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# **Group-based parent-training programmes for improving emotional and behavioural adjustment in 0-3 year old children**

Jane Barlow, Jacci Parsons



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<b>Authors</b>	Barlow, Jane Parsons, Jacci
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<b>Corresponding author</b>	Jane Barlow Division of Health in the Community Dept of Public Health and Epidemiology Warwick Medical School University of Warwick Medical School Building Coventry CV4 7AL United Kingdom Telephone: +44 2476 574 884 E-mail: <a href="mailto:Jane.Barlow@warwick.ac.uk">Jane.Barlow@warwick.ac.uk</a>
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0130 Oslo, Norway  
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## Cover sheet

### Title

Group-based parent-training programmes for improving emotional and behavioural adjustment in 0-3 year old children

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### Contact reviewer:

Dr Jane Barlow

Reader in Public Health

Dept of Public Health and Epidemiology

Division of Health in the Community

Warwick Medical School

Medical School Building

University of Warwick

Coventry UK

CV4 7AL

Telephone 1: +44 02476 574884

Facsimile: +44 02476 574893

E-mail: Jane.Barlow@warwick.ac.uk

URL: <http://www2.warwick.ac.uk/fac/med/healthcom/staff/barlow/>

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Jacci Parsons (JP) and Jane Barlow (JB) wrote the text of the protocol; JP ran the searches; JP and JB wrote the text of the review; JB responded to editorial comments and those from external referees.

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**Potential conflict of interest**

None known.

## What's new

Small errors in a previous version of this review have been changed in Issue 3, 2003, to reflect incorrect setting of the WMD instead of the SMD statistic in the meta-analyses and to align correct results in the meta-view with incorrect ones in the text.

Also, in Issue 4, 2003, the result of the parent-report meta-analysis has been corrected from the previously published text from a non-significant improvement of intervention to control of -0.29 [-3.31, -1.10] to a non-significant improvement of intervention to control of -0.29 [-0.55, -0.02].

## Dates

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## **Synopsis**

Parenting practices play a significant role in the development of emotional and behavioural problems in children, and parenting programmes which are aimed at the parents of infants and toddlers thereby have the potential to prevent the occurrence of such problems. The findings of this review provide some support for the use of group-based parenting programmes to improve the emotional and behavioural adjustment of children under the age of 3 years. The limited evidence available concerning the extent to which these results are maintained over time, however, is equivocal, and it may be that during this period of rapid change in the infant's development, further input at a later date is required. More research is needed before questions of this nature can be answered.

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## **Abstract**

### **Background**

Emotional and behavioural problems in children are common. Research suggests that parenting has an important role to play in helping children to become adjusted, and that the first few months and years of a child's life are especially important in establishing patterns of emotional, cognitive and social functioning which will in turn influence the child's future development and in particular, their mental health. Parenting programmes may therefore have a role to play in improving the emotional and behavioural adjustment of infants and toddlers.

### **Objectives**

The objectives of this review are as follows:

- a) To establish whether group-based parenting programmes are effective in improving the emotional and behavioural adjustment of children less than three years of age
- b) To assess the role of parenting programmes in the primary prevention of emotional and behavioural problems.

### **Search strategy**

A range of biomedical and social science databases were searched including MEDLINE, EMBASE, CINAHL, PsychLIT, Sociofile, Social Science Citation Index, ASSIA, the Cochrane Library including SPECTR, CENTRAL, National Research Register (NRR) and ERIC.

### **Selection criteria**

Only randomised controlled trials of group based parenting programmes were included, and studies that had used at least one standardised instrument to measure emotional and behavioural adjustment.

### **Data collection & analysis**

The treatment effect for each outcome in each study was standardised by dividing the mean difference in post-intervention scores for the intervention and treatment group by the pooled standard deviation, to obtain an effect size. The results for each outcome in each study have been presented, with 95% confidence intervals. Where appropriate the results have been combined in a meta-analysis using a random effects model.

### **Main results**

Five studies were included in the review, and there were sufficient data from five studies to combine the results in a meta-analysis. Meta-analyses were conducted for both parent-reports and independent assessments of children's behaviour. The result for parent reports shows a non-significant result favouring the intervention group (ES -0.29, CI -0.55 to 0.02). The result for independent observations of children's behaviour shows a significant result favouring the intervention group (ES -0.54, CI -0.84 to -0.23). A meta-analysis of the limited follow-up data available shows a small non-significant result favouring the intervention group (ES -0.24, CI -0.56



to 0.09).

### **Reviewers' conclusions**

The findings of this review provide some support for the use of group-based parenting programmes to improve the emotional and behavioural adjustment of children under the age of 3 years. There is, however, insufficient evidence to reach any firm conclusions regarding the role that such programmes might play in the primary prevention of such problems. Furthermore, there are limited data available concerning the long-term effectiveness of these programmes, and the results from the two studies for which data were available produced borderline insignificant findings. Further research is required.

## Background

### THE EPIDEMIOLOGY OF CHILD MENTAL HEALTH PROBLEMS

Emotional and behavioural problems are one of the most important causes of functional disability in children (Bone 1989). Their prevalence, using clinical criteria, has been estimated to be as high as 20% in urban areas (Campbell 1995), and they currently exceed present means and resources for dealing with them (DoH 1995). The rate of behaviour problems among pre-schoolers in particular is high. One study showed that 7% of children aged 3 - 4 years exhibited serious behaviour problems (Charlton 1995), and a further study showed that between 15 - 21% of reception class school children exhibited emotional and behavioural problems (St James-Roberts).

In addition to having a high prevalence, emotional and behavioural problems in children predict an increased risk of a range of poor outcomes including depression, alcohol and drug misuse, and psycho-social problems such as poor work and marital outcomes, delinquency and criminal behaviour (Champion 1995; Farrington 1994; Farrington 1991; Kazdin 1990; Loeber 1997; Moffit 1996; Offord 1994; Robins 1991; Robins 1990; Rutter 1996). For example, the Dunedin study showed that antisocial behaviour at age 13 was predicted by externalising behaviour at age 3 and behaviour problems at age 5 (Robins 1991). A 22-year follow-up study showed that peer-rated aggression at age 8 predicted the number of convictions by age 30, as well as the seriousness of the crimes (Eron 1990).

### PARENTING AND CHILD MENTAL HEALTH

There is a body of literature pointing to the importance of parenting as regards child mental health. Positive proactive parenting (involving praise, encouragement, and affection) is associated with high child self-esteem and social and academic competence, and can be protective against later disruptive behaviour and substance misuse (Cohen 1994; Baumrind 1985). Parenting practices characterised by harsh and inconsistent discipline, little positive parental involvement with the child, and poor monitoring and supervision, however, are associated with an increased risk of a range of poor outcomes including delinquency and substance abuse (Patterson 1993; Patterson 1993; Patterson 1993). Parenting and family interaction variables have been shown to explain up to 30-40% of child antisocial behaviour (Patterson 1989).

A recent study that focused in particular on the infant and toddler pathways leading to early externalising (behaviour) problems pointed to the importance of the care-giver environment during infancy as regards the development of externalising disorders at school entry (Shaw 2001). These results are consistent with social learning and attachment theories, both of which suggest that severe conduct problems in early childhood are the result of deficits in the care-giving environment (Shaw 2001).

The first few months and years of a child's life are important in establishing the patterns of emotional, cognitive and social functioning which influence the child's future development and their mental health. There is an increasing body of research indicating that the quality of the parent-infant relationship in particular creates the conditions for establishing healthy patterns of functioning in childhood and adulthood. For example, there is evidence to show that early secure attachments with the parents provide the basis for secure attachments in later life (Stein 1991; Murray 1990), and that insecure attachment prior to age 2 is related to a range of poor outcomes

including conduct problems, low sociability, poor peer relations, symptoms of anger, and poor behavioural self-control during the preschool years (Carlson 1995; Astington 1994), and to adolescent anxiety (Warren 1997), dissociation (Ogawa 1997), drug use, and delinquency (Garnier 1998) in later life. The ability to empathise and to understand other people's thoughts and feelings is also related to the quality of the early parent-infant relationship, and it is recognised that deficits in these areas of functioning are associated with increased levels of violence and criminality (Velez 1989). In addition, there is a clear relationship between poor maternal-infant relationships and emotional and cognitive deficits (Cogill 1986), poor educational achievement (Campbell 1995), criminality (Egeland 1993), and a range of mental health problems (Fonagy 1997).

It has been argued that promotion of the mental health of infants is key to the prevention of mental disorder throughout the lifespan (Fonagy 1998). This may indicate a role for early interventions designed to improve parent-infant interaction in particular, and parenting practices more generally.

