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Family intervention for schizophrenia

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Abstract

Background—People with schizophrenia from families that express high levels of criticism, hostility, or over involvement, have more frequent relapses than people with similar problems from families that tend to be less expressive of emotions. Forms of psychosocial intervention, designed to reduce these levels of expressed emotions within families, are now widely used.

Objectives—To estimate the effects of family psychosocial interventions in community settings for people with schizophrenia or schizophrenia-like conditions compared with standard care.

Search strategy—We updated previous searches by searching the Cochrane Schizophrenia Group Trials Register (September 2008).

Selection criteria—We selected randomised or quasi-randomised studies focusing primarily on families of people with schizophrenia or schizoaffective disorder that compared community-orientated family-based psychosocial intervention with standard care.

Data collection and analysis—We independently extracted data and calculated fixed-effect relative risk (RR), the 95% confidence intervals (CI) for binary data, and, where appropriate, the number needed to treat (NNT) on an intention-to-treat basis. For continuous data, we calculated mean differences (MD).

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DECLARATIONS OF INTEREST

None known.

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Main results—This 2009-10 update adds 21 additional studies, with a total of 53 randomised controlled trials included. Family intervention may decrease the frequency of relapse (n = 2981, 32 RCTs, RR 0.55 CI 0.5 to 0.6, NNT 7 CI 6 to 8), although some small but negative studies might not have been identified by the search. Family intervention may also reduce hospital admission (n = 481, 8 RCTs, RR 0.78 CI 0.6 to 1.0, NNT 8 CI 6 to 13) and encourage compliance with medication (n = 695, 10 RCTs, RR 0.60 CI 0.5 to 0.7, NNT 6 CI 5 to 9) but it does not obviously affect the tendency of individuals/families to leave care (n = 733, 10 RCTs, RR 0.74 CI 0.5 to 1.0). Family intervention also seems to improve general social impairment and the levels of expressed emotion within the family. We did not find data to suggest that family intervention either prevents or promotes suicide.

Authors' conclusions—Family intervention may reduce the number of relapse events and hospitalisations and would therefore be of interest to people with schizophrenia, clinicians and policy makers. However, the treatment effects of these trials may be overestimated due to the poor methodological quality. Further data from trials that describe the methods of randomisation, test the blindness of the study evaluators, and implement the CONSORT guidelines would enable greater confidence in these findings.

Medical Subject Headings (MeSH)

*Expressed Emotion; *Family Therapy; *Social Support; Family Relations; Randomized Controlled Trials as Topic; Recurrence [prevention & control]; Schizophrenia [*therapy]

MeSH check words

Humans

BACKGROUND

In 1972 an influential study showed that people with schizophrenia from families that express high levels of criticism, hostility, or over involvement have more frequent relapses than people with similar problems from families that tend to be less expressive of their emotions (Brown 1972). A variety of psychosocial interventions designed to reduce these levels of expressed emotions within families now exist. The aim of using these psychosocial approaches is to decrease stress within the family as well as the rate of relapse. These interventions are proposed as adjuncts rather than alternatives to drug treatments.

Description of the condition

Schizophrenia is a chronic, relapsing mental illness and has a worldwide lifetime prevalence of about 1% irrespective of culture, social class and race. Schizophrenia is characterised by positive symptoms such as hallucinations and delusions and negative symptoms such as emotional numbness and withdrawal. One-quarter of those who have experienced an episode of schizophrenia recover and the illness does not recur. Another 25% experience an unremitting illness. Half do have a recurrent illness but with long episodes of considerable recovery from the positive symptoms. Current medication is effective in reducing positive symptoms, but negative symptoms are fairly resistant to treatment. In addition, drug

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treatments are associated with adverse effects and the overall cost of the illness to the individual, their carers and the community is considerable.

Description of the intervention

Psychosocial family interventions may have a number of different strategies. These include: (a) construction of an alliance with relatives who care for the person with schizophrenia; (b) reduction of adverse family atmosphere (that is, lowering the emotional climate in the family by reducing stress and burden on relatives); (c) enhancement of the capacity of relatives to anticipate and solve problems; (d) reduction of expressions of anger and guilt by the family; (e) maintenance of reasonable expectations for patient performance; (f) encouragement of relatives to set and keep to appropriate limits whilst maintaining some degree of separation when needed; and (g) attainment of desirable change in relatives' behaviour and belief systems.

How the intervention might work

By reducing levels of expressed emotion, stress, family burden, and enhancing the capacity of relatives to solve problems, whilst maintaining patient compliance with medication, family intervention aims to reduce relapse and subsequent hospitalisation.

Why it is important to do this review

Many important qualitative reviews highlight the possible advantages of using family interventions for those with serious mental illnesses (Leff 1995). Quantitative reviews are less common (Mari 1994).

OBJECTIVES

To estimate the effects of family psychosocial interventions in community settings for the care of people with schizophrenia or schizophrenia-like conditions.

METHODS

Criteria for considering studies for this review

Types of studies—We included all relevant randomised or quasi-randomised controlled trials.

Types of participants—We included families of people who have a diagnosis of schizophrenia and/or schizoaffective disorder. As a result of Szmukler 2003, we reconsidered the inclusion criteria. This study evaluated family interventions for a group that included people without schizophrenia-like illnesses (less than 17%). It would seem harsh to exclude this study because everyone did not have schizophrenia, and therefore devalue the results of this review for clinicians dealing with a mixed group for whom they feel family intervention may be indicated. Because this decision is *post hoc* we have included and excluded the data from Szmukler 2003 in order to see if inclusion made a substantive difference. We have discussed the results of these sensitivity analyses below. The objectives of the review remain to estimate the effects of family psychosocial interventions in

community settings for the care of people with schizophrenia or schizophrenia-like conditions. Entry criteria for this update have changed and now studies are eligible where most (more than 75%) families include one member with a diagnosis of schizophrenia and/or schizoaffective disorder.

Types of interventions

1. Any psychosocial intervention with relatives of those with schizophrenia that required more than five sessions.
2. Standard care, but this was not restricted to an in-patient context/environment.

Types of outcome measures

Primary outcomes

1	Suicide and all causes of mortality
2	Service utilisation
2.1	Hospital admission
3	Clinical global response
3.1	Relapse

Secondary outcomes

1	Service utilisation
1.2	Days in hospital
2	Clinical global response
2.2	Global state - not improved
2.3	Average change or endpoint score in global state
2.4	Leaving the study early
2.5	Compliance with medication
3	Mental state and behaviour
3.1	Positive symptoms (delusions, hallucinations, disordered thinking)
3.2	Negative symptoms (avolition, poor self-care, blunted affect)
3.3	Average change or endpoint score
4	Social functioning
4.1	Average change or endpoint scores
4.2	Social impairment
4.3	Employment status (employed/unemployed)
4.4	Work related activities

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4.5 Unable to live independently

4.6 Imprisonment

5 Family outcome

5.1 Average score/change in family burden

5.2 Patient and family coping abilities

5.3 Understanding of the family member with schizophrenia

5.4 Family care and maltreatment of the person with schizophrenia

5.5 Expressed emotion

5.6 Quality of life/satisfaction with care for either recipients of care or their carers

6 Economic outcomes

6.1 Cost of care

Search methods for identification of studies

Electronic searches

1. Cochrane Schizophrenia Group Trials Register (update September 2008): We searched the register using the phrase:

[(*family* or family*) in title, abstract, index terms of REFERENCE] or [(*family* or family*) in interventions of STUDY

This register is compiled by systematic searches of major databases, hand searches and conference proceedings (see Group Module).

2. Previous searches from earlier versions of this review: Please see (Appendix 1).

Searching other resources

1. Handsearching: We searched the reference lists of the review articles and the primary studies to identify possible articles missed by the computerised search.

2. Personal contact: We contacted authors for information regarding unpublished trials.

Data collection and analysis

Selection of studies—We independently inspected all reports. We resolved any disagreement by discussion, and where doubt remained, we acquired the full article for further inspection. Once we obtained the full articles, we independently decided whether the studies met the review criteria. If disagreement could not be resolved by discussion, we sought further information and added these trials to the list of those awaiting assessment.

Data extraction and management—We independently extracted data from selected trials. When disputes arose we attempted to resolve these by discussion. When this was not

possible and further information was necessary to resolve the dilemma, we did not enter data and added the trial to the list of those awaiting classification.

Assessment of risk of bias in included studies—We assessed risk of bias using the tool described in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2008). This tool encourages consideration of how the sequence was generated, how allocation was concealed, the integrity of blinding at outcome, the completeness of outcome data, selective reporting and other biases.

If disputes arose as to which category a trial has to be allocated, again, we achieved resolution by discussion, after working with a third reviewer.

Earlier versions of this review used a different, less well-developed, means of categorising risk of bias (see Appendix 2).

Measures of treatment effect

1. Binary data—For binary outcomes we calculated the relative risk (RR) and its 95% confidence interval (CI) based on the fixed-effect model. Relative risk is more intuitive (Boissel 1999) than odds ratios, and odds ratios tend to be interpreted as RR by clinicians (Deeks 2000). This misinterpretation then leads to an overestimate of the impression of the effect. When the overall results were significant we calculated the number needed to treat (NNT) and the number needed to harm (NNH). Where people were lost to follow up at the end of the study, we assumed that they had had a poor outcome and once they were randomised they were included in the analysis (intention-to-treat/ITT analysis).

Where possible, we made efforts to convert outcome measures to binary data. This can be done by identifying cut-off points on rating scales and dividing participants accordingly into “clinically improved” or “not clinically improved”. It is generally assumed that if there is a 50% reduction in a scale-derived score such as the Brief Psychiatric Rating Scale (BPRS Overall 1962) or the Positive and Negative Syndrome Scale (PANSS, Kay 1986, this could be considered a clinically significant response (Leucht 2005a, Leucht 2005). It is recognised that for many people, especially those with chronic or severe illness, a less rigorous definition of important improvement (e.g. 25% on the BPRS) would be equally valid. If individual patient data are available, we used the 50% cut-off point for non-chronically ill people and a 25% cut-off point for those with chronic illness. If data based on these thresholds were not available, we used the primary cut-off presented by the original authors.

2. Continuous data

2.1 Skewed data: Continuous data on outcomes in mental health trials are often not normally distributed. To avoid the pitfall of applying parametric tests to non-parametric data, we applied the following standards to all endpoint data derived from continuous measures. The criteria were used before inclusion: (a) standard deviations and means had to be obtainable; and, for finite scores, such as endpoint measures on rating scales, (b) the standard deviation (SD), when multiplied by two, had to be less than the mean (as otherwise the mean was unlikely to be an appropriate measure of the centre of the distribution) (Altman 1996). If a scale starts from a positive value (such as PANSS, which can have

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values from 30 to 210) the calculation described above in (b) should be modified to take the scale starting point into account. In these cases skew is present if 2SD>(S-Smin), where S is the mean score and Smin is the minimum score.

We did not show skewed endpoint data from studies with fewer than 200 participants graphically, but added these to the 'Other data' tables and briefly commented on in the text. However, skewed endpoint data from larger studies (200 or more participants) pose less of a problem and we entered the data for analysis.

For continuous mean change data (endpoint minus baseline) the situation is even more problematic. In the absence of individual patient data it is impossible to know if change data are skewed. The RevMan meta-analyses of continuous data are based on the assumption that the data are, at least to a reasonable degree, normally distributed. Therefore we included such data, unless end-point data were also reported from the same scale.

2.2 Final endpoint value versus change data: Where both final endpoint data and change data were available for the same outcome category, we presented only final endpoint data. We acknowledge that by doing this much of the published change data may be excluded, but argue that endpoint data is more clinically relevant and that if change data were to be presented along with endpoint data, it would be given undeserved equal prominence. We have contacted authors of studies reporting only change data for endpoint figures.

2.3 Crossover design: Where we have included crossover design studies, we have negated the potential additive effect in the second or later stages on these trials by only analysing data from the first stage.

2.4 Scale-derived data: A wide range of instruments are available to measure mental health outcomes. These instruments vary in quality and many are not valid, and are known to be subject to bias in trials of treatments for schizophrenia (Marshall 2000). Therefore we included continuous data from rating scales only if the measuring instrument had been described in a peer-reviewed journal.

Whenever possible we took the opportunity to make direct comparisons between trials that used the same measurement instrument to quantify specific outcomes. Where continuous data were presented from different scales rating the same effect, we presented both sets of data and inspected the general direction of effect.

2.5 Tables and figures: Where possible we entered data into RevMan in such a way that the area to the left of the line of no effect indicated a favourable outcome for family intervention.

Unit of analysis issues

Studies increasingly employ cluster randomisation (such as randomisation by clinician or practice) but analysis and pooling of clustered data poses problems. Firstly, authors often fail to account for intra class correlation in clustered studies, leading to a unit-of-analysis error (Divine 1992) whereby P values are spuriously low, confidence intervals unduly

narrow and statistical significance overestimated. This causes Type I errors (Bland 1997, Gulliford 1999).

Where clustering had not been accounted for in primary studies, we presented the data in a table, with a (*) symbol to indicate the presence of a probable unit of analysis error. In subsequent versions of this review we will seek to contact first authors of studies to obtain intra-class correlation co-efficients of their clustered data and to adjust for this using accepted methods (Gulliford 1999). Where clustering has been incorporated into the analysis of primary studies, we will also present these data as if from a non-cluster randomised study, but adjusted for the clustering effect.

We have sought statistical advice and have been advised that the binary data as presented in a report should be divided by a design effect. This is calculated using the mean number of participants per cluster (m) and the intraclass correlation co-efficient (ICC) (Design effect = 1+(m−1)*ICC) (Donner 2002). If the ICC was not reported we assumed it to be 0.1 (Ukoumunne 1999). If cluster studies had been appropriately analysed taking into account intraclass correlation coefficients and relevant data documented in the report, we synthesised these with other studies using the generic inverse variance technique.

Dealing with missing data

We excluded data from studies where more than 50% of participants in any group were lost to follow up (this did not include the outcome of ‘leaving the study early’). In studies with less than 50% dropout rate, people leaving early were considered to have had the negative outcome, For example, we treated those lost to follow up for the outcome of relapse as having relapsed in the analysis. We also treated suicide as relapse.

Assessment of heterogeneity

Firstly, we considered all the included studies within any comparison to judge for clinical heterogeneity. Then we visually inspected graphs to investigate the possibility of statistical heterogeneity. We supplemented this by using primarily the I^2 statistic. This provides an estimate of the percentage of variability due to heterogeneity rather than chance alone. Where the I^2 estimate was greater than or equal to 50%, we interpreted this as indicating the presence of considerable levels of heterogeneity (Higgins 2003).

Assessment of reporting biases

Reporting biases arise when the dissemination of research findings is influenced by the nature and direction of results. These are described in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2008). We are aware that funnel plots may be useful in investigating reporting biases, but are of limited power to detect small-study effects. We did not use funnel plots for outcomes where there were 10 or fewer studies, or where all studies were of similar sizes. In other cases, where funnel plots were possible, we sought statistical advice in their interpretation.

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Data synthesis

Where possible, we used a fixed-effect model for analyses. We understand that there is no closed argument for preference for use of fixed-effect or random-effects models. The random-effects method incorporates an assumption that the different studies are estimating different, yet related, intervention effects. This does seem true to us, however, random-effects does put added weight onto the smaller studies - those trials that are most vulnerable to bias.

Subgroup analysis and investigation of heterogeneity

When we found heterogeneous results, we investigated the reasons for this. Where heterogeneous data substantially altered the results and we identified the reasons for the heterogeneity, we did not summate these studies in the meta-analysis, but presented them separately and discussed them in the text.

Sensitivity analysis

Earlier versions of this review did not undertake any sensitivity analyses. This 2010 update also had not pre-planned any. However, because we have added so many new studies from China, and because of concern regarding the quality of trials from China (Wu 2006), we decided to undertake a sensitivity analysis testing, for the primary outcomes, to determine whether addition of the Chinese trials did have any substantial effect on the overall results.

RESULTS

Description of studies

See: Characteristics of included studies; Characteristics of excluded studies.

For substantive descriptions of studies, please see Characteristics of included studies and Characteristics of excluded studies

Results of the search

1. The search—We found 855 references from 327 studies during the September 2008 search. In earlier searches, the 2002 update search yielded 1078 citations, and the June 2005 update identified 104 citations.

Included studies

1. Included trials—We were able to include 53 studies in total; this includes 21 added in the 2010 update.

2. Methods—All trials were described as ‘randomised’. Hogarty 1997, used a quasi-random method by allocating (‘on alternate weeks or months’) participants before they were admitted. The demographic data suggests that this process resulted in evenly balanced groups so we have included data, although they must be viewed with caution. Also, Gong 2007 and Liu 2003 used a quasi-randomised method of allocation. Ran 2003 block randomised participants into clusters using six different townships as units. Chen 2005 also used a cluster randomised design but did not report the number of clusters used. Szmukler

2003 (unpublished data) reports using an exploratory randomised controlled trial to evaluate the effectiveness of a carers intervention, using permuted blocks with varying block sizes and sample stratification. The majority of studies did not describe the method used to randomly allocate participants to treatment. However, some studies reported using computer generated randomisation, or block randomisation to achieve balanced groups. Carra 2007 described concealment of allocation by the use of an external statistician who was not involved in enrolling participants and was responsible for the method of sequence generation; all other included studies did not describe how sequence generation was concealed from the investigators and participants, and doubt remains as to how impervious all methods of allocation are to the introduction of bias.

Most trials did not achieve full blindness although many studies attempted to single blind at least some measurements (Barrowclough 2001; Falloon 1981; Goldstein 1978; Leavey 2004; Leff 1989;Linszen 1996; Merinder 1999; Tarrier 1988; Vaughan 1992; Xiong 1994; Zhang 1994).

3. Length of treatment—Length of treatment varied from six weeks (Bloch 1995; Goldstein 1978) to three years (Hogarty 1997). Hogarty 1997 also followed participants up for an additional three years.

4. Setting—Studies were conducted in Australia (two trials), Canada (one trial), Europe (12 trials), the People's Republic of China (28 trials) and the USA (10 trials).

5. Participants—Participants in all the included trials (except Szmukler 2003 and Leavey 2004) were diagnosed as having schizophrenia or schizoaffective disorder. Most studies used structured clinical assessments to determine the diagnosis (DSM 20 studies, CCMD 15 studies, ICD-10 seven studies, RDC two studies, New Haven Index one study, and PSE six studies). Szmukler 2003 included more than 80% with a diagnosis of schizophrenia-like illnesses, whilst the remainder suffered from bipolar affective disorder, or psychotic depression. Leavey 2004 included people described as having a psychotic illness. Overall, the age of participants ranged from 16 to 80 years. Of those studies which reported the sex of the participants, most included both men and women, although Glynn 1992, Liu 2007, Zhang 1994, and Zhang 2006a included only male patients. Patients had varied histories. Most studies involved families whose relatives had had multiple admissions, although three trials did involve substantial proportions of people with first episodes of illness (Goldstein 1978; Linszen 1996; Zhang 1994).

6. Interventions

6.1 Intervention group: All participants received family interventions and some had an educational component. Thirteen trials included family therapy in the presence of patients (Barrowclough 2001; De Giacomo 1997; Dyck 2002; Falloon 1981; Glynn 1992; Goldstein 1978;Herz 2000; Leff 1982; Leff 2001; Linszen 1996; Mak 1997;Xiong 1994; Zhang 1994) whilst eight restricted the groups to relatives (Bloch 1995; Buchkremer 1995; Chien 2004; Hogarty 1997; Leavey 2004; Posner 1992; Tarrier 1988; Vaughan 1992). Szmukler 2003 conducted family sessions mostly without the patient being present. Overall, the main aim of

the family-based interventions, when reported, was to improve family atmosphere and reduce relapse of schizophrenia.

In addition to ‘standard’ family intervention (i.e. schizophrenia education and behavioural modification), the family intervention groups used other non-pharmacological approaches as part of their strategy. Barrowclough 2001 used motivational interviewing and cognitive behavioural intervention. Falloon 1981 provided 24-hour support for the family therapy group. Goldstein 1978 utilised a ‘crisis-orientated’ family intervention as part of the family intervention and Hogarty 1997 incorporated relaxation training for the intervention group and educated the ‘family’ on stressors for schizophrenia and prodromal symptoms. Role-play was used by Tarrier 1988 as a means of educating family members on how to manage schizophrenia, whereas Vaughan 1992 incorporated homework exercises for the family members.

6.2 Comparison group: The control groups were all given standard care or usual level of care that involved pharmacological interventions. Bloch 1995 provided the control group with a single session discussion about the study, and also gave participants educational material describing schizophrenia. Leff 2001 gave two sessions of education about schizophrenia to the control group. Szmukler 2003 provided a single one-hour session for the control group in which the study was described and the carers discussed their problems; carers were also provided with the same written and video information as the intervention group. Further measures were employed by Falloon 1981 who used supportive psychotherapy for the control arm of the study. Linszen 1996 and Merinder 1999 provided psychosocial support in an individualised context without family involvement.

7. Outcomes—Data we were able to extract included the outcomes of death, mental state, compliance (including compliance with medication and leaving the study early), quality of life, social functioning and measures of family functioning. Ran 2003 reported data as if from a non-cluster randomised study; the analyses were based on the numbers of individual families, with no account taken of the clustering effect. We sought statistical advice from the MRC Biostatistics Unit, Cambridge, UK. Dr Julian Higgins advised that the binary data as presented in the report should be divided by a ‘design effect’ and that this should be calculated using the mean number of families in the groups (m) and the intraclass correlation coefficient (ICC) (Design effect = 1+(m−1)*ICC). We contacted Dr Ran to obtain the ICC. Dr Ran kindly replied but ICC values were not available, so we assumed this to be 0.1 (Ukoumunne 1999). We have listed scales below that provided data for the review.

