Effect of preventive interventions in mentally ill parents on the mental health of the offspring: systematic review and meta-analysis

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CRD summary
This review concluded that interventions to prevent mental disorders or psychological disturbances in children of parents with mental disorders were effective. Significant reductions were found in the risk of developing the same mental illness as the patient and internalising symptoms. Given limitations in the quality of included trials and differences between trials, the reliability of the authors' conclusions is unclear.

Authors' objectives
To evaluate the effectiveness of interventions for parents with mental disorders to prevent mental disorders or psychological disturbances in their offspring.

Searching
The Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE and PsycINFO were searched up to July 2010 with no language restrictions; search terms were reported. The Journal of the American Academy of Child and Adolescent Psychiatry (from 1962 to 2010), the European Journal of Child and Adolescent Psychiatry (from 1992 to 2010), and relevant articles were handsearched. Experts in the field were contacted for relevant articles.

Study selection
Randomised controlled trials (RCTs) of interventions for parents with mental disorders to prevent mental disorders or psychological disturbances in their offspring were eligible for inclusion. Relevant mental disorders included affective disorders, alcohol dependence, illicit drug use, and other disorders. Relevant outcomes in the child included: incident mental disorders of the same nature as the parents; internalising symptoms (negative emotions, depressive symptoms, anxiety) or externalising symptoms (hyperactivity, aggressiveness, behavioural problems). A wide range of interventions were eligible for inclusion: stress reduction; mother and child interaction; family-centred; professional home visits; cognitive behavioural therapy; and skill-building techniques. Trials of interventions aimed at the parents alone or parents and children were eligible for inclusion. Trials of children with established mental disorders at randomisation and those focusing on physical outcomes were excluded. Trials were excluded if the mental disorder of the parent was unclear.

Most included trials (85%) were conducted in the USA or Canada; the rest were conducted in Europe. Interventions were aimed at families (31% trials), couples (31% trials), mothers (23% trial) or adolescents (15% trials); most common were cognitive or behavioural and psycho-educational to increase parenting skills, with some delivered in group sessions. In adolescents, the aim was to increase knowledge and understanding of their parents' mental disorders. Interventions lasted from one to 32 sessions over four weeks to one year (where reported). Control groups included passive or active elements. The age of children ranged from newborn to 18 years. Most trials (69%) were of parents with affective disorders (mostly depression); the rest were of parents with alcohol or drug dependence or anxiety disorders only. Where reported, 77% of parents were mothers. Parental diagnosis was mostly based on clinical interview, except for two studies with self report or medical records.

Assessment of study quality
One reviewer performed the study selection, with consultation with a senior reviewer if eligibility was unclear.

Assessment of study quality
One author performed the trial quality assessment. Criteria assessed included randomisation, blinding of assessment, concealment of allocation, and intention-to-treat analysis.

Data extraction
One reviewer performed the data extraction, followed by data checks for inconsistencies. The numbers of events were used to calculate relative risks (RR) with 95% confidence intervals (CIs). Mean differences in symptom scores with 95% confidence intervals were calculated. There was a hierarchy for symptom data (details reported in paper). In trials
that included more than one control group, the comparison was made between the least intensive control intervention.

**Methods of synthesis**
Results were pooled giving relative risks with 95% confidence intervals and standardised mean differences (SMDs) with 95% confidence intervals using random-effects models. $I^2$ and $X^2$ were used to determine trial heterogeneity. $I^2$ values of 25% represented low, 50% medium and 75% represented high heterogeneity.

A random-effects meta-regression was performed to determine whether the intervention effect differed if a child participated in the intervention or not. Numbers needed to treat were also calculated.

Publication bias was determined using Egger's Test and visually using funnel plots.

**Results of the review**
Thirteen RCTs were included in the review (1,490 children, range 30 to 316, with 1,081 parents). Four trials reported allocation concealment, outcome assessors were blinded in three trials and an intention-to-treat analysis was performed in three trials. The largest trial had the highest quality level.

The interventions significantly decreased the risk of the children developing the same mental illness as the patient compared with control groups (RR 0.60, 95%CI 0.45 to 0.79; $I^2=0%$; six RCTs). The number needed to treat to prevent one incident mental disorder in a child was 17 (95% CI 12 to 33).

The interventions significantly reduced the risk of children developing internalising symptoms compared with control groups (SMD -0.22, 95%CI -0.37 to -0.08; $I^2=0%$; seven RCTs), but did not significantly reduce the risk of the offspring developing externalising symptoms (SMD -0.16, 95%CI -0.36 to 0.04; eight RCTs; $I^2=51.2%$, with moderate heterogeneity).

Results were similar when mothers' reports were used rather than those of fathers. There was little evidence of funnel plot asymmetry for the first two meta-analyses but there was significant asymmetry for the externalising symptoms meta-analysis (p=0.01).

There was no strong evidence that interventions involving parents and children were more beneficial than those in parents alone (meta-regression p=0.09 for internalising symptoms and p=0.11 for externalising symptoms).

**Authors' conclusions**
Interventions to prevent mental disorders and psychological symptoms in the children of parents with mental disorders appeared to be effective.

**CRD commentary**
The review addressed a well-defined question for study design, participants, interventions, and relevant outcomes. The search was comprehensive. There were no language restrictions, but the authors acknowledged that no attempt was made to identify unpublished trials, which implied that some relevant studies may have been missed. Some efforts were made to reduce error and bias in study selection and data extraction, but none were reported for quality assessment.

Trial quality was assessed using relevant criteria but overall trial quality was not high. Relevant trial details were reported, but there were no details of children's gender. The methods of synthesis seemed appropriate.

Due to limitations in trial quality and trial variability, the reliability of the conclusions is unclear.

**Implications of the review for practice and research**
**Practice:** The authors noted that most of the interventions were structured with a clear focus on the clinical problem, so the results may not generalise to treatments with less structure and a more general focus. The results may be more applicable to mothers with depression than any other group.

**Research:** The authors stated that the evidence provided a strong rationale for further large high quality studies to find the most effective interventions for preventing mental illness in the children of parents with mental disorders.
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