Interventions to improve the experience of caring for people with severe mental illness: systematic review and meta-analysis

Amina Yesufu-Udechuku, Bronwyn Harrison, Evan Mayo-Wilson, Norman Young, Peter Woodhams, David Shiers, Elizabeth Kuipers* and Tim Kendall*

Background
Informal caregiving is an integral part of the care of people with severe mental illness, but the support needs of those providing such care are not often met.

Aims
To determine whether interventions provided to people caring for those with severe mental illness improve the experience of caring and reduce caregiver burden.

Method
We conducted a systematic review and meta-analyses of randomised controlled trials (RCTs) of interventions delivered by health and social care services to informal carers (i.e. family or friends who provide support to someone with severe mental illness).

Results
Twenty-one RCTs with 1589 carers were included in the review. There was evidence suggesting that the carers’ experience of care was improved at the end of the intervention by psychoeducation (standardised mean difference $-1.03$, 95% CI $-1.69$ to $-0.36$) and support groups (SMD $= -1.16$, 95% CI $-1.96$ to $-0.36$).

Psychoeducation had a benefit on psychological distress more than 6 months later (SMD $= -1.79$, 95% CI $-3.01$ to $-0.56$) but not immediately post-intervention. Support interventions had a beneficial effect on psychological distress at the end of the intervention (SMD $= -0.99$, 95% CI $-1.48$ to $-0.49$) as did problem-solving bibliotherapy (SMD $= -1.57$, 95% CI $-1.79$ to $-1.39$); these effects were maintained at follow-up. The quality of the evidence was mainly low and very low. Evidence for combining these interventions and for self-help and self-management was inconclusive.

Conclusions
Carer-focused interventions appear to improve the experience of caring and quality of life and reduce psychological distress of those caring for people with severe mental illness, and these benefits may be gained in first-episode psychosis. Interventions for carers should be considered as part of integrated services for people with severe mental health problems.

Declaration of interest
None.

The deinstitutionalisation of psychiatric care in high-income countries has increased the number of people being cared for in the community, but people caring for adults with schizophrenia spend an average of 6–9 h per day providing care. In the UK data suggest that 15% of those caring informally with schizophrenia spend 9–32 contact hours per week providing care and 43% spend over 32 h per week. Many people are unable to work or have to take time off work to provide care. The informal unpaid care they provide saves the National Health Service (NHS) the cost of providing comparable paid care, which is approximately £34 000 per person with schizophrenia (calculated using a mean of 5–6 h per day). Families who take on the responsibility of caring for a relative with schizophrenia save the public £1.24 billion a year. Caring can be a strongly positive experience, but it is often associated with burdens that are subjective (perceived) and objective (for example, contributing directly to ill health and financial problems or in displacing other daily routines). Other reported negative consequences of caring for those with psychosis include poor satisfaction with services provided, and difficulties in coping. Many interventions for those with serious mental health problems provided by health and social care services are focused on the person using the service. Even when family interventions are offered to people with severe mental illness and their families, the number of sessions that specifically include the carer varies, and clinical staff typically do not see it as ‘their job’ to offer direct help to carers. However, it is well established that the burden of care and ability of a carer to cope can have an impact on the recovery of the patient. Family interventions for people with severe mental illness may reduce relapse rates and increase cooperation with pharmacotherapy, and the burden of care may be reduced by psychosocial interventions, but the specific effects of interventions for carers themselves are not usually reported or are seen as secondary outcomes.

A number of reviews have evaluated published research on interventions for people caring for someone with serious mental illness, such as mutual support and interventions delivered by community mental health nurses. Chien & Norman surmised that although it is recognised that mutual support has a beneficial effect on outcomes both for people with severe mental illness and for their families, further research is required to evaluate the effects of mutual support on the carers themselves. The review by Macleod et al of nurse-delivered interventions for carers reported that support and education interventions, community outreach programmes and mutual support all had beneficial effects on carer burden.

A recent systematic review assessed the effectiveness of family interventions on relatives of people with psychosis, but did not include a meta-analysis. The aim of our review was to investigate interventions provided by health and social care services for people caring for someone with severe mental illness. This is the first systematic review and meta-analysis of interventions with the primary goal of improving carers’ experience and reducing carer burden. The review was not registered.

