

Meta-analysis of the effectiveness of parenting programmes in improving maternal psychosocial health

Jane Barlow, Esther Coren and Sarah Stewart-Brown

SUMMARY

The purpose of this study was to determine whether group-based parenting programmes are effective in improving maternal psychosocial health. Data sources used were English and non-English language articles published between January 1970 and July 2000, retrieved using a keyword search of a number of biomedical, social science, educational, and general reference electronic databases.

Two independent reviewers selected the relevant abstracts and articles. Only controlled trials were included in which participants had been randomly allocated to an experimental and a control group, the latter being a waiting-list, no-treatment or a placebo control group. Studies had to include at least one group-based parenting programme and one standardised instrument measuring maternal psychosocial health. Means, standard deviations, and information regarding study quality were selected from the included studies by two independent reviewers. 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 produce an effect size. The results were then combined in a meta-analysis using a fixed-effect model.

A total of 23 studies met all the inclusion criteria and 17 of these provided sufficient data with which to calculate effect sizes. Fifteen of these studies provided data on the five main outcomes of interest: depression, anxiety/stress, self-esteem, social support, and relationship with partner. The meta-analyses show statistically significant results favouring the intervention group for depression (-0.3, 95% confidence interval [CI] = -0.4 to -0.1), anxiety/stress (-0.5, 95% CI = -0.7 to -0.3), self-esteem (-0.4, 95% CI = -0.6 to -0.1), and relationship with partner (-0.4, 95% CI = -0.7 to -0.2). However, the meta-analysis of the social support data showed no evidence of effectiveness (-0.04, 95% CI = -0.3 to 0.2). Follow-up data were available for only three of the five outcomes. The results show that there were changes favouring the intervention group for self-esteem (-0.4, 95% CI = -0.7 to -0.2), the mother's relationship with her partner (-0.3, 95% CI = -0.8 to 0.1), and depression (-0.2, 95% CI = -0.4 to 0.002), although the confidence intervals for the mother's relationship with her partner and depression both cross zero.

It is concluded that parenting programmes can make a significant contribution to the short-term psychosocial health of mothers. While the limited follow-up data are promising, further evidence of their effectiveness in improving maternal mental health is required. It is also suggested that some caution should be exercised before the results are generalised to parents irrespective of the level of pathology present.

Keywords: meta-analysis; parenting education; maternal health; psychosocial factors.

J Barlow, DPhil, Hon MFPHM, primary care career scientist; E Coren, MSc, DipSW, research officer; and S Stewart-Brown, PhD, FRCP, FFPHM, Director, Health Services Research Unit, University of Oxford, Institute of Health Sciences, Oxford.

Address for correspondence

Dr Jane Barlow, Health Services Research Unit, Institute of Health Sciences, Old Road, Headington OX3 7LF. E-mail: jane.barlow@dphpc.ox.ac.uk

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Introduction

WHILE it is recognised that the prevalence of mental health problems in women generally is high,¹ there is very little published data on the prevalence of psychosocial disturbance in mothers in particular. The limited epidemiological evidence available suggests that the prevalence of maternal mental health problems in urban populations (as measured by the General Health Questionnaire) may be as high as 45%.² Epidemiological studies of specific conditions, such as postnatal depression, indicate a prevalence of between 10% and 15% and suggest that such episodes may mark the onset of long-standing disorder.³⁻⁵ Furthermore, despite their high prevalence such problems still commonly go undetected by primary health care practitioners.⁶

There is evidence from a range of follow-up studies to suggest that a number of factors relating to the mother's psychosocial and mental health can have a significant effect on the mother-infant relationship, resulting in both emotional and cognitive deficits in the infant⁷ and attachment problems in childhood.^{8,9} Longitudinal studies have also shown an effect of maternal mental health problems on the long-term emotional and psychological health of the child.¹⁰⁻¹² There is therefore considerable potential for interventions aimed at promoting the psychosocial wellbeing of the mother, to reduce both the disruption to the child's emotional, educational, and social adjustment and the demand for health and welfare/social services.¹³

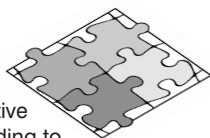
The use of parenting programmes began in the 1960s and the use of groups to train parents began in the 1970s. The expansion of group-based parenting programmes has taken place in a number of countries over the past decade,¹⁴ with the growing involvement of voluntary organisations in their provision. Parenting programmes are now being offered in a variety of settings and a recent systematic review of randomised controlled trials (RCTs) showed that they are effective in improving behaviour problems in young children.^{15,16}

It is now thought that parenting programmes may have a role to play in the improvement of maternal mental health. Findings from existing reviews of the literature suggest that parenting programmes could have an effect on parenting attitudes and practices¹⁷ and on family dynamics.¹⁸ A number of studies have shown that there may also be an impact on general aspects of maternal functioning, including depression¹⁹ and self-esteem.¹⁸

The aim of this review was to evaluate the effectiveness of group-based parenting programmes in improving the psychosocial health of mothers, by appraising and collating the evidence from existing studies which had used rigorous experimental designs and a range of standardised outcome

HOW THIS FITS IN*What do we know?*

Parenting programmes can be effective in changing parenting practices, leading to improvements in children's behaviour.

*What does this paper add?*

Parenting programmes are effective in improving maternal psychosocial health in the short-term, including maternal depression, stress/anxiety, self-esteem, and the mother's relationship with her partner. The limited long-term follow-up results are promising, but further evidence is required. Some caution should be exercised before the results of this review are generalised to fathers, parents from ethnic minority groups, or mothers, irrespective of the level of pathology present at the outset.

instruments to evaluate maternal psychosocial health.

