Psychological treatments in schizophrenia - I: meta-analysis of family intervention and cognitive behaviour therapy

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Authors' objectives
To assess the effect of family interventions (FIs) and cognitive-behaviour therapy (CBT) in the management of schizophrenia.

Searching
Biological Abstracts (1980 to 1999), CINAHL (1982 to 1999), the Cochrane Library (Issue 2, 1999), the Cochrane Schizophrenia Group's Register of Trials (August 1999), EMBASE (1980 to 1999), MEDLINE (1966 to 1999), PsycLIT (1887 to 1999), SIGLE (1990 to 1999) and Sociofile (1980 to 1999) were searched. The authors stated that details of the search strategy were available on request. The reference lists in reviews and selected studies were also checked.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible for inclusion. Studies with a greater than 50% drop-out rate were excluded, as were studies that did not present standard deviations or standard errors and means.

Specific interventions included in the review
Studies that compared either FIs or CBT with standard care or other active interventions were eligible for inclusion. Studies of FI had to last at least 6 weeks. In the review, FIs were defined as family sessions that included a specific supportive treatment and either a psycho-educational intervention, a problem-solving or crisis management intervention, or an intervention involving the patient. Some included FI studies were conducted with a single family (single FIs) while others involved more than one family. Some studies involved the patient in the sessions while others did not. Studies of CBT had to have the participant linking thoughts, feeling or actions with the target symptoms, and the correction of misinterpretations or beliefs, plus either self-monitoring of the participant's thoughts, feelings or behaviour, or the encouragement of alternative coping mechanisms for dealing with the symptoms.

Participants included in the review
The inclusion criteria were not explicitly defined in terms of the participants, but it was clear that patients with schizophrenia and their families were included. The included studies were of patients with schizophrenia or related disorders including delusional disorders, schizophreniform disorder or schizoaffective disorder. Studies included many participants with co-morbid mental disorders and excluded patients with organic brain disease, substance abuse, low IQ and a variety of other criteria. Studies that involved patients with other diagnoses were only included if the results were presented separately for people with schizophrenia.

The participants in the FI studies had a mean age of 31.2 years, 31% were female (reported in 14 studies), the mean number of previous admissions was 2.7 (reported in 13 studies) and the mean duration of illness was 6.3 years (7 studies). The patients were diagnosed as having schizophrenia using the American Psychiatric Association's DSM criteria (DSM-III, DSM-III-R, DSM-IV), the New Haven Index, Research Diagnostic Criteria, Chinese Medical Association Criteria and ICD-9 criteria. The participants in the CBT studies had a mean age of 33.9 years, 60.4% were male (reported in all but one study) and the mean duration of illness was 11 years (reported in 4 studies).

Outcomes assessed in the review
The inclusion criteria were not explicitly defined in terms of the outcomes. The review assessed relapse, readmission, suicide, noncompliance with treatment, family outcomes (burden and emotion), mental state and function. The included CBT studies defined relapse/readmission differently: exacerbation of symptoms resulting in readmission for 5 or more days, or deterioration of specified illness scale). They also defined important improvement in mental state as the stabilisation of symptoms, or different reductions in a specified illness score.
How were decisions on the relevance of primary studies made?
Two reviewers independently examined all references and resolved any disagreements through discussion with a third reviewer if necessary.

Assessment of study quality
No formal assessment of validity was undertaken, but only RCTs were included in the review.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

The data were extracted and analysed on an intention-to-treat basis. Data were extracted on the number of participants, intervention (including duration and frequency), comparison group and measures analysed.

Methods of synthesis
How were the studies combined?
The studies were grouped according to the intervention (FI or CBT) and the characteristics of the participants were summarised. For dichotomous data, pooled odds ratios (ORs) and 95% confidence intervals (CIs) were calculated using fixed-effect (Mantel-Haenszel) and random-effects (DerSimonian and Laird) methods. For continuous data, pooled effect sizes and 95% CIs were calculated using fixed-effect (Hedges) and random-effects (DerSimonian and Laird) methods. The number-needed-to-treat and 95% CI were estimated. The authors stated that publication bias was explored using a funnel plot where an adequate number of trials were available, but the results were not reported.

How were differences between studies investigated?
The reviewers examined graphs of results and tested statistical heterogeneity using the Q statistic (P<0.05 indicated significant heterogeneity). Meta-analyses were conducted for varying time periods: the first 12 months of treatment, 1 to 2 years, and follow-up after treatment stopped. Meta-analysis were also conducted for the following comparisons: all FI versus standard care; FI versus other active interventions; single FI versus all other treatments; single FI versus standard care; CBT versus all treatments; CBT versus active treatments; and CBT versus standard care. When significant heterogeneity was found for the analysis of drop-outs for CBT, outlying studies were removed and the pooled estimates were recalculated. The results from random-effects and fixed-effect models were compared.