7.1 Global state

7.1.1 Global Assessment of Functioning - GAF: The GAF (APA 1987) allows the clinician to express the patient’s psychological, social and occupational functioning on a continuum extending from superior mental health, with optimal social and occupational performance to profound mental impairment when social and occupational functioning are precluded. Ratings are made on a scale of 0 to 90. Higher scores indicate a better outcome. Barrowclough 2001, Merinder 1999 and Xiong 1994 reported data from this scale.

7.2 Mental state

7.2.1 Brief Psychiatric Rating Scale - BPRS: The BPRS is an 18-item scale measuring positive symptoms, general psychopathology and affective symptoms (Overall 1962). The original scale has 16 items, but a revised 18-item scale is commonly used. Scores can range from 0-126. Each item is rated on a seven-point scale varying from 'not present' to 'extremely severe', with higher scores indicating more severe symptoms. The BPRS was used in Linszen 1996, Fernandez 1998, Merinder 1999, Xiong 1994 and Zhang 1994 as part of the definition of relapse, and Magliano 2006, Merinder 1999 and Xiong 1994 reported BPRS mental state scores.

7.2.2 Positive and Negative Syndrome Scale - PANSS: This scale was developed to evaluate the positive, negative and general symptoms in schizophrenia (Kay 1987). It has 30 items, and each of these can be defined on a seven-point scoring system varying from one (absent) to seven (extreme). The scale can be divided into three sub-scales for measuring the severity of general psychopathology, positive symptoms (PANSS-P) and negative symptoms (PANSS-N). Higher scores indicate more symptoms. This scale was used by Barrowclough 2001, Dai 2007 and Liu 2003 to monitor treatment changes in schizophrenia.

7.2.3 Frankfurt Complaint Inventory - FBF-3: This is a 98-item self-application questionnaire in which the patient assesses the presence of subjective complaints on 10 clinical scales (loss of control, simple perception, complex perception, speech, cognition and thought, memory, motor behaviour, loss of automatisms, anhedonia, and anxiety and irritability due to stimuli overload) (Süllwold 1986). Higher scores indicate greater symptomology. A Spanish version of this scale (Jimeno 1996) was used in Fernandez 1998.

7.2.4 Insight Scale - IS: This is an eight-item questionnaire (Birchwood 1994). Three factors are scored: awareness of illness; need for treatment; and attribution of symptoms on a three-point scale. Higher scores indicate improvement in insight. This was used in Merinder 1999 to assess insight into psychosis and need for treatment.

7.2.5 Symptom Checklist 90 - SCL-90: The SCL-90 is a self-report clinical rating scale of psychiatric symptomatology (Derogatis 1976). It consists of 90 items, with 83 items representing nine sub-scales: somatization (n = 12 items), obsessive-compulsive (n = 10 items), interpersonal sensitivity (n = 9 items), depression (n = 13 items), anxiety (n = 10 items), angerhostility (n = 6 items), phobic anxiety (n = 7 items), paranoid ideation (n = 6 items) and psychoticism (n = 10 items). Seven additional items include disturbances in appetite and sleep. The SCL-90 also utilises three global distress indices: Global Severity Index (GSI), Positive Symptom Distress Index (PSDI), Positive Symptom Total (PST). Items are rated on a five-point Likert scale, ranging from "not at all distressing" (0) to "extremely distressing" (4), with higher scores indicating greater symptomatology. Li 2005a reported data from this scale.

7.2.6 Present State Examination - 9th Edition - PSE: This is a clinician-rated scale measuring mental status (Wing 1974). It rates 140 symptom items, which are combined to

give various syndrome and sub-syndrome scores. Higher scores indicate greater clinical impairment. Tarrier 1988 and Vaughan 1992 used the PSE to help define relapse.

7.2.7 Scale for the Assessment of Negative Symptoms - SANS: This scale was used in Bradley 2006 and Xiong 1994 to assess negative symptoms (Andreasen 1982). This is a six-point scale, providing a global rating of the following negative symptoms: alogia; affective blunting; avolition-apathy; anhedonia-asociality and attention impairment. Higher scores indicate more symptoms.

7.2.8 Scale for the Assessment of Positive Symptoms - SAPS: This scale was used in Xiong 1994 to assess positive symptoms (Andreasen 1982). This is a six-point scale providing a global rating of positive symptoms such as delusions, hallucinations and disordered thinking. Higher scores indicate more symptoms.

7.3 Social functioning

7.3.1 Health of the Nation Outcome Scale - HoNOS: The HoNOS scale is used to rate various aspects of mental and social health, on a scale of 0-4 (Amin 1999). It is designed to be used by clinicians before and after interventions, so that changes attributable to the interventions can be measured. Higher scores indicate a worse outcome. Bradley 2006 reported data from this scale.

7.3.2 Social Disability Screening Schedule - SDSS: THE SDSS is a Chinese simplified version of the World Health Organization's Disability Assessment Schedule and assesses 10 different aspects of social functioning (WHO 1988). Higher scores indicate a worse outcome. Dai 2007 and Tan 2007 reported data from this scale.

7.3.3 Social Functioning Scale - SFS: This scale (Birchwood 1990) was used in Barrowclough 2001, Fernandez 1998 and Leff 2001 to measure the ability of people with schizophrenia to function in the community.

7.4 Family outcome

7.4.1 Coping with Life Events and Difficulties Interview - COPI: A semi-structured interview with 29 items reflecting the carer's subjective response or style of coping with a severe event or marked difficulty in terms of problem tackling, and cognitive and emotional responses (Bifulco 1996). A high score is poor. Szmukler 2003 reported data from this scale.

7.4.2 Family Support Service Index - FSSI: The Family Support Service Index measures the formal support services needed and their usage by psychiatric patients and their families (Heller 1991). Higher scores indicate a greater need for family support. This index was used by Chien 2004.

7.4.3 Family Assessment Device - FAD: The Family Assessment Device assesses multiple dimensions of family functioning for patients with mental disorders and other conditions (Epstein 1983). It consists of 60 items, each of which is rated on a four-point Likert scale (from 1= strongly disagree, to 4= strongly agree) along seven dimensions: problem solving;

communication; roles; affective responsiveness; affective involvement; behavioural control and general functioning. The total scores range from four to 28, with higher scores reflecting poorer family functioning. This scale was used by Chien 2004.

7.4.4 Family Burden Interview Schedule - FBIS: The Family Burden Interview Schedule is a 25-item semi-structured interview schedule to assess the burden of care placed on families of a psychiatric patient living in the community (Pai 1981). It comprises six categories of perceived burden (with 2-6 items in each category): family finance, routine, leisure, interaction, physical and mental health. The items are rated on a three-point Likert scale (0 = no burden, 1 = moderate burden and 2 = severe burden). The total scores ranged from 0 to 50 with higher scores indicating higher burden or care. This scale was used by Chien 2004.

7.4.5 Camberwell Family Interview - CFI: The CFI is a measure of expressed emotions, of criticisms and of unfavourable attention (Vaughn 1976). The CFI is a long, complex and difficult structured interview for which extensive training is needed. Reliability is usually acceptable, but for 'warmth' it is low even after extensive training. Yet it seems to be superior to most alternative measures of expressed emotions and family atmosphere. The ratings are undertaken from videos of family interaction and focuses on the number of critical comments expressed. A high score is poor. Leff 2001 and Tarrier 1988 reported data from this scale.

7.4.6 Clinical Interview Schedule Revised - CIS-R: This scale provides a global score of psychological morbidity (Lewis 1992). The main purpose of the CIS-R is to identify the presence of neurosis and to establish the nature and severity of neurotic symptoms. There are 15 sections to the scale covering: somatic symptoms; fatigue; concentration and forgetfulness; sleep problems; irritability; worry about physical health; depression; depressive ideas; anxiety; phobias; panic; compulsions; obsessions and overall effects. A high score is poor. Szmukler 2003 reported data from this scale.

7.4.7 Experience of Care giving Inventory - ECI: A self-report measure of the experience of caring for a relative with a serious mental illness, with care giving conceptualised in a stress-appraisal-coping framework (Szmukler 1996). A 66-item version taps dimensions of care giving distinct from, but linked with, coping and psychological morbidity. This scale was dichotomised by the authors of Bloch 1995. A high score is poor. Continuous data from this scale were reported in Szmukler 2003.

7.4.8 Family Questionnaire - FQ: The Family Questionnaire is a brief self-rating scale for assessing the expressed emotional status of relatives of people with schizophrenia (Wiedemann 2002). The scale comprises 20 questions on a four-point scale with a low score indicating a better outcome, and was used by Merinder 1999.

7.4.9 Verona Service Satisfaction Scale - VSSS: This is a self-administered questionnaire that assesses satisfaction with services on a five-point scale across seven dimensions: overall satisfaction; professional skills and behaviour; information; access; efficacy; types of intervention and relatives' involvement (Ruggeri 1993). The five points are 0-1 = "terrible",

1-2 = “mostly dissatisfied”, 2-3 = “mixed”, 3-4 = “mostly satisfied”, 4-5 = “excellent”. This scale was used by Merinder 1999.

7.4.10 Ways of Coping - WOC: This scale describes cognitive and behavioural strategies for coping with stressful events over the preceding month (MacCarthy 1989b). Higher scores indicate poorer coping. This scale was dichotomised by the authors of Bloch 1995.

7.4.11 Self Evaluation and Social Support Schedule - SESS: This is a structured interview schedule to assess availability of confidants (Andrews 1991). It contains detailed questions about the relationship with the primary confidant, including closeness, confiding, intimacy, dependency, and negative interactions. This involves three to four hours administration time and extensive interviewer and rater training. It is not appropriate for large-scale epidemiologic studies. Szmukler 2003 reported data from this scale.

7.4.12 Adaptability, Partnership, Growth, Affection, and Resolve - APGAR: This scale assesses a family member’s perception of family functioning by examining his/her satisfaction with family relationships (Smilkstein 1978).The measure consists of five parameters of family functioning: Adaptability, Partnership, Growth, Affection, and Resolve. The response options were designed to describe frequency of feeling satisfied with each parameter on a 3-point scale ranging from 0 (hardly ever) to 2 (almost always).The items were developed on the premise that a family member’s perception of family functioning could be assessed by reported satisfaction with the five dimensions of family functioning listed above. Higher scores indicate better family functioning. Du 2005 reported data from this scale.

7.5 Behaviour

7.5.1 The Nurses’ Observation Scale for Inpatient Evaluation - NOSIE: The Nurses’ Observation Scale for Inpatient Evaluation (NOSIE) is a highly sensitive ward behaviour rating scale (Honigfeld 1965a). Final item selection includes the best 30 of an original pool of 100 items. Higher scores indicate a poor outcome. Dai 2007 reported data from this scale.

Two summary scales were used:

i. Confidents or Very Close Others (Brown 1986)

The Confidents or Very Close Others summary scale assesses the relationship between the carer and two core contacts, i.e. the first two people a carer would confide in about a problem. Seven questions cover degree of confiding, emotional support, absolution from guilt, practical support, negative verbal and behavioural response and perception of helpfulness. Szmukler 2003 reported data from this scale.

ii. General Community Support (Brown 1986)

The General Community Support subscale comprises five questions on the broader network or more diffuse social contacts of the carer, e.g. non-core relatives and acquaintances including possible neighbours, local shop keepers, pub-owners and church personnel. An estimate is made of the number of people having a positive or

negative attitude towards the patient's illness and the degree of practical or emotional support given or negative response made. Szmukler 2003 reported data from this scale.

7.6 Quality of Life

7.6.1 Quality of Life - QoL: This is a 21 item scale which measures both quality of life and negative/deficit symptoms of schizophrenia in adults and utilises a semi-structured interview (Heinrichs 1984). The categories covered are physical functioning, occupational role, interpersonal relationships and psychological functioning. Each item is rated on a seven-point scale, which requires the clinical judgement of the interviewer. Data from this scale were reported by Bradley 2006 and Shi 2000.

7.7 Redundant data: A large number of scales were used in the studies. Many measures, even those within included studies, were reported in such a way as to render the results unusable. Data were either not reported at all or did not distinguish treatment groups. Where data were presented it was common not to have means or variances reported or inaccurate P values presented.

Excluded studies

1. Excluded studies—We excluded 79 studies. Of these, 21 (28%) were not randomised and 23 (30%) involved people in hospital or interventions that could not be described as family intervention compared with standard care. Thirty-one studies (42%) did not report outcome data or presented it in a form that we could not use.

2. Awaiting assessment—No studies are awaiting assessment.

3. Ongoing studies—We are not aware of any ongoing studies.

Risk of bias in included studies

Only eight studies, from the total of 53, described the method of randomisation, and only one was explicit about the method of allocation concealment. Blinding was not always possible for family intervention, although few studies attempted, or at least failed to report whether the investigators assessing the participants were blind to treatment allocation. Similarly, study attrition was often omitted from the results, yet it is unlikely that group sizes remained constant throughout the investigation period. We did not have access to the included studies protocols, and were therefore unable to judge whether various tests of effectiveness had been omitted from the published findings. The effect of these potential biases is that the outcomes in this review may overestimate effects.

Allocation

Random allocation to treatment group was only described in eight of the 53 included studies, although all included studies were stated to be randomised. Three trials used a quasi-randomisation technique (Gong 2007; Hogarty 1997; Liu 2003) and it is possible that these studies are unacceptably open to the introduction of bias at the point of allocation. Only Carra 2007 described measures to conceal the sequence of allocation from participants and

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investigators. Ran 2003 was a cluster randomised trial. This methodology is likely to become more common but should be accompanied by reporting of the intra-class correlation coefficient (ICC). We have been forced to estimate this coefficient and, as a result, may be underemphasising the importance of this study.

Blinding

Trialists were aware of the possibility of the introduction of observer bias by not blinding the raters to the group to which people or families were allocated. Ten studies reported that no form of blinding was used (Bloch 1995; Buchkremer 1995; De Giacomo 1997; Fernandez 1998; Glynn 1992; Herz 2000; Leavey 2004;Leff 1982; Shi 2000; Szmukler 2003). A further 16 studies did not mention whether blinding had been used. Hogarty 1997 was also not blinded but considerable efforts were made to ensure that decisions, for example regarding relapse, were both reliable and valid. In other studies an attempt was made to ensure that raters were blind for part or the entire recording of outcome. No study tested the integrity of this blinding.

Incomplete outcome data

Study attrition was often not reported and these trials may have carried forward the last observation of the participants, which may have introduced some uncertainty into the results, as it is unlikely that the participants clinical state remained stable.

Selective reporting

We identified no under reporting of outcomes that had been collected by the trialists, although we did not have access to the protocols of the studies to determine whether all the outcome measures were reported.

Other potential sources of bias

A large number of Chinese trials were added to this review. Evidence has emerged that many trials from the People's Republic of China which were stated to be randomised are not (Wu 2006). We did not contact the authors to verify the process by which they randomised but took the descriptions and statements as being correct. Nor did we identify any overt bias in the results. However, inclusion of these studies may increase the risk of biased data favouring family intervention.

Effects of interventions

See: **Summary of findings for the main comparison** ANY FAMILY BASED INTERVENTIONS (>5 sessions) compared to STANDARD CARE for schizophrenia

I. Comparison I. Any family based interventions (more than five sessions) versus standard care—More information on this comparison is available in Summary of findings for the main comparison.

I.I Service utilisation

1.1.1 Hospital admission: Hospital admissions at six months were equivocal (n = 132, three RCTs, RR 0.85 CI 0.4 to 1.7). In the 2002 update of this review, the evidence that family intervention reduces hospital admission at one year was equivocal, and this was a change from earlier versions of the review which found family intervention to significantly reduce hospital admission (Mari 1996). In this 2010 update, however, there is again some suggestion that family intervention does significantly reduce hospital admission at one year (n = 481, eight RCTs, RR 0.78 CI 0.6 to 1.0, NNT 8 CI 6 to 13). Longer follow up (to 18 months) also finds that family intervention does significantly reduce admission (n = 228, three RCTs, RR 0.46 CI 0.3 to 0.7, NNT 4 CI 3 to 8), although data beyond that time (two years, n = 145, five RCTs, RR 0.83 CI 0.7 to 1.1; three years, n = 122, 2 RCT, RR 0.91 CI 0.7 to1.2) are equivocal. Removing trials from China from the analyses for this outcome made no substantive difference.

1.1.2 Days in hospital: The total number of days spent in hospital at three months was significantly lower in the family intervention group (Chien 2004, n = 48, MD −6.67 CI −11.6 to −1.8). Xiong 1994 also reported data for the time spent in hospital. These data are not normally distributed (skewed) and are not presented on a graph. In this study the 33 people in the intervention group spent an average of 7.9 days in hospital by the end of the 12-month follow-up period (SD 22.4). The 28 people in the control group spent an average of 24 days in hospital (SD 43.6). These findings were reported by the authors to be statistically significantly different (P = 0.03), favouring the group given family intervention.

1.2 Global state

1.2.1 Relapse: Please see Analysis 1.4.

For the purposes of this review, suicide is considered as a relapse. There is, however, no universally accepted definition of relapse (please see Characteristics of included studies). Some definitions required the recurrence of symptoms for patients with full remission at discharge, and others required a deterioration of symptoms for people who presented residual symptoms at baseline assessment. Finally, some studies stipulated that relapse was indicated by a managerial event such as hospitalisation or substantial change of medication.

Family intervention did not reduce the rate of these ‘relapse events’ at six months (n = 213, 3 RCTs, RR 0.71 CI 0.5 to 1.1). By 12 months, family intervention did reduce relapse events (n = 2981, 32 RCTs, RR 0.55 CI 0.5 to 0.6, NNT 7 CI 6 to 8), as well as at 18 months (n = 181, 3 RCTs, RR 0.64 CI 0.5 to 0.9, NNT 5 CI 4 to 15) and at 24 months (n = 1019, 13 RCTs, RR 0.64 CI 0.6 to 0.8), although data are heterogeneous (I^2 = 67%). When trials from China are removed findings tend to be a little less positive (Figure 1) but not dramatically so. Funnel plots of this outcome - before (Figure 2) and after (Figure 3) removal of the Chinese studies does not really suggest that there is a ‘small study bias’ operating.

Data regarding relapse at three years are not significantly different (n = 497, 4 RCTs, RR 0.89 CI 0.7 to 1.1). Data from longer follow up (five and eight years) are, in each case, reported by a single small study, and are non-significant.

1.2.2 'Not improved': Xiang 1994 and Ran 2003 continue to suggest significantly fewer people in the control group improved than in the family intervention group (n = 112, 2 RCTs, RR 0.40 CI 0.2 to 0.7, NNT 2 CI 2 to 4).

1.2.3 Global Assessment of Functioning (GAF): Average endpoint scores on the GAF scale at one year (Barrowclough 2001, n = 32, MD −10.28 CI −20.3 to −0.2) were borderline significant (0.05) for family intervention. Average endpoint scores by two years also favoured family intervention (n = 90, 2 RCTs, MD −8.66 CI −14.4 to −2.9). Merinder 1999 reported mean change data after eight family intervention sessions and at 12 months. Both sets of data contain considerable skew and are not significantly different.

1.2.4 Self-reported psychiatric symptom scores (SCL-90): Self-reported psychiatric symptom scores favoured family intervention (Li 2005a, n = 80, MD −22.01 CI −30.9 to −13.0) compared with the control group.

1.3 Mental state

1.3.1 Average scores - Brief Psychiatric Rating Scale: BPRS data favoured family intervention at one year (n = 170, 3 RCTs, MD −8.32 CI −10.9 to −5.7), although data were heterogeneous (I^2 = 79%). BPRS negative scores (n = 62, 1 RCT, MD −0.30 CI −0.9 to 0.3) are equivocal. We found, skewed, BPRS change data were not significantly different (n = 156, 3 RCTs, MD −0.30 CI −0.8 to 0.2). In Merinder 1999 we found no significant difference in the short term skewed data.

1.3.2 Average scores - Positive and Negative Symptom Score: We found PANSS endpoint total scores (n = 174, 2 RCTs, MD −7.90 CI −11.9 to −3.8) favoured family intervention compared with the control group at one year. However, PANSS positive and negative scores were not significant. PANSS general psychopathology data favoured family intervention (Dai 2007, n = 142, MD -3.60 CI -5.8 to -1.4). Barrowclough 2001 reported 18-month outcome data, and we found PANSS total and positive scores were not significant. But PANSS negative scores did favour the family intervention (n = 29, MD −5.23 CI −8.4 to −2.0) group. One Chinese study (Liu 2003, n = 149) reported data at three years, and we found PANSS total scores (MD −10.20 CI −13.6 to −6.9), PANSS positive scores (MD −2.60 CI −4.1 to −1.1) and PANSS negative scores (MD −3.70 CI −4.9 to −2.5) favoured family intervention. We found PANSS positive change scores (Dai 2007, n = 142, MD −2.00 CI −3.5 −0.5) and PANSS negative change scores (Dai 2007, n = 142, MD −4.00 CI −5.8 to −2.2) favoured the family intervention group compared with the control group.

1.3.3 Average scores - SAPS/SANS: Xiong 1994 used Chinese versions of the SAPS and SANS scales. Data at 18 months however, were skewed for both, with the SANS-CV outcome not statistically significant, although the SAPS-CV outcome was significant (P = 0.03), favouring family intervention. Bradley 2006 also reported SANS endpoint scores, but the data were too skewed to report here.