Method

The methods have been described in detail elsewhere.²⁰ We conducted a search of English and non-English language articles published between January 1970 and July 2000 in a number of biomedical, social science, educational, and general reference electronic databases. These included MEDLINE, EMBASE CINAHL, PsychLIT, ERIC, ASSIA, Sociofile, and the Social Science Citation Index. Other sources of information included the Cochrane Library (SPECTR, CENTRAL), and the National Research Register (NRR).

Two independent reviewers selected the relevant abstracts and articles. Only controlled trials were included, in which participants had been randomly allocated to an experimental and a control group, the latter being a waiting-list, no-treatment or a placebo control group. Studies had to include at least one group-based parenting programme and one standardised instrument measuring maternal psychosocial health.

The studies that were included in this review used a range of scales to measure similar outcomes; for example, depression was measured using the Beck Depression Inventory, the Irritability, Depression and Anxiety Scale, and the Centre for Epidemiological Studies Depression Scale. 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 produce an effect size. The results were then combined in a meta-analysis using a fixed-effect model.

Results*Study selection and characteristics*

The searches of electronic databases yielded a total of 539 citations, of which 483 proved to be of no direct relevance to the review. Fifty-six studies were reviewed and 34 studies were excluded for methodological reasons. A total of 22 studies met all of the inclusion criteria and 17 of these provided sufficient data with which to calculate an effect size. Fifteen studies, involving a total of 967 participants, provid-

ed data on the five outcomes of interest — depression, stress/anxiety, self-esteem, social support, and the mother's relationship with her partner.²¹⁻³⁵ Table 1 summarises the characteristics of the 15 included studies.

The parenting programmes that were evaluated in the 15 primary studies have been divided into five groups — behavioural, cognitive-behavioural, multi-modal, behavioural-humanistic, and rational-emotive therapy — which reflect the basic theoretical stance and rationale underpinning each programme. The first category includes programmes that are purely behavioural in orientation and are based on social learning principles. These programmes teach parents how to use a range of basic behavioural strategies for managing children's behaviour. The second category includes programmes that are based on a cognitive-behavioural approach. These programmes combine the basic behavioural type strategies with cognitive strategies aimed at helping parents to restructure their thinking about themselves and their children. The third category includes the multi-modal programmes, which combine other components in addition to the behavioural or cognitive components already referred to, i.e. a psychoeducational approach that includes the provision of information in conjunction with the development of social interpersonal networks, psychological resources, and coping responses. The fourth category includes the behavioural-humanistic programmes. The studies in this group evaluated the effectiveness of the Webster-Stratton Parent and Children Series and involved the use of videotape modelling. The final category includes all programmes based on rational emotive therapy. This involves the reduction of emotional stress through the disputation of irrational beliefs and the reinforcement of rational beliefs. Table 2 summarises the content of each parenting programme that was evaluated in the 15 included studies.

Critical appraisal of the included studies

Critical appraisal of the included studies was undertaken using a modified version of the published *JAMA* criteria.³⁴ Table 3 summarises the results of the critical appraisal.

None of the studies included in this review specified the method of allocation concealment. Thirteen studies used rigorous methods of randomisation.^{22-30,32-35} The two remaining studies used quasi-methods of randomisation based on the availability of places on the programme.^{21,30}

Three of the included studies did not account for the number of parents who dropped out of the evaluation or who were lost to follow-up.^{23,26,30} Of the studies that did provide this data, the dropout rate ranged from 6% to 41%. The reasons for parents dropping out of programmes was not given, and none of the studies included in this review analysed subjects in the groups to which they were randomised irrespective of whether they dropped out or were lost to follow-up ('intention-to-treat').

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 the failure to blind parents and study personnel is to blind the assessors of clinical outcomes. None of the included studies used outcome measures that required independent assessment; in other words, all of the

Table 1. Characteristics of included studies.

