Independent observer report.** Adesso and Lipson (1981): weekly average calculated (1 or 2 negative child target behaviours) and converted to a % of baseline<br>Siegert and Yates (1980): mean % change in negative target behaviour frequencies (average of 2.6 selected) from baseline frequencies | Adesso and Lipson, 1981, USA<br>Siegert and Yates, 1980, USA |
| Child Behaviour Checklist (CBCL) – Parent Report Form | **Parent report.** Achenbach and Edelbrock (1981; revised 1983; revised 1991). 118 behaviour-problem items each rated on a 0–2 scale (0 = not a problem, 1 = sometimes a problem; 2 = often a problem). The items constitute multiple behaviour problem scales derived separately for boys and girls and in different age groups. Three broadband scales include: total problems; externalising problems; internalising problems. Eight (1991) (previously seven, 1981 and 1983) narrow band subscales include: withdrawn; somatic complaints; anxious/depressed; social problems; thought problems; attention problems; delinquent behaviour; aggressive behaviour. | Barkley *et al.*, 2000, USA<br>Behan *et al.*, 2001, Ireland<br>Irvine *et al.*, 1999, USA<br>Sheeber and Johnson, 1994, USA<br>Taylor *et al.*, 1998, USA<br>Webster-Stratton and Hammond, 1997<br>Webster-Stratton, 1994, USA<br>Webster-Stratton, 1992, USA<br>Webster-Stratton, 1990, USA<br>Webster-Stratton *et al.*, 1988, USA<br>Webster-Stratton, 1984, USA |

*continued*

| Outcome measure | Description | Studies |
|---|---|---|
| Child Behaviour Checklist (CBCL) – Teacher Report Form (TRF) | **Teacher report.** Barkley *et al.*, (2000): 1991 scoring system used; 126 items related to children's behavioural and emotional problems; scales used: withdrawal, anxiety/depression, social problems, aggression, delinquent behaviour (Achenbach and Edelbrock, 1986)<br>Taylor *et al.* (1998): 118 items, each rated on a 0–2 score, reflects wide range of behaviour problems (Achenbach, 1991). | Barkley *et al.*, 2000, USA<br>Taylor *et al.*, 1998, USA |
| Child Behaviour Checklist (CBCL) – direct observation form | **Independent observer report.** Achenbach (1986). Content as for the CBCL – Parent Report Form 1986 above. 118 behaviour-problem items each rated on a 0–2 scale (0 = not a problem, 1 = sometimes a problem; 2 = often a problem). The items constitute multiple behaviour problem scales derived separately for boys and girls and in different age groups. Three broadband scales include: total problems; externalising problems; internalising problems. Eight narrow band subscales include: withdrawn; somatic complaints; anxious/depressed; social problems; thought problems; attention problems; delinquent behaviour; aggressive behaviour | Barkley *et al*., 2000, USA |
| Child Behaviour Rating Scale (CBRS) | **Parent and independent observer reports.** Cassell (1962). Used to assess the personality adjustment of children by rating their behaviour. There are 78 statements to be rated by parents and/or observers. The total scale provides a profile of a child's adjustment in five areas: self, home, social, school and physical. | Lewis, 1986, USA |
| Child Behaviour Questionnaire | **Parent Report.** Rutter *et al*. (1970); parents tick 18 boxes showing whether a problem 'doesn't apply' (score 0), 'applies somewhat' (score 1) or 'certainly applies' (score 2); parents could add two others; highest possible score is 40 | Sutton, 1995, UK |
| Child compliance (negative and positive count, goal compliance) | **Parent report**. Negative count: the number of times a child failed to comply with an instruction within 30 seconds; positive count: the number of times a child did comply with an instruction within 30 seconds; goal compliance: parent's judgement about how far a child was moving towards the goal of complying with an instruction in 30 seconds (–5 = severe deterioration; 0 = no change; +5 = goal achieved). No reference stated;? measure created for this study | Sutton, 1995, UK |
| Child compliance and non-compliance with commands | **Independent observer report.** Forehand *et al*. (1978). Child compliance part of coding system to record sequential parent and child behaviours over 30-second time intervals. Child compliance defined as initial obedience to a parental command or following directions. Non-compliance defined as failure to initiate compliance to a parental command | Wells and Egan, 1988, USA |

*continued*

| Outcome measure | Description | Studies |
|---|---|---|
| Child Social Problem Solving Test – Revised (SPST-R) | **Independent observation.** Rubin and Krasnor (1983) derived from Spivak and Shure (1974) Preschool Problem-Solving Test. Child is presented with pictures of problem situations and asked for 2 things the story character should do to accomplish the desired goal from 10 prosocial solutions (e.g. ask, wait) and 8 antagonistic solutions (e.g. attack, avoid, bribe) | Webster-Stratton, 1994, USA |
| Child target behaviour as defined by parents | **Parent report.** Recording of 2 target child behaviours selected by parents over consecutive seven day periods. No reference stated;? measure created for this study | Pevsner, 1982, USA |
| Composite score child conduct problems home; (development of composite scores according to Dishion *et al.*, 1991) | **Parent report (ECBI) and independent observer report (DPICS-R and CII Child).** Comprises ECBI intensity score (Robinson *et al.*, 1980) (see below); DPICS-R (Robinson and Eyberg 1981) (see below) and two items from the CII Child (adapted form OSCL Impression Inventory): (1) percentage of time child acted inappropriately and (2) total overall poor conduct. | Webster-Stratton *et al.*, 2004, USA |
| Composite score child conduct problems at school and with peers; (development of composite scores according to Dishion *et al*. 1991) | **Teacher report (TASB; PCSC) and independent observer report (MOOSES; SHP).** TASB (Cassidy and Asher 1992): comparison of target child with peers on 4 behavioural dimensions. One behavioural dimension (aggressive behaviour scale) used in composite measure. Teacher rating scales of the PCSC (Harter and Pike, 1984): teachers assessment of child competence in four domains. One domain (behavioural conduct) used in composite score. MOOSES (Tapp *et al.*, in press): coding of children's interactions with peers to produce a summary score for total negative behaviour (includes negative, aggressive and disruptive behaviours with teachers and total physical and verbal aggression and negative behaviours with peers in structured and unstructured situations). SHP (revised Teacher Observation of Classroom Adaptation; Werthamer-Larsson *et al*. 1990): poor acceptance summary score comprising 14 items including fighting, breaking rules, harming others, refusing to accept authority and reversed items such as friendliness | |
| Daily Checklist | **Parent report.** 4-item questionnaire (assesses % of time child responds directly to commands, % of time parent provides positive attention to the child when he/she was compliant, degree of self-control the parent feels when disciplining the child, amount of time the parent spends checking in the child during a 3-minute time-out period). No reference stated;? developed for this study | Hamilton and MacQuiddy, 1984, USA |

*continued*

| Outcome measure | Description | Studies |
|---|---|---|
| Diagnostic Interview Schedule for Children–Parent (DISC-P) version 2.1 | **Parent report and independent observer reports.** (Lahey *et al.*, 1984): Interview schedule administered to parents. Information on DSM IV symptom lists for 12 childhood disorders collected to provide independent estimate of child's global assessment of functioning scale (0–100) with lower scores reflecting poorer global functioning. | Barkley *et al.*, 2000, USA |
| DSM III-R symptoms of ADHD | **Parent report and teacher report.** At baseline parents and teachers rated children for the presence of DSM III symptoms for attention deficit disorders. At follow-up parents and teachers rated children for the presence of DSM III-R symptoms for oppositional and attention deficit disorders | Strayhorn and Weidman, 1991, USA |
| Dyadic Parent–Child Interaction Coding System (DPICS – child related variables) | **Independent observer report.** Robinson and Eyberg (1981, 1992) An assessment of parent–child interaction. DPICS consists of 29 separate behaviour categories covering parent and child behaviours which are either coded as present or absent over 5-minute segments of observation. Examples of parent behaviours include praise, critical statements, physical negative behaviours, positive affect and commands given to the child. Examples of child behaviours include physical negatives directed at parents, whines, cries, destructive behaviours and non-compliance with parental commands | Gross *et al.*, 1995, USA<br>Webster-Stratton and Hammond, 1997<br>Webster-Stratton, 1994, USA<br>Webster-Stratton, 1992, USA<br>Webster-Stratton, 1990, USA<br>Webster-Stratton *et al.*, 1988, USA<br>Webster-Stratton, 1984, USA |
| Eatontown Children's Psychiatric Center Problem List | **Parent report.** List contains 237 problem behaviours (e.g. bites nails, stutters, disobeys parents) and requires parents to underline all problems manifested by the child that are of current concern. 1963 (no reference cited) | Karoly and Rosenthal, 1977, USA |
| L'Echelle Québécoise des Comportements Adaptifs (EQCA) | Parent report. Maurice *et al*. (1993). The EQCA comprises 225 items relating to adaptive behaviours in the seven domains of autonomy, domestic behaviours, communication, social interaction, health and sensory-motor, education and work and 99 items which form a total score relating to problem behaviours | Tassé *et al.*, 2001, Canada |
| Eyberg Child Behaviour Inventory (ECBI) | **Parent report.** Robinson *et al.* (1980). A 36-item inventory of child problem behaviours for children aged 2–16 years. Two scores can be obtained from the inventory: a problem score (the total number of problem behaviours) and an intensity score (1–7) (the frequency with which the behaviour problems occur). Cut-off scores of 126 for the intensity score and 11 for the problem score have been specified for children at risk for conduct problems (Eyberg and Ross, 1978) | Connell *et al.*, 1997, Australia<br>Gross *et al.*, 1995, USA<br>Hamilton and MacQuiddy, 1984, USA<br>Hoath and Sanders, 2002, Australia<br>Ireland *et al.*, 2003, Australia<br>Kacir and Gordon, 1999, USA<br>Long *et al*., 1993, USA<br>Sanders *et al.*, 2004 in press, Australia<br>Sanders *et al.*, 2000 (a), Australia<br>Sanders *et al.*, 2000 (b), Australia<br>Spaccarelli *et al*., 1992, USA<br>Taylor *et al*., 1998, USA<br>Turner and Sanders, 2004, Australia<br>Webster-Stratton and Hammond, 1997<br>Webster-Stratton, 1994, USA<br>Webster-Stratton, 1992, USA<br>Webster-Stratton, 1990, USA<br>Webster-Stratton *et al.*, 1988, USA<br>Webster-Stratton, 1984, USA |

*continued*

| Outcome measure | Description | Studies |
|---|---|---|
| Examiner ratings of subject's behaviour | **Independent observer report.** A rating scale comprised 17 items of behavioural problems; items rates on 7-point Likert scale. No reference stated;? measure created for this study | Barkley *et al.*, 2000, USA |
| Home and Community Problem Checklist (HCPC) | **Parent report.** Sanders and Dadds (1993). 29-item checklist of 15 specific situations in the home and 14 situations in the community that parents experience difficulty in managing their child's behaviour. Measures are the total number of settings or total number of home and community settings where problems occur | Sanders *et al.*, 2004, Australia<br>Turner and Sanders, 2004, Australia |
| Home Situations Questionnaire (HSQ) | **Parent report.** Barkley (1990). This scale assesses the pervasiveness of behaviour problems across 16 different home and public settings (number of problem settings) and the severity of these behaviour problems (mean severity score 1–9, Likert scale 1–9). | Barkley *et al.*, 2000, USA<br>Long *et al.*, 1993, USA<br>Sutton, 1995, UK |
| Issues Checklist | **Parent report.** Prinz *et al*. (forthcoming). Parents record which of 44 common problems in child–parent interaction occurred over a 4-week period (retrospective recording), how frequently the problems occurred and their affective intensity rated on a 5-point scale from calm to angry. Examples of problems included in the measure are bedtimes, doing homework, drug abuse, talking back to parents and lying | Siegert and Yates, 1980, USA |
| Matson Evaluation of Social Skills with Youngsters (MESSY) | **Teacher report.** 64-item checklist, each item rated on a 1–5-point scale; 2 subscales: appropriate and inappropriate social behaviours; Matson (1990) | Taylor *et al.*, 1998, USA |
| Mother–child interactions during free play and task periods | 10-minute period of play/task setting observed; observers watched videotaped sessions; rated mother and child on negative behaviours (14 maternal behaviour items, 15 child behaviour items; items rated on 7-point Likert scales). No reference stated;? measure created for this study | Barkley *et al.*, 2000, USA |
| Observed negative child behaviour [coded using the Revised Family Observation Schedule (FOS-R-III)] | **Independent observer report.** Sanders *et al.* (1996). 30 minutes of parent–child behaviour comprising three 10-minute tasks (e.g. working through a child's activity book) was recorded and coded using the FOS-R-III. Two composite scores of negative parent behaviour and negative child behaviour were computed. Negative child behaviour comprised the percentage of intervals during which the child displayed any category of negative behaviour such as non-compliance, complaint, aversive demand, physical negative or oppositional behaviour | Sanders *et al.*, 2004, Australia<br>Sanders *et al.*, 2000, Australia<br>Turner and Sanders, 2004, Australia |
| Parent Daily Report Diaries | **Parent report.** Average frequency of problems reported over a 2-week period. No reference given;? measure created for this study | Hughes and Wilson, 1988, Australia |

