Parent involvement in treatment for ADHD: a meta-analysis of the published studies

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CRD summary
This review assessed the effect of parent-involved psychosocial interventions in the treatment of children with attention deficit/hyperactivity disorder (ADHD). The authors concluded that family interventions have a low to moderate effect on ADHD and externalising symptoms, but a moderate effect on child-internalising symptoms. Limitations of the analysis and uncertain quality of the included studies restrict interpretation of the results.

Authors' objectives
The primary objective was to determine the effect of parent-involved psychological treatment for attention deficit/hyperactivity disorder (ADHD) in children on a variety of outcomes. A secondary objective was to determine the influence of specific moderators on the effect of parental involvement on these outcomes.

Searching
MEDLINE/PubMed, PsycINFO, CINAHL, Social Work Abstracts and InfoTrac were searched from 1970 to 2003; the search terms were reported. Only papers published in English were accepted.

Study selection
Comparative studies were eligible for inclusion in the review, and randomised controlled trials (RCTs) and non-randomised controlled studies were included. Studies that focused on parent-involved psychosocial treatment for ADHD were eligible for inclusion, and parents and children could be seen conjointly or separately. Studies that only focused on the treatment of the child, or in which participants received different types of psychosocial intervention, were excluded. The included interventions were cognitive-behavioural interventions, with most interventions relying on group services. The mean duration of treatment was 32 sessions. Studies of ADHD in children (up to 18 years old) were eligible for inclusion, and children were required to be screened for ADHD, either by meeting diagnostic criteria or by scoring in the clinical range on established measures of ADHD symptoms. Most of the studies were reported to focus on school-aged children (no further details provided). No a priori criteria for the outcomes were reported. The outcomes were divided into a number of categories according to the informant involved (child, parent or teacher): child internalising problems, externalising problems, ADHD, social competence, family functioning, self-control and academic performance. Individual outcomes were not reported. Studies were required to report sufficient information to calculate a Cohen's d effect size to be included in the review.

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

Assessment of study quality
The validity of the included studies was assessed using the following criteria: type of design, presence of follow-up, whether the sample size was at least 30 per condition, and whether necessary information was provided to code all demographic information. Each study was assigned a total quality score (no additional information on the scoring procedure was provided).

Two reviewers independently assessed the validity of the included studies and any disagreements were resolved by consensus.

Data extraction
Effect sizes (ES) were calculated in each study for each outcome measure (the ES index used was Cohen's d), and the mean ES was calculated for studies with multiple measures.

Two reviewers independently extracted the data from the included studies and any disagreements were resolved through consensus.
Methods of synthesis
The authors reported that the studies were combined in a meta-analysis using both fixed-effect and random-effects models. A summary ES (mean effect) was reported for each outcome category. A summary estimate was reported as the ES with 95% confidence interval (CI) for the overall effect of a parent-involved psychosocial intervention. Statistical heterogeneity was assessed using Cochran's Q test. To identify potential sources of heterogeneity a number of moderator variables were included in a meta-regression; these included treatment characteristics, design type, key design characteristics and sample characteristics. There was an attempt to assess publication bias using the 'fail-safe N' calculation.

Results of the review
Sixteen studies were included in the review (the number of participants was not reported): 13 RCTs and 3 non-randomised controlled studies. The sample sizes ranged from 16 to 443 (mean 91).

Quality scores for the included studies ranged from 1 to 5.

The child's academic performance was found to have the largest overall ES (8.2041), followed by the child's family functioning (ES 0.6730) and internalising (ES 0.6349). Teacher-reported outcomes were found to have the largest ES (0.7473) and child-reported outcomes the smallest (0.1094).

No significant overall effect of family involvement was found (ES 0.2727, 95% CI: -0.1145, 0.9662, p=0.0617). Evidence of significant statistical heterogeneity was found. The fail-safe N for this analysis was 264. The only moderator variables to have an impact were age and household composition, which demonstrated a low to moderate effect.

Authors' conclusions
Overall, parent-involved psychosocial interventions have only a low to moderate effect on ADHD and externalising symptoms, but have a moderate effect on child-internalising symptoms. Findings for other outcomes should be considered tentative because of the small number of studies included in each category; academic performance and family functioning demonstrated the most positive effects here.

CRD commentary
The review question was supported with clear inclusion criteria for the study design, intervention and population; the criteria for interventions were fairly broad, which was reflected in the included studies. However, inclusion criteria were not specified for the outcomes. Several sources were searched for relevant papers. This search was restricted to studies published in English, thus the possibility of language bias cannot be ruled out. The authors did attempt to assess publication bias, but the 'fail-safe N' is not a robust method and typically fails to accurately estimate bias. Methods undertaken to extract the data and assess study validity were likely to have minimised error and bias. However, it was not reported whether similar methods were employed to select papers for inclusion in the review. Few details were provided on the quality of the included studies and whilst a summary validity score was provided, it is unclear what this represented. Given the significant statistical heterogeneity, clinical and methodological differences in the included studies, a quantitative analysis might not have been appropriate. In addition, the average ES was used when multiple outcomes were reported, and the overall summary effect of parent-involved intervention was based on the mean ES for each study, which is not appropriate. Given these considerations, the authors' conclusions should be interpreted with caution.

Implications of the review for practice and research
The authors did not state any implications for practice or further research.

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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.