1.3.4 Insight: Average change in general mental state scores for insight were only reported by Merinder 1999. Data for an unspecified period after eight sessions of family intervention and at one year were both equivocal.

1.3.5 Average scores - Frankfurt scale: Finally, Fernandez 1998 reported on the average endpoint score of the mental state rating scale, the Frankfurt Scale. Data were too skewed to present graphically. They were not statistically significant.

1.4 Behaviour

1.4.1 Average scores - Nursing observation (NOSIE): We found NOSIE endpoint scores favoured the control group (Dai 2007, n = 142, MD 59.10 CI 54.6 to 63.6) compared with participants given family intervention. NOSIE positive factor scores also failed to show any benefit for the family intervention group (Dai 2007, n = 142, MD 33.40 CI 30.5 to 36.3) over the 12-month assessment period.

1.5 Compliance

1.5.1 Leaving the study early: No studies reported data for the short term (0 to 12 weeks). By three months, study attrition was occurring but was no greater for the family intervention group than for the control (n = 552, 7 RCTs, RR 0.92 CI 0.6 to 1.4). Results from seven months to one year were not significant (n = 733, 10 RCTs, RR 0.74 CI 0.5 to 1.0) but revealed a trend in favour of family intervention (P = 0.07). Loss to follow up from 13 months to two years (n = 887, 10 RCTs, RR 0.74 CI 0.6 to 1.0) favoured family intervention NNT 22 to prevent one participant leaving the study (CI not estimable). Long-term data from 25 months to three years favoured family intervention (n = 290, 3 RCTs, RR 0.42 CI 0.3 to 0.7, NNT 6 CI 5 to 10), but results for more than three years (Tarrier 1988, n = 63, RR 1.72 CI 0.7 to 4.2) were equivocal. Tarrier 1988 reported loss to follow-up data at eight years and we found no significant difference between groups (n = 63, RR 1.72 CI 0.7 to 4.2).

1.5.2 Compliance with medication: Compliance with medication improved for people whose relatives received family intervention (n = 695, 10 RCTs, RR 0.60 CI 0.5 to 0.7, NNT 6 CI 5 to 9).

1.5.3 Compliance with community care: No significant differences were found in compliance with community care at one year (Carra 2007, n = 29, RR 0.68 CI 0.4 to 1.1), or by two years (Carra 2007, n = 29, RR 0.85 CI 0.6 to 1.3).

1.5.4 Months on medication: The data on months taking medication are from a single study (Xiong 1994). This small study (n = 63) suggests that those receiving family therapy do stay on medication for longer, although no findings are statistically significant.

1.6 Adverse events - death: The majority of deaths were due to suicide. Of the 377 people in the studies that reported death as an outcome, 17 (5%) committed suicide. There were five deaths due to other causes. Family intervention had no clear effect on the numbers of people who killed themselves during the studies (n = 377, 7 RCTs, RR 0.79 CI 0.4 to 1.8). Personal

communication with Professor Tarrier suggested that there might be a few more deaths in the long-term follow up of Tarrier 1988, but numbers and group of allocation have not been clarified.

1.7 Social functioning

1.7.1 Generally socially impaired: Falloon 1981 and Xiang 1994 report on a rating of overall social impairment up to nine months. Results suggest that family intervention does significantly reduce general social impairment (n = 116, 2 RCTs, RR 0.51 CI 0.4 to 0.7). Data are heterogeneous (I^2 = 75%). We also found general social functioning scores (n = 90, 3 RCTs, MD −8.05 CI −13.3 to −2.8) favoured family intervention, however, again data are heterogeneous (I^2 = 63%).

1.7.2 Work: The majority of the studies did not provide data for specific aspects of social functioning. Four, however, reported on employment. The results at one year are equivocal (n = 285, 5 RCTs, RR unemployed 1.06 CI 0.9 to 1.3) as are those at two years (Carra 2007, n = 51, RR 1.33 CI 0.8 to 2.1), and three years (Buchkremer 1995, n = 99, RR unemployed 1.19 CI 0.9 to 1.6). Xiang 1994 (n = 77) evaluated whether family intervention helped with a person's abilities to perform work tasks. It did not (RR 0.31 CI 0.1 to 1.0). Similarly, Ran 2003 also reported no differences in a person's ability to perform work tasks (n = 35, RR 1.68 CI 0.2 to 16.9). Xiong 1994 reported skewed data for months spent in employment. At the end of a year in this study, the 33 people in the intervention group spent an average of 5.6 months in employment (SD 5.0) compared with the 28 in the control group who spent 3.1 months employed (SD 5.1). This was statistically significant.

1.7.3 Living independently: Three studies reported whether or not patients whose families received family intervention were able to move towards more independent living. The results for this show a trend towards increased ability to live independently at one year (n = 164, 3 RCTs, RR 0.83 CI 0.7 to 1.0) but total numbers are small and the results are not statistically significant. Three-year data (Buchkremer 1995) also did not indicate increased ability to live independently for either group.

1.7.4 Imprisonment: A single small study reported on imprisonment (Falloon 1981, n = 39) and we found no clear effect of family intervention for this outcome (RR 0.95 CI 0.2 to 4.1).

1.7.5 Disability Assessment Scale: Only skewed data were available, and data suggest that participants given family intervention had worse levels of disability.

1.7.6 Social Disability Screening Schedule (SDSS): Participants given family intervention for two years did not reveal any significant differences between groups (Tan 2007, n = 150, MD −0.51 CI −1.4 to 0.4) based on the Social Disability Screening Schedule. However, at three years, results favoured family intervention (n = 150, MD −1.94 CI −2.90 to −1.0). Further endpoint data favouring family intervention at one year were reported by Wang 2006, and contained wide confidence intervals. Bradley 2006 also reported skewed data from the HoNOS scales and data are added to other data tables.

1.8 Family outcomes

1.8.1 Ability to cope: Bloch 1995 reports on the families' ability to cope. This is not clearly increased by the experimental intervention (n = 63, RR 0.79 CI 0.6 to 1.0). Falloon 1981 suggests that there is no difference in the ability of the patient to cope with the key relative within the family as a result of the intervention (n = 39, RR 1.11 CI 0.5 to 2.7). Regarding families' ability to understand the patients' needs, only Bloch 1995 reported this outcome and suggested that family intervention decreases poor understanding of patients' needs (n = 63, RR 0.58 CI 0.4 to 0.9). Insufficient care or maltreatment by the family was reported by two studies, Xiang 1994 at six months and Ran 2003 at nine months. The results suggests a trend favouring family intervention, although this is not statistically significant (P = 0.06) and a larger study may have rendered the outcome significant (n = 111, 2 RCT, RR 0.49 CI 0.2 to 1.0).

Szmukler 2003 reported on continuous measures of coping by the carers (Coping with Life-events & Difficulties Interview). Coping skills were all equivocal (n = 49, MD effective coping −0.5 CI −1.9 to 0.9; MD ineffective coping 0.30 CI -0.7 to 1.3), with no benefit being shown for the carers in the intervention group compared with those in the control group.

In Chien 2004, using the Family Support Service Index scale, we found the family intervention group required significantly more support than the control group (n =48, MD 0.86 CI 0.2 to 1.5).Chien 2004 also reported data from the Family Assessment Device scale and we found those receiving family intervention had significantly better outcomes in family functioning (n = 48, MD −6.56 CI −10.50 CI −10.5 to −2.6).

1.8.2 Burden: In Chien 2004 we found participants given family intervention were perceived as less of a burden according to the Family Burden Interview Schedule (n = 48, MD −7.01 CI −10.8 to −3.3). Data from Xiong 1994 also suggests a significant reduction in the burden felt by family carers (n = 60, MD −0.4 CI −0.7 to −0.1). Carra 2007 reported dichotomous data (n = 51) on burden and all data were equivocal. Leff 2001 and Bradley 2006 reported continuous data for burden but these were skewed and are not reported in the text.

1.8.3 Expressed emotion within the family: In Hogarty 1986 we found the overall level of expressed emotion was equivocal. However, we found families given the intervention reported a statistically significant decreases in levels of over-involvement (Tarrier 1988, n = 63, RR 0.40 CI 0.2 to 0.7, NNT 3 CI 2 to 6) and criticism (n = 63, RR 0.44 CI 0.2 to 0.8, NNT 3 CI 3 to 9). Hostility was also significantly lower in the family intervention group (n = 87, 2 RCTs, RR 0.35 CI 0.2 to 0.7, NNT 3 CI 3 to 6). When we combined the results of three studies, significant findings in favour of family intervention for high expressed emotion became evident (n = 164, 3 RCTs, RR 0.68 CI 0.5 to 0.9) but data were heterogeneous (I^2 = 68%). Leff 2001 reported equivocal results for expressed emotion on continuous scores, and skewed data on critical comments, and over-involvement. Merinder 1999 reported (skewed data) expressed emotion from the Family Questionnaire which were

also equivocal. Knowledge Scores reported by Leff 2001 were skewed and could not be reported due to the wide variations around the mean.

1.8.4 Psychological morbidity of carers: Szmukler 2003 reported continuous data for this outcome. Data were skewed with no statistically significant difference between carers in the family intervention or standard care group.

1.8.5 Care giving: Szmukler 2003 provided data on the family's experience of care giving. These data were also skewed and did not show clear differences between the experiences of the different groups of families.

1.8.6 Social support: Szmukler 2003 reported on the role of support given to carers by close confidants and the attitudes of people in the wider community. The data were too skewed to present graphically, but the study report stated that no significant differences were found between the two groups.

1.8.7 Stress of care giving: Szmukler 2003 reported on the amount of stress experienced, but data were skewed and are not presented here.

1.8.8 Change in expressed emotion by the caregiver: Merinder 1999 reported on change in expressed emotion by caregivers but only skewed data were available, and are not presented.

1.8.9 Satisfaction: Merinder 1999 (n = 46) rated the satisfaction of carers and patients using the Verona Service Satisfaction Scale. All data are skewed and difficult to interpret. None are statistically significant but there is a consistent impression that carers in the family intervention group are more satisfied with care than those allocated to standard care.

1.8.10 Family APGAR: We found family APGAR (Du 2005, n = 146, MD −2.90 CI −3.4 to −2.4) scores favoured participants given family intervention during 12 months' assessment.

1.8.11 Quality of life: In Shi 2000 we found families in the family intervention group had significantly higher level of quality of life than family members of the control group (n = 213, MD 19.18 CI 9.8 to 28.6) at the two-year endpoint. However, no significant differences in quality of life were found one small study (n = 50) at one year (MD −5.05 CI −15.4 to 5.3).

1.9 Economic analyses: Falloon 1981, Tarrier 1988 and Xiong 1994 include an economic analysis. In Falloon 1981 and Xiong 1994 direct and indirect costs of community management to patients, families, health, welfare, and community agencies were recorded, while Tarrier 1988 restricted the economic analysis to direct costs. Falloon 1981 suggests that, after one year, the overall costs of the family approach were approximately 20% less than those of the control condition (Cardin 1985). In Tarrier 1988 there was a decrease of 27% in the mean cost per patient in family intervention group. In Xiong 1994 the intervention resulted in a net saving of 58% of the per capita yearly income (in China), but the proportion of this saving that directly benefited the family would vary depending on whether or not the patient had medical insurance and received work disability payment.

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2. COMPARISON 2. BEHAVIOURAL FAMILY-BASED versus SUPPORTIVE FAMILY BASED INTERVENTIONS (>5 sessions)

2. Comparison 2. Behavioural family-based versus supportive family-based interventions (more than five sessions)

2.1 Service utilisation

2.1.1 Hospital admission: The single large study in this comparison, Schooler 1997, reported equivocal results at two years (n = 528, RR 0.98, CI 0.9 to 1.1).

2.2 Global state: Schooler 1997 rated the stability of a person's global state. By six months there was no difference in the numbers of people being rated as unstable (n = 528, RR 1.08 CI 0.9 to 1.3).

2.3 Compliance: leaving the study early or poor compliance with treatment protocol: Seventy-nine percent of people left Schooler 1997 early or did not/could not adhere to the treatment protocol. Family intervention did not change this attrition (n = 528, RR 0.96 CI 0.9 to 1.1).

3. Comparison 3. Group family-based interventions versus individual family-based interventions (more than five sessions)

3.1 Global state: Leff 1989 and McFarlane 1995 provide data for relapse at one year (n = 195, 2 RCTs, RR 0.70 CI 0.4 to 1.2). At two years results were also not statistically significant (n = 197, 3 RCTs, RR 0.71 CI 0.5 to 1.1). McFarlane 1995 reported data for the outcome of 'more than one relapse' between 19 and 24 months. Wide confidence intervals render the result equivocal (n = 172, RR 0.71 CI 0.3 to 1.5).

3.2 Compliance: Leff 1989 and McFarlane 1995 report data for people leaving the study early with no clear difference between group-based and individual-based family intervention techniques (n = 195, 2 RCTs, RR 1.35, CI 0.8 to 2.2). Only McFarlane 1995 provided data for poor compliance with medication and these too were equivocal (n = 172, RR 1.0 CI 0.5 to 2.0).

3.3 Social functioning: Leff 1989 found a statistically favourable outcome for the individual family based intervention. More people allocated to individual family intervention were able to live independently compared with those who had been randomised to the group-based family intervention (n = 23, RR 2.18 CI 1.1 to 4.4).

3.4 Family outcomes: Leff 1989 reported on the amount of expressed emotion by relatives. Data comparing the interventions are equivocal (n = 23, RR 0.94 CI 0.5 to 1.9), although the authors reported a significant ($P < 0.05$) reduction in expressed emotion between baseline and at two years.

DISCUSSION

Summary of main results

1. Comparison 1. Any family-based interventions (more than five sessions) versus standard care

1.1 Service utilisation: Previous versions of this review produced equivocal data suggesting that family intervention does not reduce hospital admission by one year compared with standard care (seven RCTs, n = 374 families) (Pharoah 2000; Pharoah 2003). Even earlier versions suggested that family intervention did reduce hospital admission significantly more than standard care alone (Mari 1994a; Mari 1996). Again, in this 2010 update, the evidence suggests that family intervention significantly reduces hospital admission at one year, with one patient out of every eight treated with family intervention prevented from hospitalisation compared with standard care.

We do recognise the enormous difficulty of conducting randomised trials in this area, but, nevertheless as family intervention is widely used, it could be expected that its implementation should be based on more stable and convincing data than these. The data reported by Falloon 1981 (n = 39) Xiong 1994 (n = 63) and Zhang 1994 (n = 83) strongly favours family intervention, and when these studies are excluded from the meta-analysis hospital admission becomes non-significant at all time points. Days spent in hospital is reduced but this outcome is based on one small study (Chien 2004).

1.2 Global state: Despite the definition of relapse varying across studies, we felt that the summation of data to be reasonable as definitions in routine clinical practice may also vary. Inclusion of the cluster randomised trial Ran 2003, with data managed as described in the ‘Unit of analysis issues’ section above also made little difference to the overall finding. People allocated to family interventions may relapse less compared with those in the standard care group. It is a concern that these findings may contain an element of small study bias (Figure 1). Small, less positive studies may remain unpublished or inaccessible. This must weaken the findings but currently the best available evidence suggests that the approximate number of families needed to be given family intervention in order to avoid one relapse at the end of a year is about seven. These figures could be seen as supportive of the general use of family intervention or prohibitive of its introduction into everyday use. Data from the People’s Republic of China (Xiang 1994), support the impression of better overall global improvement in the family intervention group compared with the control. Continuous scores from the Global Assessment of Functioning (GAF) and the (SCL-90) also support this in favour of family intervention.

1.3 Mental state: Participants and trialists invested time and effort rating mental state using several scales. It is difficult to know if the result justifies the effort on the part of everyone concerned. The overall impression is mixed with both favourable and equivocal findings for family intervention. Some agreement across trials on design of study could have rendered these data more useful.

1.4 Behaviour: Family intervention was not beneficial in terms of behavioural measures from the NOSIE scale compared with those patients given standard care, although this result is based on a single study (Dai 2007).

1.5 Compliance: About 14% of participants left the study before completion by one year. The addition of several Chinese trials has resulted in retention rates further improving from the finding reported previously (17%). Compared with other trials for the care of people with schizophrenia, this level of follow up is excellent (Thornley 1998). Family intervention did not seem to promote or hinder this attrition. The experimental intervention did, however, promote compliance with medication. It can be speculated that it is by this means that family intervention has its main effect. Hogarty 1997 did suggest that although compliance with medication was indeed improved by family intervention, this did not fully account for the findings favouring family intervention. In the short term, however, compliance with medication is predictive of a better outcome (Dencker 1986) and this could well be the means by which family intervention contributes to decreased relapse.

1.6 Adverse events - death: That 5% of the 377 people in the studies which reported death as an outcome committed suicide during the follow-up period suggests that these studies were dealing with a disturbed group of people. It is expected that the life-time rate of suicide for people with schizophrenia is about 14-20% (Jablensky 2000). From the limited data we have, there is no suggestion that family intervention makes any difference to this outcome.

1.7 Social functioning: Measuring social impairment is difficult, but from the different ratings there is an impression that family intervention does improve general functioning in this domain. Interpreting the various scale-derived outcomes is problematic. Continuous data from the Social Functioning Scale is in favour of the family intervention group, but doubts remain for its robustness given the small numbers of participants. The outcome of employment is more readily understandable and family intervention did not seem to have much of an effect, if any. Other clear outcomes relating to social functioning, living independently and imprisonment were also equivocal. This may be an example of rating scales being sensitive to slight changes that may not have repercussions for routine life.

1.8 Family outcomes: The numerous measures used in this area by several trialists suggest that this is seen as an important area for research but that there is no consensus on what to measure. A small study (n = 63) suggests that family intervention may help increase the families' understanding of the patients' needs. Measures of insufficient care or maltreatment by the family did not suggest family intervention lowers levels of maltreatment, although perhaps larger powered studies would have shown a treatment effect. Similarly, coping with life events was equivocal and underpowered. Need of service usage was found to be significantly lower in the standard care group. However, data from the same study found family functioning to be significantly improved in the family intervention group. Two small studies both found family intervention lessened burden, but again this family outcome is weakened by small numbers. The levels of emotion expressed within the family may indeed be reduced by family intervention.

1.9 Quality of life: Finally, the overall quality of life of family members may be increased by the family intervention package but we are unsure of the practical meaning and applicability of the result (MD 19.18 CI 9.8 to 28.6). The measure was a scale referenced in Mandarin, for which we have no adequate description and additional change data were equivocal (Bradley 2006).

1.10 Economic analyses: Reports that include an economic analysis all favour family intervention in terms of net saving in direct or indirect costs (Falloon 1981; Tarrier 1988; Xiong 1994). This is a consistent and important finding.

2. Comparison 2. Behavioural family-based versus supportive family-based interventions (more than five sessions)— Schooler 1997 involved more than 500 families. For the simple and clear outcomes reported (hospital admission and global state) there is no clear difference between the two forms of family intervention. The enormous attrition (79% by 30 months) is a major concern as regards the design and applicability of the results of this trial.

3. Comparison 3. Group family-based interventions versus individual family-based interventions (more than five sessions)—Group-based family interventions should be more economical than an individual approach. However, no economic data were reported. For global outcomes, no clear differences are apparent, with wide confidence intervals precluding firm conclusions. The same applies for outcomes related to compliance. The small trial Leff 1989 found that more people allocated to individual family intervention were able to live independently compared with those who had been randomised to the group-based family intervention (n = 23, RR 2.18 CI 1.1 to 4.4). This important outcome should be replicated.

4. Sensitivity analyses—Studies from the People's Republic of China now make up the majority of the included studies, and evidence has emerged that many trials from China are not randomised even when stated to be (Wu 2006). We did not find any clear evidence that these studies were not truly randomised, although the absence of demographic data made judgements difficult. Nevertheless, the potential remains that these trials could contain biases. Where relevant for key outcomes, we added and subtracted these studies. Inclusion certainly tightened confidence intervals but never materially affected the direction of result or the conclusion drawn.

Overall completeness and applicability of evidence

Participants in studies that contributed to the results were not only from several types of care-cultures, but also involved both men and women, with a wide range of ages, people with long histories of illness and those in their first episode. There were no clear dissimilarities between the trials from Australia, Europe, the People's Republic of China and the USA. Even Buchkremer 1995, which did add heterogeneity to certain results (see below), had similar methods, inclusion criteria, interventions and outcomes to the other studies. The provision of health care for mentally ill people in the countries in which the

trials were undertaken is diverse, but the relative consistency of results suggests that their outcomes may be generalised to other health service traditions.

Quality of the evidence

The quality of reporting in most studies was poor (Figure 4). Only eight studies from 53 described the method of randomisation, and only one study described the method of allocation concealment. Blinding was not always possible for family intervention, although few studies attempted, or at least failed to report, whether the investigators assessing the patients were blind to treatment allocation. Similarly, study attrition was often omitted from the results, yet it is unlikely that group sizes remained constant throughout the investigation period. We did not have access to the included studies protocols, and were therefore unable to judge whether various tests of effectiveness had been left out of the published finding. The effect of these poorly reported studies is that the outcomes in this review may be biased with an overestimate of effect (Juni 2001).