Study ID	Methods	Participants	Interventions	Outcomes
Behavioural programmes				
Irvine <i>et al</i> ²⁵	RCT with pre and post measures; 6-month and 1-year follow-up	303 families of school-referred 'at-risk' adolescents	Parenting group (<i>n</i> = 151) Waiting-list control group (<i>n</i> = 152)	Parental depression
Odom ²⁸	RCT with pre and post measures	16 volunteer parents of children with ADHD	Parenting group (<i>n</i> = 10) No-treatment control group (<i>n</i> = 16)	Parental competence (self-esteem)
Anastopoulos <i>et al</i> ²¹	RCT using quasi allocation; pre and post measures	34 parents of children with ADHD: clinical population	Parenting group (<i>n</i> = 19) Waiting-list control group (<i>n</i> = 15)	Parenting stress; distress; self-esteem; marital satisfaction
Pisterman <i>et al</i> ²⁹	RCT with pre and post measures	45 parents of children with ADHD aged 3 to 6 years: clinical population	Parenting group (<i>n</i> = 23) Waiting-list control group (<i>n</i> = 22)	Parenting stress; self esteem; parental competence
Wolfson <i>et al</i> ³⁵	RCT with pre and post measures, and 4-5 month follow-up	60 couples recruited from childbirth classes	Parenting group (<i>n</i> = 29); No-treatment control group (<i>n</i> = 31)	Stresses and positive experiences; parental self-confidence
Scott <i>et al</i> ³¹	RCT with pre and post measures; 1-year follow-up	55 volunteer mothers of children with perceived problems	Parenting group (<i>n</i> = 27) Waiting-list control group (<i>n</i> = 28)	Irritability; depression and anxiety
Multi-modal programmes				
Sheeber <i>et al</i> ³²	RCT using quasi-randomisation with pre and post measures; 2-month follow-up	40 mothers of 3 to 5 year old children with 'difficult temperament'	Parenting group (<i>n</i> = 20); Waiting-list control group (<i>n</i> = 20)	State-trait anxiety; parenting stress
Schultz <i>et al</i> ³⁰	RCT with pre and post measures; 1-year follow-up	54 mother father dyads of children/young adults with intellectual disabilities	Parenting group (<i>n</i> = 15); No-treatment control group (<i>n</i> = 39)	Social support; psychiatric health
Behavioural and humanistic programmes				
Taylor <i>et al</i> ³³	RCT with pre and post measures	110 volunteer families of 3 to 8-year-old children with conduct problems	Parenting group (<i>n</i> = 46) Waiting-list control group (<i>n</i> = 18)	Depression; anger/aggression; social support; dyadic adjustment
Gross <i>et al</i> ²⁴	RCT with pre and post measures; 3-month follow-up	16 volunteer parents of toddlers with behaviour difficulties	Parenting group (<i>n</i> = 10) Control group (<i>n</i> = 6)	Parenting self-efficacy; depression; stress
Webster-Stratton <i>et al</i> ³⁴	RCT with pre and post measures; 1-year follow-up	85 self or professionally referred parents of 3 to 6-year-old children with conduct disorders	Group discussion plus videotape modelling group (<i>n</i> = 28) Waiting-list control group (<i>n</i> = 29)	Parental stress
Cognitive-behavioural programmes				
Cunningham <i>et al</i> ²²	RCT with pre and post measures; 6-month follow-up	150 volunteer parents of pre-school children with behaviour problems	Parenting group (<i>n</i> = 48); Waiting-list control group (<i>n</i> = 56)	Social support; parenting sense of competence; depression
Nixon and Singer ²⁷	RCT with pre and post measures	58 volunteer parents of children with severe developmental disabilities attending special schools	Cognitive-behavioural parenting group (<i>n</i> = 18); Waiting-list control group (<i>n</i> = 16)	Depression; guilt; automatic thoughts
Rational-emotive therapy programmes				
Greaves ²³	RCT with pre and post measures	54 mothers of pre-school children attending a centre for children with Down's syndrome	Parent education group (<i>n</i> = 21); No treatment control group (<i>n</i> = 16)	Parental stress; anger and guilt; parental mood;
Joyce ²⁶	RCT with pre and post measures; 10-month follow-up	48 volunteer parents	Parenting group (<i>n</i> = 32); waiting-list control group (<i>n</i> = 16)	Parental emotionality; state-trait anxiety; irrationality, anger and guilt; self-worth

Table 2(a). Content of the included parenting programmes: behavioural programmes.

Study ID	Aims of interventions	Content and delivery of interventions
Irvine <i>et al</i> ²⁵	To evaluate the effectiveness of the Adolescent Transition Programme (behavioural parenting) provided by non-mental health workers who are more likely to be available in small communities.	Stepwise, skill-based curriculum designed to teach parenting skills. Content includes: positive reinforcement, parental monitoring, limit-setting, parent-child communication, and problem solving. Twelve weekly sessions of 90 minutes to 2 hours. Skills discussed in group then practiced at home with group feedback the following week.
Odom ²⁸	To determine whether an educational intervention directed at parents of children with ADHD would improve maternal knowledge of ADHD and related interventions, and feelings of competence and self-esteem.	Educational programme (based on Barkley's model) including information on the pathology of ADHD, its impact on the family, the effects of stimulant medication, the meaning and development of a child's behaviour, enhancing positive mother-child attention, time out, positive reinforcement, and the use of problem-solving strategies. Five weekly 60-90 minute sessions. Weekly written handouts compiled in a booklet.
Anastopoulos <i>et al</i> ²¹	To examine the impact of parenting on parental functioning for parents of school-aged children with ADHD. In particular the aim was to change perceptions of ADHD. It was hypothesised that there would also be improvements in parenting stress, self-esteem, distress, and marital satisfaction.	The programme (Barkley) included an overview of ADHD, behaviour management, positive reinforcement skills, positive attending, home token/point system, punishment strategies including time out, strategies for managing behaviour outside the home and dealing with schools. Nine sessions, mostly weekly. Homework reviewed each week.
Pisterman <i>et al</i> ²⁹	To assess the effects of behavioural parenting groups on parenting stress and sense of competence, in parents of children with ADHD.	Programme included information on ADHD and instruction involving role-play, modelling, and homework assignments. Compliance training component differed slightly for Study 1 and Study 2. Twelve weekly sessions. Reading material and manuals provided for participants.
Wolfson <i>et al</i> ³⁵	To train parents in behavioural strategies to promote healthy, self-sufficient sleep in infants. To test the hypothesis that parenting would reduce both stress and response to child wakefulness.	Preventive programme to facilitate healthy infant sleep. Content included information on infant sleep and methods to assist in establishing early good sleep habits. Sessions included handouts, question-and-answer periods, group discussion, and problem-solving. Diaries and daily practice records completed and discussed. Intervention provided at three time periods: prenatally, postnatally, and follow-up at 16 to 20 weeks.
Scott <i>et al</i> ³¹	The programme was devised to meet the needs of UK families of low socioeconomic status and to assist the parents with child-rearing difficulties.	Programme comprised behavioural child management techniques. Techniques were modelled by trainers and role-played by parents. Homework assignments were completed and feedback given at the next session. Six weekly 90-minute sessions with a follow-up (maintenance) session one month later.

studies used self-report measures and blinding was therefore inappropriate.