## PARENTING PROGRAMMES

Parenting programmes are focused short-term interventions aimed at helping parents improve their relationship with their child, and preventing or treating a range of problems including behavioural and emotional adjustment. The use of parents as modifiers of their children's behaviour began in the 1960's when it was shown that, using behaviour modification techniques, parents could successfully decrease tantrums, self-destructive behaviours, verbal aggression, excessive crying, thumbsucking, soiling, school phobia, speech dysfunction, seizures, oppositional behaviour and antisocial and immature behaviour (Johnson 1973; Rose 1974). This early work was conducted with individual families, and the use of groups did not begin until the 1970s. The expansion of group-based parenting programmes has taken place in a number of countries over the past decade (Pugh 1994). Parenting programmes are now being offered in a variety of settings, and a recent systematic review of randomised controlled trials showed that they are effective in improving behaviour problems in 3 - 10 year old children (Barlow 2001), and in improving maternal psychosocial health in the short term, including reducing anxiety and depression and improving self-esteem (Barlow 2000). It has also been suggested that group-based parenting programmes may be a more effective method of supporting parents of children with sleep problems than individually tailored behavioural programmes (Szyndler 1992). There is therefore a need for a systematic review of studies of the effectiveness of parenting programmes with children aged 0 - 3 years.

Although current evidence from controlled trials addresses the use of parenting programmes as part of secondary, high-risk approaches to prevention, it has been argued on theoretical grounds that they would be more effective if delivered as part of a population approach (Stewart-Brown 1998). Parenting programmes are also typically used in a secondary preventive role i.e. the treatment of early mental health problems, but it may be that they have an important role to play in the primary prevention of mental health problems, and indeed, in the promotion of mental health. This review aims to address these issues.

## Objectives

The objectives of this review are as follows:

- a) To establish whether group-based parenting programmes are effective in improving the emotional and behavioural adjustment of children less than three years of age
- b) To assess whether parenting programmes are effective in the primary prevention of emotional

and behavioural problems

## Criteria for considering studies for this review

### Types of studies

Randomised controlled trials in which participants had been randomly allocated to an experimental and a control group, the latter being a waiting-list or no-treatment control group. Studies comparing two different therapeutic modality groups, but without a control group were not included in the review.

### Types of participants

Studies were eligible for inclusion in the review if they involved parents of 0-3 year old children irrespective of whether the children comprised clinical or population samples. Studies involving parents of a child older than 3 years of age were included providing that the mean age of all the child was around 3 years. n.b. it should be noted that two studies were included in which the mean age of the children was 3 years and 3 months.

### Types of interventions

Studies evaluating the effectiveness of a group-based parenting programme were eligible for inclusion irrespective of the theoretical basis underpinning the programme.

### Types of outcome measures

To be eligible for inclusion in the review, studies had to include at least one measure of infant/child (0-3 years) emotional and behavioural adjustment.

## Search strategy for identification of studies

The following electronic databases were searched:

1. Biomedical sciences databases

- MEDLINE Journal articles (1970 to 2001)
- EMBASE (1974 to 2001)
- Biological Abstracts (1985 to 2001)
- British Nursing Index (1994 to 2001)

2. Social Science and General Reference databases:

- CINAHL (1982 to 2001)
- PsychINFOR Journal Articles and Chapter/Books (1970 to 2001)
- Sociological Abstracts (1963 to 2001)
- Social Science Citation Index (1994 to 2001)
- ASSIA

3. Other sources of information:

- The Cochrane Library including Cochrane Database of Systematic Reviews; Cochrane Controlled Trials Register and Database of Abstracts of Reviews of Effectiveness (Issue 3, 2001)
- National Research Register (NRR) (Issue 4, 2001)

- Dissertation Abstracts (International A) (1980 to 2001)
- ERIC
- Reference lists of articles identified through database searches were examined to identify further relevant studies.
- Bibliographies of systematic and non-systematic review articles were also examined to identify relevant studies

Potentially relevant papers that were identified in Dissertation Abstracts were only retrieved if they were available in the UK. This reflects the fact that the cost of accessing international dissertations was prohibitive.

The search terms were adapted for use in the different databases. No methodological terms were included to ensure that all relevant papers were retrieved. The following search terms were used:

1. (parent\* training or parent\* program\* or parent\* education
2. (toddler or infant or preschool or pre-school or pre school or baby or babies)
3. #1 and #2

## **Methods of the review**

Titles and abstracts of studies identified through searches of electronic databases were reviewed to determine whether they met the inclusion criteria. Titles and abstracts were identified by Jacqueline Parsons and read and reviewed by Jacqueline Parsons and Jane Barlow. The two reviewers (JP and JB) independently assessed full copies of papers that appeared to meet the inclusion criteria. The included studies were critically appraised using a number of criteria including the method of allocation concealment.

### **QUALITY ASSESSMENT**

Critical appraisal of the included studies was carried out by both reviewers according to the criteria listed below. 'A' indicates the use of an adequate method of allocation concealment (for example, by telephone randomisation, or use of consecutively numbered, sealed, opaque envelopes). 'B' indicates uncertainty about whether the allocation was adequately concealed (for example, where the method of concealment is not known). 'C' indicates that the method of allocation was not adequately concealed (for example, open random number lists or quasi-randomisation such as alternate days, odd/even date of birth, or hospital number). The following aspects of the study were also appraised: the numbers of participants in each group, the method of dealing with attrition/drop-outs, blinding, and whether there was any assessment of the distribution of confounders.

### **DATA MANAGEMENT**

Data were extracted independently by two reviewers using a data extraction form and entered into REVMAN. Where data were not available in the published trial reports, authors were contacted to supply missing information. One author provided missing data ([Sutton 1992](#)).

### **DATA ANALYSIS**

The studies included in this review used a range of scales to measure similar outcomes e.g. children's behavioural adjustment was measured using the Eyberg Child Behaviour Inventory (ECBI), the Child Behaviour Questionnaire (CBQ), the Behaviour Screening Questionnaire (BSQ), the Pediatric Symptom Checklist (PSC) and the Home Situations Questionnaire (HSQ). The treatment effect for each outcome in each study was therefore standardised by dividing the mean

difference in post-intervention scores for the intervention and treatment group, by the pooled standard deviation, to obtain an effect size. Where appropriate the results were then combined in a meta-analysis using a random effects model. The decision about whether to combine data in this way was determined by the level of heterogeneity present in the population, intervention and outcomes being used in the primary studies. Where there was an insufficient number of outcomes to justify combining them in a meta-analysis, the effect sizes and 95% confidence intervals for individual outcomes in individual studies have been presented.

## Description of studies

All databases searched yielded abstracts, and there were a number of duplicates between the databases. 190 abstracts were identified and reviewed.

Of the 190 abstracts reviewed, 50 proved to be of no direct relevance to the review. Of the 140 studies reviewed, only 5 were suitable for inclusion. The main reasons for exclusion were that the study did not evaluate a parenting programme, the intervention described was not group-based, or the children in the study did not meet the age criterion. Some studies were excluded due to the fact that they did not include an outcome measuring infant mental health. One study identified by the search would have been suitable for inclusion (Esdale 1995), but the necessary data were not published in the paper, and were no longer available from the author. A further study was located following contact with an author of a non-RCT study. This study is currently in press and has therefore been included in the review making a total of 5 studies

The majority of articles reviewed were written in English. All articles in languages other than English had abstracts in English, and these studies were all excluded on the basis of information contained in the abstracts.

All of the included studies focused on improving the emotional and behavioural adjustment of toddlers (Gross et al in press; Gross et al 1995; Nicholson et al 1998; Nicholson in press; Sutton 1992). Two of the included studies involved an evaluation of the Webster-Stratton Programme (Gross et al in press; Gross et al 1995). The first of these studies was a cluster randomised trial to evaluate the effectiveness of the Webster-Stratton 'Incredible Years' parenting programme with multi-ethnic families of toddlers in day care in low-income urban communities (Gross et al in press). This study compared a parenting programme with a teacher training programme, a combined parent and teaching training programme, and a waiting-list control group, and included measures of children's behaviour in the classroom, in addition to parent-report assessments of children's behaviour. The second study evaluated the effectiveness of the Webster-Stratton group-based video-tape modelling parenting programme (Parent and Children Series) in improving the relationship between parents and children, decreasing parental stress and depression, and reducing child behaviour problems (Gross et al 1995). Child behaviour was measured in addition to parental self-efficacy, parental depression and observed parent-toddler interaction. A third study evaluated the effectiveness of a cognitive-behavioural parenting programme designed to prevent future conduct problems in families with very young children, and measured parenting and child behaviour (Nicholson et al 1998). The fourth study compared different methods of behavioural parent training (Sutton 1992), and measured parenting stress in addition to child behaviour. The fifth study evaluated the effectiveness of a small group-based cognitive-behavioural parenting programme for parents at risk of using harsh parenting strategies (Nicholson in press). This study measured parenting stress and behaviour in addition to a range of child outcomes. Data from the teachers of the children was also collected.



## Methodological quality of included studies

The studies in this review all used randomised or quasi-randomised methods of allocating participants to groups. One study used a cluster randomised design ([Gross et al in press](#)) in which 11 day care centres were randomly allocated to one of 3 arms ([Gross et al in press](#)). Two of the trials allocated participants to study groups on a quasi-randomised basis. In the [Nicholson et al 1998](#) study, participants selected one night out of two possible nights that they would prefer to attend the parent training sessions. Participants who had no preference were 'randomly' allocated to a study group. One of the two nights was then nominated to be the intervention group and one to be the waiting-list control group. It is unclear in this study, however, whether the night which was allocated to be the intervention group was decided before or after parents had chosen the night they wished to attend. In the [Sutton 1992](#) study, all participants were sequentially allocated to one of four trial arms based on the order in which their applications to participate in the trial were received. Three applications were allocated out of order due to anticipated difficulties in parents attending the prescribed class. In both the [Gross et al 1995](#) and [Nicholson in press](#) studies, no information about the randomisation procedure was provided.