Potential biases in the review process

We have now updated this review several times and it is entirely possible that foreknowledge of the data could bias how we present them. We are now aware of this but try to ensure that this is offset by gaining wide peer review. We are aware of the issues with biases from trials from China. We have tried to investigate this in outcomes where most of the data are from China. It is possible that some of the outcomes have confidence intervals that are too narrow because of addition of data from China that we have not been able to show is overtly inappropriate to use. At no point do the trials from China materially affect direction of result or, we think, interpretation we have made.

Agreements and disagreements with other studies or reviews

This 2010 update substantially expands and improves upon earlier versions. It, however, generally agrees with findings from previous versions.

AUTHORS' CONCLUSIONS

Implications for practice

1. People with schizophrenia and their families—The main benefit of family intervention for people with schizophrenia is that it may decrease the risk of relapse. It may also help people with schizophrenia to consistently take their medication. Family intervention can also make family life less burdensome and tense and may reduce re-hospitalisation. For this gain, which could be perceived as of moderate certainty, people with schizophrenia and their families should be willing to spend a significant amount of time in contact with services.

2. Clinicians—Clinicians may feel that family intervention is worth the time and effort, assuming that a high-quality family service is available. Prevention of relapse is a cornerstone of psychiatric care. Should highquality services not be available, clinicians will have difficult decisions to take in view of the fact that any benefit from family therapy is

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moderate and other equally or more effective interventions may be more accessible (Marshall 1999).

3. Managers or policy makers—As always, service managers and funders have to weigh up the costs and benefits of this treatment and whether it significantly improves outcomes for individuals and for families. They may feel, with the relatively high number needed to treat, that the resources required to adequately implement family interventions might be better used in other ways. Alternatively, if families could be clearly shown to benefit from this approach as well as patients, it may be considered worth the cost.

Implications for research

1. General—If the CONSORT recommendations (Begg 1996; Moher 2001) were followed in the reporting of future studies, the effects of family intervention would be clearer. Much important data within the included studies were so poorly reported that clinicians, funders and recipients of care might have reason to feel let down by the research community.

2. Specific

2.1 Future trials: Large simple, well-designed and reported trials continue to be justified. All data in this review are unstable and a large, pragmatic study should be undertaken to settle arguments about the value of this widely used therapy. A design is suggested in Table 1. Entry criteria should be broad, interventions accessible and outcomes clear and well reported. If studies employ a cluster randomised design, such as Ran 2003, they should not be reported as a standard randomised study and intra-class correlation coefficients should be provided.

Most of the included studies focused primarily on the decrease of relapse when assessing the effects of family interventions. The relapse criterion, when used as the main outcome measure, has the disadvantage that the patient leaves the trial when the event occurs and data regarding the period following relapse may not be collected. More complete follow-up data would produce a more valid picture of the lasting effect of family intervention on the course of the illness.

A variety of outcomes could be considered as important assessments in future family interventions. These could be:

- **i.** a method to monitor days of ‘healthy’ life - not having relapse as the main criterion but the frequency and intensity of minor and major exacerbations (Marder 1987; Carpenter 1990);
- **ii.** an assessment of social role and social performance, not using social adjustment because of the normative bias of this measure (Corin 1990);
- **iii.** a quality of life assessment (Heinrichs 1984);
- **iv.** measures of distress among relatives;
- **v.** inclusion of subjective reports of patients (Strauss 1989) and relatives;

vi. assessment of burden on the family; vii. measurement of depressive spells and/or suicide attempts;

vii. the number of patients admitted, number of admissions per patient and length of hospitalisation;

viii. the counting of contacts with psychiatric services (Tarrier 1988); and

ix. the assessment of compliance with drugs and random check of blood tests for those taking oral medications (Tarrier 1988).

All such measures, however, should be readily understandable by all users of this research, and binary as well as continuous data should be reported.

Data collection should allow for economic evaluations (cost-effectiveness and cost-benefit) of the two intervention strategies being compared.

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SUMMARY OF FINDINGS FOR THE MAIN COMPARISON

ANY FAMILY BASED INTERVENTIONS (>5 sessions) compared to STANDARD CARE for schizophrenia

Patient or population: patients with schizophrenia

Settings: mostly hospital-based

Intervention: ANY FAMILY BASED INTERVENTIONS (>5 sessions)

Comparison: STANDARD CARE

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Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	STANDARD CARE	ANY FAMILY BASED INTERVENTIONS (>5 sessions)				
Service utilisation: Hospital admission - at about 12 months	**Low risk population**		**RR 0.78** (0.63 to 0.98)	532 (9 studies)	⊕⊕◯◯ **low** [1,2]	
	100 per 1000	**78 per 1000** (63 to 98)				
	Medium risk population					
	500 per 1000	**390 per 1000** (315 to 490)				
	High risk population					
	800 per 1000	**624 per 1000** (504 to 784)				
Global state: Relapse - at about 12 months	**Low risk population**		**RR 0.55** (0.48 to 0.62)	2981 (32 studies)	⊕⊕◯◯ **low** [1,2]	
	100 per 1000	**55 per 1000** (48 to 62)				
	Medium risk population					
	500 per 1000	**275 per 1000** (240 to 310)				
	High risk population					
	800 per 1000	**440 per 1000** (384 to 496)				
Compliance: Poor compliance with medication	**Low risk population**		**RR 0.6** (0.49 to 0.73)	695 (10 studies)	⊕⊕◯◯ **low** [1,2]	
	100 per 1000	**60 per 1000** (49 to 73)				
	Medium risk population					
	500 per 1000	**300 per 1000** (245 to 365)				
	High risk population					
	800 per 1000	**480 per 1000** (392 to 584)				
Social functioning: Specific - unemployed - at about 1 year	**Low risk population**		**RR 1.06** (0.89 to 1.25)	285 (5 studies)	⊕⊕◯◯ **low** [1,2]	
	200 per 1000	**212 per 1000** (178 to 250)				
	Medium risk population					
	500 per 1000	**530 per 1000** (445 to 625)				
	High risk population					
	900 per 1000	**954 per 1000** (801 to 1000)				

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Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	STANDARD CARE	ANY FAMILY BASED INTERVENTIONS (>5 sessions)				
Social functioning: Specific - unable to live independently - at about 1 year	**Low risk population**		**RR 0.83** (0.66 to 1.03)	164 (3 studies)	⊕⊕◯◯ **low** [1,2]	
	200 per 1000	**166 per 1000** (132 to 206)				
	Medium risk population					
	500 per 1000	**415 per 1000** (330 to 515)				
	High risk population					
	900 per 1000	**747 per 1000** (594 to 927)				
Family outcome: Burden - not improved/ worse (objective burden related to self-sufficiency)	**Low risk population**		**RR 0.53** (0.21 to 1.37)	51 (1 study)	⊕◯◯◯ **very low** [1,2,3]	
	200 per 1000	**106 per 1000** (42 to 274)				
	Medium risk population					
	500 per 1000	**265 per 1000** (105 to 685)				
	High risk population					
	900 per 1000	**477 per 1000** (189 to 1000)				

CI: Confidence interval; **RR**: Risk ratio;

GRADE Working Group grades of evidence

High quality: Further research is very unlikely to change our confidence in the estimate of effect.

Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

Very low quality: We are very uncertain about the estimate.

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

[1]Randomisation not well described.

[2]Best quality funnel plot of review suggests small negative studies not identified.

[3]Single small study

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CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

Barrowclough 2001

Methods	Allocation: randomised - computer generated random list. Blindness: assessor blind. Duration: 9 months, with follow up at 12 and 18 months. Setting: Tameside and Glossop, Stockport and Oldham, England
Participants	Diagnosis: comorbid schizophrenia and substance use disorders (ICD 10 and DSM IV). N = 36. Age: range 17-62 years, mean 30.5. Sex: 33 M, 3 F. History: median duration 4 years, range 1-19 years, informed consent obtained
Interventions	**1** Motivational interviewing, cognitive behavioural intervention and family intervention, using individual and combined sessions, in addition to standard care. N = 18 **2** Standard care. N = 18. Family intervention consisted of 10-16 sessions and the individual interventions (CBT and motivational intervention) occurred on ~ 29 sessions
Outcomes	Death. Global state: GAF. Mental state: PANSS. Social functioning: SFS. Relapse. Unable to use - Addiction Severity Index: no usable data. The Drugs Attitude Inventory: no usable data. The Leeds Dependence Questionnaire: no usable data. The Alcohol Use Scale: no usable data. Drug Use Scale of the Clinician Rating Scale: no usable data
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Yes	Randomised, computer generated
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Single, untested
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Bloch 1995

Methods	Allocation: randomised - no further details. Blindness: not blind. Duration: 6 weeks treatment, follow up 6 months. Setting: Melbourne, Australia.
Participants	Diagnosis: schizophrenia or schizo-affective disorder (DSM-III-R).

	N = 63. Age: mean ~ 30 years. Sex: not reported. History: acutely ill, past admissions ~ 4, duration ill ~ 8 years
Interventions	**1** Family counselling: education, coping training (6 weekly sessions). N = 32 **2** Single session: discussion + educational audiotape + booklet. N = 31
Outcomes	Leaving the study early. Hospital admission. Family experience: ECI, WOC. Unable to use - Global state: GHQ (no usable data). Mental state: PANAS (no data). Social functioning: LSP (no data).
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Not blinded
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Bradley 2006

Methods	Allocation: randomised (by a staff member who drew names from a canister and, without looking at the names). Blindness: single (Independent researchers who were blind to study condition, conducted the assessments). Duration: 12 months with 18-month follow up. Setting: Australia.
Participants	Diagnosis: schizophrenia (DSM IV). N = 59*. Age: mean 34. Sex: 15 M, F 35. History: 21 had received hospital treatment before study entry; ten participants had a substance disorder. Inclusion criteria: who had a diagnosis of schizophrenia, schizoaffective disorder, or schizophreniform disorder; who were aged between 18 and 55 years; and who had a minimum of 10 hours of contact with family members each week
Interventions	**1** Family intervention therapy plus case management. N = 30. **2** Case management. N = 29.
Outcomes	Leaving the study early. Mental state: BPRS, SANS. QoL. Social functioning: HoNOS. Family outcome: Family Burden Scale.
Notes	*Nine participants completed the data collection procedure after treatment Family intervention - 26 sessions over 12 months

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised - no further details
Allocation concealment?	Unclear	Randomised by a staff member who drew names from a canister and, without looking at the names
Blinding? All outcomes	Unclear	Single blind, independent researchers who were blind to study condition, untested
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Yes	Principally funded by grant 1997-0219 from the Victorian Health Promotion Foundation

Buchkremer 1995

Methods	Allocation: 'randomly assigned'. Blindness: not blind. Duration: 10 weeks family therapy, follow up 1 year. Setting: Italy.
Participants	Diagnosis: schizophrenia (DSM-III). N = 99. Age: range 18-48 years, mean 27. Sex: 72 M, 27 F. History: > 2 episodes or clinically deteriorating, mean previous episodes 2.6, mean duration ill 5.5 years. Exclusions: psychiatric secondary diagnoses.
Interventions	**1** Therapeutic relative groups: psychoeducational training, problem solving + relatives self-help groups, self-supporting after 6 months, 1 session/2 weeks for 1 year. N = 67 **2** Standard care. N = 32.
Outcomes	Death. Relapse. Hospital admission. Unemployed. Independent living. Unable to use - Mental state: AMDP (no usable data). Global state: CGI, GAS (no usable data). Hospitalisation: no usable data. Length of admission: no data reported. Additional medication: no usable data. Family experience: CFI, FKI, MFB (no usable data).
Notes	The therapeutic relative groups and self help groups are added in this review

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Not blinded
Incomplete outcome data addressed?	Yes	Study attrition reported

All outcomes		
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Carra 2007

Methods	Allocation: randomised using random number table. Blindness: 'both relatives and clinicians in the IG groups programme were blind as to successive participation to the SG'. Duration 2 years. Setting: Italy.
Participants	Diagnosis: schizophrenia. N = 101. Age: mean 29 years. Sex: 73 M, 28 F. History: clinically stable. Inclusion criteria: relatives living with someone suffering from schizophrenia and had not attended family groups or other support services before the study intervention; the patient was clinically stable (having had no psychiatric hospitalisation or any relapse for six months prior to study entry) and was not receiving any psychosocial or rehabilitative treatment other than standard care; absence of alcohol or drug dependence or organic disease
Interventions	**1** Family support programme. N = 26. **2** Information group. N = 50. **3** Treatment as usual. N = 25. All groups received standard antipsychotic care.
Outcomes	Relapse. Hospitalisation. Compliance with standard community care. Objective burden: self-sufficiency, social functioning, worsened. Relatives' EE was evaluated by the CFI.
Notes	The family support programme is consists of two components that roughly correspond to the phases of the group. The first phase involves training on communication and coping skills, stress identification and management, and multiple family group-based problem solving, basically derived from the second stage of the psychoeducational multiple family group approach used by McFarlane Weekly sessions composed of 16-18 relatives for 24 sessions (1.75 h per session) and leaflets. The second element comprises weekly meetings for 48 sessions (1.5 h per session) over 2 years with a support group made up of 8-9 relatives who have previously attended the information group

Risk of bias

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Yes	Randomised using random numbers table
Allocation concealment?	Yes	'Allocation concealment was ensured by the external involvement of a statistician (C.M.), who was not involved in enrolling participants, and was responsible for the method of sequence generation'
Blinding? All outcomes	Unclear	Follow-up assessments were carried out by research assistants blind about the treatment assigned, untested
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details

Free of other bias?	Yes	Grant

Chen 2005

Methods	Allocation: randomised (by cluster - no further details). Blindness: not reported. Duration: 9 months. Setting: China.
Participants	Diagnosis: schizophrenia (CCMD-3-R, ICD-10). N = 357*. Age: mean 43 years. Sex: M 128, F 198. History: age of onset about 31 years, median of length of illness about 10 years.. Excluded: patients with other medical illnesses.
Interventions	**1** Family intervention: psychological education 9 sessions plus medication (haloperidol or penfluriol). N = 126 **2** Medication only (no further details). N = 103. **3** Control (no intervention). N = 97.
Outcomes	Relapse. Unable to use. Leaving the study early (no usable data). Not complying with medication (no usable data). Improvement scale (no usable data).
Notes	*31 participants did not complete the study due to, families unwilling to look after patients, family or patient thought the treatment was ineffective, and concern about discrimination from neighbours Family intervention - once a month for 9 months, 1.5-3.1hours each time. Including familyvisits, introducing basic information on schizophrenia, its available treatment and rehabilitation, crisis intervention, by trained psychiatrists and local physicians

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	No details
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Chien 2004

Methods	Allocation: randomised, computer generated numbers. Blindness: not reported. Duration: 3 months. Setting: Hong Kong, China.
Participants	Diagnosis: schizophrenia (DSM IV). N = 48. Age: range 20-50+ years, mean 40.

	Sex: 27 M, 21 F. History: illness less than 3 years, with no comorbidity or other mental illness
Interventions	**1** Mutual family support: twelve, 2-hour group sessions per week, co-facilitated by a psychiatric nurse. Mutual support included: sharing personal data, fostering dialectical processes, encouraging discussion of taboo areas, fostering a sense of 'all being in the same boat', encouraging mutual support, providing opportunities of individual problem solving and standard care. N = 24. **2** Standard care. N = 24. Standard care, mostly chlorpromazine, haloperidol (88% in the experimental group and 85% in the control group), with > 70% taking the medium dose
Outcomes	Leaving the study early. Global state: hospital admission. Family outcome: family Burden Interview Schedule. Family outcome: family Assessment Device. Family outcome: family Support Service Index.
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Yes	Randomsied, by computer generation
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	No reported
Incomplete outcome data addressed? All outcomes	Unclear	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Dai 2007

Methods	Allocation: randomised. Blindness: no details. Duration: one year. Setting: China.
Participants	Diagnosis: schizophrenia (CCMD-3). N = 152*. Age: mean 25 years. Sex: men and women. History: no details. Excluded: patient with severe cardiac, liver and renal disease; mental disabled patient
Interventions	**1** Family intervention: group, family and social interventions, once every 2 weeks plus medication. N = 70. **2** Antipsychotics. N = 72.
Outcomes	Global state: relapse. Mental state: PANSS, NOSIE. Unable to use: Leaving the study early.
Notes	*10 dropped out of study, unclear from which group.

Risk of bias

Item	Authors' judgement	Description

Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	No details
Incomplete outcome data addressed? All outcomes	Unclear	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

De Giacomo 1997

Methods	Allocation: 'randomly assigned'. Blindness: not blind. Duration: 10 weeks family therapy, follow up 1 year. Setting: Italy.
Participants	Diagnosis: schizophrenia (DSM-III). N = 38. Age: not reported. Sex: not reported. History: duration of illness < 3 years.
Interventions	**1** Family intervention (individual and combined sessions for 10 weeks) with standard care. N = 19 **2** Standard care. N = 19.
Outcomes	Leaving the study early. Unable to use: Mental state: BPRS (no usable data). Social functioning: SCOS, FMSS (no usable data). Family experience: ACL (no usable data). Global state: CGI (no usable data). Family experience: SISCI-1 (no usable data).
Notes	

Risk of bias

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Not blind
Incomplete outcome data addressed? All outcomes	Unclear	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Du 2005

Methods	Allocation: randomised. Blindness: no details. Duration: 1 years.

	Setting: China.
Participants	Diagnosis: schizophrenia (no further details). N = 146. Age: mean 37 years. Sex: male and female. History: no details.
Interventions	**1** Family intervention (at least once a month). N = 74. **2** Medication. N = 72.
Outcomes	Family score: Family APGAR. Unable to use: Leaving the study early.
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	No details
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Dyck 2002

Methods	Allocation: 'randomly assigned by pulling a piece of paper, labelled either MFGT or SC, out of a hat'. Blindness: open study. Duration: two years, with one year follow up. Setting: Washington, USA.
Participants	Diagnosis: schizophrenia, paranoid type, schizoaffective disorder, schizophrenia, other types (DSM IV). N = 106. Age: range 18-45 years, mean 32 years. Sex: 82 M, 24 F. History: mostly chronically ill, mean duration ~ 10 years, with relatively low levels of psychiatric symptoms at study entry. Inclusion criteria: required to have contact with a family member for 5 hours a week
Interventions	**1** Family intervention and standard care (weekly multiple group sessions). N = 55 **2** Standard care (mostly atypical medications). N = 51. Family intervention treatment intended to improve illness management, social support and coping skills for the patient and family members; this approach is based on the research by McFarlane and colleagues Standard care including medication management, case management and for some patients, therapeutic and rehabilitation services
Outcomes	Leaving the study early. Rehospitalisation. Relapse.
Notes	ITT analysis used with last observation carried forward.

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	No	Randomised by pulling papers out of a hat labelled with study group
Allocation concealment?	No	No
Blinding? All outcomes	No	Open study
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	No	Not all outcome data reported
Free of other bias?	Yes	Grant from the National Institute of Mental Health

Falloon 1981

Methods	Allocation: 'randomized procedure' - no further details. Blindness: 'not blind'. Duration: 9 months treatment, 2 years follow up. Setting: LA, USA.
Participants	Diagnosis: schizophrenia (DSM-III, PSE). N = 39. Age: range 18-41 years, mean 25.8. Sex: not reported. History: stabilised after relapse, English speakers, mean previous admissions ~ 3, mean duration ill ~ 4 years, high EE (CFI)
Interventions	**1** Home family therapy: patient + family, 24-hour support, clinic-based therapist, crisis intervention/home visits as needed, weekly 3/12, fortnightly 6/12. N = 20 **2** Supportive management: out-patient clinic-based individual supportive psychotherapy. N = 19
Outcomes	Relapse. Hospital admission. Leaving the study early. Drug compliance. Employment. Residential care. Imprisonment. Social impairment. Ability to cope. Unable to use - Mental state: "7 point scale" (no further details). Duration of exacerbation: no SD. Duration unstable: no SD. Social functioning: SBAS, SAS-SR (no usable data). Family knowledge: no data. Patient functioning: no usable data. Time in employment: no SD. Costs: no SD.
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details

Blinding? All outcomes	No	Not blind
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Fernandez 1998

Methods	Allocation: randomised. Blindness: not blind. Duration: 1 year treatment. Setting: Cantabria, Spain.
Participants	Diagnosis: schizophrenia (ICD 10). N = 46. Age: range 18-45 years. Sex: 26 M, 20 F. History: average length of illness 8.3 years.
Interventions	**1** Integrated psychological therapywith psychoeducation and family therapy (more than 6 sessions). N = 28 **2** Standard care. N = 18.
Outcomes	Leaving the study early. Mental state: BPRS. Frankfurt Scale. Social functioning: SFS. Unable to use: Family experience: CFQ (no usable data).
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Not blind
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Glynn 1992

Methods	Allocation: 'randomly assigned' - methods not described. Blindness: not attempted - participant reports corroborated by family. Duration: 1 year treatment, 1 year follow up. Setting: LA, USA.
Participants	Diagnosis: schizophrenia or schizo-affective disorder (DSM-III, expanded PSE). N = 41.