While the use of randomisation should in theory ensure that any possible confounders are equally distributed between the groups, the randomisation of small numbers of participants may result in an unequal distribution of confounding factors. Three studies did not report on the distribution of possible confounders (i.e. to what extent the intervention and control groups were similar at the start of the trial).^{23,26,31}

Findings

Depression. Nine studies^{22-25,27,29,31-33} measured the effectiveness of a parenting programme in improving maternal depression using a range of standardised instruments: the Beck Depression Inventory (BDI), the Parenting Stress Index (PSI) (Parent domain), the Centre for Epidemiological Studies Depression Scale, and the Irritability, Depression and Anxiety Scale (IDA) (Depression subscale). The nine studies provided data from a total of 631 participants (318

intervention group and 313 control group). (The figures quoted throughout do not match the figures in the Tables 1 and 2 owing to the fact that they are based on the *actual* number of participants for which data was available for each outcome. None of the included studies conformed to an intention-to-treat analysis.) The combined data show a statistically significant difference (effect size) favouring the intervention group (-0.3, 95% CI = -0.4 to -0.1)

Anxiety/stress. Seven studies^{21,23,24,26,29,31,32,34} measured the effectiveness of a parenting programme in improving maternal anxiety/stress using a range of standardised instruments: the Parenting Stress Index (PSI) (Parent domain), the Spielberger State/Trait Anxiety Inventory (Trait subscale), and the Irritability, Depression and Anxiety Scale (IDA) (Anxiety subscale). The nine included studies provided data from a total of 368 participants (198 intervention group and 170 control group). The combined data show a statistically significant difference favouring the intervention group (-0.5, 95% CI = -0.7 to -0.3).

Table 2(b). Content of the included parenting programmes: multi-modal programmes.

Study ID	Aims of interventions	Content and delivery of interventions
Sheeber and Johnson ³²	To examine the efficacy of a temperament-based parenting programme in improving parental psychosocial health, parent-child and spousal relationships.	Intervention based on Turecki's programme. Content included the nature of child temperament and its role in behaviour, the management of temperament-related behaviour problems, making parenting demands more congruent with child's temperament, and the use of social consequences to facilitate desired behaviours. Strategies were tried at home and discussed in the group at the next meeting. Nine weekly 1.5 to 2-hour sessions.
Schultz <i>et al</i> ³⁰	To provide support for parents of children with intellectual disability, focusing on empowering parents to strengthen family resources. To assess long-term outcomes.	Model based on a three-tiered approach to developing personal coping and social supports. Designed to strengthen interpersonal, intrapersonal and social resources by means of group work, discussion and didactic input. Topics included: family dynamics, loss and grief, communication, and conflict resolution, networking and resource utilisation, stress management, and relaxation skills. Twelve 2-hourly sessions over 6 weeks.

Table 2(c). Content of the included parenting programmes: behavioural and humanistic programmes.

Study ID	Aims of interventions	Content and delivery of interventions
Taylor <i>et al</i> ³³	To compare the effectiveness of an eclectic treatment (typical service) with Webster-Stratton's Parent and Children Series (PACS) programme in reducing conduct problems in 3 to 8-year-old children, and improving parental psychosocial difficulties.	Parent and Children Series (PACS) treatment intervention using PACS manual, written materials and videos. Sessions for 2.25 hours weekly over the course of 11-14 weeks. Eclectic treatment was provided on an individual basis.
Gross <i>et al</i> ²⁴	To test the effectiveness of a parenting programme for promoting positive parent-child relationships in families of 2-year-old children with parent-perceived behaviour problems and to promote parental self-efficacy.	PACS treatment intervention using PACS manual, written materials and videos. Authors note that PACS is consistent with self-efficacy theory. Topics included how to play with a child, use of praise, limit setting, use of time out. Videotape vignettes used to model skills and stimulate discussion. Written materials and homework assignments used. Problem-solving group received an extra 6 hours in 1-hour units focused on aspects of problem-solving including: problem definition, goal setting, alternative solutions, and decision-making. Weekly homework assignments over a 10-week programme.
Webster-Stratton <i>et al</i> ³⁴	To compare different treatment modes (individually administered videotape modelling; group discussion videotape modelling; group discussion only) in improving children's conduct and parental psychosocial health.	GDVM: Group-based videotape modelling parenting skills followed by discussion. IVM: Weekly in-clinic sessions for approximately 1-hour viewing of self-administered videotape without therapist or discussion. GD: Weekly therapist-led discussion sessions covering same topics as other groups. All modes of delivery took place weekly over the course of 10 to 12 weeks. In both groups sessions were of 2 hours, duration. Content, sequencing and number of sessions constant between groups.

Social support

Four studies^{23,29,30,33} measured the effectiveness of a parenting programme in improving maternal social support using a range of standardised instruments: the Parenting Stress Index (Social Isolation subscale), the Inventory of Socially Supportive Behaviours, and the Support Scale. The four studies provided data from a total of 234 participants (122 intervention group and 112 control group). The combined data show no evidence of the effectiveness of parenting programmes in improving social support (-0.04, 95% CI = -0.3 to 0.2).

Self-esteem. Five studies^{22,24,28,29,32} measured the effectiveness of a parenting programme in improving maternal self-

esteem using a range of standardised instruments: the Parenting Sense of Competence Scale, the Parenting Stress Index (PSI) (Parent competence subscale), and the Toddler Care Questionnaire (TCQ). The five studies provided data from a total of 245 participants (122 intervention group and 123 control group). The combined data show a statistically significant difference favouring the intervention group (-0.4, 95% CI = -0.6 to -0.1).

Relationship with partner. Four studies^{21,23,29,32} measured the effectiveness of a parenting programme in improving the mother's relationship with her partner, using one of two standardised instruments: the Locke-Wallace Marital Adjustment Test (MAT) and the Parenting Stress Index (PSI) (Relationship with spouse subscale). The four studies pro-

Table 2(d). Content of the included parenting programmes: cognitive-behavioural programmes.