Results of the review
Eighteen RCTs of FI (1,467 patients) and 8 RCTs of CBT (528 patients) were included in the review.

FIs.
A pooled analysis of 11 RCTs (729 patients) showed that all FIs significantly reduced relapse in the first 12 months compared with all other treatments; the OR (random-effects model) was 0.52 (95% CI: 0.31, 0.89); significant heterogeneity was found (P<0.01). The benefit of FI was greatest when compared with standard care; the OR (fixed-effect model; 6 RCTs, 355 patients) was 0.37 (95% CI: 0.23, 0.60); no significant heterogeneity was found (P=0.51).

After 1 to 2 years, only single FIs significantly reduced relapse in comparison with all other treatments. The OR for all FIs (random-effects model) was 0.57 (95% CI: 0.18, 1.82); significant heterogeneity was found (P<0.01). The OR for a single FI (fixed-effect model) was 0.40 (95% CI: 0.19, 0.84); no significant heterogeneity was found (P=0.06).

All FIs reduced readmission rates for up to 2 years into treatment in comparison with all other treatments; the OR for all FIs (random-effects model) was 0.47 (95% CI: 0.23, 0.96); significant heterogeneity was found (P<0.01). The effect was greatest when single FIs were compared with standard care; the OR (fixed-effect model) was 0.23 (95% CI: 0.11, 0.46); no significant heterogeneity was found (P=0.55).
There was no significant difference between FIs and other treatments for suicide or relatives' sense of burden. Data were presented.

All FIs reduced non-compliance compared with other active treatments; OR for all FI using a fixed-effect model 0.74 (95% CI: 0.53, 1.04), no significant heterogeneity was found (P = 0.07).

All FIs increased compliance with medication compared with all other treatments OR using a fixed-effect model 0.63 (95% CI: 0.40, 1.01), no significant heterogeneity was found (P = 0.65).

CBT.

A pooled analysis showed no significant difference in relapse or readmission between CBT and all other treatments during the treatment; the OR (fixed-effect model) was 0.69 (95% CI: 0.44, 1.10); no significant heterogeneity was found (P=0.68).

A pooled analysis showed CBT improved mental state up to 18 months after treatment in comparison with all other treatments; the OR (fixed-effect model) was 0.27 (95% CI: 0.15, 0.49); no significant heterogeneity was found (P=0.73).

CBT reduced drop-out rates when compared with standard care; the OR for CBT (fixed-effect model) was 0.38 (95% CI: 0.14, 1.02). These results were for two statistically homogeneous studies (P=0.34) after the exclusion of one RCT that appeared to be responsible for the initial heterogeneity.

Additional results were presented.

Authors' conclusions
FI may be useful for patients with schizophrenia if they have contact with any family members, while CBT may be of benefit to people with resistant symptoms of schizophrenia.

CRD commentary
The review question was clear in terms of the study design, intervention, participants and outcomes. Several relevant sources were searched and details of the search strategy were reported to be available from the authors. It was unclear whether any language restrictions had been applied and no attempt was made to locate unpublished studies, thus raising the possibility of publication bias. Two reviewers independently selected the studies, which reduces the potential for bias and errors. Only RCTs were included in the review, but no formal validity assessment was undertaken. Hence, the quality of the evidence cannot be evaluated.

Data were extracted on an intention-to-treat basis, but no other details were reported. Some relevant information on the included studies was tabulated. Data were combined in a meta-analysis and statistical heterogeneity was assessed. The finding of significant heterogeneity for several analyses suggests that a meta-analysis may not always have been appropriate. Sensitivity analyses were undertaken to explore the influence on the results of timing of the outcome assessment and interventions compared. Having found significant heterogeneity for one analysis (drop-outs with CBT), the authors excluded an outlying study without discussing in which way (other than the results) this study differed from the others. In their discussion, the authors advised caution in interpreting the FI results given the diverse nature of these interventions. The authors’ conclusions appear to follow from the evidence but, in view of the heterogeneity, positive results may not generalise to other settings.

Implications of the review for practice and research
Practice: The authors stated that patients with schizophrenia who are in contact with carers should be offered FIs.

Research: The authors stated that further large trials are required to compare CBT and FIs under usual practice conditions. These trials should use standardised measures to assess a wide range of outcomes and should include measures of quality of life, patient satisfaction and cost-effectiveness. The authors further stated that research should
try to define which factors are associated with treatment success.

**Bibliographic details**

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**Other publications of related interest**

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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.