### ALLOCATION CONCEALMENT

None of the studies in the review described the method of concealing allocation to study groups.

### INTENTION-TO-TREAT ANALYSES

In the [Nicholson et al 1998](#) study none of the participating families dropped out of the study and it would appear that all participants remained in the group to which they were allocated. In the [Gross et al 1995](#) study 29% of parents dropped out, and an intention-to-treat analysis was not undertaken i.e. the seven families who dropped out were maintained as a second control group. In the [Gross et al in press](#) study, the drop-out rate in the parent-training condition was also in the region of 30% and no intention-to-treat analysis was conducted. In the [Sutton 1992](#) study, only two families dropped out and it is not clear whether the data from these families were included in the analyses. The [Nicholson in press](#) study reports a 10% drop-out rate, but does not describe whether or not these parents were included in the analyses or which group they dropped out of.

### BLINDING TO TREATMENT

In trials of parenting programmes, it is not possible to blind either facilitators or parents to the type of treatment being implemented or received. One of the methods of minimising bias arising from failure to blind parents and study personnel is to blind assessors of clinical outcomes. One of the included studies used independent assessment of children's behaviour, and assessors in both studies were blind to study group ([Gross et al in press](#)).

### DISTRIBUTION OF CONFOUNDERS

While the use of randomisation should in theory ensure that any possible confounders are equally distributed between the arms of the trial, the randomisation of small numbers of parents may result in an unequal distribution of confounding factors. It is therefore important that the distribution of known potential confounders is i) compared between the different study groups at the outset or ii) adjusted for at the analysis stage. In the [Sutton 1992](#) study there were no differences in the main assessment measures pre-intervention. However, no information was provided about other known confounders such as the age of the participating parents and their children, or their socio-economic status. The [Nicholson et al 1998](#) study did not provide pre-intervention data concerning child behaviour, but showed that the intervention and control groups were similar in terms of the child's age, and number of parents in each group. In the study in which day care centres were the unit of

allocation, centres were matched on a number of variables including day care size, ethnic composition, percentage of single parent families, median income and day care centre quality (Gross et al in press). Two studies provided no description of the known confounding factors (Nicholson in press; Gross et al 1995).

## Results

The results section comprises the following:

Section A: Individual study results for emotional and behavioural outcome

Section B: Meta-analysis of the emotional and behavioural outcomes

Section C: Follow-up data

Section D: Meta-analysis of the follow-up data

[n.b. effect sizes smaller than 0.2 are treated as no evidence of effectiveness].

### SECTION A: INDIVIDUAL STUDY RESULTS FOR EMOTIONAL AND BEHAVIOURAL OUTCOMES

Five of the studies included in this review assessed the effectiveness of a parenting programme in improving emotional and behavioural adjustment in 0 to 3-year-old children (Gross et al in press; Gross et al 1995; Nicholson et al 1998; Nicholson in press; Sutton 1992). All comparisons are between parenting programmes and waiting-list control groups.

The Gross et al in press study examined the effectiveness of a 12-week video-tape modelling programme (The Incredible Years) in increasing parenting competence and reducing child behaviour problems using one parent-report outcome instrument - The Eyberg Child Behaviour Inventory (ECBI), and one teacher-report of classroom behaviour - Kohns Problem Checklist (KPC). Observer rated child behaviour problems were assessed using the Dyadic Parent-Child Interactive Coding System-Revised to evaluate a 15-minute videotaped parent-child free play session. Child behaviour problems were assessed using a ratio of aversive child behaviours to positive child behaviours created from eight DPICS-R items.

The results of this study show no evidence of effectiveness as regards the parent-report child behaviour outcomes using the ECBI - total behaviour -0.01 [-0.35, 0.33]; ECBI - Intensity -0.10 [-0.44, 0.25]; and ECBI - Conduct -0.10 [-0.44, 0.24]. There was in addition a non-significant difference favouring the control group for ECBI-Oppositional Behaviour 0.21 [-0.14, 0.55], and a non-significant difference favouring the intervention group for ECBI -Inattentiveness -0.22 [-0.57, 0.12]. The results for the teacher-reported classroom behaviour show a significant difference favouring the intervention group -0.46 [-0.80, -0.11], as did the independent observations of children's behaviour using the DPICS-R, -0.51 [-0.86, -0.17].

The Gross et al 1995 study examined the effectiveness of a 10-week video-tape modelling programme (The Parent Children Series) in promoting positive parent-toddler (aged 2-3 years) relations using two parent-report outcome instruments - the Eyberg Child Behaviour Inventory (ECBI) and the Toddler Temperament Scale. Independent observations of children's behaviour were undertaken using the Dyadic Parent-Child Interactive Coding System (DPICS). This scale is scored along 7 dimensions - labelled praise (praise made specific to the child's behaviour); unlabelled praise (general positive statements directed to the child); critical statements to the child; physical negative behaviours (parent-initiated touching that inflicts pain on the child, restrains the



child, forces or pulls the child, or accompanies a critical remark); positive affect (nonverbal positive behaviours directed to the child such as smiles and laughter); commands to the child. Interrater reliability for this measure was 74% for mother-child interactions and 73.5% for father-child interactions. Data for all measures were collected from both mothers and fathers and reported separately.

The results of this study show no evidence of effectiveness as regards the number of problems reported by the mother using the ECBI - 0.02 [-0.98, 1.01], and a non-significant difference favouring the control group for the intensity of the toddler's behaviour problems as reported by the mother using the ECBI 0.4 [-0.6, 1.41]. There was a non-significant difference favouring the intervention group as regards the number of problems reported by the father (using the ECBI) -0.6 [-1.6, 0.4] and the intensity of the problems reported by the father (using the ECBI) -0.9 [-1.9, 0.2]. The Toddler Temperament Scale is a parent-report measure of the child's behaviour in a variety of situations that are aggregated along nine dimensions of toddler temperament ranging from low level of difficulty to highly 'difficult' temperament style. In this study a mean score of 3.4 or greater was treated as being representative of a higher than average difficult temperament. The results show a non-significant difference favouring the intervention group for both mother -0.8 [-1.9, 0.22] and father reports -0.6 [-1.6, 0.4].

The results of the independent observations of children's behaviour show that there were non-significant differences favouring the intervention group for labelled praise - mother-child interaction -0.68 [-1.71, 0.34], labelled praise - father-child interaction -0.92 [-1.98, 0.13], unlabelled praise - mother-child interaction -0.7 [-1.7, 0.3], number of critical statements - mother-child interaction -0.5 [-1.6, 0.5], number of critical statements - father-child interaction -0.5 [-1.5, 0.5], number of commands - mother-child interaction -0.95 [-2.0, 0.1], and number commands - father-child interaction -0.6 [-1.6, 0.4]. There were also non-significant differences favouring the intervention group for physical negative behaviour - mother-child interaction -0.3 [-1.1, 0.5], physical negative behaviour - father-child interaction -0.6 [-1.67, 0.4], child negative behaviour - mother-child interaction -0.6 [-1.6, 0.5], unlabelled praise - father-child interaction -0.2 [-2.4, 1.2]. There were non-significant differences favouring the control group for positive affect - mother-child interaction 0.7 [-0.4, 1.7], positive affect - father-child interaction 0.9 [-0.2, 2.0], unlabelled praise - father-child interaction 0.2 [-2.4, 1.2], and unlabelled praise - father-child interaction -0.2 [-2.4, 1.2].

The [Sutton 1992](#) study examined the effectiveness of an 8-week group-based behavioural parenting programme in improving the behaviour of pre-school children (average age 2 years 10 months) using two parent-report outcomes - the Child Behaviour Questionnaire (CBQ) and the Home Situations Questionnaire (HSQ). The results show a significant difference favouring the intervention group for toddler's behaviour (as measured by the child behaviour questionnaire) -1.5 [-2.6, -0.46]. The results also show a significant difference favouring the intervention group as regards the toddler's behaviour in a range of home situations -1.34 [-2.37, -0.31].

Two further studies evaluated the effectiveness of cognitive-behavioural parenting programmes [Nicholson in press](#) and [Nicholson et al 1998](#). The most recent of these two studies evaluated the effectiveness of a 10-week group-based parenting programme in preventing emotional and behavioural problems in 'at risk' low income parents of young children (aged 1-5) using a range of parent-report outcomes. Emotional and behavioural adjustment was assessed using the Behaviour Screening Questionnaire (BSQ), the Eyberg Child Behaviour Inventory (ECBI), and the Pediatric Symptom Checklist (PSC). The Pediatric Symptom Checklist measures problem behaviours that are typical of young children, and both parent and teacher report formats were used. The results of

this study show a non-significant difference favouring the intervention group in emotional and behavioural adjustment as measured by the BSQ -0.8 [-1.6, 0.03], for the number of behaviour problems -0.45 [-1.23, 0.33] and intensity of the child's problems using the ECBI -0.4 [-1.1, 0.4], and for a number of parent-reported behaviour problems as measured by the Pediatric Symptom Checklist -0.5 [-1.26, 0.3]. The results also show a non-significant difference favouring the intervention group for the teacher reported Pediatric Symptom Checklist -0.6 [-1.4, 0.2], for the teacher-report Sutter-Eyberg Behaviour Inventory (problems) -0.31 [-1.09, 0.46], and the teacher-report Sutter-Eyberg Behaviour Inventory (Intensity) -0.77 [-1.57, 0.03].