Study ID	Aims of interventions	Content and delivery of interventions
Cunningham <i>et al</i> ²²	To examine the efficacy of large group-based parenting programme in increasing the accessibility of parenting programmes to parents of children with disruptive behaviour. To determine whether holding a parenting programme in a community setting would increase uptake by high-risk families who may choose not to attend a clinic-based programme.	Coping modelling problem-solving model involving the formulation of solutions through the observation of videotapes, discussion, modelling, and role-play. Content included problem-solving skills, attending to and rewarding prosocial behaviour, transitional strategies, 'when-then' strategies for encouraging compliance, ignoring minor disruptions, disengaging from coercive interaction, prompting the child to plan in advance of difficult situations, and time out. Homework reviewed each week. Eleven to 12 weekly sessions
Nixon and Singer ²⁷	To examine the effect of a short-term intervention to reduce self-blame and guilt in parents of children with severe disabilities.	Content presented in lecture format. Homework assignment each week comprising monitoring automatic thoughts, cognitive distortions, negative feelings, and attempts at cognitive restructuring. Sessions focused on the cognitive distortions that contribute to self-blame and guilt in families of children with disabilities, and techniques to deal with such distortions. Five 2-hour sessions.

Table 2(e). Content of the included parenting programmes: rational-emotive therapy programmes.

Study ID	Aims of interventions	Content and delivery of interventions
Greaves ²³	To assess the effectiveness of rational-emotive parent education in reducing parental stress in parents of children with disabilities.	Content focused on core irrational beliefs and links with stress response. Programme teaches the disputation of these beliefs and replacement with rational beliefs. Teaching based on a didactic approach and included homework, completion of worksheets, and the distribution of a prepared summary sheet. Eight weekly sessions.
Joyce ²⁶	To establish whether rational-emotive based parent education reduces levels of parent irrationality and negative emotions, and whether the change in irrationality is correlated with changes in emotionality.	Content included identifying and disputing parental irrational beliefs that lead to emotional stress, the reinforcement of rational beliefs, rational problem-solving, and teaching children rational personality traits. Nine sessions in total.

Table 3(a) Summary of the criteria of methodological adequacy: behavioural parenting programmes.

Criteria for methodological adequacy	Irvine <i>et al</i> ²⁵	Odom ²⁸	Anastopoulos <i>et al</i> ²¹	Pisterman <i>et al</i> ²⁹	Wolfson <i>et al</i> ³⁵	Scott and Stradling ³¹
Size (n) in groups ('++' = >25; '+' = 15-25; '-' = <25)	++ (n = 303)	- (n = 26)	+ (n = 34)	+ (n = 45)	++ (n = 60)	++ (n = 55)
Random assignment ('+++ = randomised: allocation concealment; '++' = randomised: allocation not specified; '+' = quasi-randomisation)	++	++	+	++	++	+
Attrition/drop-outs accounted for (%)	+ (22)	+ (20)	+ (6)	+ (15)	+ (11)	+ (41)
Blinding to treatment/evaluation	N/A	N/A	N/A	N/A	N/A	N/A
Distribution of confounders	+	+	+	+	+	-
Generalisability ('++ = generalisable to whole population; '+' = generalisable to limited group; '-' = not generalisable/dk)	+	++	+	++	+	+

vided data from a total of 202 participants (106 intervention group and 96 control group). The combined data show a statistically significant difference favouring the intervention group (-0.4, 95% CI = -0.7 to -0.2).

Follow-up

Depression. Five studies^{22,24,25,29,32} measured the effectiveness of a parenting programme in improving depression at follow-up. A range of outcome instruments were used, including the Parenting Stress Index (PSI), the Centre for

Epidemiological Studies Depression Scale (CESDS), and the Beck Depression Inventory (BDI). Follow-up was measured at two months,³² three months,^{24,25,29} and six months.²² The five studies provided data from a total of 387 participants (181 intervention group and 206 control group). The combined data show a small non-significant difference favouring the intervention group (-0.2, 95% CI = -0.4 to 0.002).

Self-esteem. Five studies^{22,24,29,32,35} measured the effective-

Table 3(b). Summary of the criteria of methodological adequacy: multi-modal parenting programmes.

Criteria for methodological adequacy	Sheeber and Johnson ³²	Schultz <i>et al</i> ³⁰
Size (n) in groups ('++' = >25; '+' = 15–25; '-' = <25)	+ (n = 40)	+ (n = 54)
Random assignment ('+++ = randomised: allocation concealment; '+ + = randomised: allocation not specified; '+' = quasi-randomisation)	++	+
Attrition/drop-outs accounted for (%)	+ (15)	– (dk)
Blinding to treatment/evaluation	N/A	N/A
Distribution of confounders	+	+
Generalisability ('++ = generalisable to whole population; '+' = generalisable to limited group; '-' = not generalisable/dk)	+	–

Table 3(c). Summary of the criteria of methodological adequacy: behavioural and humanistic programmes.

Criteria for methodological adequacy	Taylor <i>et al</i> ³³	Gross <i>et al</i> ²⁴	Webster-Stratton <i>et al</i> ³⁴
Size (n) in groups ('++' = >25; '+' = 15–25; '-' = <25)	++ (n = 64)	– (n = 16)	++ (n = 57)
Random assignment ('+++ = randomised: allocation concealment; '+ + = randomised: allocation not specified; '+' = quasi-randomisation)	++	+	+++
Attrition/drop-outs accounted for (%)	+ (13)	+ (29)	+ (3)
Blinding to treatment/evaluation	N/A	N/A	N/A
Distribution of confounders	+	+	+
Generalisability ('++ = generalisable to whole population; '+' = generalisable to limited group; '-' = not generalisable/dk)	+	+	+

Table 3(d). Summary of the criteria of methodological adequacy: cognitive-behavioural programmes.

