Effects of interventions involving the family in the treatment of adult patients with chronic physical diseases: a meta-analysis

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CRD summary
This review concluded that psychosocial interventions that involved family members in the treatment of chronic physical diseases had positive effects on health outcome for the patient and his/her family. Further high-quality research was needed to investigate differential effects. High levels of heterogeneity in the analyses made the reliability of the authors’ conclusions unclear.

Authors’ objectives
To evaluate the effects of family oriented interventions designed to improve the health of adults with chronic physical disease.

Searching
MEDLINE, Cochrane Central Register of Controlled Trials (CENTRAL), PsycINDEX, PsycINFO and CINAHL were searched from inception (search end date not reported). Cochrane Database of Systematic Reviews (Issue II, 2007) was searched. Search terms were reported. Authors and experts in the field were contacted to identify unpublished studies. Reference lists of relevant published meta-analyses and systematic reviews were examined.

Study selection
Randomised controlled trials (RCTs) of psychosocial interventions with family involvement provided by health professionals (where classifiable as (psycho) education or addressing relationships) compared with author-defined standard treatment in adults (>18 years) were eligible for inclusion. Participants had to suffer from a chronic physical disease and the study had to aim to improve physical health outcomes for inclusion. Eligible diseases included mental disorders and other physical diseases or disabilities classified as comorbid conditions to a primary chronic physical disease; studies of mental disorders as the primary diagnosis were excluded. The definition of family included all significant other persons with close relationships with the patient, except those with professional or quasi-professional relationships. Only trials that stated the patients’ physical or mental health as the target were included.

Outcomes of interest were physical health (level of dependency, clinical symptoms and events, self-rated physical health status and disease management), mental health (degree of depression, degree of anxiety, quality of life, general mental health) and health of family members (caregiver burden, depression, anxiety, general mental health and self-efficacy).

In the included studies, 51.5% were women and mean age was 53.3 years (range 29 to 79 years old). Approximately half of the studies were of psycho-interventions. Most studies focused on cardiovascular disease and stroke patients. Other studies focused on cancer, arthritis, diabetes, AIDS and systemic lupus erythematosus. Treatment duration varied from 30 minutes to 54 hours (median 6.25 hours). Standard medical care varied between studies: in two-thirds of studies there was no mention of standardised educational or counselling elements; in 16 studies basic instructions or educational brochures were given; and in five studies patients were informed that counselling on demand was available. Various tools were used to measure outcomes.

Two reviewers independently selected studies for inclusion. The full paper was retrieved if the study was judged eligible by at least one author. Full-paper screening was conducted independently by two reviewers. Disagreements were resolved by discussion with other authors.

Assessment of study quality
Study quality was assessed in terms of randomisation, allocation concealment, loss to follow-up and use of intention-to-treat (ITT) analysis. Blinding was not assessed as the nature of the interventions made it impossible to blind recipients and providers.
The authors did not report how many reviewers assessed quality.

**Data extraction**
Data were extracted by two reviewers to calculate effects sizes for all outcomes using Hedges' g. Data for outcomes were classified as physical health, mental health and health of family members. When trials reported more than one outcome per category, data were extracted using a hierarchical approach. Where multiple time points were reported, the first after the end of the intervention was extracted as the primary outcome. Outcomes at least seven months after the end of the intervention were extracted to assess long-term effects. Authors were contacted for further information where required.

**Methods of synthesis**
Pooled effect sizes and 95% confidence intervals (CIs) were calculated using a random-effects model. The effect size was considered as small (0.2) medium (0.5) or large (0.8) according to Cohen's classification. The number needed to treat (NNT) and odds ratios (ORs) were presented for the main outcomes. Heterogeneity was assessed using the I² statistic. Subgroup analyses of disease groups, types of interventions and duration of follow-up were performed. Sensitivity analyses were conducted for study quality and the decision to use outcome hierarchies. The highest quality studies were also analysed separately. Publication bias was examined using a funnel plot.

**Results of the review**
Fifty-two RCTs were included in the review (n=8,896, range 20 to 2,328). Randomisation was reported in 20 studies. Eighteen studies reported allocation concealment, 29 reported ITT analyses and 45 disclosed loss to follow-up. A drop-out rate of more than 30% was reported in two trials. Follow-up ranged from immediately post-intervention to six years after.

**Physical health:** Family interventions were associated with significantly better health than standard treatment at first follow-up (Hedges' g 0.32, 95% CI 0.18 to 0.45, OR 1.81, NNT=8 to 9; 52 studies) and long-term follow-up (Hedges' g 0.21, 95% CI 0.09 to 0.33; 12 studies). There was significant heterogeneity at first follow-up (I²=82.9%), but not at long-term follow-up.

**Mental health:** Family interventions were associated with significantly better health than standard treatment at first follow-up (Hedges' g 0.28, 95% CI 0.12 to 0.43, OR 1.72, NNT=10 to 11; 52 studies) and long-term follow-up (Hedges' g 0.29, 95% CI 0.02 to 0.56; 12 studies). There was significant heterogeneity for all studies (I²=85.8).

**Family members' health:** Family interventions were associated with significantly better health of family members than standard treatment at first follow-up (Hedges' g 0.35, 95% CI 0.05 to 0.66, OR 1.84, NNT=7 to 8; 18 studies), but were not significant for long-term follow-up (p=0.117, four studies). Heterogeneity was not reported.

Further subgroup analyses and sensitivity analyses were reported.

There was no evidence of publication bias.

**Authors' conclusions**
Psychosocial interventions that involved family members in the treatment of chronic physical diseases had positive effects on health outcome for the patient and family. Further high-quality research was needed to investigate differential effects.

**CRD commentary**
The review addressed a clear research question with well-defined inclusion criteria. Several relevant databases were searched. Efforts were made to obtain unpublished data. It was unclear whether language restrictions were applied. Study selection and data extraction were performed in duplicate; it was unclear whether similar steps to reduce error and bias were taken for validity assessment. Study quality was assessed using relevant criteria and taken into consideration in the analysis. Although significant results were found, some were associated with significant heterogeneity and heterogeneity was not reported for the outcome of family members' health. Sources of heterogeneity...
were explored.

High levels of heterogeneity in the analyses made the reliability of the authors' conclusions unclear.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that further high-quality studies that directly compared different interventions within well-defined patient populations were needed. Questions of health economics needed to be included.

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