*continued*

| Outcome measure | Description | Studies |
|---|---|---|
| Parent Daily Reports (PDR) | **Parent report.** Chamberlain and Reid (1987). This instrument is designed to measure low-rate behaviours that are often not seen by in-home observers. The PDR is a checklist with 33 problem child behaviours (such as antisocial behaviour, substance abuse and peer relations) and one item referring to the use of physical punishment by parents. Some or all of the behaviours can be measured. Recording can be by means of telephone (Irvine and Webster-Stratton, 1988; Webster-Stratton, 1990; Taylor, 1998; Webster-Stratton, 1997; Webster-Stratton, 1984; Webster-Stratton, 1992; Sheeber and Johnson 1994) or diary keeping (Sanders, 2000; Connell, 1997). A total behaviour score (the sum of all occurrences of problem behaviours over several days) and/or a daily mean score of problem behaviours can be derived | Connell *et al*., 1997, Australia<br>Irvine *et al.*, 1999, USA<br>Sanders *et al*., 2004 in press, Australia<br>Sanders *et al*., 2000, Australia<br>Sheeber and Johnson, 1994, USA<br>Taylor *et al.*, 1998, USA<br>Turner and Sanders, 2004, Australia<br>Webster-Stratton and Hammond, 1997<br>Webster-Stratton, 1992, USA<br>Webster-Stratton, 1990, USA<br>Webster-Stratton *et al.*, 1988, USA<br>Webster-Stratton, 1984, USA |
| Parent Goal Scales (PGS – domains of positive and negative child behaviour) | **Parent report.** Parents asked to define 2 goals in each of 3 areas: negative behaviour (e.g. fighting or having temper tantrums), positive behaviour (e.g. playing cooperatively, eating meals in a mannerly way) and personal parenting goals (e.g. developing a better child–parent relationship). For each goal parents rated on a 10-point Likert scale (1 = never to 10 = always) the frequency of occurrence of the target behaviour in the preceding month. No reference stated;? developed for this study | Behan *et al.*, 2001, Ireland |
| Parent Identified Problems Scale (PIP) | **Parent report.** Parents asked to identify 3 child behaviours of most concern to them and rate on 2 Likert scales (1–7) reflecting the frequency of the behaviour relative to other children of the same age and the amount of disruption in the home or community the behaviour causes. Frequency and disruption scores are summed to give a total PIP score (range 0–42). No reference given;? measure created for this study | Spaccarelli *et al.*, 1992, USA |
| Parent Report of Problematic Interactions (child's behaviour) | **Parent report.** A measure deigned to assess the level of coercive interaction in problematic parent–child interactions. Parents indicate any of 13 (mostly negative behaviours such as criticism, lectures, threats and physical discipline and some positive behaviours such as asking for more information and discussion) which occurred the last time they interacted with their child. A parent's score is computed by totalling the number of negative behaviours and subtracting the total number of positive behaviours. The measure was designed for this study based on an instrument developed by Forgatch and Patterson (1989). | Irvine *et al*., 1999, USA |

*continued*

| Outcome measure | Description | Studies |
|---|---|---|
| Peer Problem Solving Interaction Communication Affect Rating Coding System | **Independent observer report.** Derived for the study based on Gottman (1986). The coding system has 3 main categories: total negative social skills (9 items including disagreement, commands, criticism, negative talk), negative conflict management (19 items comprising 11 physical and 8 verbal negative conflict management behaviours) and positive conflict management (5 items including explain or give reason for request, withdraw from conflict, ignore negative behaviour of friend) | Webster-Stratton and Hammond, 1997 |
| Frequency of negative target behaviours | **Parent report.** Daily recording of the frequency of between 1 and 6 negative behaviours identified by parents at the outset of the study as those most critical to improved parent-child relations. No reference stated;? measure created for this study | Siegert and Yates, 1980, USA |
| Ratings of target behaviours | **Parent report.** As described by Patterson and Reid (1973). Recording at pre-intervention, post-intervention and follow-up of the three most 'troublesome' child problems. Problems rated on a five-point scale and in two dimensions: disruption caused and intensity of mother's emotional reaction to problem | Diament and Colletti, 1978, USA |
| Social Skills Rating Scale (SSRS) – behavioural problem subscale | **Teacher report.** Gresham and Elliott (1990). This measure comprises measures in 3 domains: social skills (30 items), behavioural problems (18 items) and academic competence (9 items). Three standard scores are obtained, one for each domain | Barkley *et al.*, 2000, USA |
| Strengths and Difficulties Questionnaire (SDQ) | **Parent report.** Goodman (1997). A 25-item scale with 5-item subscales to describe children's negative and positive behaviours. The five subscales comprise hyperactivity, emotional symptoms, conduct problems, peer problems and pro-social behaviour. Subscales range from 0 to 10 and are obtained by summing scores for each of the 5 items. Items from the 4 total subscales can be combined to form a total problem score (range 0–40). A total problem score of ≥17 is indicative of clinically significant difficulties | Behan *et al.*, 2001, Ireland |
| Sutter–Eyberg Student Behaviour Inventory – revised (SESBI-R) | **Teacher report.** Rayfield *et al*. (1998). A 38-item measure of teacher perceptions of disruptive behaviour in children aged 2–16 years. It incorporates a measure of frequency of disruptive behaviours (intensity) rated on 7-point scales and a measure of the number of disruptive behaviours that are a problem for teachers (problem) | Hoath and Sanders, 2002, Australia |

# Appendix 8

## Quality assessment

### Quality assessment: Adesso and Lipson, 1981, USA[81]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No<br>(NB 1 non-randomised family included after drop-out of a randomised family) |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details (independent observation – could have blinded) |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | No details demographics<br>No significant differences in baseline data (target behaviours) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | No details |
| | Was loss to follow-up <20%? | Unclear |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | No details |
| Sensitivity analysis should be performed where assessment data missing | | |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? | |
| | Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Barkley *et al.*, 2000, USA[89]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No<br>Randomisation stratified by gender; violated in 8/158 cases |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Observations of behaviour conducted blindly |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (family characteristics and pre-treatment behaviour scores) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>Yes co-interventions (groups were similar regarding additional services/medication) |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | Yes (1.9%) |
| | Was it stated that an ITT analysis was performed? | Yes |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Yes (states that all subjects returning for the post-treatment evaluation were included in the analysis regardless of attendance) |
| Sensitivity analysis should be performed where assessment data missing | | No sensitivity analysis for missing data |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | No |
| | Was a sample size calculation performed? | |
| | Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Behan *et al.*, 2001, Ireland[55]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment measures)<br>Drop-outs differed significantly (younger, lower socio-economic groups, received less social support,, higher levels of life stress) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Partly |
| | Was loss to follow-up <20%? | No (borderline 20%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear (ITT)<br>No sensitivity analysis for missing data |
| Sensitivity analysis should be performed where assessment data missing | | |
| | Were statistical analyses performed appropriately? | Yes (2 × 2 ANOVA with interaction test for treatment (vs control) × time (pre-/post-) effect) |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately?<br>Was a sample size calculation performed? | N/A |
| | Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

ANOVA, analysis of variance.

## Quality assessment: Connell *et al*, 1997, Australia[65]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | Random number table |
| | If described, was the method adequate? | Yes |
| Concealment | Details of method of allocation concealment | Not clear |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No blinding described |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes demographics and some outcome measures; no for some outcome measures |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>Yes co-interventions (mothers asked not to participate in any other treatment programme whilst participating in study) |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | 1 subject lost to follow-up |
| | Was loss to follow-up <20%? | Yes (1/24, 4%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Yes |
| Sensitivity analysis should be performed where assessment data missing | | No sensitivity analysis (not necessary) |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed?<br>Was this appropriate for a cluster trial if applicable? | No<br>N/A |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Diament and Colletti, 1978, USA[66]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | For behavioural observation of mother–child interaction at baseline only, neither subjects or observers were aware of assignment |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | No significant difference between treatment and control groups for child behaviour (BAC), target rating behaviour and observation of mother–child interaction |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | No details given of co-interventions<br>Yes assessments |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | No. It is stated that some data was missing on mother–child interaction but no information is given on what. Also not all assessments were completed but details not given on number of sessions attended by each participant only that 'no mother missed more than 2 sessions' |
| | Was loss to follow-up <20%? | N/A (no loss to follow-up) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | ITT performed: e.g. some mothers missed up to 2 sessions but they are included in the analysis |
| Sensitivity analysis should be performed where assessment data missing | | Where data on mother–child interaction were missing, data were input based on the mean values for the 'group'. Note this outcome is not considered a measure of child behaviour for this review |
| | Were statistical analyses performed appropriately? | No; repeated measures ANOVA with interaction test for treatment × time (pre-, post- and follow-up) effect<br>No allowance for paired design |
| | If non-appropriate, could the validity of the results have been compromised? | No; paired analyses likely to have increased precision of within group comparisons over time. As all outcomes already statistically significant, this improvement in precision will not alter conclusions |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed?<br>Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcomes | No |

## Quality assessment: Gross *et al.*, 1995, USA[67]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No details |
| | If described, was the method adequate? | Not clear |
| Concealment | Details of method of allocation concealment | No details |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Parent–child play sessions coded by observers blind to assignment |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes demographics<br>Unclear for outcome measures (intervention group mothers reported significantly higher ECBI intensity and problem scores than controls at recruitment. However, no significant ECBI differences existed at pre-intervention (<6 months after recruitment). No significant differences found: age, sex, socio-economic status, ethnicity of mothers and fathers |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes<br>[7 families in intervention withdrew on allocation; reasons given; higher risk subjects more likely to withdraw (ECBI score and gender); 1 further intervention family withdrew later] |
| | Was loss to follow-up <20%? | No (7/24; 29%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | No (7 early drop-out families were followed, but reported separately)<br>No sensitivity analysis |
| | Were statistical analyses performed appropriately? | Yes but excludes drop-outs and reporting obscures lack of treatment effects; results uninterpretable owing to excluded dated and high drop-out of patients on intervention group. |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed?<br>Was this appropriate for a cluster trial if applicable? | No<br>N/A |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Hamilton and MacQuiddy, 1984, USA[82]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Data collectors (via telephone) for Daily Checklist data blind to participants' assignments |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-intervention |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | No details |
| | Was loss to follow-up <20%? | No details |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | No details |
| | Were statistical analyses performed appropriately? | Yes; ANCOVA, adjusting for baseline score compared across 3 groups; where significant *t*-test used to test for treatment/control effect |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? | No |
| | Was this appropriate for a cluster trial if applicable? | |
| | Was there any selective reporting of outcome measures? | No |

ANCOVA, analysis of covariance.