Europe PMC Funders Author Manuscripts

	Age: 18-42 years, mean ~ 31. Sex: all male. History: illness ~ 10 years (SD ~ 7), consecutive admissions, stable for 4 weeks. Exclusions: substance abuse.
Interventions	**1** Behavioural family therapy: assessment, communication skills, education + problem solving + customary care (mean 21 sessions in 1 year). N = 21 **2** Customary care: monthly clinic, drug monitoring, rehabilitation, crisis intervention. N = 20
Outcomes	Relapse: psychotic exacerbations documented > 2 weeks. Hospital admission. Employment. Leaving the study early. Unable to use: Medication use: chlorpromazine equivalents (no SD). Social functioning: SAS-SR (no mean). Mental state: BPRS, SANS (no mean).
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Not blind
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Goldstein 1978

Methods	Allocation: randomised, stratified by premorbid psychosocial competence, sex - no further details. Blindness: single - definition of relapse + BPRS, single and non-blind - decision to rehospitalise. Duration: 6 weeks treatment, 6 months follow up. Setting: Ventura, USA. Design: factorial.
Participants	Diagnosis: schizophrenia (New Haven Index > 4). N = 104*. Age: mean 23.4 years. Sex: 57 M, 47 F. History: 'acute', consecutive admissions, 1-2 previous admissions
Interventions	**1** Crisis-orientated family therapy: 1 session/week, 6 weeks + standard care, varied treatment thereafter. N=52 **2** No family therapy: standard care, varied treatment after 6 weeks. N = 52 Factored with: **A.** High dose fluphenazine. **B.** Low dose fluphenazine.
Outcomes	Relapse (full-time admission, partial hospitalisation or substantial change in medication).

	Leaving the study early. Unable to use: Mental state: BPRS (subgroup analysis, no SD). Suicide: N = 2, original allocation unclear. Service use: no usable data.
Notes	* total N is 103 in second paper - reasons unclear. Data relating to high and low dose fluphenazine not used in this review. Leaving the study early data is contradictory in different parts of report - first set of data chosen at random

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Single blind, untested
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Gong 2007

Methods	Allocation: randomised according to admission sequence. Blindness: open study. Duration: three years. Setting: community, China.
Participants	Diagnosis: schizophrenia. N= 166. Age: mean 31 years intervention group; 37 control group. Sex: M and F. History: no details.
Interventions	**1** Family intervention and medication: family Intervention is 45-50 minutes each session, charged at 50 yuan per session and follow up is arranged at once/3 months interval. N = 83 **2** Medication. N = 83.
Outcomes	Global state: compliance with medication. Leaving the study early. Unable to use:Recovery: scale not reported. Deteriation: scale not reported. Global state: relapse (n's unclear). Mental state: BPRS (n's unclear). Social functioning: SDSS (n's unclear).
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	No	Quasi-randomised
Allocation concealment?	No	According to admission sequence
Blinding? All outcomes	No	Open
Incomplete outcome data addressed?	No	Study attrition not reported

All outcomes		
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Guo 2007

Methods	Allocation: randomised. Blindness: open study. Duration: one years. Setting: community, China.
Participants	Diagnosis: schizophrenia. N = 100. Age: mean 32 years. Sex: male and female. History: no details.
Interventions	**1** Family intervention + medication. N = 50. **2** Medication. N = 50.
Outcomes	Global state: relapse. Unable to use: Global state: compliance with medication (data not based upon each patient). Mental state: not improved-BPRS (data not based upon each patient)
Notes	Family interventionwas given 3 sessions/week, 30-45 minutes/session. In addition, once a week there is a lecture on mental health education; once a month there is a seminar for family members of people with schizophrenia

Risk of bias

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Open study
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Herz 2000

Methods	Allocation: 'randomly assigned'. Blindness: not blind. Duration: 18 months. Setting: New York, USA.
Participants	Diagnosis: schizophrenia (DSM III). N = 82. Age: mean 29.7 years. Sex: 53 M, 29 F. History: patient's having at least 1 hospitalisation in the last 3 years or 2 or more lifetime hospital admissions

Interventions	**1** Programme for relapse prevention (including group therapy - Bi-weekly for 6 months and monthly thereafter) with chlorpromazine equivalents - 300-1000 mg. N = 41 **2** Standard care with chlorpromazine equivalents - 300-1000 mg. N = 41 Intervention group received 5 components: 1. Education for patients and family members about the process of relapse in schizophrenia and how to recognise prodromal symptoms and behaviours; 2. active monitoring for prodromal symptoms by treatment team members, patients, family members and others in frequent contact with the patient; 3. clinical interventions, within 24 to 48 hours, when prodromal episodes were detected; 4, one-hour weekly supportive group therapy emphasizing improving coping skills or 30 to 45 minute individual supportive therapy sessions if patients refused group treatment; 5, 90-minute multifamily psychoeducational groups that family members were encouraged to attend
Outcomes	Leaving the study early. Relapse. Rehospitalisation. Unable to use: Mental state: PANSS (no usable data). Global state: GAS (no usable data). Prodromal symptoms: ESQ (no usable data).
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Not blind
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Hogarty 1986

Methods	Allocation: 'on alternate weeks or months' (determined before patients admitted) - quasirandom method. Blindness: not blind but efforts made to make decisions reliable and valid. Duration: treatment 2 years, follow up 2 years. Setting: Pittsburgh, USA.
Participants	Diagnosis: schizophrenia + schizo-affective disorders (RDC). N = 75. Age: range 17-55 years, mean 27. Sex: not reported. History: consecutive admissions < 6 months, mean previous admissions ~ 2.7, high EE family (CFI). Exclusions: substance abuse, organic illness, bipolar disorder
Interventions	**1** Relative's group: 5 phases - connection, survival-skills, re-entry + application, work/social adjustment, maintenance (including exploratory family therapy) + drug treatment. N = 30 **2** Bi-weekly, nursing support + drug treatment. N = 45. More than 5 sessions.

Outcomes	Relapse. Drug compliance. Expressed emotion.
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	No	Quasi-randomised
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Not blind
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Hogarty 1997

Methods	Allocation: randomised. Blindness: not blind. Duration: 3 years treatment, 3 years follow up. Setting: Pittsburgh, USA. Design: factorial.
Participants	Diagnosis: schizophrenia + schizo-affective disorders (RDC). N = 97. Age: range 16-55 years, mean 28.6. Sex: 56 M, 41 F. History: acute admissions, mean previous admissions 2.7, mean length of illness 6.2 years. Exclusions: organic brain syndrome, drug or alcohol dependence in past 6 months, medical conditions preventing use of antipsychotic medication
Interventions	**1** Personal therapy: psychoeducation, relaxation, identification of stressors and prodromal symptoms, social skills training + neuroleptic medication. N = 23 **2** Supportive therapy: active listening, empathy and reassurance, advocacy and problem solving + neuroleptic medication. N = 24 **3** Family therapy: joining, survival skills training, reintegration into the family and the community + neuroleptic medication. N = 24 **4** Personal therapy + family therapy. N = 26. All groups received more than 5 sessions.
Outcomes	Relapse (psychotic). Leaving the study early. Unable to use: Drug compliance: no usable data. Therapeutic alliance: no usable data.
Notes	The paper reports two trials (N = 151), one studying patients who lived with families (N = 97) and one studying patients who lived alone. This review only looked at the data from the former trial. For this review supportive therapy is the control arm and family therapy is the intervention

Risk of bias

Item	Authors' judgement	Description

Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	No blind
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Leavey 2004

Methods	Allocation: randomised by block. Blindness: single. Duration: 9 months. Setting: London, UK.
Participants	Diagnosis: psychotic illness (ICD-10). N= 106. Age: not reported. Sex: 68 M, 30 F. History: informed consent obtained, first episode psychotic illness within six months of study. Excluded: organic disorders or learning difficulties.
Interventions	**1** Brief psychoeducational sessions, incorporating a problem solving component for carers combined with standard treatment. N = 57 **2** Standard treatment. N = 49. Seven interactive sessions lasting ~ one hour, usually in the carers home
Outcomes	Leaving the study early. Rehospitalisation. Unable to use: Days in hospital: no usable data. Family experience: CGSQ (no usable data). Perceived Severity of Illness: no usable data. Service satisfaction: VSSS (no usable data).
Notes	

Risk of bias

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Randomised by block, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Single blind, untested
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Leff 1982

Methods	Allocation: randomised using table of random numbers. Blindness: not blind. Duration: 9 months treatment, 2 years follow up. Setting: London, UK.
Participants	Diagnosis: schizophrenia or paranoid psychosis (PSE). N = 24. Age: range 16-65 years, mean ~ 34. Sex: 12 M, 12F. History: consecutive stabilised admissions, mean previous admissions 1.2- 2.3, high EE > 35 hours contact/week (CFI)
Interventions	**1** Educational sessions: relatives' group, home-based family sessions with patient + antipsychotic drugs. N = 12 **2** Antipsychotic drugs. N = 12.
Outcomes	Leaving the study early. Death. Relapse. Deliberate self harm. Drug compliance. Poor tolerance to medication. Independent living (face to face contact). Expressed emotion. Unable to use: Individual expressed emotion measures: no usable data. Hospital admission: no usable data. Poor compliance with treatment-relatives: no usable data. Knowledge of diagnosis: no usable data. Knowledge of symptoms: no usable data. Relatives' knowledge about treatment: denominator unclear. Change in relatives' attitude: no usable data. Length of time to relapse: no SD. Quality of life/employment: no usable data.
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Yes	Randomised, by random numbers table
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Not blind
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Leff 1989

Methods	Allocation: random allocation using table of random numbers. Blindness: single. Duration: 9 months treatment, 2 years follow up. Setting: London, UK.
Participants	Diagnosis: schizophrenia (PSE). N = 23. Age: range 18-65 years, mean 26.5. Sex: 13 M, 10 F.

	History: high EE families, > 35 hours contact/week (CFI), mean previous admissions ~ 2.5. Exclusions: not reported.
Interventions	**1** Relatives group: 2 education sessions, fortnightly group meetings for 1.5 hours. N = 11 **2** Individual family treatment: 2 education sessions, fortnightly meetings for 1.5 hours at home. N = 12
Outcomes	Relapse. Family experience: expressed emotion. High contact with families. Unable to use: Drug compliance: no numbers for each group. Social activity: no numbers for each group. Occupational activities: no numbers for each group.
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Yes	Randomised, by random numbers table
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Single, untested
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Leff 2001

Methods	Allocation: randomised. Blindness: single assessors blind. Duration: 1 year. Setting: London, UK.
Participants	Diagnosis: schizophrenia. N = 30. Age: range 16-65 years, mean 33.5. Sex: not reported. History: mean number of previous admissions to hospital 2.4. Exclusions: not reported.
Interventions	**1** Family intervention: one session fortnightly, then monthly. N = 16 **2** Control receiving education alone. N = 14. Family intervention based on the work by Kuipers, consists of 3 months of didactic instruction followed by supervision of the trainees' clinical work with families. Family intervention included techniques for improving communication within the family, reducing relatives' criticism and over involvement, lowering contact between patient and high expressed emotion relatives, increasing the social networks of family members and setting realistic objectives. The approach includes cognitive and behavioural elements as well as techniques from strategic and systemic family therapy
Outcomes	Death. Relapse. Family experience: expressed emotion, assessment of burden. Knowledge of interview. Social functioning: SFS.

	Unable to use: Family experience: CFI (no usable data).
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Single blind, untested
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Li 2004

Methods	Allocation: randomised - no further details. Blindness: not stated. Duration: 9 months. Setting: China.
Participants	Diagnosis: schizophrenia (CCMD-2-R). N = 86. Age: mean age ~ 23 years. Sex: men and women. History: first episode.
Interventions	**1** Family intervention* and medication. N = 44. **2** Medication only. N = 42.
Outcomes	Mental state: BPRS. Global state: relapse.
Notes	*This intervention has several components, each component has its only frequency: 1) psychoeducation on the cause, development of SZ, 30 minutes/twice/week; 2) psychological intervention and crisis intervention including demonstration of communications skills and emotional expression skills, 1 hour/omonth; 3) seminars for patients and family to exchange experiences and encourage each other, 2 hours/2months

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	No details
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Li 2005a

Methods	Allocation: randomised. Blindness: open study. Duration: 2 years. Setting: community, China.
Participants	Diagnosis: schizophrenia (CCMD-2-R). N = 80. Age: mean 20 years. Sex: male and female. History: no details. Excluded: severe illness; drug addict or alcoholic; pregnancy
Interventions	**1** Family intervention: family intervention plus cognitive behavioural intervention. N = 40. **2** Routine care. N = 40.
Outcomes	Global state: relapse. Global state: hospitalisation. Global state: SCL-90. Unable to use: Mental state: SANS (sub-scale data only).
Notes	Routine nursing, discharge advice and family intervention plus cognitive behavioural intervention. Once every 3 months for 2 years, there is a psychoeducation seminar; each familywas given a booklet on the prevention and family nursing techniques of the illness; also, they are invited back to clinic for check-ups once every 2-3 months

Risk of bias

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Open study
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Linszen 1996

Methods	Allocation: random allocation, stratified by EE level, by table of numbers. Blindness: single. Duration: 1 year treatment, 1 year follow up. Setting: Amsterdam, The Netherlands.
Participants	Diagnosis: schizophrenia + related disorders (DSM-III-R). N = 76. Age: range 15-26 years, mean 20.6. Sex: 53 M, 23 F. History: 43% > 1 psychotic episode, needing continuous anti-psychotic medication. Exclusions: primary substance dependence, drug related psychoses
Interventions	**1** Behavioural family intervention: included individual oriented psychosocial intervention, 18 sessions. N = 37 **2** Individual oriented psychosocial intervention. N = 39.
Outcomes	Relapse: BPRS + scrutiny of notes.

	Unable to use: Drug compliance: categorical scale, no data reported.
Notes	Before randomisation all families attended psychoeducational meetings

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Yes	Randomised, by random numbers table
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Single, untested
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Liu 2003

Methods	Allocation: quasi-randomised (hospital admission). Blindness: no details. Duration: three years. Setting: China.
Participants	Diagnosis: schizophrenia (CCM-2-R). N = 200. Age: mean 26 years. Sex: men and women. History: no details. Excluded: no details.
Interventions	**1** Family intervention. N = 100. **2** Group family intervention. N = 100.
Outcomes	Mental state: PANSS.
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	No	Randomised, according to hospital admission
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	No details
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Liu 2007

Methods	Allocation: randomised. Blindness: open study. Duration: one year. Setting: China.
Participants	Diagnosis: chronic schizophrenia (CCMD-3). N = 80. Age: mean 29 years. Sex: men. History: no details.
Interventions	**1** Family intervention + medication. N = 40. **2** Medication. N = 40.
Outcomes	Global state: compliance with medication. Global state: relapse. Unable to use: Mental state: BPRS (no *n* values).
Notes	Family intervention is in the form of telephone consultation and consultation at the clinic, once a month for 1 year

Risk of bias

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Randomised, no details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Open study
Incomplete outcome data addressed? All outcomes	Unclear	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Luping 2007

Methods	Allocation: randomised. Blindness: no details. Duration: two years. Setting: community, China.
Participants	Diagnosis: schizophrenia (CCMD-3). N = 90. Age: 18-26 years. Sex: no details. History: average length of illness ~ 6 years.
Interventions	**1** Family intervention + medication (group family intervention 100 minutes/session, 1 session/month, 16 sessions in total + individual family intervention*). N = 45 **2** Medication. N = 45. *Individual family intervention: family visit was made at the end of 2nd week after the start of the intervention, then at the end of every 4th week until the completion of the intervention
Outcomes	Global state: relapse.
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	No details
Incomplete outcome data addressed? All outcomes	Unclear	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Lv 2003

Methods	Allocation: 'randomly sampled'. Blindness: no details. Duration: 2 years. Setting: community, Nanyang City, China.
Participants	Diagnosis: schizophrenia (CCMD-2-R). N = 90 Age: 18-60 years. Sex: male and female. History: no details.
Interventions	**1** Family intervention + routine drug therapy. N = 45. **2** Routine drug therapy. N = 45.
Outcomes	Global state: relapse. Unable to use: Leaving the study early.
Notes	Family intervention involved providing information to family members; providing communication skill training; teaching coping strategies. Aim of the therapy is to improve family's coping ability and improve family functioning and atmosphere, as well as their knowledge on schizophrenia. Therapy was provided by qualified psychiatrists for 50 minutes/month

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	No details
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Magliano 2006

Methods	Allocation: randomisation by computer. Blindness: open study. Duration: 6 months. Setting: Italy.
Participants	Diagnosis: chronic schizophrenia (DSM IV). N = 71. Age: mean 56 years. Sex: 49 M, 22 F. History: previous suicide attempts ~ 10, chronic illness with average age of onset 21; average hospitalisation two
Interventions	**1** Family intervention plus standard antipsychotic care. N = 42. **2** Waiting list (6 month) plus standard antipsychotic care. N = 29
Outcomes	Leaving the study early. Global state: compliance. Mental state: BPRS. Social functioning: Assessment of Disability, Social Network Questionnaire. Family outcome: Family Problems Questionnaire.
Notes	The intervention consists of four components (developed by Falloon): assessment of individual and family needs; information sessions with consumers and their relatives about clinical aspects of schizophrenia, its treatments and early signs of relapse; communication skills training; and problem-solving skills training. The training program included three monthly modules of two and a half days each. In the year after the training course, participants attended four supervision meetings and each month they received by-phone tutorial support on family work

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Yes	Computer randomisation
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Open study
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	Grants from the M. Lugli Foundation and from Italy's National Institute of Health

Mak 1997

Methods	Allocation: 'randomly allocated' - no further details. Blindness: not blinded. Duration: 1 year. Setting: Hong Kong.
Participants	Diagnosis: chronic schizophrenia (DSM-III). N = 55. Age: range 18-63 years. Sex: M and F. History: duration of illness 2 years or more.
Interventions	**1** Series of 6 group behavioural family therapy sessions and approximately 12 individual family therapy sessions. N = 28 **2** Standard care. N = 27.

Outcomes	Employment status at 6 months. Unable to use: Mental state: BPRS (no usable data). Knowledge about schizophrenia: no usable data. The WHO Psychiatric Disability Assessment Schedule: no usable data. Service satisfaction: CSQ: no usable data.
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Not blind
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

McFarlane 1995

Methods	Allocation: 'randomly assigned' - no further details. Blindness: psychiatrists and relapse field raters blind. Duration: treatment 2 years, follow up 2 years. Setting: New York, USA.
Participants	Diagnosis: schizophrenia, schizoaffective disorder, schizophreniform disorder (DSM-III R). N = 172.* Age: range 18-45 years, mean 27.3. Sex: 126 M, 46 F. History: >/=10 hours family contact for 2 months preceding admission, mean age of onset of illness 19.5 years. Exclusions: physically dependent substance abuse.
Interventions	**1** Multiple family group: 3 individual family meetings, single session group workshop, biweekly group meetings with 6 families and 2 therapists + antipsychotic medication. N = 83 **2** Singlefamilytherapy: 3 individual family meetings, single session individualworkshop, biweekly meetings with therapist + antipsychotic medication. N = 89
Outcomes	Relapse. Drug compliance. Leaving the study early. Unable to use: Hospital admission: data not given for each group. Mental state: BPRS (no usable data). Medication dose: no SD. Employment: no usable data. Relapse episodes: no usable data. Cost effectiveness: no usable data.
Notes	* 19 cases excluded, probably after randomisation (11 cases not discharged after 2 years, 8 dropped out during engagement period (1st week). No further data analysis

Risk of bias

Item	Authors' judgement	Description

Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Partial blinding, untested
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Merinder 1999

Methods	Allocation: block randomisation. Blindness: single. Duration: follow up 1 year. Setting: Aarhus, Denmark.
Participants	Diagnosis: schizophrenia (ICD-10). N = 46. Age: range 30.3 - 39.6 years, mean 35.9. Sex: 24 M, 22 F. History: receiving treatment at time of inclusion in community psychiatric centres
Interventions	**1** Eight-intervention session using mainly a didactic interactive method with the patient and care interventions performed in separate sessions. N = 23 **2** Standard care with psychosocial rehabilitation and supportive psychotherapy. N = 23
Outcomes	Relapse. Leaving the study early. Global state: GAF. Mental state: BPRS, IS. Service satisfaction: VSSS. Knowledge of schizophrenia.
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised by block, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Single, untested
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Posner 1992

Methods	Allocation: 'randomised' - no further details. Blindness: not stated. Duration: treatment 8 weeks, follow up 10 months. Setting: Winnipeg, Canada.
Participants	Diagnosis: schizophrenia (DSM-III R). N = 55. Age:< 40 years, mean 29.1. Sex: 39 M, 16 F. History: > 1 admissions (mean 4.4), last within past 2 years, regular contact with family
Interventions	**1** Psychoeducational support group program: included ongoing antipsychotic medication (8 group sessions). N = 28 **2** Ongoing antipsychotic medication. N = 27.
Outcomes	Death. Hospital admission. Leaving the study early. Unable to use: Global state: GHQ (no usable data). Negative feelings for patient: no usable data. Family experience: WOC, FSS (no usable data).
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Not stated
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Qiu 2002

Methods	Allocation: randomised. Blindness: no details. Duration: one year. Setting: community, Nanyang City, China.
Participants	Diagnosis: schizophrenia (CCMD-2-R). N = 120. Age: mean 33 years. Sex: men and women. History: average length of illness ~ 6 years.
Interventions	**1** Family intervention + routine drug therapy. N = 60. **2** Routine drug therapy. N = 60.
Outcomes	Global state: relapse. Unable to use Mental state: BPRS, SDSS (ns not reported). Social functioning: SDSS (no usable data). Leaving the study early.