Criteria for methodological adequacy	Cunningham <i>et al</i> ²²	Nixon and Singer ²⁷
Size (n) in groups ('++' = >25; '+' = 15–25; '-' = <25)	++ (n = 104)	+ (n = 34)
Random assignment ('+++ = randomised: allocation concealment; '+ + = randomised: allocation not specified; '+' = quasi-randomisation)	+	++
Attrition/drop-outs accounted for (%)	+ (24)	+ (41)
Blinding to treatment/evaluation	N/A	N/A
Distribution of confounders	+	+
Generalisability ('++ = generalisable to whole population; '+' = generalisable to limited group; '-' = not generalisable/dk)	+	+

Table 3(e). Summary of the criteria of methodological adequacy: rational-emotive therapy programmes.

Criteria for methodological adequacy	Greaves ²³	Joyce ²⁶
Size (n) in groups ('++' = >25; '+' = 15–25; '-' = <25)	+ (n = 37)	++ (n = 48)
Random assignment ('+++ = randomised: allocation concealment; '+ + = randomised: allocation not specified; '+' = quasi-randomisation)	++	++
Attrition/drop-outs accounted for (%)	– (dk)	– (dk)
Blinding to treatment/evaluation	N/A	N/A
Distribution of confounders	–	–
Generalisability ('++ = generalisable to whole population; '+' = generalisable to limited group; '-' = not generalisable/dk)	–	–

ness of a parenting programme in improving self-esteem at follow-up. A range of outcome instruments were used including the Parenting Stress Index (PSI), the Parenting Sense of Competence Scale, the Parental Efficacy Measure, and the Toddler Care Questionnaire (TCQ). Follow-up was measured at two months,³² three to four months,^{24,29,35} and six months.³¹ The five studies provided data from a total of 233 participants (115 intervention group and 118 control group). The combined data show a statistically significant difference favouring the intervention group (-0.4, 95% CI = -0.7 to -0.2).

Relationship with partner. Two studies^{29,32} measured the effectiveness of a parenting programme in improving the mother's relationship with her partner at follow-up using the Parenting Stress Index (PSI) (relationship with spouse subscale). Follow-up was measured at two months³² and three months.²⁹ The two studies provided data from a total of 86 participants (43 intervention group; 43 control group). The combined data show a non-significant difference favouring the intervention group (-0.3, 95% CI = -0.8 to 0.1).

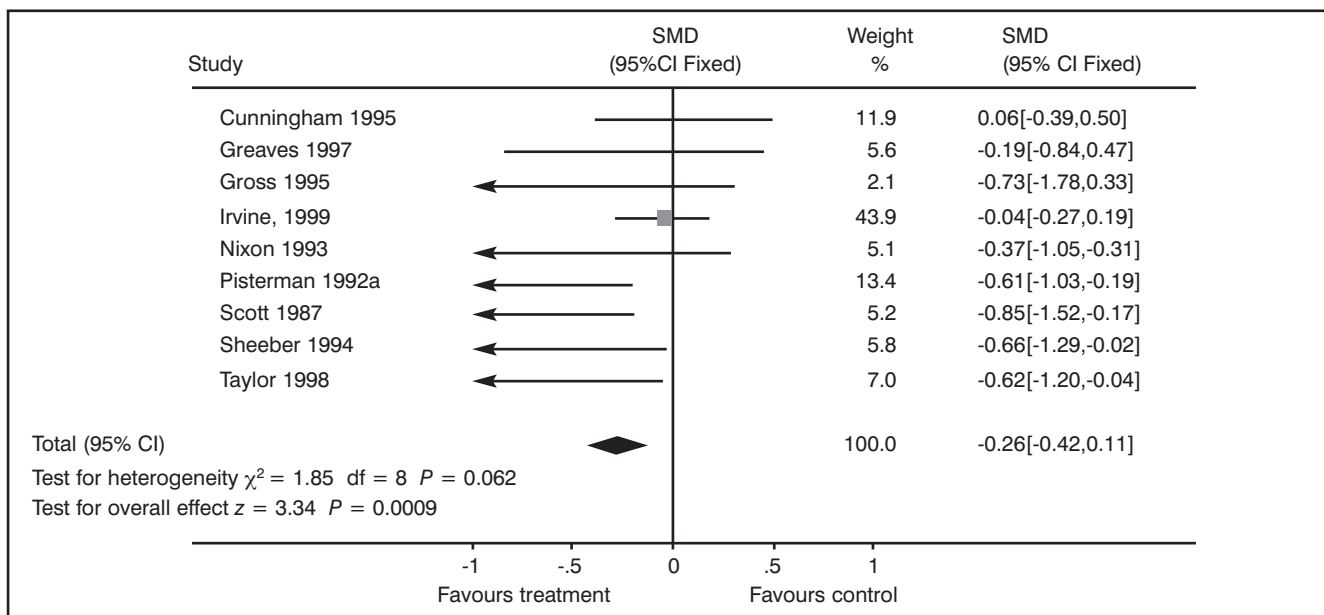


Figure 1. Meta-analysis of the data for depression.