## Quality assessment: Hoath and Sanders, 2002, Australia[63]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No details |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No details |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Psychologist performing screening interviews blind to allocation; no further details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | No; intervention group has less well-educated parents, less families with original parents, more single-parent families<br>Yes for pre-treatment measures |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes (assessments and co-interventions) |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | No at 12 weeks and 3 months post intervention for intervention group. (Note that at 3 months the loss to follow-up was 20% not 12% for the intervention group as 8/original 10 families completed the assessment). No at 12 weeks for control group |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear (1 family did not complete intervention and/or post-assessment and was not included in the analysis. It is not clear whether this family may have completed the assessment and not the training (therefore ITT not performed) or whether family did not complete training **and** did not complete assessment, in which case an ITT would not have been appropriate)<br>No sensitivity analysis |
| | Were statistical analyses performed appropriately? | Yes (main methods satisfactory, but assumptions for supplementary *t*-tests likely to be violated) |
| | If non-appropriate, could the validity of the results have been compromised? | No |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed?<br>Was this appropriate for a cluster trial if applicable? | No<br>N/A |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Hughes and Wilson, 1988, Australia[83]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes with respect to outcome measures. No other details given |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | No details co-interventions<br>Yes assessments |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | No |
| | Was loss to follow-up <20%? | Yes ($n$ = 8; 16%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | No |
| Sensitivity analysis should be performed where assessment data missing | | No |
| | Were statistical analyses performed appropriately? | Yes; ANOVA comparing treatment/control adjusted for pre-treatment score |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcomes | No |

## Quality assessment: Ireland *et al.*, 2003, Australia[64]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes demographics and pre-treatment measures (except higher score for fathers on The Parenting Scale in parent training education intervention group condition) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | No (27.3% at 3 months) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Not for post-treatment analysis (assessed more patients post-treatment than at 3 months, but only used same patients as at 3 months for post-treatment analysis) |
| Sensitivity analysis should be performed where assessment data missing | | No sensitivity analysis for missing data |
| | Were statistical analyses performed appropriately? | Yes; but confusing reporting of results obscures fact that no treatment effect was found |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed?<br>Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcomes | No |

## Quality assessment: Irvine *et al.*, 1999, USA[68]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments (up to 3 months follow-up)<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | Depending on outcome, 15.8%–34% (1st assessment T2 for all outcomes except T3 for CBCL) |
| | Was it stated that an ITT analysis was performed? | Yes (all available data used regardless of whether parents attended sessions) |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Yes (ITT)<br>Growth curve analysis conducted which estimates missing data |
| | Were statistical analyses performed appropriately? | Yes; report a complex method of (growth curve model) analysis. But as model did not fit behaviour data, a simple $\chi^2$ test was applied to test for a treatment effect across 2 (treatment/control) groups |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Kacir and Gordon, 1999, USA[69]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | Random number generator |
| | If described, was the method adequate? | Yes |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (no significant difference demographics or pre-treatment behavioural measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | Unclear |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Yes<br>No sensitivity analysis necessary as no missing data |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Karoly and Rosenthal, 1977, USA[50]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Observers were blinded to treatment allocation |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | No details |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | No details |
| | Was loss to follow-up <20%? | No details |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear<br>No sensitivity analysis |
| | Were statistical analyses performed appropriately? | No: between-group comparisons performed, within-group changes only reported |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Knapp and Deluty, 1989, USA[76]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No details (block randomisation stratified by socio-economic status) |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Observers of behaviour did not know which training method had been used for a particular mother |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | No at 2 months (24.5%), yes for post-treatment assessment (18.4%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear (9 mothers excluded for attending only one or two sessions; not clear if data available) |
| Sensitivity analysis should be performed where assessment data missing | | No sensitivity analysis for missing data |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed?<br>Was this appropriate for a cluster trial if applicable? | No<br>N/A |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Lewis, 1986, USA[70]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Observers were uninformed about the clinical status of the families observed. |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (family characteristics)<br>No details pre-treatment measures |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-intervention |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Unclear, no losses to follow-up stated |
| | Was loss to follow-up <20%? | No details |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear |
| | Were statistical analyses performed appropriately? | Yes; ANCOVA comparing treatment/control difference in post-treatment score adjusted for pre-treatment score |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Long *et al.*, 1993, USA[71]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>Yes co-interventions (all received standard treatment throughout) |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | No for parent reports and for teacher report in control group |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Yes<br>No sensitivity analysis for missing data |
| | Were statistical analyses performed appropriately? | No (assumptions for *t*-test likely to be violated) |
| | If non-appropriate, could the validity of the results have been compromised? | Yes |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Magen and Rose, 1994, USA[84]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No<br>(2 cohorts randomised, results then pooled) |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Unclear (no details) |
| | Was loss to follow-up <20%? | Unclear (no details) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear (no details)<br>No sensitivity analysis |
| | Were statistical analyses performed appropriately? | Yes; repeated measures MANOVA with interaction test for treatment × time (pre-, post- and follow-up) effect |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed?<br>Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

MANOVA, multiple analysis of variance.

## Quality assessment: Pevsner, 1982, USA[77]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics)<br>No details pre-treatment measures |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | No (25%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear (ITT)<br>No sensitivity analysis |
| | Were statistical analyses performed appropriately? | Yes; multiple regression adjusting for baseline scores |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | Unclear (Behavioural Check List used pre-test only) |

## Quality assessment: Sanders *et al.*, 2004, Australia[57]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No details |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No details |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Outcome assessors blinded during child observation |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and baseline measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | No (24.5%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear<br>No sensitivity analysis |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Sanders *et al.*, 2000, Australia[59]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Coders (mother and child behaviour) were blind to the intervention condition, stage of assessment, interactions used for reliability checks and the specific hypotheses being tested. |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | Yes (16.7% post-treatment) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Yes (ITT)<br>No sensitivity analysis for missing data |
| | Were statistical analyses performed appropriately? | Yes; ANCOVA or MANOVA, adjusting for baseline score compared across 4 groups; where significant t-test used to test for treatment/control effect |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Sanders *et al.*, 2000, Australia[62]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics-only difference was fathers' age and pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessment<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Unclear |
| | Was loss to follow-up <20%? | Unclear (appears that all 56 assessed post-treatment) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear<br>No mention of sensitivity analysis |
| | Were statistical analyses performed appropriately? | Yes; MANOVA for overall (omnibus analysis) examination of 2 outcomes with (pre- and post-); where significant ANOVA to assess intervention effect |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Sheeber and Johnson, 1994, USA[72]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | Partly (varied between 4.9% and 24.4% post-treatment, 12.2 and 24.4% at follow-up) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear (ITT)<br>No sensitivity analysis for missing data |
| | Were statistical analyses performed appropriately? | Yes; MANCOVA comparing treatment/control adjusted for pre-treatment score |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Siegert and Yates, 1980, USA[85]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | None |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes demographics<br>No details pre-treatment measures |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | Yes (6.7 post-treatment, 16.7% at 4 months) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | No<br>(where data missing, used last measurements carried forward) |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Spaccarelli *et al.*, 1992, USA[86]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No<br>NB: randomised early, i.e. all who showed interest ($n$ = 126) resulting in large loss to follow-up as only 81 actually volunteered and completed pre-test measures |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Unclear for intervention/control groups (No difference in demographics for 'no-shows' and volunteers) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | No (58% from randomisation to post-treatment) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear<br>No sensitivity analyses |
| | Were statistical analyses performed appropriately? | Yes; MANCOVA comparing 3 treatment groups adjusted for pre-treatment score, parent education and family size; where significant difference treatment/control effect tested by ANOVA on each treatment/control pair |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Strayhorn and Weidman, 1991, USA[78]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | Sequential random assignment by drawing a face-down card from a table top |
| | If described, was the method adequate? | Not clear |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Teachers were effectively blind to allocation of children/parents. Raters of videotapes of parent-child interaction were blind to allocation |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | No details |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | No details |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | No (no details, including numbers, of those lost to follow-up given) |
| | Was loss to follow-up <20%? | No (20%, 21/105 children) |
| | Was it stated that an ITT analysis was performed? | Yes |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Yes (used all available data regardless how many sessions were attended)<br>No sensitivity analysis |
| | Were statistical analyses performed appropriately? | Yes (but data presented in very unhelpful way; direction of treatment effect unclear) |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed?<br>Was this appropriate for a cluster trial if applicable? | No<br>N/A |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Sutton, 1995, UK[73]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No |
| | Comparability of groups (children and parents) | Were groups comparable at baseline?<br>No details given (demographics or pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-intervention |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes in text. Unclear from results tables |
| | Was loss to follow-up <20%? | Yes. At 10 weeks post-intervention no loss to follow up. |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | No<br>No |
| Sensitivity analysis should be performed where assessment data missing | | |
| | Were statistical analyses performed appropriately? | No; *t*-test (paired) comparing pre- and post-difference for treatment and control separately. No test of difference in pre- and post-scores across treatment/control |
| | If non-appropriate, could the validity of the results have been compromised? | Yes; when standard errors imputed from *t*-test, differences between groups found not be significant |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcomes | Yes. No results are presented for 3 child behaviour outcomes: 'negative behaviour'; 'positive behaviour' and 'goal compliance'. |

## Quality assessment: Tassé *et al.*, 2001, Canada[74]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes (but could not tell how many in each group) |
| | Was loss to follow-up <20%? | Yes (11%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Yes<br>No sensitivity analysis for missing data |
| | Were statistical analyses performed appropriately? | No (assumptions for *t*-test likely to be violated) |
| | If non-appropriate, could the validity of the results have been compromised? | Yes |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Taylor *et al.*, 1998, Canada[90]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No for actual method; families coded as urgent or non-urgent (potential wait list); non-urgent families randomly allocated to treatment or control groups, urgent families randomly assigned to one of 2 treatment groups only |
| | If described, was the method adequate? | N/A for method of randomisation; splitting the groups into urgent and non-urgent means that the control group has a different population to the two treatment groups (only treatment groups or non-urgent patients in all groups were compared in the analysis) |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | No details |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes for the 2 treatment groups or all non-urgent cases in the 3 groups (demographics and pre-treatment measures)<br>No for control group compared to total treatment groups |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions (only relevant for treatment as other comparator was eclectic treatment) |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | Partly, depending on outcome loss to follow-up between 9.1 and 27.3% (higher for teacher reports than parent reports) |
| | Was it stated that an ITT analysis was performed? | Yes/no |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Yes for comparisons between control and non-urgent families in the treatment groups (all data used regardless of whether sessions were attended) |
| Sensitivity analysis should be performed where assessment data missing | | No for comparison between treatments (family excluded if no sessions attended, although included if at least one session attended) |
| | Were statistical analyses performed appropriately? | Yes/partly; ANCOVA comparing 3 treatment groups adjusted for pre-treatment score; where significant difference treatment/control effect tested by *t*-test; One-sided test applied to treatment effect However, size of treatment difference (*F*-value) such that significant in two-sided |
| | If non-appropriate, could the validity of the results have been compromised? | No |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed?<br>Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Turner and Sanders, 2004, Australia[58]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Observers were blinded to treatment allocation |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and baseline measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | Yes (16.7%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear<br>No sensitivity analysis |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Webster-Stratton *et al.*, 2004, USA[56]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | Names drawn (at random) until each assignment was full |
| | If described, was the method adequate? | Probably |
| Concealment | Details of method of allocation concealment | No details |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Home observations were conducted blind to allocation status of parent/child |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes (one family in the control condition received 4 sessions of therapy for child behaviour problems during the study. No other details given) |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes; 4 immediate dropouts on intervention |
| | Was loss to follow-up <20%? | Yes (<5% post-treatment) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Yes<br>No sensitivity analysis |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed?<br>Was this appropriate for a cluster trial if applicable? | No<br>N/A |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Webster-Stratton and Hammond, 1997, USA[91]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Home observations made by observers who were not informed of the treatment conditions |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | ANOVAs and $\chi^2$ analysis revealed no significant differences across treatment and control groups for demographic variables and child behaviour outcomes at baseline |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | No details (assessment or co-interventions) |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | No. It appears that of 22 children at baseline in the CT and PT group only 20 are represented at post-intervention assessment. For PDR and DPICS-R no information is given on numbers post-intervention assessment |
| | Was loss to follow-up <20%? | Yes. Assuming $n = 2$ (2%, post-treatment) |
| | Was it stated that an ITT analysis was performed? | Yes |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Yes |
| Sensitivity analysis should be performed where assessment data missing | | No |
| | Were statistical analyses performed appropriately? | Yes; ANCOVA comparing 3 treatment groups adjusted for pre-treatment score; where significant difference treatment/control effect tested (test not defined) |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcomes | No |