The second Nicholson study evaluated the effectiveness of a ten-hour group-based cognitive-behavioural parenting programme delivered over the course of 4 sessions to parents of young children (mean age 3 years). Emotional and behavioural adjustment was measured using the Behaviour Screening Questionnaire (BSQ). The result shows a significant difference favouring the toddler's in the intervention group -0.8 [-1.44, -0.1].

## SECTION B: META-ANALYSIS OF THE EMOTIONAL AND BEHAVIOURAL OUTCOMES

Two meta-analyses were conducted using data from the following outcomes: 1) Parent reports and; 2) Independent observations of children's behaviour.

### 1. PARENT REPORTS

Five studies ([Gross et al in press](#); [Nicholson in press](#); [Nicholson et al 1998](#); [Sutton 1992](#); [Gross et al 1995](#)) measured the effectiveness of a parenting programme in improving emotional and behavioural outcomes in infants/toddlers using standardised parent report instruments including the Eyberg Child Behaviour Inventory (ECBI), the Behaviour Screening Questionnaire (BSQ), the Child Behaviour Questionnaire (CBQ) and the Dyadic Parent-Child Interaction Coding System (DPICS). The five studies provided a total of 34 measures of children's emotional and behavioural adjustment but only 5 of these were included in the meta-analysis due to the fact that the remaining 29 were repeat measures on the same children. The four measures were selected using the following criteria: mother reports were favoured over father reports due to the fact that this is a more common way of assessing children's behaviour, and on the whole, mother's spend more time with their children. Parent reports were favoured over teacher reports in order to maintain consistency. The ECBI was favoured over the TTS in the Gross study because the former is a more commonly used measure of children's behavioural adjustment.

The five studies provide data from a total of 236 participants (127 intervention group and 109 control group). The combined data show a non-significant difference favouring the intervention group -0.29 [-0.55, -0.02].

### 2. INDEPENDENT OBSERVATIONS

Three studies measured the effectiveness of a parenting programme in improving emotional and behavioural outcomes in infants/toddlers using standardised independent observations of children's behaviour ([Gross et al 1995](#); [Gross et al in press](#); [Nicholson in press](#)). These included the Pediatric Symptom Checklist teacher-report; Sutter-Eyberg Behaviour Inventory teacher-report; Kohn Pediatric Checklist (KPC) teacher-report; and independent observations of parent-child interaction - Dyadic Parent-Child Checklist. The three studies provided a total of 7 assessments of outcome, but only 3 of these were included in the meta-analysis due to the fact that the remaining 4 were repeat measures on the same children. The three measures were selected using the following criteria: observations of mother and child were used rather than observations of father and child. Observations of parent-infant interaction were used rather than teacher reports. Where only

teacher reports were available, a summary measure was selected i.e. in the [Nicholson in press](#) study 3 teacher reports were available - the Sutter-Eyberg Intensity; Sutter Eyberg Problems and the Pediatric Symptom Checklist - the latter was therefore selected for inclusion.

The three studies provide data from a total of 177 participants (99 intervention group and 78 control group). The combined data show a significant difference favouring the intervention group -0.54 [-0.84, -0.23].

### SECTION C: FOLLOW-UP RESULTS

All five studies provided follow-up data. However, only two studies provided data for both the intervention and control group ([Gross et al in press](#); [Gross et al 1995](#)). One study did not report any data for the waiting-list control group due to the fact that by follow-up they had received the intervention ([Sutton 1992](#)), and a further study combined the data from the intervention group and the waiting-list control group once the latter had received the intervention ([Nicholson in press](#)). The remaining study did not provide any follow-up data for either intervention or control group ([Nicholson et al 1998](#)).

The [Gross et al in press](#) study showed that at 1-year follow-up there were non-significant differences favouring the intervention group for the following aspects of the ECBI - Inattentive - 0.29 [-0.63, 0.05]; Intensity -0.23[-0.57, 0.11], but no evidence of effectiveness for Oppositional - 0.16 [-0.51, 0.18]; Conduct -0.17 [-0.51, 0.17] or Total Behaviour -0.18 [-0.52, 0.17]. There was a significant difference favouring the intervention group for teacher-reported classroom behaviour - 0.66 [-1.01, -0.32] but no evidence of effectiveness for independent observations of children's behaviour -0.15 [-0.49, 0.10]. Thus, while teacher-reported significant changes for the intervention group have increased, independent observations of children's behaviour have deteriorated.

The [Gross et al 1995](#) study showed that at 3-months follow-up there were non-significant differences favouring the intervention group for the Toddler Temperament Scale father-report - 0.63 [-1.66, 0.39], and mother-report -0.92 [-1.98, 0.13]. The remaining results all showed non-significant differences favouring the control group - Eyberg Child Behaviour Inventory Intensity - mother-report 0.35 [-0.66, 1.35], number of problems - mother-report 0.34 [-0.67, 1.34], intensity - father-report 0.35 [-0.66, 1.35], or no evidence of effectiveness Eyberg Child Behaviour Inventory number of problems - father report 0.14 [-0.85, 1.14].

As regards the independent observations of children's behaviour, there was a non-significant difference favouring the intervention group for labelled praise - mother-child interaction -0.8 [-1.9, 0.3] but no difference between the intervention and control groups for labelled praise - father-child interaction. There was a non-significant difference favouring the intervention group for unlabelled praise - mother-child interaction -0.4 [-1.4, 0.6], and unlabelled praise - father-child interaction 1.1 [-0.01, 2.1]. There was a significant difference favouring the intervention group for critical statements - mother-child interaction -1.7 [-2.9, -0.5] and a non-significant difference for critical statements - father-child interaction -0.9 [-1.98, 0.1]. There was a significant difference favouring the intervention group for physical negative behaviour - mother-child interaction -1.35 [-2.47, -0.2] but a small non-significant difference favouring the control group for physical negative behaviours - father-child interaction 0.3 [-0.8, 1.3]. There was a non-significant result favouring the intervention group for the number of commands - mother-child interaction -0.7[-1.8, 0.3], and the number of commands - father-child interaction -0.9 [-1.9, 0.2], and for child negative behaviour - mother-child interaction -1.0 [-2.0, 0.1]. There was no difference between the two groups for physical negative behaviour - father-child interaction -0.02 [-1.0, 1.0]. There were non-significant

findings favouring the control group for positive affect - mother-child interaction 0.6 [-0.5, 1.6] and positive affect - father-child interaction 0.3 [-0.7, 1.3].

The [Sutton 1992](#) study which provided 12-18 month follow-up data for the intervention group only, showed that the improvement in emotional and behavioural adjustment was maintained over time but that there was a slight deterioration in the results obtained immediately post-intervention i.e. the mean score for the Child Behaviour Questionnaire deteriorated from 6.0 to 8.2 and the mean score for the Home Situation Questionnaire fell from 25.3 to 24.4.

The [Nicholson in press](#) study provided one-month follow-up data for the combined intervention and wait-list control groups, using the ECBI. These results show that the improvement post-intervention was maintained for all measures at follow-up, and that there was further improvement at follow-up for the Pediatric Symptom Checklist (parent report) and the ECBI (teacher report) (problems and intensity). There was a slight deterioration in the post-intervention score for the Pediatric Symptom Checklist (teacher report) and the Sutter Eyberg Behaviour Inventory (teacher report) (problems and intensity).

#### SECTION D: META-ANALYSIS OF THE FOLLOW-UP DATA

Two studies ([Gross et al in press](#); [Gross et al 1995](#)) provided follow-up data for both the intervention and control group for periods of 1-year and 3-months using the Dyadic Parent-Child Interaction Scale (DPICS).

The two studies provide data from a total of 151 respondents (86 intervention and 65 control). The results show a non-significant difference favouring the intervention group - -0.24 [-0.56, 0.09].

## Discussion

The aim of this review was twofold. First to address the effectiveness of group-based parenting programmes in improving the mental health of infants and toddlers. The number of included studies is small, and the results provide some support for the use of group-based parenting programmes to improve the emotional and behavioural adjustment of children under the age of three years. The limited follow-up data, however, provide equivocal evidence concerning the maintenance of these effects over time.

Five studies were included in this review all of which provided sufficient data to calculate effect sizes. In many cases, the 95 per cent confidence intervals crossed zero, despite the fact that fairly large effect sizes were obtained. This reflects the fact that in all five studies the numbers were small, contributing to the wide confidence intervals obtained. The meta-analysis of the independent observations of children emotional and behavioural adjustment showed a significant result favouring the intervention group, and the results for parent-reports produced a result which just failed to achieve significance. This is an interesting result because parent reports typically overestimate changes in children's behaviour, while independent observations provide a more objective assessment of outcome. However, the numbers for both meta-analyses are small, and it may be that further data will alter the results. Furthermore, the meta-analysis of the independent assessments of children's emotional and behavioural adjustment included one teacher-report, and it is not clear in the primary study whether the teachers were blind to intervention group ([Nicholson in press](#)).