Notes		
Risk of bias		
Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Not reported
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Ran 2003

Methods	Allocation: block randomised by cluster (townships) by random numbers table. Blindness: 'assessors were blind to the study design'. Duration: 9 months. Setting: Chengdu, China.
Participants	Diagnosis: schizophrenia (ICD-10, CCMD-2-R). N = 6 townships (326 people). Age: mean 44 years. Sex: 128 M, 198 F. History: chronic and acute schizophrenia.
Interventions	**1** Psychoeducational family intervention (once per month for 9 months, each session 1.5 to 3 hours) + haloperidol decanoate or standard care. N = 2 townships (126 people) **2** Haloperidol decanoate or standard care. N = 2 townships (103 people) **3** Control: drug intervention neither encouraged or discouraged. N = 2 townships (97 people)
Outcomes	Relapse. Compliance with medication. Social functioning. Clinical status. Family maltreatment. Unable to use: Mental disability: outcomes unclear.
Notes	ICC not reported, estimated to be 0.1. Data divided by Design Effect = (1+(m-1)*ICC).

Risk of bias		
Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Yes	Randomised, computer generated
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Assessors blind, no further details
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Randolph 1994

Methods	Allocation: randomised - no further details. Blindness: not stated. Duration: treatment 3 years. Setting: Los Angeles, USA.
Participants	Diagnosis: schizophrenia (DSM-III). N = 42. Age: range 21-55 years. Sex: not reported. History: chronic illness, average age at first hospital admission 22.2 years
Interventions	**1** Behavioural family management with customary care at the veterans association. N = 21 **2** Customary care at the veterans association. N = 21. 25 behavioural family management sessions held with the families over a 12-month period on a declining contact basis (mean 21 sessions, SD 5.7)
Outcomes	Relapse. Leaving the study early. Hospital stay. Unable to use: Mental state: BPRS, PSE (no usable data). Family experience: CFI (no usable data).
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Not stated
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Schooler 1997

Methods	Allocation: 'randomly assigned' - method not described, stratified randomisation to medication. Blindness: not stated for family treatment. Duration: 30 months treatment and follow up. Setting: Atlanta, San Francisco, New Hyde Park, Philadelphia, New York
Participants	Diagnosis: schizophrenia, schizoaffective disorder, schizophreniform disorder (DSM-III R). N = 528. Age: range 18-55 years, mean 29.6* Sex: 349 M, 179 F* History: acutely ill, hospital admissions, living with or > 4 hours face to face contact with family of origin. Exclusions: liver damage, organic brain disease, psychoactive substance dependence pregnancy
Interventions	**1** Supportive: psychoeducational workshop then 1.5 hour monthly group meetings + drug treatment. N = 256

	2 Applied: psychoeducational workshop, 1.5 hour monthly group meetings + home visits focused on problem and communication skills (weekly for 3 months, biweekly for 6 months, then monthly) + drug treatment. N = 272
Outcomes	Leaving the study early. Stabilisation. Hospital admission. Unable to use: Relapse: BPRS worsening of symptoms for 2 months or use of rescue medication (no usable data). First use of rescue medication: no usable data. 20 weeks use of rescue medication: no results given. Time to rehospitalisation: no usable data.
Notes	*Mean age and sex extrapolated from demographic data for 313 subjects followed to end of treatment

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Not stated
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Yes	Grant from NIMH

Shi 2000

Methods	Allocation: randomised - no further details. Blindness: not reported. Duration: 2 years. Setting: Shanghai, China.
Participants	Diagnosis: schizophrenia. N = 214*. Age: mean 42.1 years. Sex: male and female. History: not reported.
Interventions	**1** Family intervention: mental health education, drug titration, family atmosphere correction, social information support and telephone contact for emergency cases (monthly sessions). N = 104 **2** Standard care. N = 109.
Outcomes	Leaving the study early. Quality of life. Unable to use: Mental state: PANSS, Self Rating Anxiety Scale (no SD). Disability Assessment Scale: no SD.
Notes	*One participant not accounted for.

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details

Blinding? All outcomes	Unclear	Not stated
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Szmukler 2003

Methods	Allocation: 'exploratory randomised controlled trial'. Blindness: not blinded. Duration: 6 months. Setting: London, UK.
Participants	Diagnosis: schizophrenia (44), other diagnoses (17) schizoaffective disorder, bipolar disorder, psychotic depression. N = 61. Age: not stated. Sex: not stated. History: not stated.
Interventions	**1** Experimental support programme; weekly 1 hour sessions × 6 with family (nearly always without patient) in family home; major components: engagement, education & development of effective coping strategies. N = 30 **2** Standard care. N = 31.
Outcomes	Leaving the study early. Global state: Clinical Interview Schedule revised. Coping skills: Coping with Life-events & Difficulties Interview. Family experience: Experience of Care giving Inventory, Stressor-severity of care giving difficulty. Social functioning: Self-Evaluation & Social Support Schedule Unable to use: Hospital readmission: no usable data.
Notes	

Risk of bias

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Not blinded
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Tan 2007

Methods	Allocation: randomised. Blindness: open study.

	Duration: three years. Setting: China.
Participants	Diagnosis: chronic schizophrenia (CCMD-3, ICD-10). N= 150. Age: 18-55 years. Sex: men and women. History: no details.
Interventions	**1** Family intervention: 1.5 hour/session, once a month. N = 75. **2** Medication. N = 75.
Outcomes	Relapse. Social functioning: Social Disability Screening Schedule
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Open study
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Tarrier 1988

Methods	Allocation: 'randomly allocated' - method not described, stratified by first/multiple episode, presence/absence of residual symptoms and EE. Blindness: single - CFI, PSE, relapse. Duration: 9 months treatment, 8 years follow up. Setting: Salford, UK.
Participants	Diagnosis: schizophrenia (PSE). N = 83*. Age: range 16-64 years, mean 35.3. Sex: 29 M, 54 F. History: acutely ill, hospital admissions, to be discharged to family having lived with them > 3 months, mean past admissions ~ 3, mean duration ill ~ 6 yrs. Excluded: organic illness.
Interventions	**1** Enactive programme: active participation of families including role play. N = 16 **2** Symbolic programme: advice and verbal instructions to families. N = 16 Education only: 2 sessions with family. N = 16* high EE, 9 low EE. Control: routine multidisciplinary care in OPD. N = 16* high EE, 10 low EE More than 5 sessions.
Outcomes	Death. Relapse (recurrence/worsening of psychotic symptoms over 1 week, PSE). Hospital admission. Leaving the study early. Family experience: CFI. Unable to use: Contact with services: no data. Use of medication: no data.

Notes	Intervention group 1+2 both involved psychoeducational involvement of families undertaken by multidisciplinary team in clinics, 2 sessions of educational programme, 3 of stress management, and 8 of goal setting. These groups added for this analysis. Groups 3+4 not split in data reporting and used as comparison for this analysis *Only the 64 people from high EE families were randomised to group 1 +2 vs group 3+4, and are used in this analysis. 19 from low EE families were allocated to groups 3+4 only and are not included in this analysis

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Single, untested
Incomplete outcome data addressed? All outcomes	Yes	Study attrition reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Vaughan 1992

Methods	Allocation: 'randomly allocated' - no further details. Blindness: rater blind. Duration: 10 weeks treatment, 9 months follow up. Setting: Sydney, Australia.
Participants	Diagnosis: schizophrenia (PSE). N = 36. Age: mean 26.3 years. Sex: 30 M, 6 F. History: mean previous admissions ~ 4, high EE families, newly admitted. Exclusions: heroin abuse, brain damage.
Interventions	**1** Counselling sessions for family + home exercises + standard care, 10 weekly 1 hour sessions. N = 18 **2** Standard care, out-patient appointments every 2-4 weeks. N = 18
Outcomes	Death. Relapse: PSE. Hospital admission. Drug compliance. Leaving the study early. Unable to use: Relatives satisfaction with care: no control group data. Family experience: CFI (ratings not reported because unreliable)
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Single blind
Incomplete outcome data addressed?	Yes	Study attrition reported

All outcomes		
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Wang 2006

Methods	Allocation: randomised. Blindness: no details. Duration: one year. Setting: China.
Participants	Diagnosis: schizophrenia (CCMD-3). N = 89*. Age: no details. Sex: no details. History: average length of illness ~ 6 years.
Interventions	**1** Family intervention: once every 2 weeks. N = 38. **2** Control. N = 42.
Outcomes	Global state: relapse. Global state: compliance. Social functioning: Social Disability Screening Schedule (skewed)
Notes	*9 participants not accounted for.

Risk of bias

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	None
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Xiang 1994

Methods	Allocation: 'randomly selected' - no further details. Blindness: double. Duration: 4 months. Setting: Sichuan, China.
Participants	Diagnosis: schizophrenia and affective disorders (DSM-III-R). N = 77. Age: range 18-80 years, mean 40.5. Sex: not stated. History: not reported.
Interventions	**1** Psychoeducational family intervention and haloperidol decanoate 75 mg/month. N = 36 **2** Haloperidol decanoate 75 mg/month. N = 41. Psychoeducational family intervention aimed to teach families members basic knowledge of mental diseases and their treatment, and

	to help identify and solve problems and improve their knowledge of mental health rehabilitation; facilitated through family visits, workshops and monthly supervision
Outcomes	Treatment compliance. Family care status. Clinical status. Clinical state. Social functioning. Unable to use: Medical records: no usable data. Mental state: PSE (no usable data). Social functioning: Social Disability Screening Schedule (no usable data)
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Double blind, untested
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Xiang 2005

Methods	Allocation: randomised. Blindness: open study. Duration: one year. Setting: community, China.
Participants	Diagnosis: schizophrenia (CCMD-2-R). N= 160. Age: mean 41 years. Sex: male and female. History: no details. Excluded: severely disabled.
Interventions	**1** Family intervention (once a month). N = 80. **2** Control. N = 80.
Outcomes	Global state: relapse. Unable to use: Mental state: BPRS (no n's). Social functioning: SDSS (no n's). Treatment rate. (unclear outcome).
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Open study

Incomplete outcome data addressed? All outcomes	Unclear	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Xiong 1994

Methods	Allocation: 'randomly assigned' - no further details. Blindness: assessments blinded. Duration: 18 months treatment, 18 months follow up. Setting: Shashi & Jingzhou, China.
Participants	Diagnosis: schizophrenia (DSM-III-R). N = 63*. Age: range 17-54 years, mean 31. Sex: 43 M, 20 F. History: mean previous admissions ~ 4, mean duration ill ~ 7.5 years, participants living with family
Interventions	**1** Family-educational supportive sessions (group and individual sessions: initially monthly then sessions every 2-3 months. N = 34 **2** Standard care: no clinic follow up + medication. N = 28.
Outcomes	Death. Relapse. Global state: GAF. Mental state: BPRS-R, SAPS-CV, SANS-CV. Hospital admission. Drug compliance. Family burden.
Notes	*One participant not accounted for.

Risk of bias

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Single blind, untested
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Zhang 1994

Methods	Allocation: 'randomly assigned' - no further details. Blindness: raters blinded. Duration: 18 months treatment, 18 months follow up. Setting: Suzhou, China.
Participants	Diagnosis: schizophrenia (Chinese Medical Association's criteria). N = 83. Age: mean 23.8 years. Sex: 78 M, 5 F.

	History: no previous admissions, mean duration ill 2.8 years. Exclusions: concurrent medical illness.
Interventions	**1** Educative and family group sessions: additional follow up as needed + medication. N = 42 **2** Out-patient department follow up + medication.N = 41. Minimum contact session once every 3 months for 18 months.
Outcomes	Hospital admission. Drug compliance.
Notes	

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	Single, untested
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Zhang 2006a

Methods	Allocation: randomised. Blindness: none. Duration: two years. Setting: China.
Participants	Diagnosis: schizophrenia (CCMD-3). N = 60. Age: range 19-45 years. Sex: male only. History: no details. Excluded: no details.
Interventions	**1** Family intervention*. N = 30. **2** Control. N = 30.
Outcomes	Global state: relapse. Global state: compliance.
Notes	*one session per week/4 sessions = 1 course and two courses in total

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Randomised, no details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Open study
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details

Free of other bias?	Unclear	No details

Zhang 2006b

Methods	Allocation: randomised. Blindness: no details. Duration: two years. Setting: China.
Participants	Diagnosis: schizophrenia. N= 150. Age: 16-60 years. Sex: men and women. History: no details.
Interventions	**1** Family intervention (once a week during in-hospital; once every 4 weeks after discharge. N = 75 **2** Control. N = 75.
Outcomes	Global state: relapse. Unable to use: Mental state: PANSS (n's not reported). Global state: GHQ (n's not reported). Social functioning: DAS (n's not reported).
Notes	

Risk of bias

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	Unclear	No details
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Zhou 2007

Methods	Allocation: randomised. Blindness: none. Duration: one year. Setting: China.
Participants	Diagnosis: schizophrenia (CCMD-2-R). N = 286. Age: range 17-68 years. Sex: men and women. History: no details.
Interventions	**1** Family intervention (once a month). N = 143. **2** Routine discharge advice. N = 143.
Outcomes	Global state: relapse.

Europe PMC Funders Author Manuscripts

Notes

Risk of bias		
Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Randomised, no further details
Allocation concealment?	Unclear	No details
Blinding? All outcomes	No	Open study
Incomplete outcome data addressed? All outcomes	No	Study attrition not reported
Free of selective reporting?	Unclear	No details
Free of other bias?	Unclear	No details

Diagnostic tools and scales:

CCMD-2-R - Chinese Classification of Mental Disorders 2nd edition revised

CCMD-3-R - Chinese Classification of Mental Disorders 3rd edition revised

DSM - Diagnostic and Statistical Manual

ESQ - Early Signs Questionnaire

ICD 10 - International Classification of Diseases

MPS - Munster Prognosis Score

RDC - Research Diagnostic Criteria

Mental state:

AMDP - Arbeitsgemeinschaft fur Methodik und Dokumentation in Psychiatrie

BPRS - Brief Psychiatric Rating Scale

CES-D - Centre for Epidemiologic Studies Depression Scale

IS - Insight Scale

PANSS - Positive and Negative Symptom Scale

PANAS - The Positive and Negative Affects Scale

PSE - Present State Examination

SANS - Scale for the Assessment of Negative Symptoms

SAPS - Scale for the Assessment ofPositive Symptoms

SCL-90 - Symptom Checklist 90

Global state:

CGI - Clinical Global Impression

ESQ - Early Signs Questionnaire

GAF - Global Assessment of Functioning

GAS - Global Assessment Scale

GHQ - General Health Questionnaire

Social functioning -

DAS - Disability Assessment Schedule

LSP - The Life Skills Profile

FMSS - Five Minutes Speech Sample

HoNOS - Health nf the Nation Outcome Scales

MRSS - Morningside Rehabilitation State Scale

SAS-SR - Social Adjustment Scale - self report

SBAS - Social Behaviour Assessment Schedule

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SDSS - Social Disability Screening Schedule

SCOS - Strauss-Carpenter Outcome Scale

SFS - Social Functioning Scale

Family experience -

ACL - Adjective Check List

CFI - Camberwell Family Interview

CFQ - Questionnaire of Family Confrontation

CGSQ - Care Givers Strain Questionnaire

ECI - Experience of Caregiving Inventory

FKI - Family Conflict Inventory

FSS - Family satisfaction scale

MFB - Munster Family Questionnaire

SISCI-1 - Synthesis and Scission-1 Test

WOC - Ways ofCoping

Family outcome -

CSQ - The Client Satisfaction Questionnaire

VSSS - Verona Service Satisfaction Scale

Adverse events -

SAS - Simpson and Angus Scale

TESS - Treatment Emergent Symptom Scale

General -

EE = expressed emotion

ICC = Intraclass Correlation Coefficient

m = mean number within each group

Sz = schizophrenia

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Abramowitz 1989	Allocation: not randomised.
Barber 1988	Allocation: randomised. Participants: families of people with schizophrenia. Intervention: family intervention versus standard care - 6 hour, 1 day workshop for families - fewer than 5 sessions. Outcomes: no usable data.
Barrowclough 1999	Allocation: randomised. Participants: families of people with schizophrenia. Intervention: family support versus any appropriate psychosocial intervention and not specifically randomised to family intervention
Barrowclough 2002	Allocation: randomised. Participants: people with schizophrenia who are substance misusers. Intervention: routine care versus routine care and integrated psychological and psychosocial treatment programme
Birchwood 1992	Allocation: part sequential, part randomised. Participants: families of people with schizophrenia. Intervention: group education versus postal education versus video education - each with/without homework - fewer than 5 sessions. Outcomes: no usable data.
Brooker 1992	Allocation: not randomised, case series.
Byalin 1985	Allocation: randomised. Participants: people with schizophrenia.

	Interventions: observational evaluation of treatment refractory patients and a stable group of chronically ill people with schizophrenia. Outcomes: no usable data.
Cozolino 1988	Allocation: randomised, stratified for EE. Participants: families of people with schizophrenia or schizoaffective disorder. Intervention: 3-hour family education session (fewer than 5 sessions) versus standard care. Outcomes: part of cohort did not receive FI because of participation in another ongoing study - no separate data available
Durell 1968	Allocation: randomised. Participants: people with schizophrenia. Intervention: 3-hour family education session versus standard care - fewer than 5 sessions. Outcomes: no usable data.
Durr 1996	Allocation: randomised. Participants: people with schizophrenia. Intervention: psychoeducational treatment with standard care versus psychoeducational treatment with prophylactic premedication
Dyck 2000	Allocation: randomised by cohort. Participants: families of people with schizophrenia or schizoaffective disorder. Intervention: group family treatment versus standard care. Outcomes: no usable data because no intra class correlation coefficients given
Esterson 1965	Allocation: not randomised, case series.
Fowler 2002	Allocation: randomised. Participants: people with psychosis. Interventions: family intervention and cognitive behavioural therapy and standard care, number of groups and treatment assignments unclear. Outcomes: no data reported.
Freeman 2002	Allocation: not randomised.
Glick 1985	Allocation: randomised. Participants: families of people with schizophrenia, schizophreniform disorder, major affective disorder (DSM- III). Intervention: family psychotherapy versus multimodal hospital care - restricted to inpatients. Outcomes: not reported separately for schizophrenia.
Hahlweg 1999	Allocation: randomised. Participants: people with schizophrenia and their closest relative. Interventions: behavioural family management using targeted medication versus behavioural family management with either targeted medication or standard dose
He 2005	Allocation: quasi-randomised. Participants: people with schizophrenia. Interventions: family intervention versus standard care. Outcomes: no usable data.
Hogarty 1974	Allocation: randomised. Participants: people with schizophrenia. Interventions: chlorpromazine or placebo and major role therapy versus intensive social case work plus vocational rehabilitation counselling
Hornung 1995	Allocation: randomised. Participants: people with schizophrenia and their relatives. Interventions: psychoeducational medication training (PMT) and cognitive psychotherapy plus work with relatives' groups versus psychoeducational medication training (PMT) and cognitive psychotherapy versus control group
Hu 2002	Allocation: not randomised.
Jenner 2002	Allocation: randomised. Participants: people with schizophrenia. Interventions: care as usual versus hallucination focused integrative treatment
Jeppesen 1999	Allocation: randomised. Participants: people with schizophrenia and care givers. Intervention: assertive community treatment, psychoeducational family treatment and social skill training versus standard care. Outcomes: no usable data.
Kelly 1990	Allocation: randomised Participants: families of people with schizophrenia. Intervention: group education versus postal information versus video information
Kim 1997	Allocation: not randomised.
Koettgen 1988	Allocation: randomised. Participants: people with schizophrenia and their families.

	Intervention: therapy group (high EE) versus 1st control group (high EE) versus 2nd. control group (low EE) Outcomes: no usable data.
Kopelowicz 2003	Allocation: randomised. Participants: people with schizophrenia. Interventions: skills training versus standard care, not family intervention
Kottgen 1984	Allocation: not randomised.
Langsley 1968	Allocation: randomised. Participants: families of all admissions to hospital. Intervention: family crisis support and education versus standard care. Outcomes: not reported separately for schizophrenia.
Lenior 2001	Allocation: randomised. Participants: parents of patients with recent onset schizophrenia. Intervention: standard intervention versus behavioural family intervention with standard intervention. Outcomes: no usable data.
Lenior 2003	Allocation: randomised. Participants: people with schizophrenia. Intervention: family intervention versus standard care. Outcomes: no usable data.
Levene 1989	Allocation: not randomised, case series.
Lewandowski 1988	Allocation: not randomised.
Li 1996	Allocation: not reported as being randomised.
Li 1998	Allocation: randomised. Participants: people with schizophrenia. Interventions: family intervention versus standard care. Outcomes: no usable data.
Li 2005	Allocation: randomised. Participants: people with schizophrenia. Interventions: family intervention versus standard care. Outcomes: no usable data.
Lu 2000	Allocation: randomised. Participants: people with schizophrenia. Interventions: family intervention versus standard care. Outcomes: no usable data.
Ma 2003b	Allocation: not randomised.
MacCarthy 1989	Allocation: randomised. Participants: families of people with schizophrenia, Asperger's syndrome, manic-depressive illness, psychotic depression, and 'unsure' diagnoses. Intervention: psycho-social intervention for families versus standard care. Outcomes: no outcomes reported separately for those with schizophrenia
Madew 1967	Allocation: randomised. Participants: people with schizophrenia restricted to an inpatient environment - not family therapy
Mak 1996	Allocation: randomised. Participants: people with schizophrenia and a family member. Intervention: family therapy and psychosocial education versus conventional treatment. Outcomes: no data presented.
Malm 2003	Allocation: randomised. Participants: people with schizophrenia. Interventions: integrated community care, with both arms receiving psychosocial family intervention
Mavreas 1992	Allocation: randomised. Participants: families of people with schizophrenia. Intervention: family intervention versus standard treatment. Outcomes: no outcomes reported.
McCreadie 1991	Allocation: not randomised.
McFarlane 1995b	Allocation: randomised in cohorts. Participants: families of people with schizophrenia or schizoaffective disorder.