## Quality assessment: Webster-Stratton, 1994, USA[79]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Observers were unaware of the hypothesis of the studies |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment variables) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes (although unclear whether 77 or 78 families remain) |
| | Was loss to follow-up <20%? | Yes (7/85 or 8/85; 8.2% or 9.4%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear (parents who did not complete sessions were excluded – not clear if data were sought from these subjects) |
| Sensitivity analysis should be performed where assessment data missing | | No sensitivity analysis |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Webster-Stratton, 1992, USA[75]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | No details |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | No details |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Home observations made by observers who were blind to hypotheses of study |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics and pre-treatment measures) |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-intervention<br>NB: control group given individually administered videotape modelling training (IVM) after 10-week follow-up |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | No: not always clear who was contributing to score, i.e. mother and/or father (only detailed for some outcomes) |
| | Was loss to follow-up <20%? | Yes overall |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A (randomisation method not clear) |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Webster-Stratton, 1990, USA[87]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Observers were blind to hypotheses and to group membership of subjects |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics)<br>No details pre-treatment measures |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | Yes (4/47, 8.5%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear (ITT)<br>No sensitivity analysis for missing data |
| | Were statistical analyses performed appropriately? | Yes; MANCOVA comparing 4 treatment groups adjusted for pre-treatment score; where significant difference treatment/control effect tested (test not defined) |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No (NB: used ECBI problem score for screening for entry into the study but used the ECBI intensity score to measure treatment effect) |

## Quality assessment: Webster-Stratton *et al.*, 1988, USA[88]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | Randomly selected sealed envelopes |
| | If described, was the method adequate? | Unclear |
| Concealment | Details of method of allocation concealment | Sealed envelopes |
| | If described, was the method adequate? | Yes |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Observers blind to hypotheses and group membership of participants |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes (demographics)<br>No details pre-treatment variables |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-intervention |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Unclear [discrepancy between drop-outs reported in text (13) and numbers in tables (9 lost)] |
| | Was loss to follow-up <20%? | Yes (between 3.6 and 14.3% post-treatment%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Not clear<br>No sensitivity analysis |
| | Were statistical analyses performed appropriately? | Yes |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed?<br>Was this appropriate for a cluster trial if applicable? | No<br>N/A |
| | Was there any selective reporting of outcome measures? | No |

## Quality assessment: Webster-Stratton, 1984, USA[92]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | Sealed envelopes opened by research secretary once families accepted for entry |
| | If described, was the method adequate? | Yes |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Home observations made by observer who was blind to hypotheses and group membership of participants |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | No significant differences between groups on demographic variables measured. Some differences at baseline on outcome measures – adjustment made in analysis. |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details co-interventions |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up >20%? | Yes. $n = 2$ (6% post-treatment) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | No |
| Sensitivity analysis should be performed where assessment data missing | | No |
| | Were statistical analyses performed appropriately? | Yes; ANCOVA comparing 3 treatment groups adjusted for pre-treatment score; where significant difference treatment/control effect tested (test not stated). Bonferonni correction for multiple tests |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcomes | No |

## Quality assessment: Wells and Egan, 1988, USA[80]

| | | |
|---|---|---|
| Randomisation | Details on method of randomisation | No |
| | If described, was the method adequate? | N/A |
| Concealment | Details of method of allocation concealment | No |
| | If described, was the method adequate? | N/A |
| Blinding | Details of blinding (patients, investigators, outcome assessors, data analysts, other) | Observers blind to experimental status of subjects |
| Comparability of groups (children and parents) | Were groups comparable at baseline? | Yes pre-treatment measures<br>No details demographics |
| | Were groups treated the same throughout the trial, with the exception of the intervention? | Yes assessments<br>No details-co-intervention |
| Analysis | Were all trial participants accounted for throughout trial (attendance and assessment)? | Yes |
| | Was loss to follow-up <20%? | No (20.8%) |
| | Was it stated that an ITT analysis was performed? | No |
| ITT: data from all assessments used regardless of how much training was completed<br>Sensitivity analysis should be performed where assessment data missing | Was an ITT analysis performed (according to the reported data), or was a sensitivity analysis performed? | Unclear (ITT)<br>No sensitivity analysis for missing data |
| | Were statistical analyses performed appropriately? | Yes; ANCOVA adjusting for baseline scores across 2 (treatment/control) groups |
| | If non-appropriate, could the validity of the results have been compromised? | N/A |
| | If cluster randomisation, was the analysis performed appropriately? | N/A |
| | Was a sample size calculation performed? Was this appropriate for a cluster trial if applicable? | No |
| | Was there any selective reporting of outcome measures? | No |

# Appendix 9

## Direction of effect

# Direction of effect: parent training/education programmes versus control

| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Adesso and Lipson, 1981, USA[81] | • Parent training/education (mothers only)<br>• Wait list control | 1. Changes in target behaviour (intervention/baseline ratio) | 1. Significantly lower frequency of target negative behaviours with intervention compared with control |
| Adesso and Lipson, 1981, USA[81] | • Parent training/education (fathers only)<br>• Wait list control | 1. Changes in target behaviour (intervention/baseline ratio) | 1. Significantly lower frequency of target negative behaviours with intervention compared with control |
| Adesso and Lipson, 1981, USA[81] | • Parent training/education (couples)<br>• Wait list control | 1. Changes in target behaviour (intervention/baseline ratio) | 1. Significantly lower frequency of target negative behaviours with intervention compared with control |
| Barkley *et al.*, 2000, USA[89] | • Parent training/education (group)<br>• No treatment control | 1. Child Behaviour Checklist (CBCL)<br>2. Home Situations Questionnaire (HSQ)<br>3. Child Behaviour Checklist – Teacher Report Form<br>4. Social Skills Rating Scale (SSRS) – behavioural problems subscale<br>5. Mother–child interactions (child behaviour, e.g. defiance, conflict, negativity, uncooperative)<br>6. CBCL direct observation form<br>7. Examiner's rating of child behaviour<br>8. Clinical diagnosis interview (diagnosis of CD or ODD) | 1. No significant difference<br>2. No significant difference<br>3. No significant difference<br>4. No significant difference<br>5. No significant difference<br>6. No significant difference<br>7. No significant difference<br>8. No significant difference |
| Behan *et al.*, 2001, Ireland[55] | • Parent training/education (group)<br>• Wait list control | 1. Two domains of Parent Goal Scales (PGS; negative and positive child behaviour)<br>2. Strengths and Difficulties Questionnaire (SDQ)<br>3. Child Behaviour Checklist (CBCL) | 1. Significantly more positive child behaviour with the intervention compared with control; no statistically significant difference for negative child behaviour<br>2. No statistically significant difference for total behaviour problems and 5 subscales; near-significant ($p < 0.09$) decrease in total behaviour problems, conduct problems and hyperactivity subscales<br>3. No statistically significant difference for total behaviour problems and 10 subscales; near-significant ($p < 0.09$) decrease on the externalising subscale |

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| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Connell *et al*., 1997, Australia[65] | • Parent training/education (individual, parent initiated telephone calls)<br>• Wait list control | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Parent Daily Report Checklist (PDRC) | 1a. Intensity score: significant reduction in disruptive child behaviour with intervention compared with control (for mothers and fathers)<br>1b. Problem score: significant reduction in disruptive child behaviour with intervention compared with control (for mothers and fathers)<br>2a. Mean daily score: no significant effects (mothers or fathers)<br>2b. Total problem score: no significant effects (mothers or fathers)<br>2c. Mean targeted behaviour score: significantly lower occurrence of behaviour problems with intervention compared with control for mean targeted behaviours (mothers); no significant effect (fathers)<br>2d. Total targeted behaviour score: significantly fewer total target behaviour problems with intervention compared with control (mothers); no significant effect (fathers) |
| Diament and Colletti, 1978, USA[66] | • Parent training/education (group)<br>• Wait list control | 1. Bipolar Adjective Checklist (BAC)<br>2. Ratings of target behaviours (disruption and intensity of 3 target behaviours)<br>3. Behavioural observations (of which 4 relevant: child attending; child non-attending; child negatives; child non-compliance) | 1. Significantly lower score (fewer conduct problems) on the conduct subscale of the BAC with intervention compared with control; no difference for the tense disposition, withdrawn–hostile, aggression or intellectual deficiency subscales; improvement occurred from baseline to post-treatment; both groups remained relatively stable from post-treatment to 3-month follow-up<br>2. No significant difference in target behaviours pre- and post-intervention between intervention and control conditions; both groups remained stable from post-treatment to 3-month follow-up<br>3a. Child attending: no significant differences between intervention and control conditions from baseline to post-treatment or from post-treatment to 3-month follow-up<br>3b. Child non-attending: significantly decreased in the intervention compared to the control condition ($p < 0.25$); both groups remained stable from post-treatment to 3-month follow-up<br>3c. Child negatives: no significant differences between intervention and control conditions from baseline to post-treatment or from post-treatment to 3-month follow-up.<br>3d. Child non-compliance: no significant differences between intervention and control conditions from baseline to post-treatment or from post-treatment to 3-month follow-up |

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| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Gross *et al.*, 1995, USA[67] | • Parent training/education (group)<br>• Wait list control<br>*(note there are 3 assessment points: pre-intervention; post-intervention and 3-month follow up. Results are reported for the whole time period and not two separate time periods. In addition, results are also presented for a drop-out group whom we are not considering as a comparison group)* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Dyadic Parent–Child Interaction Coding system (DPICS – child-related variable) | 1a. Intensity score: no significant difference for mothers or fathers<br>1b. Problem score: significantly fewer problems reported (mothers); no difference for fathers<br>2a. DPICS for mothers: no significant difference in child negative behaviours directed at mother pre-treatment to post-treatment to 3-month follow up between intervention and control conditions<br>2b. DPICS for fathers: no significant difference in child negative behaviours directed at mother pre-treatment to post-treatment to 3-month follow-up between intervention and control conditions |
| Hamilton and MacQuiddy, 1984, USA[82] | • Parent training/education (self-administered, with Signal Seat)<br>• Wait list control | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Becker Bipolar Adjective Checklist (BAC)<br>3. Daily Checklist (1 area: % time child responded compliantly to direct commands) | 1a. Intensity score: significantly lower intensity scores post-treatment for parent training/education (plus Signal Seat) compared with control<br>1b. Problem score: significantly lower problem frequency scores post-treatment for parent training (plus Signal Seat) compared with control<br>2. No significant post-treatment differences<br>3 Significantly higher compliance rates for parent training/education (plus Signal Seat) compared with control |
| Hamilton and MacQuiddy, 1984, USA[82] | • Parent training/education (self-administered, seat without signal attachment)<br>• Wait list control | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Becker Bipolar Adjective Checklist (BAC)<br>3. Daily Checklist (1 area: % time child responded compliantly to direct commands) | 1a. Intensity score: no significant differences<br>1b. Problem score: no significant differences<br>2. No significant differences<br>3. Significantly higher compliance rates for parent training/education (seat without signal attachment) compared with control |
| Hoath and Sanders, 2002, Australia[63] | • Parent training/education (group)<br>• Wait list control | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Sutter–Eyberg Student Behaviour Inventory – Revised (SESBI-R) | 1a. Intensity score: significantly lower levels of disruptive behaviour with intervention compared with control<br>1b. Problem score: no significant difference<br>2a. Intensity score: no significant difference<br>2b Problem score: no significant difference |
| Hughes and Wilson, 1988, Australia[83] | • Parent training/education (individual, focusing on communication skills)<br>• Wait list control | 1. Child Behaviour Problem Checklist (CBPC)<br>2. Becker Adjective Checklist (BAC)<br>3. Average frequency of problems reported over a 2-week period using Parent Daily Report Diaries | Formal statistical comparisons are not made for the subgroups where parent training/education was conducted without the child present; the raw data show a trend towards the intervention being more effective than the control |