There was a paucity of follow-up data available regarding the extent to which the effects of these

programmes are maintained over time, and in a number of cases, data for the intervention group only, was available. The two studies that provided follow-up data for both intervention and control groups showed a non-significant difference favouring the intervention group. Overall, these results point to the need for further data before it will be possible to reach any firm conclusions concerning the long-term effectiveness of early parenting programmes of this nature.

One of the included studies utilised a cluster randomised controlled design in which random allocation was undertaken using units other than individuals e.g. day care centres ([Gross et al in press](#)). The results were, however, adjusted to take account of this 'design effect' which is defined as the ratio of the total number of participants required using cluster randomisation, to the number required using individual randomisation.

The second aim of this review was to assess whether the included studies provided any evidence concerning the effectiveness of parenting programmes in the primary prevention of mental health problems. Primary prevention aims to remove the causes of a problem or increase the resistance of individuals in order to stop the problem occurring in the first place. Secondary prevention involves the early detection and treatment of problems. While the aim of a number of the studies that were included in this review was to prevent the development of problems it would only be possible to know whether this was primary or secondary prevention through an assessment of the extent to which the participating toddlers were already experiencing problems. While individual data of this nature were not provided in any of the included studies, the mean pre-test measures in most studies suggest that many of the children were in fact already experiencing some problems. Only one of the included programmes was aimed at the primary prevention of emotional and behavioural problems. This programme utilised a preventive educational philosophy that aimed to build on existing family strengths ([Nicholson et al 1998](#)). The respondents in this study were volunteer parents recruited via flyers in schools and community centres. The majority of toddlers in the sample were outside the clinical range on the Behaviour Screening Questionnaire as indicated by a mean pre-intervention score of 12.6 (the cut-off point designating caseness on this instrument is 11). The results of this study suggested that in addition to improvement in the toddler's emotional and behavioural adjustment, parents in the intervention group reported less verbal and physical punishment, and that this change in report of disciplinary practices was maintained at 6-week follow-up. Further long-term follow-up of this study will be necessary, however, before it is possible to reach any firm conclusions regarding the effectiveness of this brief parenting programme in the primary prevention of emotional and behavioural problems.

Where programmes are not aimed at the primary prevention of emotional and behavioural problems in toddlers i.e. due to the fact 2-years olds entering the programme are already experiencing such problems, they can nevertheless play an important role in the secondary prevention of other problems such as for example, delinquency or exclusion at a later point in the child's development. There is currently insufficient follow-up of these early parenting programmes to evaluate their success in the primary prevention of such problems. While it might be difficult to attribute effects that occurred during adolescence for example, to early brief interventions such as parenting programmes, research which follows up the children of parents who have taken part in early parenting programmes, through nursery and school-entry, is important.

A number of the included programmes were provided on a selective basis ([Nicholson in press](#); [Gross et al in press](#)). The programme in the [Nicholson in press](#) study was provided to parents in low socio-economic groups who showed evidence of the excessive use of verbal and corporal punishment. This multi-stressed, low-income population are at increased risk of poor outcomes and as the authors note, the continued use of excessive verbal and corporal punishment from an



early age is strongly associated with increased child behaviour problems (Brenner 1999), mental health problems (Reid 1991), and conduct disorder (Velez 1989). This study showed that in addition to improved outcomes for the toddlers of the participating parents, the parents themselves showed significantly decreased levels of verbal and corporal punishment, and of anger and stress. These results were maintained at 1-month follow-up, and it is to be hoped that further long-term follow-up of this important study will be conducted. The Gross et al in press study examined the effectiveness of the Incredible Years Programme with multi-ethnic families of toddlers in day care in low-income urban communities in the US. While the parent-report measures showed little evidence of effectiveness immediately post-intervention there were significant changes reported by teachers and independent observers post-intervention, and the teacher-reported changes were still present at 1-year follow-up.

All of the included studies had a number of methodological flaws compromising the generalisability of the findings. One of the studies used volunteers only (Nicholson et al 1998), and it was unclear in the Gross et al 1995 study whether the participants were referred or volunteered i.e. they were recruited from an HMO and its surrounding community. Three of the studies also had criteria for entry to the study. In the Gross et al 1995 study, both mothers and fathers were required to participate, and children had to meet inclusion criteria for behavioural problems. In the Nicholson in press study participants had to be in a low income group, and show excessive use of verbal and corporal punishment as measured by the Parent Behavior Checklist. The remaining two studies had no eligibility requirements (Sutton 1992; Nicholson et al 1998). No assessment of the socio-economic status of parents was made in the Sutton 1992 study.

Both mothers and fathers participated in the parenting programmes being evaluated in the included studies and the results of this review are generalisable to both parents. Only one of the included studies provided information concerning the ethnicity of the included parents, and this study reported that parenting programmes can be effective with parents from a range of minority ethnic groups including Latino and African-American parents (Gross et al in press). Four of the studies were conducted in the United States (Gross et al in press; Nicholson in press; Nicholson et al 1998; Gross et al 1995) and one was conducted in England (Sutton 1992).

In two studies the drop out rate was in the region of 30% (Gross et al in press; Gross et al 1995). In one of these studies the parents who dropped out had significantly lower over-reactive discipline scores than parents who remained, indicating that they were less likely to use harsh and coercive discipline strategies. They were also more likely to be Latino (Gross et al in press). In the second study, parents who dropped out all rated their children's behaviour as being less problematic than the parents who continued with the intervention. While the Nicholson in press study reported a 10% dropout rate, it is not clear whether the parents who dropped out were included in the analyses or indeed which of the groups they dropped out of. Other studies have shown that premature termination from parent education programmes among families with children referred for antisocial behaviour was associated with more severe conduct disorder symptoms and more delinquent behaviours; mothers reporting greater stress from their relations with the child, their own role functioning, and life events; and families being at greater socio-economic disadvantage (Kazdin 1990). Other studies have also identified individuals more likely to drop out as including those from a lower social class or a minority ethnic group (Farrington 1991; Holden 1990; Strain 1981), and those children with a greater number of presenting problems (Holden et. al. 1990). There are a number of points at which a parent may drop-out of a parenting programme. Research has shown that failure to persist through the initial intake is associated with parental feelings of helplessness and negativity, and that failure to persist through the programme itself, is associated with therapist inexperience (Frankel 1992). These problems surrounding the issue of attrition and

drop-out point to the importance of evaluating the results of trials on an intention-to-treat basis which would limit bias arising from this source.

## **Reviewers' conclusions**

### **Implications for practice**

The findings of this review provide some support for the use of group-based parenting programmes to improve the emotional and behavioural adjustment of children under the age of 3 years. The limited evidence available concerning the extent to which these results are maintained over time, however, is equivocal, and it may be that during this period of rapid change in the infant's development, further input at a later date is required. More research is needed before questions of this nature can be answered.

All of the included studies were of behavioural, cognitive-behavioural, or video-tape modelling parenting programmes, and the results should not therefore be generalised to other types of parenting programme.

There is currently insufficient evidence to reach any firm conclusions regarding the role of parenting programmes in the primary prevention of mental health problems, and further research on this important topic is needed.

### **Implications for research**

It has not been possible with the limited data available in this review to provide conclusive evidence regarding the extent to which the positive effects identified, are maintained over time. Neither has it been possible to assess the role of parenting programmes in the primary prevention of mental health problems. There is a need for further rigorous studies of parenting programmes that are provided on a primary preventive population-basis i.e. to all parents during the prenatal and/or immediate postnatal period. Larger numbers of participants should be included to increase the external validity of the research, and the measurement of a wider range of outcomes should be undertaken, including an assessment of mental health. Such studies would provide the basis for further long-term follow-up through childhood and possibly even adolescence.

There is conclusive evidence to show that the quality of the parent-infant relationship during infancy is important for the future mental health of the child and adult. Parenting programmes can improve the emotional and behavioural adjustment of infants and toddlers, and there is an urgent need for research to evaluate their effectiveness in preventing such problems. The preliminary evidence that has been provided in this review points to the need for large-scale trials of the effectiveness of parenting programmes in the primary prevention of mental health problems.

The limited follow-up data available point to the need for further research to assess to what extent the results of such programmes are maintained over time, and whether parents require further input at a later date. Evidence concerning the longer-term effectiveness of such programmes i.e. at school entry and later, is also required.