	Intervention: psychoeducational single family treatment versus psychoeducational group family treatment versus dynamic group family treatment. Outcomes: not usable because no intra-class correlation coefficients provided
Merinder 1998	Allocation: not randomised.
Motlova 2003	Allocation: randomised. Participants: people with schizophrenia. Interventions: family psychoeducation versus family psychoeducation, dosage study
Mottaghipour 2000	Allocation: randomised. Participants: people with schizophrenia. Interventions: early onset psychosis given family psychoeducation versus chronic psychosis given family psychoeducation
Nordentoft 1999	Allocation: randomised. Participants: people with schizophrenia. Interventions: assertive community treatment, psychoeducational treatment and social skill training versus standard care. Outcomes: no data presented.
Olfson 1998	Allocation: randomised. Participants: people with schizophrenia and their family members.. Intervention: 'medication algorithms' versus patient and family education versus clinical support. Outcomes: no usable data.
Pereira 1994	Allocation: not randomised.
Petersen 2005	Allocation: randomised. Participants: people with 1st episode schizophrenia. Intervention: integrated treatment versus standard care (family intervention offered as an option to intervention group)
Pitschel 1993	Allocation: randomised. Participants: not described. Intervention: psychoeducational groups and their relatives versus standard care. Outcomes: no usable data.
Pu 2003	Allocation: randomised. Participants: people with schizophrenia. Interventions: family nursing versus standard care - not family intervention
Ro-Trock 1977	Allocation: randomised. Participants: adolescents with schizophrenia, adjustment reaction, drug problems. Intervention: family therapy versus individual therapy. Outcomes: not reported separately for schizophrenia.
Roncone 2000	Allocation: randomised. Participants: people with schizophrenia. Interventions: single family intervention versus multiple family intervention
Shimodera 2000	Allocation: randomised. Participants: people with schizophrenia and their family members. Intervention: standard care versus standard care with single family treatment. Outcomes: no usable data.
Smith 1978	Allocation: randomised. Participants: acutely ill psychiatric patients. Intervention: home care versus inpatient control group, not family intervention
Smith 1987	Allocation: randomised. Participants: families of people with schizophrenia. Intervention: group family intervention versus postal information - no standard care comparison
Solomon 1996	Allocation: randomised. Participants: families of those with schizophrenia, major affective disorder (DSM III-R). Intervention: individual family consultation versus group family psychoeducation. Outcome: no usable data.
Spencer 1988	Allocation: randomised. Participants: people with schizophrenia within a inpatient setting, not family therapy
Spiegel 1987	Allocation: randomised. Participants: people with schizophrenia and their families. Interventions: family home consultations versus standard care, with both groups having FI available

Stein 2003	Allocation: randomised. Participants: people with schizophrenia. Interventions: customary care versus standard care, unclear if family intervention. Outcomes: no usable data.
Tarrier 1989	Allocation: not randomised, review.
Tarrier 2000	Allocation: not randomised.
Telles 1995	Allocation: randomised. Participants: families of people with schizophrenia (DSM-III-R) with florid symptoms (BPRS). Interventions: behavioural family management versus standard case management. Outcomes: no usable data, numbers in each group not reported
Valencia 1999	Allocation: quasi-experimental - not randomised. Participants: people with schizophrenia. Interventions: psychosocial intervention - not family therapy
Ventegodt 2001	Allocation: randomised. Participants: people with schizophrenia. Interventions: assertive community treatment, psychoeducational treatment and social skills training versus 'standard treatment'. Outcomes: no usable data.
Victolo 1999	Allocation: randomised. Participants: people with schizophrenia and their families. Interventions: standard care versus psychoeducational intervention. Outcomes: no usable data.
Wang 1999	Allocation: not reported to be randomised.
Wellisch 1977	Allocation: 3 year follow up study from a randomised study. Participants: 71% schizophrenic reaction and 29% non-schizophrenic. Interventions: individual therapy versus family therapy. Outcomes: no data presented for the schizophrenia group.
Wiedemann 1992	Allocation: randomised. Participants: people with schizophrenia. Interventions: targeted medication and family therapy versus maintenance therapy with family therapy. Outcomes: no usable data.
Wiedemann 1994	Allocation: randomised. Participants: families of people with schizophrenia, schizoaffective disorder (RDC). Intervention: behavioral family management with standard dose medication versus behavioral family management with targeted dose medication
Wu 2003	Allocation: randomised. Participants: people with schizophrenia. Interventions: psychoeducation, unclear if family intervention given
Yao 1997	Allocation: not reported to be randomised.
Zastowny 1992	Allocation: randomised. Participants: people with schizophrenia and their families within an inpatient setting, not family therapy
Zhang 1998	Allocation: randomisation unclear, blinding not reported.
Zhang 1999	Allocation: not randomised.
Zhang 2000b	Allocation: not randomised.
Zhang 2003	Allocation: not reported. Participants: people with schizophrenia. Interventions: family intervention, open ward versus closed ward

Diagnostic tool

DSM-III - Diagnostic Statistical Manual, version 3.

DSM-III-R - Diagnostic Statistical Manual, version 3, revised.

RDC - Research Diagnostic Criteria.

Mental state scale

BPRS - Brief Psychiatric Rating Scale.

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DATA AND ANALYSES

Comparison 1
ANY FAMILY-BASED INTERVENTIONS (> 5 sessions) vs STANDARD CARE

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Service utilisation: 1. Hospital admission	14		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
1.1 0-6 months	3	232	Risk Ratio (M-H, Fixed, 95% CI)	0.85 [0.44, 1.66]
1.2 7-12 months	9	532	Risk Ratio (M-H, Fixed, 95% CI)	0.78 [0.63, 0.98]
1.3 13-18 months	3	228	Risk Ratio (M-H, Fixed, 95% CI)	0.46 [0.30, 0.69]
1.4 19-24 months	5	375	Risk Ratio (M-H, Fixed, 95% CI)	0.83 [0.65, 1.07]
1.5 25-36 months	2	205	Risk Ratio (M-H, Fixed, 95% CI)	0.91 [0.72, 1.16]
2 Service utilisation: 2. Days in hospital at 3 months	1	48	Mean Difference (IV, Fixed, 95% CI)	−6.67 [−11.59, −1.75]
3 Service utilisation: 3. Days in hospital at 1 year (skewed data)			Other data	No numeric data
4 Global state: 1. Relapse	36		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
4.1 0-6 months	3	213	Risk Ratio (M-H, Fixed, 95% CI)	0.71 [0.46, 1.09]
4.2 7-12 months	32	2981	Risk Ratio (M-H, Fixed, 95% CI)	0.55 [0.48, 0.62]
4.3 13-18 months	3	181	Risk Ratio (M-H, Fixed, 95% CI)	0.64 [0.47, 0.88]
4.4 19-24 months	13	1019	Risk Ratio (M-H, Fixed, 95% CI)	0.64 [0.55, 0.75]
4.5 25-36 months	4	497	Risk Ratio (M-H, Fixed, 95% CI)	0.89 [0.72, 1.10]
4.6 5 years	1	63	Risk Ratio (M-H, Fixed, 95% CI)	0.88 [0.70, 1.11]
4.7 8 years	1	62	Risk Ratio (M-H, Fixed, 95% CI)	0.86 [0.71, 1.05]
5 Global state: 2. Not improved/ deteriorated	2	112	Risk Ratio (M-H, Fixed, 95% CI)	0.40 [0.23, 0.68]
.51 by 6 months	1	77	Risk Ratio (M-H, Fixed, 95% CI)	0.33 [0.17, 0.62]
5.2 by 9 months	1	35	Risk Ratio (M-H, Fixed, 95% CI)	0.70 [0.26, 1.88]
6 Global state: 3. Average endpoint score (GAF, high score = better)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
6.1 0-12 months	1	32	Mean Difference (IV, Fixed, 95% CI)	−10.28 [−20.34, −0. 22]
6.2 2 years	2	90	Mean Difference (IV, Fixed, 95% CI)	−8.66 [−14.37, −2.94]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
7 Global state: 4. Average change score (GAF, high score = better - skewed data)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
7.1 post-intervention	1	41	Mean Difference (IV, Fixed, 95% CI)	4.88 [−3.87, 13.63]
7.2 at one year	1	40	Mean Difference (IV, Fixed, 95% CI)	5.25 [−3.18, 13.68]
8 Global state: 5. Average endpoint score at 2 years (SCL-90, high score = poor)	1	80	Mean Difference (IV, Fixed, 95% CI)	−22.01 [−30.99, −13.03]
9 Mental state: 1a. Average endpoint score (BPRS, high score = poor)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
9.1 total score at 1 year	3	170	Mean Difference (IV, Fixed, 95% CI)	−8.32 [−10.92, −5.73]
9.2 negative score at 6 months	1	62	Mean Difference (IV, Fixed, 95% CI)	−0.30 [−0.90, 0.30]
10 Mental state: 1b. Average change score (BPRS total, high score = poor)	3	156	Mean Difference (IV, Fixed, 95% CI)	−0.30 [−0.76, 0.17]
11 Mental state: 1c. Average change score (BPRS positive, high score = poor)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
11.1 post intervention 8 sessions	1	41	Mean Difference (IV, Fixed, 95% CI)	−2.72 [−7.10, 1.66]
12 Mental state: 2a. Average endpoint score (PANSS, 1 year, high score = poor)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
12.1 total	2	174	Mean Difference (IV, Fixed, 95% CI)	−7.90 [−11.96, −3.83]
12.2 positive subscore	1	32	Mean Difference (IV, Fixed, 95% CI)	−2.72 [−6.27, 0.83]
12.3 negative subscore	1	32	Mean Difference (IV, Fixed, 95% CI)	−2.02 [−5.88, 1.84]
12.4 general psychopathology	1	142	Mean Difference (IV, Fixed, 95% CI)	−3.60 [−5.82, −1.38]
13 Mental state: 2b. Average endpoint score (PANSS, 18 months, high score = poor)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
13.1 total	1	29	Mean Difference (IV, Fixed, 95% CI)	−6.30 [−15.98, 3.38]
13.2 positive subscore	1	29	Mean Difference (IV, Fixed, 95% CI)	0.94 [−2.16, 4.04]
13.3 negative subscore	1	29	Mean Difference (IV, Fixed, 95% CI)	−5.23 [−8.43, −2.03]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
14 Mental state: 2c. Average endpoint score (PANSS, 36 months, high score = poor)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
14.1 total	1	149	Mean Difference (IV, Fixed, 95% CI)	−10.20 [−13.55, −6.85]
14.2 positive subscore	1	149	Mean Difference (IV, Fixed, 95% CI)	−2.60 [−4.12, −1.08]
14.3 negative subscore	1	149	Mean Difference (IV, Fixed, 95% CI)	−3.70 [−4.94, −2.46]
15 Mental state: 2d. Average change score (PANSS, high score = worse)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
15.1 positive	1	142	Mean Difference (IV, Fixed, 95% CI)	−2.0 [−3.49, −0.51]
15.2 negative	1	142	Mean Difference (IV, Fixed, 95% CI)	−4.0 [−5.81, −2.19]
16 Mental state: 3. Average endpoint score (Positive and Negative Symptoms, skewed data)			Other data	No numeric data
16.1 Scale for Assessment of Positive Symptoms (Chinese version) at 18 months			Other data	No numeric data
16.2 Scale for Assessment of Negative Symptoms (Chinese version) at 18 months			Other data	No numeric data
17 Mental state: 4. Average endpoint score (SANS high score = worse, skewed)			Other data	No numeric data
18 Mental state: 5. Average change in insight (Insight Scale, high score = poor)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
18.1 post intervention - 8 sessions	1	37	Mean Difference (IV, Fixed, 95% CI)	0.02 [−1.03, 1.07]
18.2 at 1 year	1	40	Mean Difference (IV, Fixed, 95% CI)	0.94 [−0.50, 2.38]
19 Mental state: 6. Average endpoint score (Frankfurt (FBF-3 scale) 1 year, high score = poor, skewed data)			Other data	No numeric data
20 Behaviour: 1. Average endpoint score (NOSIE, 1 year, high score = poor)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
20.1 total score	1	142	Mean Difference (IV, Fixed, 95% CI)	59.10 [54.57, 63.63]
20.2 positive factor score	1	142	Mean Difference (IV, Fixed, 95% CI)	33.4 [30.52, 36.28]
21 Behaviour: 2. Average endpoint score (NOSIE negative factor, 1 year, high score = poor)			Other data	No numeric data

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
22 Compliance: 1. Leaving the study early	28		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
22.1 by between 3 and 6 months	7	552	Risk Ratio (M-H, Fixed, 95% CI)	0.92 [0.59, 1.42]
22.2 by between 7 months and 1 year	10	733	Risk Ratio (M-H, Fixed, 95% CI)	0.74 [0.53, 1.03]
22.3 by between 13 months and 2 years	10	887	Risk Ratio (M-H, Fixed, 95% CI)	0.74 [0.55, 1.00]
22.4 by between 25 months and 3 years	3	290	Risk Ratio (M-H, Fixed, 95% CI)	0.42 [0.26, 0.67]
22.5 by more than 3 years	1	63	Risk Ratio (M-H, Fixed, 95% CI)	1.72 [0.71, 4.16]
23 Compliance: 2. Poor compliance with medication	10	695	Risk Ratio (M-H, Fixed, 95% CI)	0.60 [0.49, 0.73]
24 Compliance: 3. Poor compliance with standard community care	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
24.1 at 1 year	1	51	Risk Ratio (M-H, Fixed, 95% CI)	0.68 [0.41, 1.11]
24.2 at 2 years	1	51	Risk Ratio (M-H, Fixed, 95% CI)	0.85 [0.55, 1.30]
25 Compliance: 4. Months on medication	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
25.1 by 6 months follow up	1	63	Mean Difference (IV, Fixed, 95% CI)	0.40 [−0.34, 1.14]
25.2 by 12 months follow up	1	61	Mean Difference (IV, Fixed, 95% CI)	1.10 [−0.54, 2.74]
25.3 by 18 months follow up	1	60	Mean Difference (IV, Fixed, 95% CI)	1.60 [−1.10, 4.30]
26 Adverse events: Death	8		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
26.1 suicide	7	377	Risk Ratio (M-H, Fixed, 95% CI)	0.79 [0.35, 1.78]
26.2 other cause	4	176	Risk Ratio (M-H, Fixed, 95% CI)	0.78 [0.19, 3.11]
27 Social functioning: 1a. General - socially impaired (0-9 months)	2	116	Risk Ratio (M-H, Fixed, 95% CI)	0.51 [0.35, 0.72]
28 Social functioning: 1b. General - average endpoint score (Social Function Scale, 1 year, high score = good)	3	90	Mean Difference (IV, Fixed, 95% CI)	−8.05 [−13.27, −2.83]
29 Social functioning: 2a. Specific - unemployed	5		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
29.1 at6-12 months follow up	5	285	Risk Ratio (M-H, Fixed, 95% CI)	1.06 [0.89, 1.25]
29.2 at 2 years	1	51	Risk Ratio (M-H, Fixed, 95% CI)	1.33 [0.84, 2.10]
29.3 at 3 years follow up	1	99	Risk Ratio (M-H, Fixed, 95% CI)	1.19 [0.92, 1.55]
30 Social functioning: 2b. Specific - unable to perform work activities	2		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
30.1 by 4 months	1	77	Risk Ratio (M-H, Fixed, 95% CI)	0.31 [0.09, 1.03]
30.2 by 9 months	1	35	Risk Ratio (M-H, Fixed, 95% CI)	1.68 [0.17, 16.91]
31 Social functioning: 2c. Specific - time in employment at one year (skewed)			Other data	No numeric data
32 Social functioning: 2d. Specific - unable to live independently	3		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
32.1 by 1 year	3	164	Risk Ratio (M-H, Fixed, 95% CI)	0.83 [0.66, 1.03]
32.2 by 3 years	1	99	Risk Ratio (M-H, Fixed, 95% CI)	0.82 [0.59, 1.14]
33 Social functioning: 2e. Specific - imprisonment	1	39	Risk Ratio (M-H, Fixed, 95% CI)	0.95 [0.22, 4.14]
34 Social functioning: 3. Disability Assessment Schedule (3 year, high score = poor)			Other data	No numeric data
35 Social functioning: 4. Average endpoint score (SDSS, high score = poor)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
35.1 at two years	1	150	Mean Difference (IV, Fixed, 95% CI)	−0.51 [−1.38, 0.36]
35.2 at three years	1	150	Mean Difference (IV, Fixed, 95% CI)	−1.94 [−2.90, −0.98]
36 Social functioning: 5. Average SDSS endpoint score at one year (high score = poor, skewed)			Other data	No numeric data
37 Social functioning: 6. Average endpoint score (HoNOS 1 year, high score = poor)			Other data	No numeric data
38 Family outcome: 1a. Coping and understanding: general issues (dichotomised from WOC scale)	2		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
38.1 family not able to cope a lot better at 6 months	1	63	Risk Ratio (M-H, Fixed, 95% CI)	0.79 [0.60, 1.03]
38.2 patient coping poorly with key relatives at 9 months	1	39	Risk Ratio (M-H, Fixed, 95% CI)	1.11 [0.45, 2.70]
38.3 not understanding the patient a lot better at 6 months	1	63	Risk Ratio (M-H, Fixed, 95% CI)	0.58 [0.39, 0.87]
39 Family outcome: 1b. Coping and understanding: insufficient care or maltreatment by family	2	111	Risk Ratio (M-H, Fixed, 95% CI)	0.49 [0.23, 1.04]
39.1 by up to 6 months	1	77	Risk Ratio (M-H, Fixed, 95% CI)	0.53 [0.22, 1.24]
39.2 by up to 9 months	1	34	Risk Ratio (M-H, Fixed, 95% CI)	0.39 [0.08, 1.87]
40 Family outcome: 1c. Coping: Average score (Coping with Life-events & Difficulties Interview, high = poor)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
40.1 effective coping endpoint score (6 months)	1	49	Mean Difference (IV, Fixed, 95% CI)	−0.5 [−1.85, 0.85]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
40.2 ineffective coping endpoint score (6 months)	1	49	Mean Difference (IV, Fixed, 95% CI)	0.30 [−0.72, 1.32]
41 Family outcome: 2. Service usage: Family Support Service Index, 3 months (high scores = worse)	1	48	Mean Difference (IV, Fixed, 95% CI)	0.86 [0.21, 1.51]
42 Family outcome: 3. Functioning (Family Assessment Device, 3 months, high scores = worse)	1	48	Mean Difference (IV, Fixed, 95% CI)	−6.56 [−10.50, −2.62]
43 Family outcome: 4a. Burden (Family Burden Interview Schedule, 3 months, high score = worse)	1	48	Mean Difference (IV, Fixed, 95% CI)	−7.01 [−10.77, −3.25]
44 Family outcome: 4b. Burden endpoint score at 0-18 months (high score = poor)	1	60	Mean Difference (IV, Fixed, 95% CI)	−0.40 [−0.71, −0.09]
45 Family outcome: 4c. Burden - not improved/worse (objective burden related to self-sufficiency)	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
45.1 12 months	1	51	Risk Ratio (M-H, Fixed, 95% CI)	0.53 [0.21, 1.37]
45.2 2 years	1	51	Risk Ratio (M-H, Fixed, 95% CI)	1.92 [0.19, 19.90]
46 Family outcome: 4d. Burden - not improved/worse (objective burden related to social functioning)	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
46.1 12 month	1	51	Risk Ratio (M-H, Fixed, 95% CI)	2.40 [0.51, 11.27]
46.2 2 year	1	51	Risk Ratio (M-H, Fixed, 95% CI)	2.88 [0.64, 12.97]
47 Family outcome: 4e. Burden - not improved/worse (subjective burden)	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
47.1 12 months	1	51	Risk Ratio (M-H, Fixed, 95% CI)	1.44 [0.60, 3.46]
47.2 2 years	1	51	Risk Ratio (M-H, Fixed, 95% CI)	0.58 [0.15, 2.16]
48 Family outcome: 4f. Burden - endpoint score (1 year, high score = worse, skewed)			Other data	No numeric data
49 Family outcome: 5a. Expressed emotion	4		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
49.1 overall levels	1	75	Risk Ratio (M-H, Fixed, 95% CI)	0.9 [0.68, 1.19]
49.2 over involvement	1	63	Risk Ratio (M-H, Fixed, 95% CI)	0.40 [0.22, 0.73]
49.3 criticism	1	63	Risk Ratio (M-H, Fixed, 95% CI)	0.44 [0.24, 0.81]
49.4 hostility	2	87	Risk Ratio (M-H, Fixed, 95% CI)	0.35 [0.18, 0.66]
49.5 high EE family	3	164	Risk Ratio (M-H, Fixed, 95% CI)	0.68 [0.54, 0.86]

