A meta-analysis of parent training: moderators and follow-up effects
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CRD summary
The authors concluded that parent training designed to modify disruptive child behaviour results in small to moderate benefits immediately after treatment, with small effects persisting for up to 1 year. Although in many respects the review was well conducted, the limited search and lack of information about the primary studies make it difficult to evaluate the reliability of these conclusions.

Authors' objectives
To assess the effectiveness of parent training programmes for the treatment of disruptive behaviour problems in children.

Searching
PsycINFO and ERIC were searched for studies published between 1974 and August 2003; the search terms were provided. A separate search was conducted for studies by specific authors in the field: Jean Dumas, Sheila Eyberg, Rex Forehand, Gerald Patterson and Ronald Prinz. Inclusion was restricted to peer-reviewed studies published in English.

Study selection
Controlled studies of parent training programmes targeting disruptive non-criminal behaviour of cognitively and developmentally normal children were eligible for inclusion. The controls were required to be drawn from the same population. Studies involving children with attention-deficit hyperactivity syndrome (ADHD) were eligible, provided that the outcomes were not specific to ADHD symptoms or management. Studies had to report one or more of the following three outcome constructs: child behaviour measured by parent report or researcher observation; parent behaviour; and parent perception. The included studies used a wide variety of interventions with diverse theoretical frameworks. Most of the interventions were behavioural programmes; a few studies used non-behavioural programmes. The interventions were delivered in a group, individual or self-directed setting, and most targeted solely the parents. The mean duration of the intervention was 9.77 sessions (mean 15 hours contact) for behavioural programmes and 7.14 sessions (mean 16 hours contact) for non-behavioural programmes. Where reported, the mean age of children in the included studies was 81 months. Among studies with long-term follow-up, the mean duration of follow-up was 7.72 months.

The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
Study validity was coded using a 7-point scale that considered randomisation (2 points) or group equivalence (1 point), use of multiple outcome measures, clear description of the intervention, inclusion of the necessary statistics, use of well-known or standardised outcome measures, and use of a treatment manual (1 point each).

Two reviewers working independently assessed validity, with any disagreements resolved by re-checking the studies.

Data extraction
For each study, Cohen's effect size $d$ was calculated from the difference between the post-treatment means in each group, divided by the pooled standard deviations (SDs). The results were grouped into six categories by outcome construct and length of follow-up (immediate effects, 1 to 6 months; follow-up effects, 7 to 12 months). Where studies contributed more than one comparison for a single outcome construct, the mean effect of multiple measures was used.

Two reviewers working independently extracted the data, with any disagreements resolved by re-checking the studies.

Methods of synthesis
The effect sizes were statistically pooled, weighted by sample size. Outliers were tested for and corrected using the method of Lipsey 2001. Statistical heterogeneity was assessed using the $Q_w$ goodness-of-fit statistic. Subgroup analyses were conducted among the studies of behavioural programmes, to assess whether differences in outcomes could be explained by child educational stage, socioeconomic status, level of disruptive behaviour at baseline, or proportion of single-parent participants. Subgroups were further stratified by socioeconomic status to investigate persistent heterogeneity. Nine studies were excluded from the analyses to ensure sufficient separation between age groups. There were too few studies of non-behavioural interventions to conduct subgroup analyses.

**Results of the review**

Sixty-three studies (n approximately 3,600; 83 comparisons) of 69 behavioural and 14 non-behavioural programmes were included.

The mean validity score was 6.16 (SD=1.11) for behavioural studies and 4.64 (SD=1.15) for non-behavioural studies out of a maximum of 7 points. The quality ratings did not correlate significantly with study effect sizes.

**Immediate effects.**

Parent training using behavioural or non-behavioural programmes significantly improved the outcomes. In all cases the effect size was small to moderate and $Q_w$ indicated statistically significant heterogeneity. The findings were as follows: child behaviour, 0.42 (95% confidence interval, CI: 0.35, 0.49; $Q_w$ statistic, p=0.01; 68 comparisons); parent behaviour, 0.47 (95% CI: 0.40, 0.54; $Q_w$ statistic, p=0.01; 51 comparisons); parental perceptions, 0.53 (95% CI: 0.44, 0.61; $Q_w$ statistic, p=0.01; 48 comparisons). Behavioural and non-behavioural programmes did not differ significantly in their effects.

Moderators of child behaviour: significantly smaller effect sizes were found for disadvantaged children (p<0.01) and for studies with a high proportion of single parents (p<0.01). Effect sizes were greater for children with high level of disruptive behaviour at baseline (p<0.05), children with high levels of ADHD symptomatology (p<0.01), and in studies using only individually delivered parent training. Other variables analysed did not significantly influence effect sizes.

Moderators of parental outcomes: significantly smaller effect sizes were found for parent behaviour (p<0.01) and perceptions (p<0.02) among studies of disadvantaged families (p<0.01). Parent-only programmes were associated with significantly larger effect sizes for parent behaviour and perception than were programmes including separate interventions for the child (p<0.01 and p<0.05, respectively) and for parent behaviour outcomes in multi-systemic interventions (p<0.03). The effect was also significantly greater for parents of children with ADHD (p<0.01).

**Heterogeneity among the subgroups.**

Among subgroup analyses of 15 or more studies, twelve had significant statistical heterogeneity. However, further stratification of these subgroups by socioeconomic status eliminated the heterogeneity in most cases.

**Moderators of outcomes among disadvantaged families.**

The only treatment variable that significantly improved the effect size for behavioural changes among disadvantaged children and also among parents was the mode of treatment delivery, with individual parent training being significantly more beneficial than group training (p<0.01).

**Follow-up effects.**

There were few studies on the longer term effects of non-behavioural parent training and many studies did not employ a control group during follow-up. Among controlled studies, behavioural parent training had a statistically significant but small effect on outcomes, without significant heterogeneity: child behaviour, 0.21 (95% CI: 0.08, 0.33; 21 comparisons); parent behaviour, 0.25 (95% CI: 0.11, 0.40; 14 comparisons); parental perceptions, 0.45 (95% CI: 0.24, 0.65; 9 comparisons).

**Authors' conclusions**
Parent training programmes designed to modify disruptive child behaviour result in small to moderate positive effects immediately after treatment, with small effects persisting for up to 1 year.

**CRD commentary**
The review question and inclusion criteria were clear. The search was limited to two databases and to studies published in English, which means that studies might have been missed. There was no indication that publication bias was assessed. Steps were taken to minimise bias and error in the quality assessment and data extraction, by having more than one reviewer make decisions independently, but it is unclear whether this also applied to the study selection process. Although relevant aspects of quality were considered, it is unclear whether factors such as blinding of the outcome assessment, drop-out rate, sample size and allocation concealment were taken into account. Moreover, no details about the individual studies were given (e.g. design, setting, control condition). This lack of information makes it difficult to assess the reliability and applicability of the information provided. The pooling of the studies appears appropriate, suitable methods were used to assess heterogeneity (statistical, clinical and methodological) between the studies, and differences between the studies were discussed in the text. Although in many respects the review was well conducted, the rather limited search and the lack of information about the individual studies make it difficult to evaluate the reliability of the authors’ conclusions.

**Implications of the review for practice and research**
**Practice:** The authors stated that parent training is effective for improving disruptive child behaviour and parental behaviour and perceptions, regardless of the child’s age. Interventions should be individually tailored for families at socioeconomic disadvantage. Evidence does not support the addition of child therapy to basic parent training.

**Research:** The authors stated that future research should evaluate modifications to standard parent training programmes, factors associated with family engagement in training, and how effects differ across populations.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.