## Characteristics of included studies

Study ID	Methods	Participants	Interventions	Outcomes	Notes	Allocation concealment
<b>Gross et al 1995</b>	RCT with pre and post measures	Both parents of children 24-36 months filling criteria for behavioural difficulties-23 families referred from medical centre HMO and surrounding community	Group parent training for 10 weeks (n=10); WL control 1 (n=6) control 2 (pulled out after allocation, n=7)	Eyberg Child Behaviour Inventory; Toddler Temperament Scale	Secondary prevention. No details about random allocation	B
<b>Gross et al in press</b>	Cluster RCT with pre and post measures	Parents of multiethnic toddlers (2-3 years of age) in day care in low-income urban communities	Group parent training (n=75); teacher training (n=52); combined parent and teacher training group (n=78); control group (n=59)	Eyberg Child Behaviour Inventory; Kohns Problem Checklist; Dyadic Parent-Child Interactive Coding System - Revised	Secondary prevention. Random allocation, no other details	B
<b>Nicholson et al 1998</b>	Quasi randomised controlled trial with pre and post measures	Either or both parents of child 1-5 yrs, population sample of volunteers	Group parent training for 10 hrs (n=20), WL control (n=20)	Behaviour Screening Questionnaire	Primary prevention. Allocation according to night preferred for intervention	D
<b>Nicholson in press</b>	RCT with pre and post measures	Mothers, fathers and grandmothers of children 1-5 years, self-referred or referred by teachers	Group parent training for 10 hr (n=13), WL control (n=13)	Behaviour Screening Questionnaire, Eyberg Child Behaviour Inventory, Sutter-Eyberg Student Behaviour Inventory, Pediatric Screening Checklist	Secondary prevention. Random allocation, no other details	B
<b>Sutton 1992</b>	Quasi-randomised controlled trial with pre and post measures	41 parents of preschool children either referred or self-referred	Group parent training (n=8) home visit (n=10) telephone (n=12) WL control (n=11)	Child Behaviour Questionnaire; home situations	Secondary prevention. Sequential allocation; original WL included in analyses as experimental later (cross over design); data from author	D

## Characteristics of excluded studies

<b>Study ID</b>	<b>Reason for exclusion</b>
<b>Adesso &amp; Lipson 1981</b>	children not 0-3
<b>Anastopoulos 1993</b>	children not 0-3
<b>Barber 1992</b>	children not 0-3
<b>Barkley et al 2000</b>	children not 0-3
<b>Barth 1983</b>	no child outcomes
<b>Bergan 1983</b>	no standardised child outcome measures
<b>Bierman 2000</b>	children not 0-3 multi-modal
<b>Booth 1987</b>	not group parent training
<b>Bradley 1984</b>	not group parent training
<b>Breiner 1984</b>	review article
<b>Brenner 1999</b>	not RCT
<b>Brestan 1998</b>	review article
<b>Brody 1985</b>	children not 0-3
<b>Browne 1989</b>	no child outcome measures
<b>Brunk 1987</b>	children not 0-3
<b>Censullo 1994</b>	not RCT
<b>Collins 1992</b>	no child outcome measures
<b>Corcoran 2000</b>	review article
<b>Crummette 1985</b>	no child outcome measures
<b>Cunningham 1995</b>	children not 0-3
<b>Dadds 1992</b>	children not 0-3
<b>Dickinson 1992</b>	no control group
<b>Draper 1997</b>	not group parent training
<b>Ducharme 1996</b>	children not 0-3
<b>Dumas 1984</b>	children not 0-3
<b>Dumas 1986</b>	children not 0-3

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<b>Esdaile 1995</b>	data not available from author
<b>Evans 1980</b>	non-experimental study
<b>Fetsch 1999</b>	no child outcome measures
<b>Forehand 1979</b>	children not 0-3
<b>Forehand 1980</b>	not group parent training
<b>Forgatch 1979</b>	children not 0-3
<b>Forgatch 1999</b>	children not 0-3
<b>Frank 1981</b>	case study
<b>Fulton 1991</b>	not group parent training
<b>Gainey 1995</b>	no child outcome measures
<b>Golub 1987</b>	no child outcome measures
<b>Gordon 1979</b>	children not 0-3
<b>Harris 1989</b>	children not 0-3
<b>Heinicke 1984</b>	non-experimental study
<b>Hewitt 1987</b>	no child outcome measures
<b>Hobbs 1984</b>	children not 0-3
<b>Hutchings 1996</b>	no no-treatment control group
<b>Iven 1989</b>	no child outcome measures
<b>Jarrett 2000</b>	non-experimental study
<b>Kissman 1992</b>	not RCT
<b>Lambermon 1989</b>	not group parent training
<b>Lee 1996</b>	non-experimental study
<b>Lutzer 1987</b>	no child outcome measures
<b>Marinho 2000</b>	children not 0-3
<b>McBride 1991a</b>	no child outcome measures
<b>McBride 1991b</b>	children not 0-3
<b>McDade 1998</b>	inappropriate outcome measures (not behavioural)
<b>McMahon 1981</b>	children not 0-3
<b>Miller 1980</b>	not group parent training

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<b>Miller 1994</b>	review article
<b>Moran 1985</b>	not group parent training
<b>Moreland 1982</b>	review article
<b>Moxley 1983</b>	not group parent training
<b>Neef 1995</b>	children not 0-3
<b>Niebel 2000</b>	children not 0-3
<b>Nurcombe 1984</b>	not group parent training
<b>Nye 1995</b>	not group parent training
<b>Nye 1999</b>	not group parent training
<b>Parr 1998</b>	no child outcome measures multi-modal
<b>Pelchat 1999</b>	not group parent training
<b>Pelham 1998</b>	review article
<b>Peters 1989</b>	no child outcome measures
<b>Pevsner 1982</b>	children not 0-3
<b>Pisterman 1989</b>	children not 0-3
<b>Pisterman 1992</b>	children not 0-3
<b>Puckering 1994</b>	no child outcome measures
<b>Resnick 1985</b>	children not 0-3
<b>Roosa 1983</b>	not group parent training
<b>Routh 1995</b>	children not 0-3
<b>Sanders 1985</b>	children not 0-3
<b>Sanders 2000</b>	not group parent training
<b>Sandler 1983</b>	not group parent training
<b>Schamess 1987</b>	non-experimental study
<b>Schultz 1993</b>	children not 0-3
<b>Serketich 1996</b>	review article
<b>Sheeber 1994</b>	children not 0-3
<b>Sheeber 1995</b>	same study as Sheeber 1994

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<b>Shelton 2000</b>	follow up study
<b>Sibisi 1982</b>	non experimental design
<b>Siegert 1980</b>	children not 0-3
<b>Somers 1980</b>	non-experimental design descriptive study only
<b>Strayhorn 1989</b>	children not 0-3
<b>Strayhorn 1991</b>	children not 0-3 and follow-up study only
<b>Strydom 1981</b>	descriptive study only
<b>Telleen 1989</b>	children not 0-7 not related to one child specifically
<b>Thurston 1979</b>	children not 0-3
<b>Tiedemann 1992</b>	children not 0-3
<b>Truss</b>	in addition to the group-based intervention, booklets were mailed to parents on a monthly basis until the infant was 48 months of age
<b>Tucker 1997</b>	review
<b>Tucker 1998</b>	follow up study of included study Gross
<b>Turner 1994</b>	not group parent training
<b>Wantz 1984</b>	children not 0-3
<b>WebsterStratton 1982</b>	children not 0-3
<b>WebsterStratton 1984</b>	children not 0-3
<b>WebsterStratton 1989</b>	children not 0-3
<b>WebsterStratton 1994</b>	children not 0-3
<b>WebsterStratton1982b</b>	children not 0-3
<b>WebsterStratton1990</b>	follow-up study
<b>WebsterStratton1990b</b>	children not 0-3
<b>Weinberg 1999</b>	children not 0-3
<b>Whipple 1996</b>	children not 0-3
<b>Wilczak 1999</b>	no child outcome measures
<b>Wint 1987</b>	not group parent training
<b>Zachariah 1994</b>	no child outcome measures



## References to studies

### Included studies

**Gross et al 1995**

{ published data only }

Gross D, Fogg L, Tucker S. The efficacy of parent training for promoting positive parent-toddler relationships. *Research in nursing and health* 1995;18:489-499.

**Gross et al in press**

{ published data only }

Gross L, Fogg L, Webster-Stratton C, Garvey C, Julion W, Grady J. Parent Training with Multi-Ethnic Families of Toddlers win Day Car in Low-Income Urban Communities. *Journal of Consulting and Clinical Psychology* In press.

**Nicholson et al 1998**

{ published data only }

Nicholson B, Janz P, Fox R. Evaluating a brief parental-education program for parents of young children. *Psychological Reports* 1998;82:1107-1113.