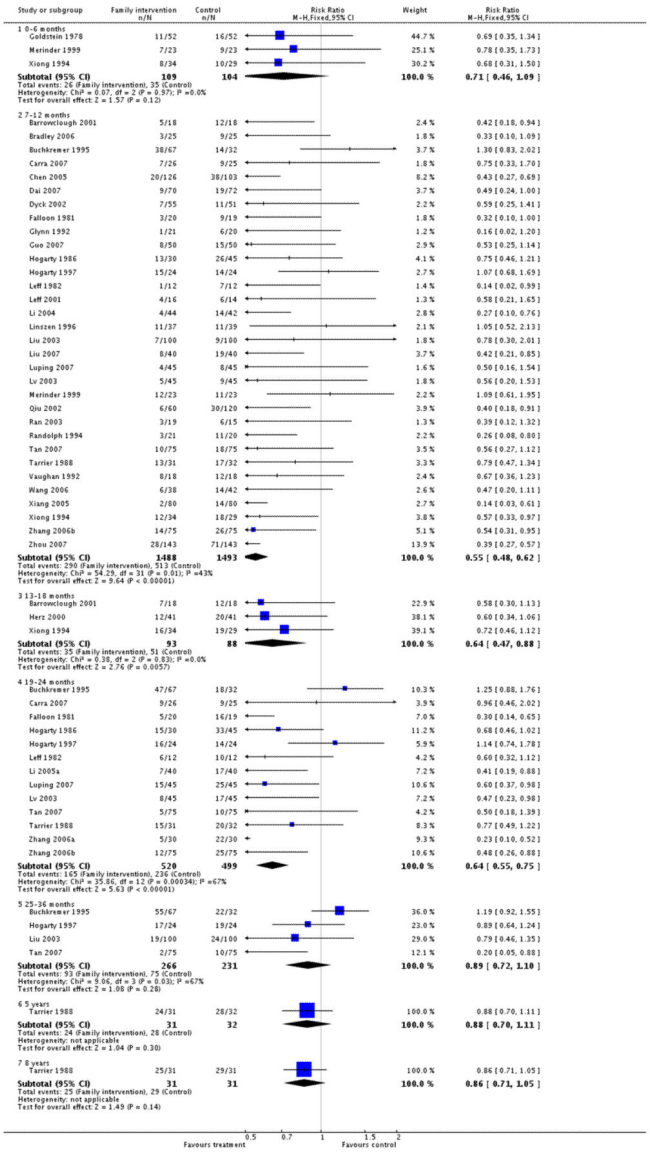
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
50 Family outcome: 5b. Expressed emotion, warmth 1 year (CFI, high score = poor)	1	24	Mean Difference (IV, Fixed, 95% CI)	0.47 [−0.29, 1.23]
51 Family outcome: 5c. Expressed emotion (1 year, skewed)			Other data	No numeric data
51.1 critical comments			Other data	No numeric data
51.2 over-involvement			Other data	No numeric data
52 Family outcome: 6. Knowledge Score (1 year, skewed data)			Other data	No numeric data
53 Family outcome: 7. Average endpoint score (Clinical Interview Schedule Revised, 6 months, skewed)			Other data	No numeric data
54 Family outcome: 8. Average endpoint score (Experience of Caregiving Inventory, 6 months, skewed)			Other data	No numeric data
55 Family outcome: 9. Average endpoint score (SESS, 6 months, skewed)			Other data	No numeric data
55.1 general support			Other data	No numeric data
55.2 confidant support			Other data	No numeric data
56 Family outcome: 10. Average endpoint score (Stressor-severity of caregiving difficulty, 6 months, skewed)			Other data	No numeric data
57 Family outcome: 11. Average change in emotion expressed by relatives (Family Q'aire - after 8 sessions)	1	29	Mean Difference (IV, Fixed, 95% CI)	−3.25 [−8.24, 1.74]
58 Family outcome: 12a. Satisfaction - average change in relatives' satisfaction (VSSS , 1 year, data skewed)			Other data	No numeric data
59 Family outcome: 12b. Satisfaction - relatives (VSSS - post intervention at 8 sessions, skewed)			Other data	No numeric data
60 Family outcome: 12c. Satisfaction - patients (VSSS -post intervention at 8 sessions, skewed)			Other data	No numeric data
61 Family outcome: 13.Average change score (APGAR, by 1 year, high score = better)	1	146	Mean Difference (IV, Fixed, 95% CI)	−2.90 [−3.40, −2.40]
62 Quality of Life: 1. Average endpoint score (QoL, 2 years, high score = good)	1	213	Mean Difference (IV, Fixed, 95% CI)	19.18 [9.78, 28.58]
63 Quality of life: 2. Average endpoint change (QoL, 1 year, high score = good)	1	50	Mean Difference (IV, Fixed, 95% CI)	−5.05 [−15.44, 5.34]

Comparison 2
BEHAVIOURAL FAMILY-BASED vs SUPPORTIVE FAMILY-BASED INTERVENTIONS (> 5 sessions)

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Service utilisation: Hospital Admission by 19-24 months	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2 Global state: Unstable (0-6 months)	1	528	Risk Ratio (M-H, Fixed, 95% CI)	1.08 [0.88, 1.33]
3 Compliance: Leaving the study early +/− poor compliance with treatment protocol (up to 30 months)	1	528	Risk Ratio (M-H, Fixed, 95% CI)	0.96 [0.88, 1.05]

Comparison 3
GROUP FAMILY-BASED INTERVENTIONS vs INDIVIDUAL FAMILY-BASED INTERVENTIONS (> 5 sessions)

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Global state: 1. Relapse	3		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
1.1 7-12 months	2	195	Risk Ratio (M-H, Fixed, 95% CI)	0.70 [0.41, 1.22]
1.2 19-24 months	3	197	Risk Ratio (M-H, Fixed, 95% CI)	0.71 [0.48, 1.05]
2 Global state: 2. More than 1 relapse (19-24 months)	1	172	Risk Ratio (M-H, Fixed, 95% CI)	0.71 [0.34, 1.50]
3 Compliance: 1. Poor compliance with treatment protocol	2	195	Risk Ratio (M-H, Fixed, 95% CI)	1.35 [0.84, 2.17]
4 Compliance: 2. Poor compliance with medication	1	172	Risk Ratio (M-H, Fixed, 95% CI)	1.00 [0.50, 1.99]
5 Social functioning: Unable to live independently (by 1 year)	1	23	Risk Ratio (M-H, Fixed, 95% CI)	2.18 [1.09, 4.37]
6 Family outcome: Emotion expressed at 2 years (high EE families)	1	23	Risk Ratio (M-H, Fixed, 95% CI)	0.94 [0.45, 1.92]



Analysis 1.4.

Review: Family intervention for schizophrenia

Comparison: 1 ANY FAMILY-BASED INTERVENTIONS (> 5 sessions) vs STANDARD CARE

Outcome: 4 Global state: 1. Relapse

FEEDBACK

Results

Summary

It is unclear from the review how many of the 12 included studies reported subsidiary outcome data and why all the subsidiary data were not used in analysis.

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Reply

The review has been substantially rewritten and updated. The ‘Included trials’ table has been much expanded.

Contributors

Comment received from Christine Barrowclough, Salford, UK, June 1997

Reply from Fiona Pharoah, Cambridge, UK, February 1999

WHAT’S NEW

Last assessed as up-to-date: 14 January 2010.

Date	Event	Description
20 January 2010	New search has been performed	Reformatted. 21 new studies added in 2010 update.

HISTORY

Review first published: Issue 2, 1999

Date	Event	Description
23 August 2006	New citation required and conclusions have changed	Substantive amendment

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

In early versions of this review we used an I^2 estimate of 75% or more to indicate the presence of heterogeneity. For the 2010 update we used a more conservative estimate of heterogeneity I^2 more than 50%. In addition, 11 studies that were included in earlier versions, under a subsection of fewer than five family intervention sessions, were removed and are to be included in a separate review of family intervention using entry criteria of fewer than five family intervention sessions.

Appendix 1. Previous search strategies

1 Electronic searches for update June 2005

1.1 We searched the Cochrane Schizophrenia Group’s Trials Register (June 2005) using the phrase:

[(*family* or family*) in title, abstract, index terms of REFERENCE] or [(*family* or family*) in interventions of STUDY]

This register is compiled by systematic searches of major databases, hand searches and conference proceedings (see Group Module).

2 Details of previous electronic searches

2.1 We searched the Cochrane Schizophrenia Group's register of trials (November 2002) using the phrase:

[(*family* or family*) in title, abstract, index terms of REFERENCE] or [(*family* or family*) in interventions of STUDY]

2.2 We searched the Cochrane Library (Issue 2, 1998) using the Cochrane Schizophrenia Group's terms for schizophrenia (see Group Module) combined with the phrase:

[famil*]

2.3 We searched the Cochrane Schizophrenia Group's Register (June 1998) using the phrase:

[famil* or #42=105 or #42=107]

#42 is the field within this register that held codes for each intervention and 105 and 107 are the codes for family interventions.

2.4 We searched EMBASE (January 1981 to June 1995) using the Cochrane Schizophrenia Group's terms for both randomised controlled trials and schizophrenia (see Group Module) combined with the phrase:

and (famil* and therap*)

2.5 We searched MEDLINE (January 1966 to June 1995) using the Cochrane Schizophrenia Group's terms for both randomised controlled trials and schizophrenia (see Group Module) combined with the phrase:

and (explode/family in MeSH and famil*)

Appendix 2. Risk of bias

Assessment of methodological quality

We assessed the methodological quality of included trials in this review using the criteria described in the Cochrane Handbook (Higgins 2005) and the Jadad Scale (Jadad 1996). The former is based on the evidence of a strong relationship between allocation concealment and direction of effect (Schulz 1995). The categories are defined below:

A. Low risk of bias (adequate allocation concealment)

B. Moderate risk of bias (some doubt about the results)

C. High risk of bias (inadequate allocation concealment). For the purpose of the analysis in this review, we included trials if they met the Cochrane Handbook criteria A or B.

The Jadad Scale measures a wider range of factors that impact on the quality of a trial. The scale includes three items:

1. Was the study described as randomised?

2. Was the study described as double-blind?
3. Was there a description of withdrawals and drop outs?

Each item receives one point if the answer is positive. In addition, a point can be deducted if either the randomisation or the blinding/masking procedures described are inadequate. For this review we used a cut-off of two points on the Jadad scale to check the assessment made by the Handbook criteria. However, the Jadad Scale was not used to exclude trials. We only included quasi-randomised studies if it was clear that the demographic profile of each group was similar.

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* *Indicates the major publication for the study*

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PLAIN LANGUAGE SUMMARY

Family intervention for schizophrenia

People with schizophrenia are more likely to experience a relapse within family groups when there are high levels of expressed emotion (hostility, criticism or over involvement) within the family, compared to families who tend to be less expressive of their emotions. There are several psychosocial interventions available involving education, support and management to reduce expressed emotion within families. In this review we compare the effects of family psychosocial interventions in community settings for the care of people with schizophrenia or schizophrenia-like illnesses.

Studies were conducted in Europe, Asia and North America with packages of family intervention varying among studies, although there were no clear differences in study design. Results indicated that family intervention may reduce the risk of relapse and improve compliance with medication. However data were often inadequately reported and therefore unusable. As this package of care is widely employed, there should be further research to properly clarify several of the short-term and long-term outcomes.

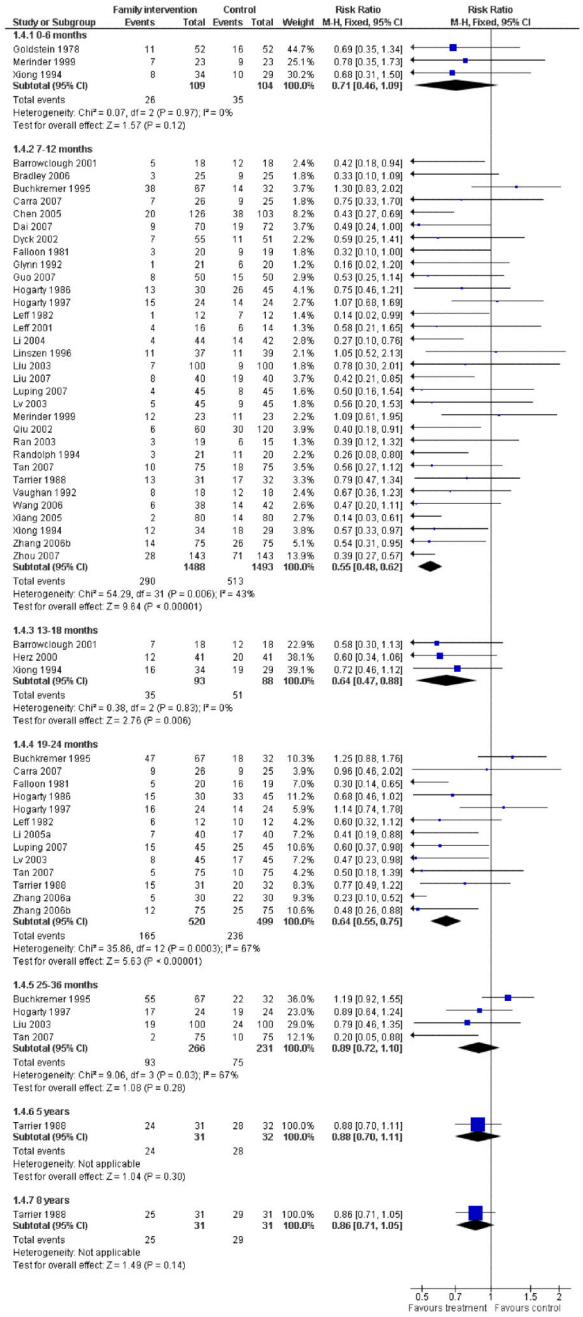

Figure 1. Forest plot of comparison: 1 ANY FAMILY-BASED INTERVENTIONS (> 5 sessions) vs STANDARD CARE, outcome: 1.4 Global state: 1. Relapse (without use of data from China)

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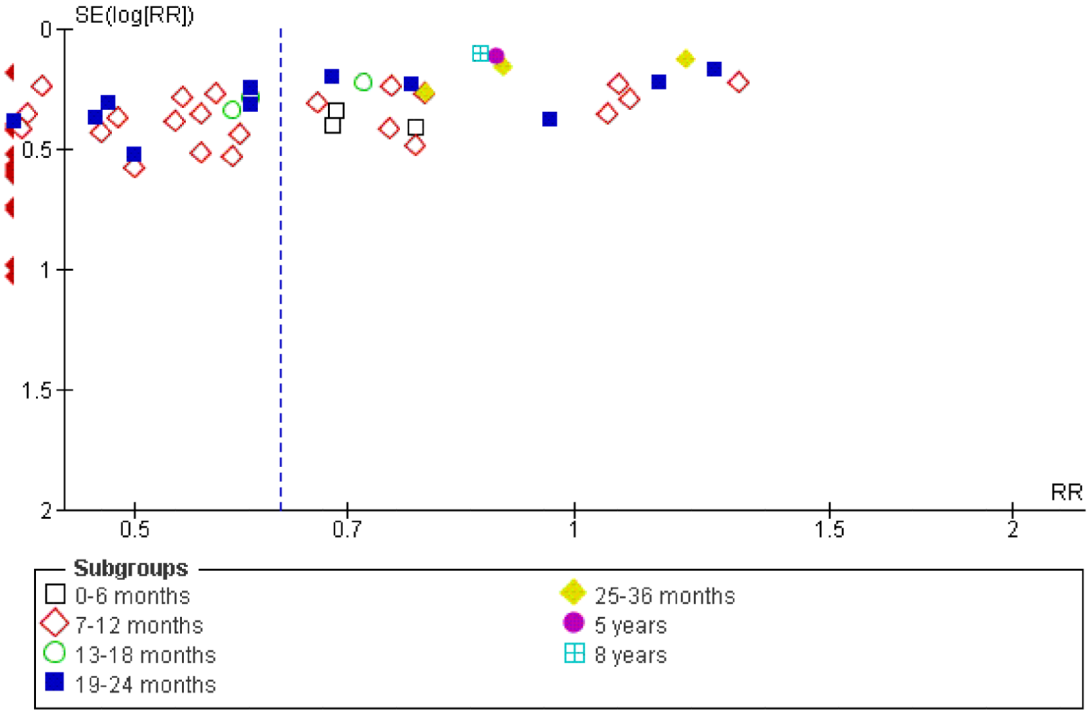

Figure 2. Funnel plot of comparison: 1 ANY FAMILY-BASED INTERVENTIONS (> 5 sessions) vs STANDARD CARE, outcome: 1.4 Global state: 1. Relapse

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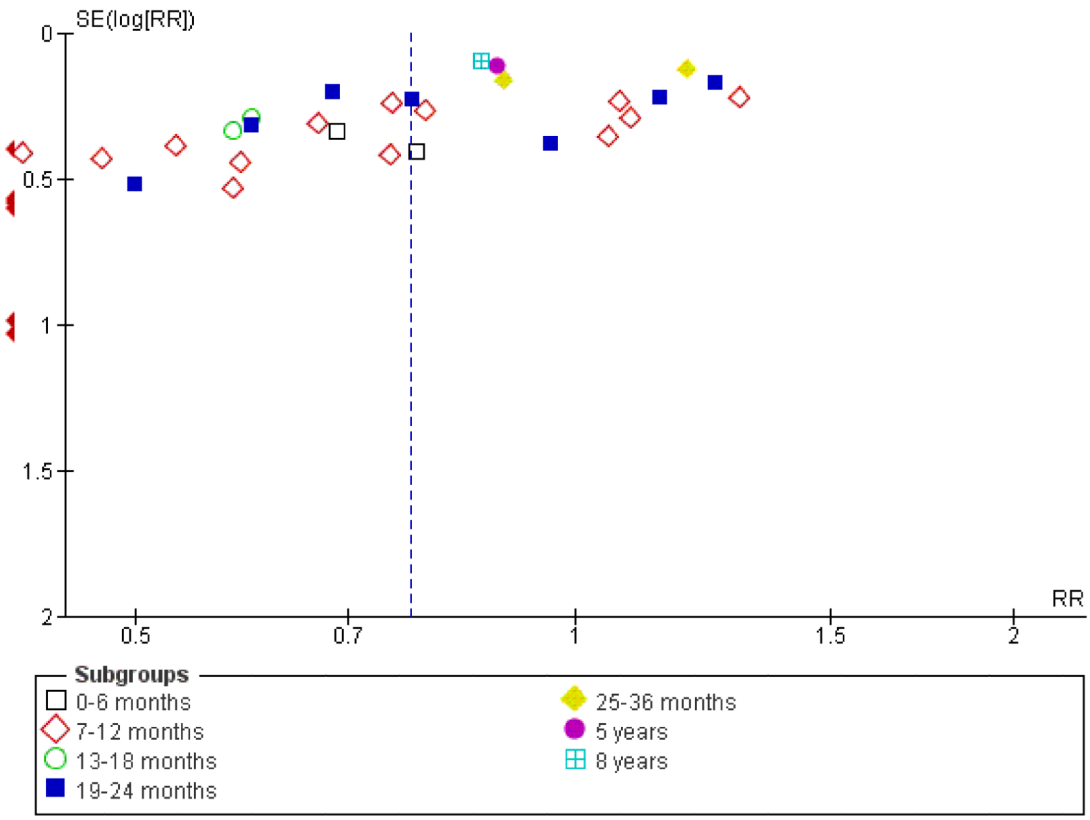

Figure 3. Funnel plot of comparison: 1 ANY FAMILY-BASED INTERVENTIONS (> 5 sessions) vs STANDARD CARE, outcome: 1.4 Global state: 1. Relapse (minus Chinese trials)

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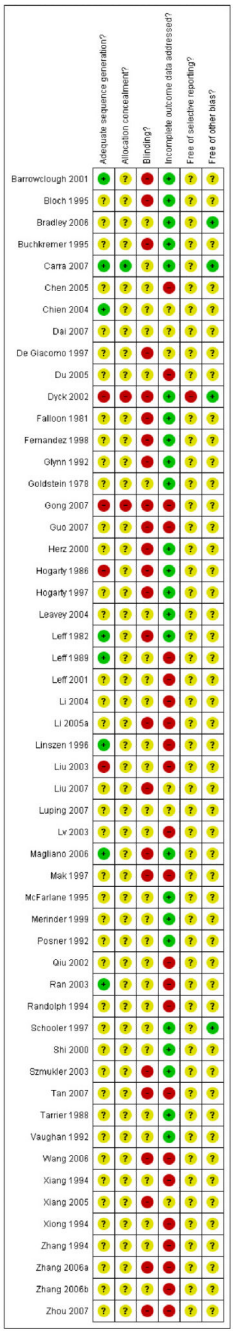

Figure 4. Methodological quality summary: review authors' judgements about each methodological quality item for each included study

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Table 1

Suggestions for design of future study

Methods	Allocation: randomised, with sequence generation and concealment of allocation clearly described. Blindness: single, tested. Duration: 12 months beyond end of intervention at least. Raters: independent.
Participants	Families of patients who have a diagnosis of schizophrenia and/or schizoaffective disorder. N = 450.*
Interventio ns	**1** Any psychosocial educational family-centred intervention with relatives of those with schizophrenia that required more than five sessions. **2** Standard care but was not restricted to an in-patient context/environment. **3** Family psychosocial intervention that are solely hospital based or comprisefewer than five sessions
Outcomes	Healthy life: days of 'healthy' life.** General state: relapse, frequency and intensity of minor and major exacerbations. Social role and performance: not using social adjustment because of the normative bias of this measure. Quality of life: binary measure. Distress among relatives: binary measure. Burden on family: binary measure. Mental state: depressive spells and/or suicide attempts. Service outcomes: admitted, number of admissions, length of hospitalisation, contacts with psychiatric services. Compliance with drugs. Economic evaluations: cost-effectiveness, cost-benefit.
Notes	* Size of study with sufficient power to highlight about a 10% difference between groups for primary outcome. ** Primary outcome.