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| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Hughes and Wilson, 1988, Australia[83] | • Parent training/education (individual, focusing on contingency management)<br>• Wait list control | 1. Child Behaviour Problem Checklist (CBPC)<br>2. Becker Adjective Checklist (BAC)<br>3. Average frequency of problems reported over a 2-week period using Parent Daily Report Diaries | Formal statistical comparisons are not made for the subgroups where parent training/education was conducted without the child present; the raw data show a trend towards the intervention being more effective than the control |
| Irvine *et al.*, 1999, USA[68] | • Parent training/education (group)<br>• Wait list control<br>*Pre-treatment, post-treatment and at 3 months (CBCL only pre-treatment and at 3 months)* | 1. Parent Report of Problematic Interactions (child's behaviour)<br>2. Parent Daily Reports (PDR)<br>3. Child Behaviour Checklist (CBCL) | 1. Unclear (model could not be applied)<br>2a. Antisocial behaviour subscale: significant decrease in antisocial behaviour with intervention compared with control<br>2b. Child adjustment subscale: child adjustment improved significantly from baseline to post-treatment with the intervention compared with the treatment<br>2c. Peer substance use subscale: significantly fewer reports of children's associations with substance using peers from baseline to post-treatment with intervention compared with control<br>2d. Peer relations subscale: no significant difference<br>3 Significantly greater decrease in problem behaviour from baseline to 3 months with intervention compared with control<br>*NB: A model was applied here to account for attrition* |
| Kacir and Gordon, 1999, USA[69] | • Parent training/education (self-administered)<br>• Wait list control | 1. Eyberg Child Behaviour Inventory (ECBI) | 1a. Intensity score: significantly lower frequency of problems at 1 month and maintained at 4 months for intervention group compared with control group<br>1b. Problem score: significantly fewer at 1 month and maintained at 4 months for intervention group compared with control group |
| Karoly and Rosenthal, 1977, USA[50] | • Parent training (group)<br>• Wait list control | 1. Eatontown Children's Psychiatric Center Problem List<br>2. Home observation of behaviour | 1. No statistical analyses for between group comparisons reported<br>2. No statistical analyses for between group comparisons reported |
| Lewis, 1986, USA[70] | • Parent training/education (group)<br>• Wait list control | 1. Child Behaviour Rating Scale (CBRS) | 1a. Self-adjustment subscale: significantly better child adjustment with intervention compared with control<br>1b. Home behaviour subscale: significantly better behaviour with treatment compared with control<br>1c. School behaviour subscale: no significant difference<br>1d. Social behaviour subscale: unclear<br>1e. Total behaviour subscale: unclear |

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| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Long *et al.*, 1993, USA[71] | • Parent training/education (self-administered)<br>• Standard treatment | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Home Situations Questionnaire (HSQ)<br>3. Behaviour Rating Profile – Teacher Rating Scale (BRP-T) | 1a. Intensity Score: significantly less intense behaviour problems with intervention compared with control<br>1b. Problem Score: no significant difference<br>2a. Intensity Score: significantly less intense behaviour problems with intervention compared with control<br>2b. Problem Score: no significant difference<br>3. Significantly less intense behaviour problems reported by teachers with intervention compared with control<br>*Estimates possibly biased as did not adjust for baseline measures; however, baseline measures reported to be similar, therefore unlikely to have a major effect* |
| Magen and Rose, 1994, USA[84] | • Parent training/education (group, behavioural focus)<br>• Wait list control<br>*Pre- and post-treatment and 3-month follow-up* | 1a. Revised Behaviour Problem Checklist (RBPC) – conduct disorder subscale<br>1b. Revised Behaviour Problem Checklist (RBPC) – social aggression subscale | 1a. Significant decrease in behaviour problems with intervention compared with control group<br>1b. No significant differences |
| Magen and Rose, 1994, USA[84] | • Parent training/education (group, problem solving focus)<br>• Wait list control<br>*Pre- and post-treatment and 3-month follow-up* | 1a. Revised Behaviour Problem Checklist (RBPC) – conduct disorder subscale<br>1b. Revised Behaviour Problem Checklist (RBPC) – social aggression subscale | 1a. No significant differences<br>1b. No significant differences |
| Sanders *et al.*, 2000, Australia[59] | • Parent training/education (self-administered)<br>*Pre-treatment, post-treatment and 1-year follow-up*<br>• Wait list control<br>*Pre-treatment, post-treatment* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Observed negative child behaviour<br>3. Parent Daily Report (PDR) | 1. Intensity scale (problem scale not used): significantly less frequent problem behaviour with intervention compared with control (mothers); no significant difference for fathers<br>2. No significant difference<br>3. Mean problem score: significantly less problem behaviour with intervention compared with control (mothers); no significant difference for fathers |
| Sanders *et al.*, 2000, Australia[62] | • Parent training/education (self-administered)<br>• Wait list control | 1. Eyberg Child Behaviour Inventory (ECBI) | 1a. Intensity score: no significant difference<br>1b. Problem score: significantly fewer problems reported with intervention compared to control |

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| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Sheeber and Johnson, 1994, USA[72] | • Parent training/education (group)<br>• Wait list control | 1. Child Behaviour Checklist (CBCL)<br>2. Parent Daily Report (PDR) | 1a. Externalising subscale: significantly lower problem score with intervention compared with control group (mothers) post-treatment, maintained at 2 months follow-up; no significant differences with father report post-treatment or at 2 months follow-up<br>1b. Internalising subscale: significantly lower problem score with intervention compared with control group (mothers) post-treatment, maintained at 2-months follow-up; no significant differences with father report post-treatment or at 2-months follow-up<br>2. Significantly lower problem score with intervention compared with control group (mothers) at post-treatment, maintained at 2-months follow-up; no significant differences with father report post-treatment or at 2-months follow-up |
| Siegert and Yates, 1980, USA[85] | • Parent training/education (individual, home)<br>*pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)*<br>• Wait list control<br>*pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)* | 1. Daily frequency of target negative behaviours<br>2. Issues checklist<br>3. Rating of child's behaviour | 1. 77% reduction (compared with baseline; based on last measurement) for individual in home compared with 37% reduction for control; no statistical tests performed<br>2. No significant differences (number of issues, intensity, intensity frequency, average frequency)<br>3. At 4 months post-treatment only: parent reported that 1 child from in home system was worse compared with no children from control group (all others the same or better) |
| Siegert and Yates, 1980, USA[85] | • Parent training/education (individual, office)<br>*pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)*<br>• Wait list control<br>*pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)* | 1. Daily frequency of target negative behaviours<br>2. Issues checklist<br>3. Rating of child's behaviour | 1. 92% reduction (compared with baseline; based on last measurement) for individual in office compared with 37% reduction for control; no statistical tests performed<br>2. No significant differences (number of issues, intensity, intensity frequency, average frequency)<br>3. At 4 months post-treatment only: no children reported as worse in either group |

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| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Siegert and Yates, 1980, USA[85] | • Parent training/education (group) *pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)*<br>• Wait list control *pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)* | 1. Daily frequency of target negative behaviours<br>2. Issues checklist<br>3. Rating of child's behaviour | 1. 88% reduction (compared with baseline; based on last measurement) for group compared with 37% reduction for control; no statistical tests performed<br>2. No significant differences (number of issues, intensity, intensity frequency, average frequency)<br>3. At 4 months post-treatment only: parent reported that 1 child from in group system was worse compared with no children from control group (all others the same or better) |
| Spaccarelli *et al.*, 1992, USA[86] | • Parent training/education (group plus problem-solving skills)<br>• Wait list control | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Parent Identified Problems Scale (PIP) | 1a. Intensity Scale: significantly greater reduction in problem frequency with intervention compared with control<br>1b. Problem Scale: no significant differences<br>2. Greater reduction in the frequency and disruptiveness of behaviours with intervention compared with control |
| Spaccarelli *et al.*, 1992, USA[86] | • Parent training/education (group plus therapist discussion)<br>• Wait list control | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Parent Identified Problems Scale (PIP) | 1a. Intensity scale: no significant difference<br>1b. Problem scale: no significant difference<br>2. Greater reduction in the frequency and disruptiveness of behaviours with intervention compared with control |
| Sutton, 1995, UK[73] | • Parent training/education (individual 1:1 telephone contact)<br>• Wait list control | 1. Child Behaviour Questionnaire<br>2. Home Situations Questionnaire<br>3. Negative count (child compliance)<br>4. Positive count (child compliance)<br>5. Goal compliance (child compliance with instruction) | 1. No details on difference between groups reported (within group over time only)<br>2. No details on difference between groups reported (within group over time only)<br>The difference between groups was calculated for this report (RT) and no significant differences were found<br>No results reported for 3, 4 and 5 |
| Tassé *et al.*, 2001, Canada[74] | • Parent training/education (group)<br>• Wait list control | 1. L'Echelle Québéciose des Comportments Adaptatifs (EQCA) | 1. Direction of effect unclear (between group differences not reported)<br>*Assumptions for t-test likely to be violated* |
| Taylor *et al.*, 1998, Canada[90] | • Parent training/education (group)<br>• Control | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Report (PDR)<br>4. Achenbach Teacher Report Form (TRF)<br>5. Matson Evaluation of Social Skills with Youngsters (MESSY) | 1a. Intensity score: significantly lower frequency of problems with parent training/education compared with control<br>1b. Problem score: significantly fewer problems with parent training/education compared with control<br>2. Total problem score: no significant differences<br>3. No significant differences<br>4. No significant differences<br>5. No significant differences |

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| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Turner and Sanders, 2004, Australia[58] | • Parent training (individual)<br>• Wait list control | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Parent Daily Report (PDR)<br>3. Observed child disruptive behaviour<br>4. Home and Community Problem Checklist (HCPC), | 1. No significant differences (problem or intensity score)<br>2. Significantly fewer targeted mean problem behaviours with intervention compared with control; no significant difference total mean behaviour<br>3. No significant difference<br>4. Significantly fewer problems at home with intervention compared with control; no significant difference in the community |
| Webster-Stratton *et al.*, 2004, USA[56]<br>And Reid *et al.*, 2004[122] for 2-year follow-up | • Parent training/education (group) *Pre-treatment, post-treatment and 1- and 2-year follow-up*<br>• Wait list control *Pre-treatment, post-treatment* | 1. Child conduct problems at home composite score<br>2. Child conduct problems at school composite score | 1. Significantly fewer problems at home with intervention compared with control (mothers and fathers) pre- to post-treatment<br>2. Significantly fewer problems at school with intervention compared with control pre- to post-treatment<br>Differences between intervention and control not assessed at 1-year follow-up |
| Webster-Stratton and Hammond, 1997, USA[91] | • Parent training/education (group) *Pre-treatment, post-treatment and 1-year follow-up*<br>• Wait list control *Pre-treatment, post-treatment* | 1. Eyberg Child Behaviour Inventory (ECBI, intensity score)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Reports (PDR)<br>4. Behar Preschool Behaviour Questionnaire (BPQ)<br>5. Dyadic Parent–Child Interactive Coding System (DPICS – child variables)<br>6. Peer Problem Solving Interaction Communication Affect Rating Coding System | 1. Intensity score (problem score not used): significantly less frequent problem behaviours with intervention compared with control pre- to post-treatment (mothers and fathers)<br>2. Total behaviour problems: significantly fewer behaviour problems with intervention compared with control pre- to post-treatment (mothers and fathers)<br>3. Significantly fewer target negative behaviours and number of negative behaviours per 24 hours, and significantly more target positive behaviours and positive behaviours per 24 hours with intervention compared with control pre- to post-treatment<br>4. Total problems: no significant difference pre- to post-treatment<br>5a. Child total deviance: no significant differences (mothers and fathers) pre-to post-treatment<br>5b. Child positive affect and warmth: no significant differences pre- to post-treatment (mothers); significantly more positive behaviour with intervention compared with control pre- to post-treatment (fathers)<br>6. Significant improvement in negative conflict management skills with intervention compared with control pre- to post-treatment; no significant difference for ratio of positive conflict management to negative<br>No comparison between intervention and control at 1-year follow-up |