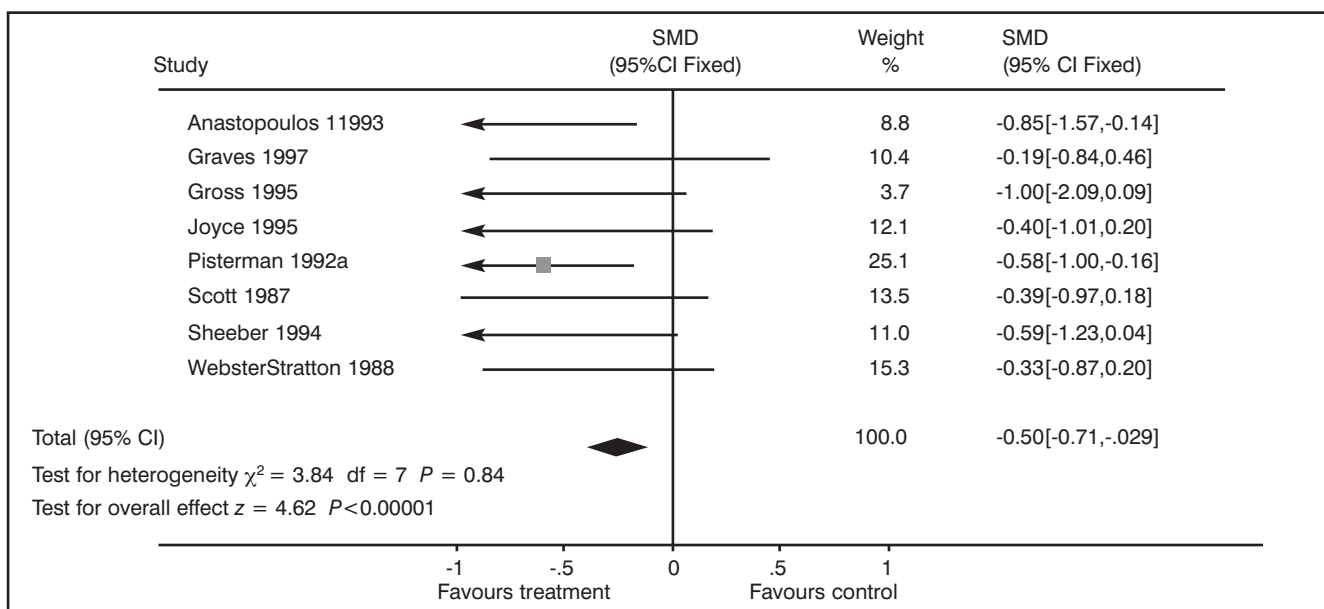


Figure 2. Meta-analysis of the data for anxiety/stress.

Discussion

These results indicate that parenting programmes can be effective in the short-term in improving maternal depression, anxiety/stress, self-esteem, and the mother's relationship with her partner. However, the meta-analysis of the social support outcome data showed no evidence of effectiveness. This is a counter-intuitive finding given the group-based structure of the parenting programmes being evaluated and the existence of qualitative data demonstrating the additional support many parents appeared to have experienced as a result of taking part in such programmes.³⁷ It may be that this result may be owing to the fact that the outcome instruments that were used in the primary studies were not designed to measure the type of changes in social support

that would be influenced by a parenting programme; for example, an increase in support from other parents.

The results also show that the changes in self-esteem were maintained at follow-up. The level of change in depression and the mother's relationship with her partner at follow-up were similar to those observed immediately post-intervention, but did not reach statistical significance. These results are promising, but do not provide evidence of long-term effectiveness, and more trials with long-term follow-up are needed.

Limitations

In assessing the extent to which these results are valid, a number of things should be borne in mind. First, the conclusions of this review rely heavily on numerical results from

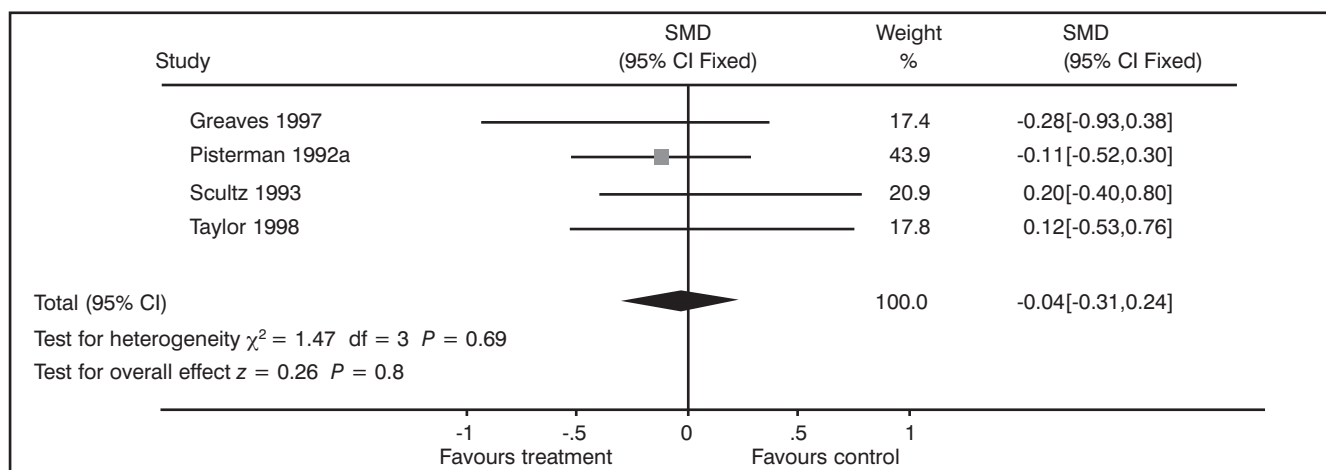


Figure 3. Meta-analysis of the data for social support.