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04 Meta-analysis of follow-up data

- 01 Emotional and Behavioural Outcomes

## Additional tables

### 01 Content of the parenting programmes

Study	Content
Gross et al, 1995	Group-based parenting programme delivered over the course of 10 weeks and developed by Webster-Stratton using self-efficacy theory. Parents learn through mastery experiences, viewing and discussing vignettes of parent and child models, and mutual support and reinforcement among group participants. The programme includes information on a) how to play with your child, b) helping your child learn, c) using praise and rewards effectively, d) strategies for setting limits effectively, and e) managing misbehaviour. Groups were led by psychiatric nurses.
Nicholson et al, 1998	A 10-hour group-based educational parenting programme specifically designed for parents of children 1-5 years, based on well-established knowledge and practices of parenting drawn from the literature on child development, cognitive psychology and social learning theory. The programme comprises four major components, represented by the STAR acronym. The first encouraged parents to stop and think (S and T in the acronym) before responding to their child's behaviours. The second focused on parents questioning their expectations of their child (A for ask in the acronym). The third dealt with nurturing strategies for encourage development, and the fourth dealt with discipline and setting limits on children's behaviour (R for respond in the acronym). The programme was delivered by parent educators.
Nicholson et al, 2001	A psychoeducational programme using the STAR parenting programme (as described in Nicholson et al., 1998). Training delivered by facilitators trained in the STAR Programme.
Sutton, 1992	Group-based parenting programme delivered over the course of 8 weeks, based on the principles of social learning theory. The programme was developed by the author and focused on parents learning child-management skills. The parents aimed to obtain their child's compliance with an instruction within one minute of receiving it. The training was delivered by the author.
Gross et al, 2001	Group-based parenting programme (The Incredible Years BASIC Programme) delivered to groups of 8-12 parents in two-hour sessions over the course of 12 weeks. Topics covered included child-directed play, helping young children learn, using praise and rewards, effective limit setting, handling misbehaviour and problem solving. Home work assignments were also used. The course was taught using video vignettes which were appropriate for toddlers.

## **Notes**

### **Unpublished CRG notes**

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### **Published notes**

### **Amended sections**

Cover sheet

Abstract



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## Contact details for co-reviewers

Ms Jacqueline Parsons  
Department of Obstetrics and Gynaecology  
University of Adelaide  
Women's and Children's Hospital  
King William Road  
North Adelaide  
South Australia AUSTRALIA  
5006  
Telephone 1: +61 8 8161 7612  
E-mail: [jacqueline.parsons@adelaide.edu.au](mailto:jacqueline.parsons@adelaide.edu.au)  
Secondary contact person's name: Dr Jane Barlow

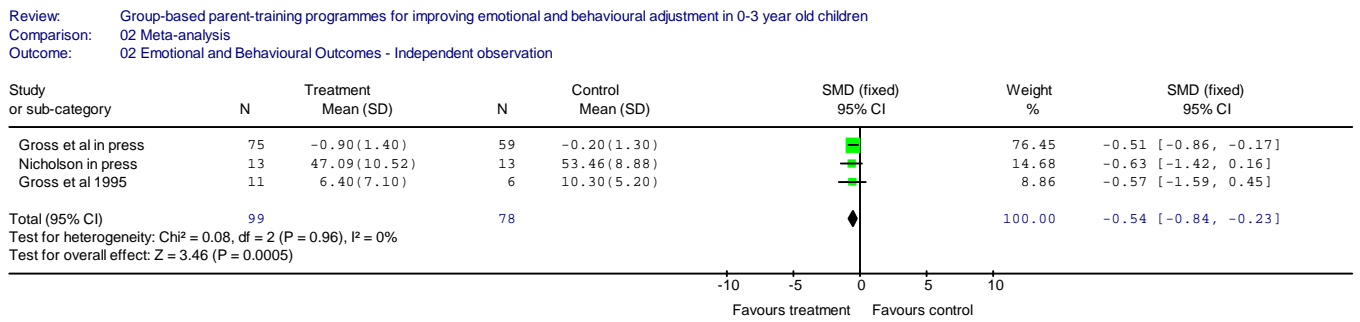
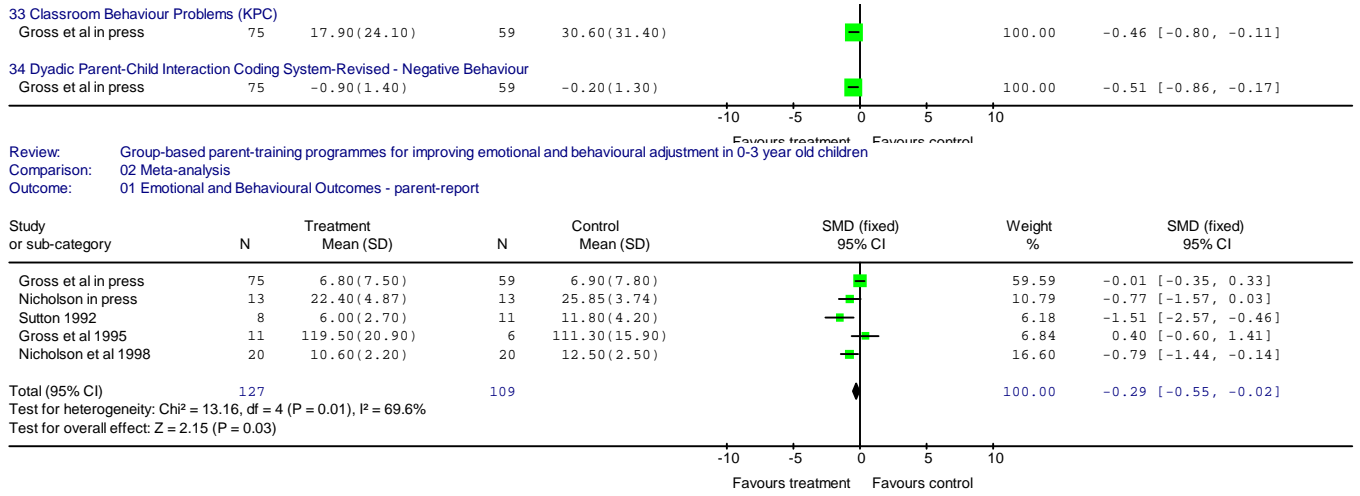
## Review: Group-based parent-training programmes for improving emotional and behavioural adjustment in 0-3 year old children

Total number of included studies: 5

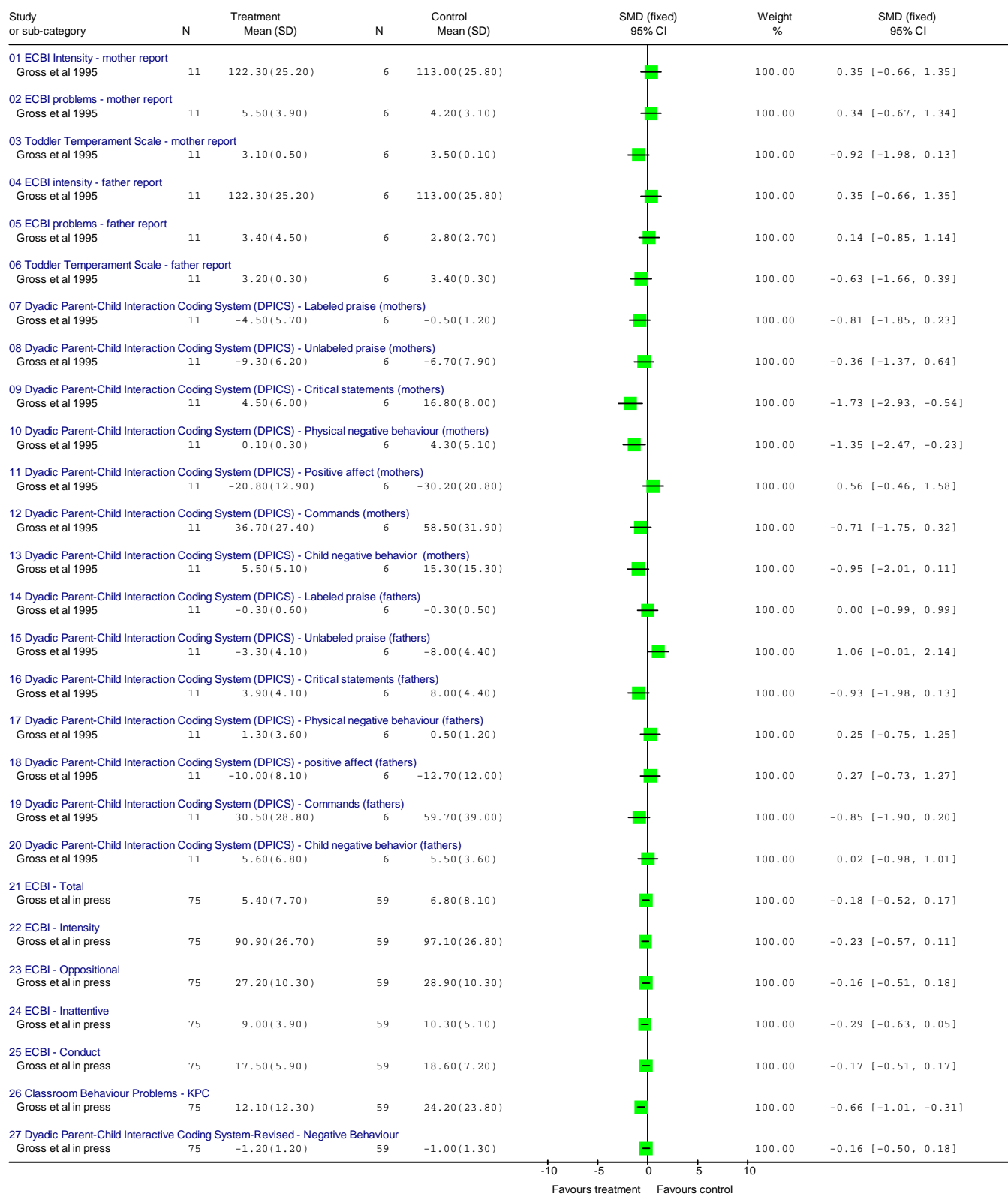
Comparison or outcome	Studies	Participants	Statistical method	Effect size
01 parent training vs control				
01 Emotional and Behavioural Outcomes			SMD (fixed), 95% CI	No total
02 Meta-analysis				
01 Emotional and Behavioural Outcomes - parent-report	5	236	SMD (fixed), 95% CI	-0.29 [-0.55, -0.02]
02 Emotional and Behavioural Outcomes - Independent observation	3	177	SMD (fixed), 95% CI	-0.54 [-0.84, -0.23]
03 Follow-up				
01 Emotional and Behavioural Outcomes			SMD (fixed), 95% CI	No total
04 Meta-analysis of follow-up data				
01 Emotional and Behavioural Outcomes	2	151	SMD (fixed), 95% CI	-0.23 [-0.55, 0.10]