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| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Webster-Stratton, 1992, USA[75] | • Parent training/education (self-administered, in group setting)<br>• Wait list control | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Dyadic Parent–Child Interaction Coding system (DPICS – child related variable: total deviance)<br>4. Parent Daily Reports (PDR)<br>5. Teacher report: Behar Preschool Questionnaire (BPQ) | 1a. Intensity score: significantly less frequent problems with intervention compared with control (mothers); no significant difference (fathers)<br>1b. Problem score: significantly fewer problems with intervention compared with control (mothers and fathers)<br>2. Total behaviour: significantly fewer problems with intervention compared with control (mothers and fathers)<br>3. Significantly less total child deviance when interacting with fathers with intervention compared with control; no significant difference with mothers<br>4. Significantly fewer target negative behaviours and significantly more prosocial behaviours with intervention compared with control<br>5. Total problems: no significant difference |
| Webster-Stratton, 1990, USA[124] | • Parent training/education (self-administered, in group setting)<br>• Wait list control | 1. Eyberg Child Behaviour Inventory (ECBI, Intensity score only)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Report (PDR, child negative or prosocial behaviours)<br>4. Dyadic Parent–Child Interaction Coding System (DPICS, child total deviance) | 1. Intensity score (problem score not used): significantly less frequent behaviour problems with intervention compared with control (mothers); no significant differences (fathers)<br>2. Total behaviour: no significant differences (mothers or fathers)<br>3. No significant differences (mothers or fathers)<br>4. No significant differences (mothers or fathers) |
| Webster-Stratton, 1990, USA[124] | • Parent training/education (self-administered, in group setting, with additional therapist contact)<br>• Wait list control | 1. Eyberg Child behaviour Inventory (ECBI, Intensity score only)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Report (PDR, child negative or prosocial behaviours)<br>4. Dyadic Parent – Child Interaction Coding System (DPICS, child total deviance) | 1. Intensity score (problem score not used): no significant differences (mothers or fathers)<br>2. Total behaviour: no significant differences (mothers or fathers)<br>3. No significant differences (mothers or fathers)<br>4. Significant reduction in total deviance with intervention compared to control (mothers); no significant differences (fathers) |

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| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Webster-Stratton et al., 1988, USA[88] | • Parent training/education (self-administered, videotape training in group setting)<br>*Pre- and post-treatment, 1- and 3-year follow-up*<br>• Wait list control<br>*Pre- and post-treatment* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Report (PDR, child variables)<br>4. Dyadic Parent–Child Interaction Coding System (DPICS, child variable)<br>5. Behar Preschool Behaviour Questionnaire (PBQ) | 1a. Total problem score: significantly fewer problems with intervention compared with control pre- to post-treatment (mothers); no significant differences (fathers)<br>1b. Intensity score: significantly fewer problems with intervention compared with control pre- to post-treatment (mothers); no significant differences (fathers)<br>2. Total problem score: significantly fewer problems with intervention compared with control pre- to post-treatment (mothers and fathers)<br>3. Significantly fewer target negative behaviours and low rate events and significantly more pro-social behaviour with intervention compared with control pre- to post-treatment<br>4. Child total deviance: significantly less deviance with intervention compared with control (with father); no significant difference (with mother)<br>5. No significant differences |
| Webster-Stratton *et al.*, 1988, USA[88] | • Parent training/education (videotape training plus group discussion)<br>*Pre- and post-treatment, 1 and 3-year follow-up*<br>• Wait list control<br>*Pre- and post-treatment* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Report (PDR, child variables)<br>4. Dyadic Parent–Child Interaction Coding System (DPICS, child variable)<br>5. Behar Preschool Behaviour Questionnaire (PBQ) | 1a. Total problem score: significantly fewer problems with intervention compared with control pre- to post-treatment (mothers and fathers)<br>1b. Intensity score: significantly fewer problems with intervention compared with control pre- to post-treatment (mothers and fathers)<br>2. Total problem score: significantly fewer problems with intervention compared with control pre- to post-treatment (mothers and fathers)<br>3. Significantly fewer target negative behaviours and low rate events and significantly more pro-social behaviour with intervention compared with control pre- to post-treatment<br>4. Child total deviance: significantly less deviance with intervention compared with control (with mothers and fathers)<br>5. Significantly fewer behaviour problems with intervention compared with control pre- to post-treatment |

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| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Webster-Stratton *et al.*, 1988, USA[88] | • Parent training/education (group discussion)<br>*Pre- and post-treatment, 1 and 3-year follow-up*<br>• Wait list control<br>*Pre- and post-treatment* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Report (PDR, child variables)<br>4. Dyadic Parent–Child Interaction Coding System (DPICS, child variable)<br>5. Behar Preschool Behaviour Questionnaire (PBQ) | 1a. Total problem score: significantly fewer problems with intervention compared with control pre- to post-treatment (mothers); no significant differences (fathers)<br>1b. Intensity score: significantly fewer problems with intervention compared with control pre- to post-treatment (mothers); no significant differences (fathers)<br>2. Total problem score: significantly fewer problems with intervention compared with control pre- to post-treatment (mothers and fathers)<br>3. Significantly fewer target negative behaviours and low rate events and significantly more pro-social behaviour with intervention compared with control pre- to post-treatment<br>4. Child total deviance: significantly less deviance with intervention compared with control (with mothers and fathers)<br>5. Significantly fewer behaviour problems with intervention compared with control pre- to post-treatment |
| Webster-Stratton, 1984, USA[92] | • Parent training/education (group)<br>*Pre- and post-treatment, 1 year follow-up*<br>• Wait list control<br>*Pre- and post-treatment* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Telephone Reports (PDR)<br>4. Dyadic Parent–Child Interaction Coding System (DPICS, child variable) | 1a. Intensity score: significantly less frequent problems with intervention compared with control<br>1b. Problem score: significantly fewer problems with intervention compared with control<br>2. No significant difference<br>3. Significantly fewer negative behaviours and significantly more prosocial behaviours with intervention compared with control<br>4. Significantly lower non-compliance with intervention compared with control; no significant difference for total deviance or non-compliance ratio [non-compliance/(compliance + non-compliance] |

[a] Direction of effect refers to the difference in change between groups (time × condition effect) or the difference at post-treatment adjusted for pre-treatment scores unless stated otherwise.

[b] The difference relates to the difference between pre- and post-treatment unless stated otherwise; where there are additional follow-up assessments, this has been indicated.

## Direction of effect: parent training/education versus other active comparator

| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Adesso and Lipson, 1981, USA[81] | • Parent training/education (mothers only)<br>• Parent training (couples)<br>*Pre- and post-treatment and 3-month follow-up* | 1. Changes in target behaviour (intervention/baseline ratio) | 1. No significant differences pre- to post-treatment or at 3 months |
| Adesso and Lipson, 1981, USA[81] | • Parent training/education (fathers only)<br>• Parent training/education (couples)<br>*Pre- and post-treatment and 3-month follow-up* | 1. Changes in target behaviour (intervention/baseline ratio) | 1. No significant differences pre- to post-treatment or at 3 months |
| Adesso and Lipson, 1981, USA[81] | • Parent training/education (mothers only)<br>• Parent training/education (fathers only)<br>*Pre- and post-treatment and 3 month follow-up* | 1. Changes in target behaviour (intervention/baseline ratio) | 1. No significant differences pre- to post-treatment or at 3 months |
| Barkley *et al.*, 2000, USA[89] | • Parent training/education (group)<br>• Special Treatment Classroom | No formal statistical comparisons are made between these two treatment options | |
| Barkley *et al.*, 2000, USA[89] | • Parent training/education (group)<br>• Parent training/education plus special treatment classroom | 1. Child Behaviour Checklist (CBCL)<br>2. Home Situations Questionnaire (HSQ)<br>3. Child Behaviour Checklist–Teacher Report Form,<br>4. Social Skills Rating Scale (SSRS) – behavioural problems subscale<br>5. Mother – child interactions (child behaviour: e.g. defiance, conflict, negativity, uncooperative)<br>6. CBCL direct observation form<br>7. Examiner's rating of child behaviour<br>8. Clinical diagnosis interview (diagnosis of CD or ODD) | 1. No significant difference<br>2. No significant difference<br>3. No significant difference<br>4. No significant difference<br>5. No significant difference<br>6. No significant difference<br>7. No significant difference<br>8. No significant difference |

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| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Hamilton and MacQuiddy, 1984, USA[82] | • Parent training/education (self-administered, with Signal Seat)<br>• Parent training/education (self-administered, seat without signal attachment)<br>*Pre- and post-treatment and 2-month follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Becker Bipolar Adjective Checklist (BAC)<br>3. Daily Checklist (1 area: % time child responded compliantly with direct commands) | 1. Significantly lower intensity scores post-treatment for parent training/education (plus Signal Seat) compared with parent training/education (seat without signal attachment)<br>2. No significant post-treatment differences<br>3. Significantly higher compliance rates for parent training/education (plus Signal Seat) compared with parent training/education (seat without signal attachment)<br>At 2 months, parents were asked whether treatment effects maintained (yes) |
| Hughes and Wilson, 1988, Australia[83] | • Parent training/education (individual, focusing on communication skills)<br>• Parent training/education (individual, focusing on contingency management) | 1. Child Behaviour Problem Checklist (CBPC)<br>2. Becker Adjective Checklist (BAC)<br>3. Average frequency of problems reported over a 2-week period using Parent Daily Report Diaries | Formal statistical comparisons are not made for the subgroups where parent training/education was conducted without the child present; based on the raw data, there appears to be little difference between the two interventions |
| Ireland *et al.*, 2003, Australia[64] | • Parent training/education (group, 8 hours)<br>• Parent training/education (group, 11 hours)<br>*Pre- and post-treatment and 3-month follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI) | 1a. Intensity score: no significant differences (mothers or fathers); effect maintained at 3 months<br>1b. Problem score: no significant differences (mothers or fathers); effect maintained at 3 months |
| Knapp and Deluty, 1989, USA[76] | • Parent training/education (group, role play focus)<br>• Parent training/education (group, discussion focus)<br>*Pre- and post-treatment and 2-month follow-up (RBPC only)* | 1. Negative child behaviour (total non-compliance and inappropriate behaviours)<br>2. Revised Behaviour Problem Checklist (RBPC)<br>3. Parenting Stress Index (PSI) – child domain | 1. No significant difference<br>2. No significant difference; effects maintained at 2 months<br>3. No significant difference |
| Magen and Rose, 1994, USA[84] | • Parent training/education (group, behavioural focus)<br>• Parent training/education (group, problem solving focus)<br>*Pre- and post-treatment and 3-month follow-up* | 1. Revised Behaviour Problem Checklist (RBPC) – conduct disorder and social aggression subscales | 1a. Conduct disorder: no significant differences<br>1b. Social aggression: no significant differences |

