Authors' objectives
To assess the effect of treatments for externalising behaviour disorders during childhood.

Searching
MEDLINE and PsycINFO were searched for reports published in English language journals between 1985 and 2000; the keywords were stated.

Study selection
Study designs of evaluations included in the review
The authors stated that controlled clinical trials with more than 30 participants were eligible for inclusion, but some studies with fewer than 30 participants were included without any explanation. The review included randomised controlled trials (RCTs), crossover studies and quasi-experimental studies.

Specific interventions included in the review
Studies of community-based or out-patient treatment of youths and/or families were eligible for inclusion. The included studies were of psychosocial interventions, prevention programmes, psychopharmacological interventions, and combinations of pharmacological and psychosocial interventions (referred to as adjunctive interventions). Psychosocial interventions were subdivided into parent training, community-based interventions and clinic-based interventions. Psychopharmacological treatment of behaviour disorders included thioridazine, molindone and methylphenidate. Psychopharmacological treatment of attention-deficit hyperactivity disorder (ADHD) included desipramine, methylphenidate, pindolol, bupropion hydrochloride, amphetamine sulphate and adderall.

Participants included in the review
Studies that included children with a mean age of 6 to 12 years were eligible for inclusion. The majority of children in each study had to be aged 6 to 12 years. The included studies were of children with disruptive behaviour disorder or ADHD. Studies were classified in the review according to the primary disorder only and not with respect to any comorbid condition.

Outcomes assessed in the review
The inclusion criteria were not explicitly defined in terms of the outcomes. The review reported the primary outcome for each study. A variety of outcomes were included, such as measures of the child's behaviour, diagnostic category, services received, placement, symptoms, social behaviour, learning tests and measures of ADHD. Behaviour was measured using several different tools (e.g. Child Behavior Checklist and Eyeberg Child Behavior Inventory).

How were decisions on the relevance of primary studies made?
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 authors did not state in the text of the review that they formally assessed validity, but the tables presented information on intention-to-treat analysis and drop-outs for each study. In addition, other aspects of study quality were discussed.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.
The authors calculated effect sizes for the primary outcomes of each study (see Other Publications of Related Interest).

**Methods of synthesis**

How were the studies combined?
The studies were grouped initially by primary diagnosis (behaviour disorder or ADHD) and then by the type of intervention, and a narrative synthesis was undertaken. The authors presented their evaluation of the evidence for each category of intervention.

How were differences between studies investigated?
Differences between the studies were not discussed.

**Results of the review**

Disruptive behaviour disorders: there were 3 RCTs (396 children) of parent training; 3 RCTs (241 children), 1 quasi-experimental study (30 children) and 1 chart review (270 children) of clinic-based interventions; 6 RCTs (538 children) of community-based interventions; 2 RCTs (194 children) and 1 quasi-experimental study (891 children) of prevention programmes; and 4 RCTs (187 children) of psychopharmacological interventions.

ADHD: there were 5 RCTs (138 children) and 1 crossover study (49 children) of psychosocial interventions; 4 RCTs (324 children), 7 crossover studies (more than 149 children) and 1 quasi-experimental study (84 children) of psychopharmacological programmes; and 6 RCTs (880 children) and 1 crossover study (31 children) of adjunctive interventions.

Disruptive behaviour disorders - psychosocial interventions.

Parent training: the effect sizes ranged from large to medium, with medium effect sizes being obtained for interventions under usual clinical situations. The studies generally focused on younger children.

Clinic-based interventions: a number of these out-patient programmes showed positive effects. Cognitive-behavioural and family-orientated programmes consistently showed positive effects. There was some evidence of benefit for interventions combining child-focused and parent- or family-focused programmes. Psychoanalysis was only assessed in one small study but the results were positive. There was evidence that short-term interventions produced long-term sustainable positive outcomes.

Community-based interventions: the studies were conducted in relatively controlled situations in few settings and with extensive input. The generalisibility of the results was not known.

Prevention programmes: the results suggested that prevention programmes have a positive effect on younger children with disruptive behaviour. The effect sizes ranged from small to quite large.

Psychopharmacological interventions: few studies examined these treatments. The identified studies were generally small, of short duration, and were conducted in in-patients. The effect sizes ranged from medium to large for short-term outcomes.

ADHD.

Psychosocial interventions: there was some evidence of benefit from the interventions. Many studies had small sample sizes and reported only short-term outcomes. Studies with longer term follow-up showed that differences between the groups disappeared at follow-up.

Psychopharmacological interventions: the results suggested positive effects from these interventions. The effect sizes ranged from medium to large. The side-effects were generally mild and dose dependent and they reduced with time. For most studies only short-term outcomes were reported.
Adjunctive interventions: the effect of adjunctive treatments was unclear. The overall results suggested small positive effects for psychosocial treatments, medium to large effects for medication, and slightly larger effects for pharmacological plus psychosocial interventions.

Authors’ conclusions
A number of interventions may have positive outcomes, in particular, parent training and community-based interventions for disruptive behaviour disorders and medication for ADHD.

CRD commentary
The review question was clear in terms of the study design, participants and intervention. However, as the authors admitted, the inclusion criteria for minimal sample size were not adhered to. The inclusion criteria were not explicitly defined in terms of the outcomes, which resulted in a multiplicity of outcomes. By limiting the included studies to those in English listed in either of two databases, some relevant studies may have been omitted. No attempt was made to locate unpublished studies, thus raising the possibility of publication bias. The methods used to select the studies, assess validity and extract the data were not described; hence, any efforts made to reduce errors and bias cannot be judged. Validity was not formally assessed, but some quality criteria were tabulated and some limitations of the studies were discussed in the text.

Some relevant information on the included studies was tabulated, but it was not stated whether the authors’ calculation of the effect size was based on an intention-to-treat analysis. The studies were appropriately grouped by diagnostic category and then by type of intervention. The narrative synthesis was appropriate given the small number of diverse studies. The methods used by the authors to evaluate the evidence base for each type of intervention were not stated, and it was not easy to readily examine the supporting evidence without a rigorous examination of the data extraction tables. Studies supporting the authors’ conclusions were not presented in sufficient detail in the text of the review, nor were they evaluated adequately to allow an assessment of the evidence.

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

Research: The authors stated that further research is required to identify effective interventions for children aged 6 to 12 years. Future studies require larger sample sizes, diverse settings, an assessment of the effect of the interventions on girls, and longer term follow-up.

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Other publications of related interest

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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.