Review: Group-based parent-training programmes for improving emotional and behavioural adjustment in 0-3 year old children  
 Comparison: 01 parent training vs control  
 Outcome: 01 Emotional and Behavioural Outcomes

Study or sub-category	N	Treatment Mean (SD)	N	Control Mean (SD)	SMD (fixed) 95% CI	Weight %	SMD (fixed) 95% CI
<b>01 Behaviour Screening Questionnaire</b>							
Nicholson in press	13	22.38 (4.87)	13	25.85 (3.74)		39.36	-0.77 [-1.58, 0.03]
Nicholson et al 1998	20	10.60 (2.20)	20	12.50 (2.50)		60.64	-0.79 [-1.44, -0.14]
<b>02 ECBI intensity - mother report</b>							
Nicholson in press	13	102.50 (45.76)	13	119.85 (26.84)		62.48	-0.45 [-1.23, 0.33]
Gross et al 1995	11	119.50 (20.90)	6	111.30 (15.90)		37.52	0.40 [-0.60, 1.41]
<b>03 ECBI problems- mother report</b>							
Nicholson in press	13	15.62 (10.39)	13	18.92 (6.80)		62.15	-0.36 [-1.14, 0.41]
Gross et al 1995	11	6.30 (4.20)	6	6.20 (8.10)		37.85	0.02 [-0.98, 1.01]
<b>04 Toddler Temperament Scale - mother report</b>							
Gross et al 1995	11	3.20 (0.40)	6	3.50 (0.20)		100.00	-0.82 [-1.87, 0.22]
<b>05 ECBI intensity- father report</b>							
Gross et al 1995	11	91.50 (21.20)	6	112.00 (25.90)		100.00	-0.85 [-1.90, 0.20]
<b>06 ECBI problems- father report</b>							
Gross et al 1995	11	1.70 (2.10)	6	3.70 (4.80)		100.00	-0.58 [-1.60, 0.44]
<b>07 Toddler Temperament Scale - father report</b>							
Gross et al 1995	11	3.10 (0.40)	6	3.40 (0.60)		100.00	-0.60 [-1.62, 0.42]
<b>08 Child Behaviour Questionnaire</b>							
Sutton 1992	8	6.00 (2.70)	11	11.80 (4.20)		100.00	-1.51 [-2.57, -0.46]
<b>09 Home Situations Questionnaire</b>							
Sutton 1992	8	25.30 (14.00)	11	60.30 (30.40)		100.00	-1.34 [-2.37, -0.31]
<b>10 Pediatric Symptom Checklist - parent report</b>							
Nicholson in press	13	55.31 (12.55)	13	60.46 (7.72)		100.00	-0.48 [-1.26, 0.30]
<b>11 Pediatric Symptom Checklist - teacher report</b>							
Nicholson in press	13	47.09 (10.52)	13	53.54 (8.88)		100.00	-0.64 [-1.43, 0.15]
<b>12 Sutter-Eyberg Behaviour Inventory (Intensity) - teacher report</b>							
Nicholson in press	13	69.54 (35.67)	13	97.46 (34.46)		100.00	-0.77 [-1.57, 0.03]
<b>13 Sutter-Eyberg Behaviour Inventory (Problems) - teacher report</b>							
Nicholson in press	13	10.91 (10.19)	13	14.00 (8.81)		100.00	-0.31 [-1.09, 0.46]
<b>14 Dyadic Parent-Child Interaction Coding System (DPICS) - Labeled praise (mothers)</b>							
Gross et al 1995	11	-3.50 (5.60)	6	-0.20 (0.40)		100.00	-0.68 [-1.71, 0.34]
<b>15 Dyadic Parent-Child Interaction Coding System (DPICS) - Unlabeled praise (mothers)</b>							
Gross et al 1995	11	-9.50 (5.20)	6	-6.00 (3.50)		100.00	-0.71 [-1.74, 0.32]
<b>16 Dyadic Parent-Child Interaction Coding System (DPICS) - Critical statements (mothers)</b>							
Gross et al 1995	11	3.60 (3.90)	6	6.20 (5.80)		100.00	-0.53 [-1.55, 0.48]
<b>17 Dyadic Parent-Child Interaction Coding System (DPICS) - Physical negative behaviour (mothers)</b>							
Gross et al 1995	11	1.10 (2.30)	6	1.80 (1.90)		100.00	-0.30 [-1.13, 0.52]
<b>18 Dyadic Parent-Child Interaction Coding System (DPICS) - Positive affect (mothers)</b>							
Gross et al 1995	11	-18.40 (7.40)	6	-25.20 (13.40)		100.00	0.66 [-0.37, 1.68]
<b>19 Dyadic Parent-Child Interaction Coding System (DPICS) - Commands (mothers)</b>							
Gross et al 1995	11	38.80 (28.00)	6	69.30 (34.80)		100.00	-0.95 [-2.01, 0.11]
<b>20 Dyadic Parent-Child Interaction Coding System (DPICS) - Child negative behavior (mothers)</b>							
Gross et al 1995	11	6.40 (7.10)	6	10.30 (5.20)		100.00	-0.57 [-1.59, 0.45]
<b>21 Dyadic Parent-Child Interaction Coding System (DPICS) - Labeled praise (fathers)</b>							
Gross et al 1995	11	-1.70 (1.40)	6	-0.50 (0.80)		100.00	-0.92 [-1.98, 0.13]
<b>22 Dyadic Parent-Child Interaction Coding System (DPICS) - Unlabeled praise (fathers)</b>							
Gross et al 1995	11	-4.80 (5.60)	6	-5.80 (3.10)		100.00	0.19 [-0.80, 1.19]
<b>23 Dyadic Parent-Child Interaction Coding System (DPICS) - Critical statements (fathers)</b>							
Gross et al 1995	11	6.90 (9.50)	6	11.50 (6.10)		100.00	-0.51 [-1.53, 0.50]
<b>24 Dyadic Parent-Child Interaction Coding System (DPICS) - Physical negative behavior (fathers)</b>							
Gross et al 1995	11	0.60 (0.90)	6	1.80 (2.80)		100.00	-0.64 [-1.67, 0.38]
<b>25 Dyadic Parent-Child Interaction Coding System (DPICS) - Positive affect (fathers)</b>							
Gross et al 1995	11	-12.20 (13.00)	6	-27.30 (20.40)		100.00	0.90 [-0.15, 1.96]
<b>26 Dyadic Parent-Child Interaction Coding System (DPICS) - Commands (fathers)</b>							
Gross et al 1995	11	50.80 (35.70)	6	75.80 (47.00)		100.00	-0.60 [-1.62, 0.42]
<b>27 Dyadic Parent-Child Interaction Coding System (DPICS) - Child negative behaviour (fathers)</b>							
Gross et al 1995	11	8.20 (10.50)	6	6.00 (3.70)		100.00	0.24 [-0.76, 1.24]
<b>28 ECBI - Total</b>							
Gross et al in press	75	6.80 (7.50)	59	6.90 (7.80)		100.00	-0.01 [-0.35, 0.33]
<b>29 ECBI - Intensity</b>							
Gross et al in press	75	97.30 (26.50)	59	100.00 (29.70)		100.00	-0.10 [-0.44, 0.25]
<b>30 ECBI - Oppositional</b>							
Gross et al in press	75	31.50 (10.70)	59	29.40 (9.30)		100.00	0.21 [-0.14, 0.55]
<b>31 ECBI - Inattentive</b>							
Gross et al in press	75	10.10 (4.20)	59	11.20 (5.60)		100.00	-0.22 [-0.57, 0.12]
<b>32 ECBI - Conduct</b>							
Gross et al in press	75	17.60 (6.90)	59	18.30 (7.00)		100.00	-0.10 [-0.44, 0.24]



Review: Group-based parent-training programmes for improving emotional and behavioural adjustment in 0-3 year old children  
 Comparison: 03 Follow-up  
 Outcome: 01 Emotional and Behavioural Outcomes



Review: Group-based parent-training programmes for improving emotional and behavioural adjustment in 0-3 year old children  
 Comparison: 04 Meta-analysis of follow-up data  
 Outcome: 01 Emotional and Behavioural Outcomes