*continued*

| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Pevsner, 1982, USA[77] | • Parent training/education (group, plus group behaviour therapy)<br>• Individual family therapy<br>*Pre- and post-treatment and 6-month follow-up* | 1. Change of 70% from baseline in child target behaviour (defined by parents) | 1. 6/7 achieved change in parent training/education group compared with 2/5 in family therapy group; no statistical tests performed; effects maintained at 6 months |
| Sanders *et al.*, 2004, Australia[57] | • Parent training (group; standard format)<br>• Parent training (group; enhanced format)<br>*Baseline, post-treatment and 6-month follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Parent Daily Report (PDR)<br>3. Observation of child positive and negative behaviour<br>4. Home and Community Problem Checklist (HCPC) | 1. No significant differences post-treatment or at 6 months (intensity or problem score)<br>2. No significant differences post-treatment or at 6 months<br>3. No significant differences post-treatment or at 6 months<br>4. No significant differences post-treatment or at 6 months (home or community) |
| Sanders *et al.*, 2000, Australia[59] | • Parent training/education (self-administered)<br>*Pre- and post-treatment and 1-year follow-up*<br>• Parent training/education (with child) (individual, 10 hours)<br>*Pre- and post-treatment and 1-year follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Observed negative child behaviour<br>3. Parent Daily Report (PDR) | 1. No significant difference (mothers or fathers) pre-treatment to post-treatment or post-intervention to 1-year follow-up<br>2. No significant difference pre-treatment to post-treatment; observed negative child behaviour decreased significantly from post-intervention to 1-year follow-up in the self-administered condition; improvements maintained in other treatment conditions<br>3. Mean problem score: significantly fewer mean problems with individual parent training/education compared with self-administered parent training/education (mothers and fathers) pre-treatment to post-treatment; no significant changes from post-intervention to 1-year follow-up (effect maintained) |
| Sanders *et al.*, 2000, Australia[59] | • Parent training/education (self-administered)<br>*Pre- and post-treatment and 1-year follow-up*<br>• Parent training/education (with child) (individual, 14 hours)<br>*Pre- and post-treatment and 1-year follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Observed negative child behaviour<br>3. Parent Daily Report (PDR) | 1. No significant difference (mothers or fathers) pre-treatment to post-treatment or post-intervention to 1-year follow-up<br>2. Significantly less observed negative behaviour with individual parent training/education (14 hours) compared with self-administered; observed negative child behaviour also decreased significantly from post-intervention to 1-year follow-up in the self-administered condition; improvements maintained in other treatment conditions<br>3. Mean problem score: significantly less problem behaviour with individual parent training/education (14 hours) compared with self-administered (mothers); no significant difference for fathers; no significant effects for other measures from post-intervention to 1-year follow-up |

*continued*

| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Siegert and Yates, 1980, USA[85] | • Parent training/education (individual, home)<br>*Pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)*<br>• Parent training/education (individual, office)<br>*Pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)* | 1. Daily frequency of target negative behaviours<br>2. Issues checklist<br>3. Rating of child's behaviour | 1. 77% reduction (compared with baseline; based on last measurement) for individual in home compared with 92% reduction for individual in office; no statistical tests performed<br>2. No significant differences (number of issues, intensity, intensity frequency, average frequency)<br>3. At 4 months post-treatment only: parent reported that 1 child from in home system was worse compared with no children from in office system (all others the same or better) |
| Siegert and Yates, 1980, USA[85] | • Parent training/education (individual, home)<br>*Pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)*<br>• Parent training/education (group)<br>*Pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)* | 1. Daily frequency of target negative behaviours<br>2. Issues checklist<br>3. Rating of child's behaviour | 1. 77% reduction (compared with baseline; based on last measurement) for individual in home compared with 88% reduction for group; no statistical tests performed<br>2. No significant differences (number of issues, intensity, intensity frequency, average frequency)<br>3. At 4 months post-treatment only: 1 child reported as worse in both groups |
| Siegert and Yates, 1980, USA[85] | • Parent training/education (individual, office)<br>*Pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)*<br>• Parent training/education (group)<br>*Pre- and post-treatment and 4-month follow-up (rating of child's behaviour only)* | 1. Daily frequency of target negative behaviours<br>2. Issues checklist<br>3. Rating of child's behaviour | 1. 92% reduction (compared with baseline; based on last measurement) for individual in office compared with 88% reduction for group; no statistical tests performed<br>2. No significant differences (number of issues, intensity, intensity frequency, average frequency)<br>3. At 4 months post-treatment only: parent reported that 1 child from in group system was worse compared with no children from in office system (all others the same or better) |
| Spaccarelli *et al.*, 1992, USA[86] | • Parent training/education (group plus problem solving skills)<br>• Parent training/education (group plus therapist discussion)<br>*Pre- and post-treatment and 8–19-weeks follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Parent Identified Problems Scale (PIP) | 1a. Intensity scale: no significant difference (short-term or at follow-up)<br>1b. Problem scale: no significant difference (short-term or at follow-up)<br>2. No significant difference (short-term or at follow-up) |

*continued*

| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Strayhorn and Weidman, 1991, USA[78] | • Parent-training (self-administered video-tapes, unclear whether in group setting; termed control group in paper)<br>• Individual parent and child training.<br>*Pre-treatment and 1-year follow-up* | 1. Behar Pre-school Behaviour Questionnaire – parent<br>2. Behar Pre-school Behaviour Questionnaire – teacher | 1. Parent Behar Composite: no significant differences<br>1a. Teacher Behar Composite: significantly greater improvement in behaviour with individual parent and child training compared with self-administered parent training/education<br>1b. Teacher Behar Hostile: no significant differences<br>1c. Teacher Behar Anxious: no significant differences<br>1d. Teacher Behar Hyperactive: significantly greater improvement in behaviour with individual parent and child training compared with self-administered parent training/education |
| Taylor *et al.*, 1998, Canada[90] | • Parent training/education (group)<br>• Eclectic treatment | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Report (PDR)<br>4. Achenbach Teacher Report Form (TRF)<br>5. Matson Evaluation of Social Skills with Youngsters (MESSY) | 1a. Intensity score: no significant differences<br>1b. Problem score: significantly fewer problems with parent training/education compared with eclectic treatment<br>2. Total problem score: no significant differences<br>3. No significant differences<br>4. No significant differences<br>5. No significant differences |
| Webster-Stratton *et al.*, 2004, USA[56]<br>And Reid *et al.*, 2004[222] for 2-year follow-up | • Parent training/education (group)<br>*Pre- and post-treatment and 1- and 2-year follow-up*<br>• Parent training/education and teacher training<br>*Pre- and post-treatment and 1- and 2 year follow-up* | 1. Child conduct problems at home composite score<br>2. Child conduct problems at school composite score | 1. No significant differences pre- to post-treatment; no significant differences post-treatment to 1-year follow-up (effect maintained); child behaviour at home (ECBI intensity score): a significantly greater proportion of children in the parent training/education and child training group achieved a 20% reduction in the ECBI intensity score compared with children in the parent training/education group pre-treatment to 2-year follow-up<br>2. No significant differences pre- to post-treatment; no significant differences post-treatment to 1-year follow-up (effect maintained); no significant differences pre-treatment to 2-year follow-up |
| Webster-Stratton *et al.*, 2004, USA[56]<br>And Reid *et al.*, 2004[222] for 2 year follow-up | • Parent training/training (group)<br>*Pre- and post-treatment and 1- and 2-year follow-up*<br>• Child training<br>*Pre- and post-treatment and 1- and 2-year follow-up* | 1. Child conduct problems at home composite score<br>2. Child conduct problems at school composite score | 1. No significant differences pre- to post-treatment; no significant differences post-treatment to 1-year follow-up (effect maintained); no significant differences pre-treatment to 2-year follow-up<br>2. No significant differences pre- to post-treatment; no significant differences post-treatment to 1-year follow-up (effect maintained); no significant differences pre-treatment to 2-year follow-up |

*continued*

| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Webster-Stratton *et al.*, 2004, USA[56]<br>And Reid *et al.*, 2004[222] for 2-year follow-up | • Parent training/education (group)<br>*Pre- and post-treatment and 1- and 2-year follow-up*<br>• Child training and teacher training<br>*Pre- and post-treatment and 1- and 2-year follow-up* | 1. Child conduct problems at home composite score<br>2. Child conduct problems at school composite score | 1. No significant differences pre- to post-treatment; no significant differences post-treatment to 1-year follow-up (effect maintained); no significant differences pre-treatment to 2-year follow-up<br>2. No significant differences pre- to post-treatment; no significant differences post-treatment to 1-year follow-up (effect maintained); no significant differences pre-treatment to 2-year follow-up |
| Webster-Stratton *et al.*, 2004, USA[56]<br>And Reid *et al.*, 2004[222] for 2-year follow-up | • Parent training/education (group)<br>*Pre- and post-treatment and 1-year follow-up*<br>• Parent training/education and child training and teacher training<br>*Pre- and post-treatment and 1- and 2-year follow-up* | 1. Child conduct problems at home composite score<br>2. Child conduct problems at school composite score | 1. No significant differences pre- to post-treatment; no significant differences post-treatment to 1-year follow-up; no significant differences pre-treatment to 2-year follow-up<br>2. No significant differences pre- to post-treatment; school behaviour of children in the parent training/child training/teacher training intervention deteriorated significantly from post-treatment to 1-year follow-up; no significant differences pre-treatment to 2-year follow-up |
| Webster-Stratton and Hammond, 1997, USA[91] | • Parent training/education (group)<br>*Pre- and post-treatment and 1-year follow-up*<br>• Child training<br>*Pre- and post-treatment and 1-year follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI, Intensity score)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Reports (PDR)<br>4. Behar Preschool Behaviour Questionnaire (BPQ)<br>5. Dyadic Parent–Child Interactive Coding System (DPICS–Child variables)<br>6. Peer Problem Solving Interaction Communication Affect Rating Coding System | 1. Intensity score (problem score not used): no significant differences pre- to post-treatment (mothers and fathers), post-treatment to 1-year or pre-treatment to 1-year follow-up<br>2. Total behaviour problems: significantly fewer behaviour problems with parent training/education compared with child training pre- to post-treatment (mothers); no significant differences (fathers); no significant differences post-treatment to 1-year follow-up or pre-treatment to 1-year follow-up<br>3. No significant differences pre- to post-treatment, post-treatment to 1-year follow-up or pre-treatment to 1-year follow-up<br>4. Total problems: no significant difference pre- to post-treatment, post-treatment to 1 year or pre-treatment to 1 year follow-up<br>5a. Child total deviance: no significant differences (mothers and fathers) pre-to post-treatment, post-treatment to 1-year follow-up or pre-treatment to 1-year follow-up<br>5b. Child positive affect and warmth: no significant differences (mothers and fathers) pre-to post-treatment, post-treatment to 1-year follow-up or pre-treatment to 1-year follow-up<br>6. No significant difference for negative conflict management skills pre- to post-treatment; significantly higher ratio of positive conflict management to negative with child training compared with parent training/education pre- to post-treatment; no significant differences post-treatment to 1-year follow-up or pre-treatment to 1-year follow-up |