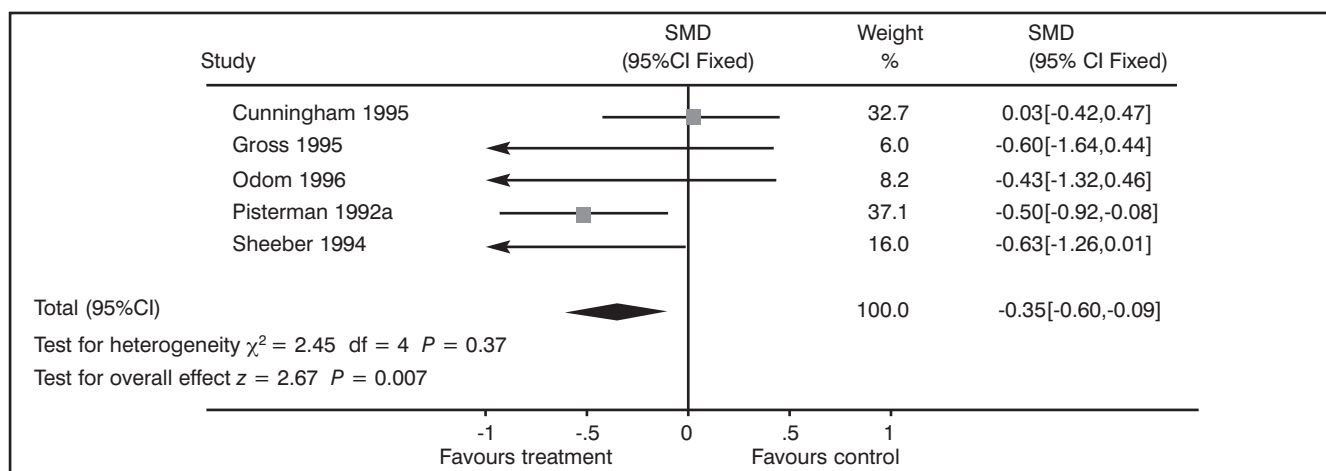


Figure 4. Meta-analysis of the self-esteem data.

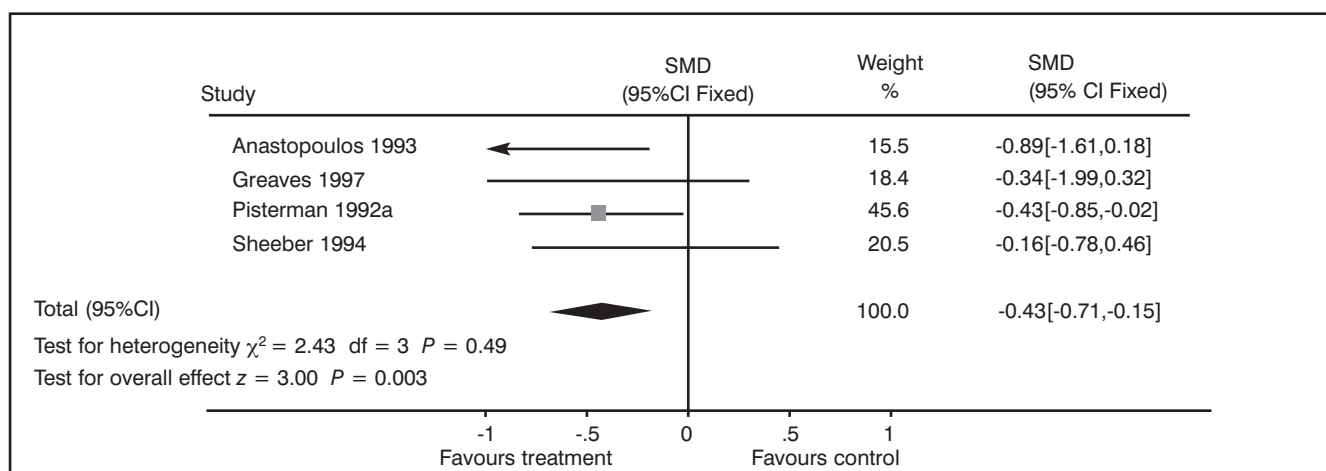


Figure 5. Meta-analysis of the relationship with partner data.

the reports of the included studies and, as such, may have been subject to a 'reporting bias'. Indeed, the prevalence of positive findings supports this possibility, as a greater variability in the results might have been expected, given the size of the studies and the nature of the measures used. In addition, none of the included studies carried out intention-to-treat analyses, and a number of the included studies were

likely to be subject to bias owing to a failure to take into account the parents who dropped out of the programme. Although on the whole the mean dropout rate in the included studies was much lower than the usual 28%, the upper limit for parental dropout was as high (41%) in two studies. Finally, it is difficult to assess the extent to which the results obtained reflect clinically objective changes in maternal

functioning, owing to the nature of the outcome measures that were used (i.e. self-report).

As regards the issue of generalisability, many of the included studies were based on samples comprising both mothers and fathers, although on the whole the number of participating fathers was small. This does, however, make the interpretation of the results more difficult.

The majority of parents taking part in many studies were Caucasian and the results may not, therefore, be generalisable to parents from other ethnic groups. In addition, there was no individual data available in the primary studies concerning the level of pathology present at the outset. It is not therefore possible to know how successful such programmes can be with parents experiencing more severe mental health problems and some caution should be exercised before the results are generalised to other parents irrespective of the level of pathology present.

Implications for practice

Despite the limitations, the results of this review are consistent with the findings of other reviews indicating the effectiveness of parenting programmes in improving a range of outcomes for both parents and children. The results showed that parenting programmes improved the mental health of parents from both disadvantaged and less disadvantaged backgrounds, at least in the short term.

Primary care professionals could have an important role to play in promoting good parenting practices and supporting parents. The importance of provision in primary care has been identified in several recent reports and policy documents, some of which have pointed to the need for an expanded role for health visitors, in particular in the development of family support and parenting skills.⁴¹

It has been suggested that, by 2020, mental health problems will be the most important cause of disability in adults³⁸ and emotional and behavioural problems are already the most important cause of functional disability in childhood.³⁹ Furthermore, general practitioners are spending an increasingly large proportion of their time in dealing with psychosocial problems.⁴⁰ This review adds to the body of evidence which suggests that parenting programmes have the potential to impact on the mental health of parents as well as children. There is some evidence to suggest that these programmes are more cost-effective than interventions which are provided on a one-to-one basis.²² While there is potential for debate about who should provide and finance such preventive interventions, primary care is one of the few services that could offer interventions to all parents in a non-stigmatising way.

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