*continued*

| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Webster-Stratton and Hammond, 1997, USA[91] | • Parent training/education (group)<br>*Pre- and post-treatment and 1-year follow-up*<br>• Child training and parent training/education<br>*Pre- and post-treatment and 1-year follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI, Intensity score)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Reports (PDR)<br>4. Behar Preschool Behaviour Questionnaire (BPQ)<br>5. Dyadic Parent–Child Interactive Coding System (DPICS – child variables)<br>6. Peer Problem Solving Interaction Communication Affect Rating Coding System | 1. Intensity score (problem score not used): no significant differences pre- to post-treatment (mothers and fathers), post-treatment to 1-year follow-up or pre-treatment to 1-year follow-up<br>2. Total behaviour problems: no significant differences pre-to post-treatment), post-treatment to 1-year follow-up or pre-treatment to 1-year follow-up<br>3. No significant differences pre-to post-treatment, post-treatment to 1-year follow-up or pre-treatment to 1-year follow-up<br>4. No significant differences pre-to post-treatment, post-treatment to 1-year follow-up or pre-treatment to 1-year follow-up<br>5. No significant differences pre-to post-treatment, post-treatment to 1-year follow-up or pre-treatment to 1-year follow-up<br>6. Significantly higher number of positive solutions with child and parent training/education compared with parent training/education pre- to post-treatment; no significant differences post-treatment to 1-year follow-up or pre-treatment to 1-year follow-up |
| Webster-Stratton, 1994, USA[79] | • Parent training/education (group, 24–26 hours)<br>• Parent training/education (group, 52–54 hours) | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Dyadic Parent–Child Interaction Coding system (DPICS – child-related variable: total deviance)<br>4. Child Social Problem Solving Test – Revised (SPST-R) | 1. Problem score (intensity not measured): no significant differences (mothers or fathers)<br>2. No significant differences (mothers or fathers; behaviour problems and social competency subscales used)<br>3. No significant differences<br>4. Significant increase in prosocial solutions proposed by children with longer parent training/education programme compared with shorter one; no significant differences for total problem solving or agonistic solutions proposed |
| Webster-Stratton, 1990, USA[124] | • Parent training/education (self-administered, in group setting)<br>• Parent training/education (self-administered, in group setting, with additional therapist contact) | 1. Eyberg Child Behaviour Inventory (ECBI, Intensity score only)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Report (PDR, child negative or prosocial)<br>4. Dyadic Parent–Child Interaction Coding System (DPICS, child total deviance) | 1. Intensity score (problem score not used): no significant differences (mothers or fathers)<br>2. Total behaviour: no significant differences (mother or fathers)<br>3. No significant differences (mother or fathers)<br>4. Significantly less deviant behaviour with intervention with additional therapist contact compared with other intervention (mothers); no significant differences (fathers) |

*continued*

| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Webster-Stratton *et al.*, 1988, USA[88] | • Parent training/education (self-administered, videotape training in group setting)<br>*Pre- and post-treatment, 1- and 3-year follow-up*<br>• Parent training/education (videotape training plus group discussion)<br>*Pre- and post-treatment, 1 and 3-year follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Report (PDR, child variables)<br>4. Dyadic Parent–Child Interaction Coding System (DPICS, child variable)<br>5. Behar Preschool Behaviour Questionnaire (PBQ) | 1a. Total problem score: no significant differences (mothers and fathers) pre- to post-treatment or at 1 or 3 years<br>1b. Intensity score: significantly less frequent behaviour problems with videotape training plus group discussion compared with videotape training only pre- to post-treatment (mothers); no significant differences (fathers); no significant differences at 1 or 3 years<br>2. Total problem score: no significant differences (mothers and fathers); no significant differences at 1 year; significantly fewer problems with videotape plus group discussion compared to videotape only for fathers at 3 years<br>3. No significant differences; no significant differences at 1 or 3 years<br>4. No significant differences; no significant differences at 1 or 3 years<br>5. No significant differences; no significant differences at 1 or 3 years |
| Webster-Stratton *et al.*, 1988, USA[88] | • Parent training/education (videotape training plus group discussion<br>*Pre- and post-treatment, 1- and 3-year follow-up*<br>• Parent training/education (group discussion)<br>*Pre- and post-treatment, 1- and 3-year follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Report (PDR, child variables)<br>4. Dyadic Parent–Child Interaction Coding System (DPICS, child variable)<br>5. Behar Preschool Behaviour Questionnaire (PBQ) | 1a. Total problem score: no significant differences (mothers and fathers); no significant differences at 1 or 3 years<br>1b. Intensity score: significantly less frequent problems with videotape training plus group discussion than with group discussion only pre- to post-treatment (fathers); no significant differences (mothers); no significant differences at 1 or 3 years<br>2. Total problem score: no significant differences (mothers and fathers); no significant differences at 1 year; significantly fewer problems with videotape plus group discussion compared with group discussion only for fathers at 3 years<br>3. Significantly less target negative behaviour with videotape plus group discussion intervention compared with group discussion only pre- to post-treatment; no significant differences for low rate events or prosocial behaviour; no significant differences at 1 or 3 years<br>4. No significant differences; no significant differences at 1 or 3 years<br>5. No significant differences; no significant differences at 1 or 3 years |

*continued*

| Study | Interventions | Outcome measures | Direction of effect[a,b] |
|---|---|---|---|
| Webster-Stratton *et al.*, 1988, USA[88] | • Parent training/education (videotape training plus group discussion)<br>*Pre- and post-treatment, 1- and 3-year follow-up*<br>• Parent training/education (group discussion)<br>*Pre- and post-treatment, 1- and 3-year follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Report (PDR, child variables)<br>4. Dyadic Parent–Child Interaction Coding System (DPICS, child variable)<br>5. Behar Preschool Behaviour Questionnaire (PBQ) | 1a. Total problem score: no significant differences (mothers and fathers); no significant differences at 1 or 3 years<br>1b. Intensity score: significantly less frequent problems with videotape training plus group discussion than with group discussion only pre- to post-treatment (fathers); no significant differences (mothers); no significant differences at 1 or 3 years<br>2. Total problem score: no significant differences (mothers and fathers); no significant differences at 1 year; significantly fewer problems with videotape plus group discussion compared with group discussion only for fathers at 3 years<br>3. Significantly less target negative behaviour with videotape plus group discussion intervention compared with group discussion only pre- to post-treatment; no significant differences for low rate events or prosocial behaviour; no significant differences at 1 or 3 years<br>4. No significant differences; no significant differences at 1 or 3 years<br>5. No significant differences; no significant differences at 1 or 3 years |
| Webster-Stratton, 1984, USA[92] | • Parent training/education (group)<br>*Pre- and post-treatment, 1-year follow-up*<br>• Individual parent and child training<br>*Pre- and post-treatment, 1-year follow-up* | 1. Eyberg Child Behaviour Inventory (ECBI)<br>2. Child Behaviour Checklist (CBCL)<br>3. Parent Daily Telephone Reports (PDR)<br>4. Dyadic Parent–Child Interaction Coding System (DPICS, child variable) | 1a. Intensity score: no significant difference pre- to post-treatment or pre-treatment to 1-year follow-up<br>1b. Problem score: no significant difference pre- to post-treatment or pre-treatment to 1-year follow-up<br>2. No significant difference pre- to post-treatment or pre-treatment to 1-year follow-up<br>3. No significant difference negative or pro-social behaviours pre- to post-treatment or pre-treatment to 1-year follow-up<br>4. No significant difference for non-compliance, total deviance or non-compliance ratio [non-compliance/(compliance + non-compliance)] pre- to post-treatment or pre-treatment to 1-year follow-up |
| Wells and Egan, 1988, USA[80] | • Parent training/education (individual)<br>• Systems Family Therapy | 1. Observation of compliance with good and to total commands | 1. Significantly greater level of compliance with good and total parental commands by children with parent training/education compared with family therapy |

[a] Direction of effect refers to the difference in change between groups (time × condition effect) or the difference at post-treatment adjusted for pre-treatment scores unless stated otherwise.
[b] The difference relates to the difference between pre- and post-treatment unless stated otherwise; where there are additional follow-up assessments, this has been indicated.

# Appendix 10

## Vote counting approach

In order to be consistent and not give certain studies more weight by counting different subscales of one outcome separately compared with those that give one measure only, the most relevant outcome or the one that was most consistent with other studies was chosen. Where there was a choice between negative and positive behaviour, negative behaviour was chosen, as this is more consistent with what the majority of studies are reporting. Where mothers' and fathers' scores are presented, the mothers' scores were used, again as this is more consistent with other studies, and because the sample size for fathers was frequently smaller than that for mothers (making it less likely that statistical significance would be reached). Where no statistical tests were performed, or the results were unclear, these results were not included.[50,74,85]

### Parent Daily Reports (PDR)

The total negative or the antisocial behaviour subscales were used where the results for more than one subscale were presented.

### Becker/Bipolar Adjective Checklist (BAC)

Conduct disorder subscale used.

### Behavioural observations[66]

Child negative behaviour used.

### Eyberg Child Behaviour Inventory (ECBI), Sutter–Eyberg Student Behaviour Inventory–Revised (SESBI-R), Home Situations Questionnaire (HSQ)

Intensity and frequency scores counted separately as most studies present both.

### Child Behaviour Rating Scale (CBRS)[70] and Home and Community Problem Checklist[58]

Home behaviour subscale used.

### Parent Goal Scales (PGS)[55]

Negative child behaviour used.

### Revised Behaviour Problem Checklist (RBPC)[84]

Conduct disorder subscale used.

### Child Behaviour Checklist (CBCL)[72]

Externalising scale used (total not presented).

# Appendix 11

## Summary of economic evaluations

| | Cunningham *et al.*, 1995[29] | Siegert and Yates, 1980[85] |
|---|---|---|
| Type of paper | Prospective randomised trial | Cost-effectiveness study |
| Experimental intervention and duration | Large group (average = 18 families) community-based PT programme (11–12 weekly sessions) | All three delivery systems: individual in-home, in-office and group in-office delivery systems. Also had measurement and contact control patients (no behaviour change strategies discussed)<br>Individual in-home: 1 hour per weekly session<br>Individual in-office: 1 hour per weekly session<br>Group in-office: 1.5 hours per weekly session<br>Measurement and control group: 15–20 minutes per week |
| Usual intervention and duration | Clinic-based (individual) programme (11–12 weekly sessions) | N/A |
| Comparison | Community versus clinic based programmes | Individual in-office versus individual in-home versus group in-office delivery systems |
| Sample and setting | Community PT Group: 48 subjects assigned to 35 different groups. Groups averaged 27 members (~18 families).<br>Clinical/individual PT: leaders met individually with parents | Total: 30 parents.<br>Random assignment placed 8 parents in individual in-home, 7 parents in group in-office and 7 in the individual in-office system |
| Country | Canada | USA |
| Age and sex | Not reported | 27 females and 3 males (26–46 years)<br>Children aged 5–15 years |
| Costs | Cost analysis:<br>*Leaders monitored:*<br>Phone contacts, registration time, travel time, mileage, set-up times, meetings, extra session contacts<br>*Participants monitored:*<br>Mileage, travel time, parking expenses, use of educational and health care resources | Costs recorded as operations, opportunity and comprehensive costs<br>Operation costs: service implementation (personnel, facilities, equipment, materials)<br>Opportunity costs: operations, volunteered personnel time<br>Client costing: treatment fees, time and travel |
| Outcome measures | Enrolment rate (% of parents agree to participate)<br>Adherence (% of scheduled sessions adhered to)<br>Behaviour problems at home measured by:<br>Home Situation Questionnaire<br>Child Behaviour Checklist (CBCL)<br>Problem-solving skills<br>Parenting sense of competence<br>Parenting – child interactions measured by – interaction observed | Target behaviour frequency reduction (negative target behaviour frequencies reported by parents). Average percentage reduction in behaviour frequencies, compared with 2-week baseline average, computed for each family each week<br>Mean percentage reduction in negative target behaviour for each delivery session calculated |

*continued*

| | Cunningham et *al.*, 1995[29] | Siegert and Yates, 1980[85] |
|---|---|---|
| Follow-up | 6-month follow-up | 4-month follow-up |
| Perspective | Healthcare sector | Societal |
| Modelling | None | None |
| Discounting | None | None |
| Sensitivity analysis | None | None |
| Result | Community group (18 families) is more than 6 times as cost-effective as clinic/individual groups<br>Community groups reduced travel/time expenses incurred by participants<br>Clinic/individual groups (for 150 families) cost community Can$120,000<br>Providing 8 community programmes to 150 families cost Can$18,000<br>Community groups also reported better comparative outcomes (greater reductions in child management problems and better maintenance of gains at follow-up | All 3 delivery systems markedly reduced target behaviour frequencies<br>Individual in-office training: 92% reduction<br>Individual in-home training: 88% reduction<br>Group training: 88%<br>Control: 38%<br>Follow-up (4 months following completion) – 77% of sample responded.<br>Behaviour worsened for 1/6 individual in-home system, 1/6 for group system and none in the individual in-office system<br>Costs varied little within delivery systems |

# Health Technology Assessment Programme

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***We look forward to hearing from you.***

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