Method
We conducted a systematic review of randomised clinical trials (RCTs) to evaluate interventions delivered by health and social care services for people caring for someone with severe mental illness. The review was not registered.
care services to the carers of people with severe mental illness (schizophrenia spectrum and bipolar disorders). We therefore excluded studies in which more than a third of the study population cared for a person with major depression or a common mental health disorder. Carers were defined as family or friends who provided informal and regular care and support to someone with severe mental illness. Interventions were included if they were provided to the carer alone (i.e. without the patient present) and if the content of the intervention had the aim of improving the carer’s experience of care and reducing carer burden. Studies were included if they evaluated interventions aimed at improving the experience of caregiving. We excluded studies that were limited to the provision of financial and day-to-day practical support (for example personal assistance or direct payments) or to interventions targeted at the patient rather than the carer.

**Outcome measures**

The primary outcome of the review was the experience of caregiving, involving positive and negative experiences of caring for someone with severe mental illness. Secondary outcomes were carer quality of life, satisfaction with services and psychological distress. Only data from validated outcome measures were included in the meta-analysis. Outcome data were grouped by the following time points: end of intervention, up to 6-month follow-up and longer than 6-month follow-up. For outcomes measured at several time points within these intervals, we selected the longest follow-up point following randomisation.

**Search strategy**

We conducted a search for RCTs published from the inception of databases up to June 2013 with no language restrictions (see online Appendix DS1). The following databases were searched: CENTRAL, CDSR, DARE, HTA, EMBASE, Medline, Medline In-Process, AEI, ASSIA, BEI, CINAHL, ERIC, IBSS, PsycINFO, Sociological Abstracts and SSA. Reference lists from previous reviews and included studies were examined and study authors were contacted. Titles and abstracts were screened based on the review protocol by one author (B.H.) and reviewed by another author (A.Y.-U.). Full texts of studies meeting inclusion criteria were then retrieved and reviewed to further establish inclusion in the review. Any disagreements were discussed with a third author (E.M.-W.). Until a consensus was reached.

**Data management**

Following Cochrane Collaboration methods, data were extracted independently by two reviewers (A.Y.-U. and B.H.). We extracted data for study characteristics (setting, number randomised and duration), inclusion criteria, carer and patient demographics, characteristics of the interventions (content, frequency and duration, contextual information) and outcomes. Authors were contacted to request missing participant characteristics and outcome data, and to enquire about unpublished studies.

**Assessment of bias**

We assessed each study using the Cochrane Collaboration risk of bias tool, and judged whether each study was at low, high or unclear risk of bias for specified domains. Each study was rated for risk of bias due to sequence generation; allocation concealment; masking of participants, assessors and providers; selective outcome reporting; and incomplete data. Studies were independently assessed by two authors (A.Y.-U., B.H.), and disagreements were discussed with a third author (E.M.-W.). Authors of included studies were contacted to supply any unreported information such as outcomes or study methods. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach was used to assess the quality of the evidence for each outcome. This approach uses a structured method of assessing the overall quality of each outcome into one of four GRADE ratings (high, moderate, low and very low) based on an assessment of five factors: limitations, inconsistency, indirectness, imprecision and publication bias (www.gradeworkinggroup.org). Where more than ten trials were included in a meta-analysis, publication bias was assessed using funnel plots.

**Statistical analysis**

Where possible data were entered directly into Review Manager (RevMan) version 5.2 for Windows. For dichotomous outcomes we calculated relative risks (RRs) or rate ratios and 95% confidence intervals using Mantel–Haenszel methods. For continuous outcomes, standardised mean differences (SMDs) and 95% CIs were calculated using Hedges’ g and combined using inverse variance methods. We used random-effect methods for all meta-analyses. When studies reported data in multiple formats we calculated the SMD and its standard error before entering data in RevMan. Effect estimates favour intervention (i.e. carer intervention rather than control) when the relative risk is reduced (RR < 1) or the standardised difference is negative (SMD < 0). Statistical heterogeneity was assessed by visual inspection of forest plots, by the test (assessing P value) and by calculating the I² statistic, which describes the percentage of observed heterogeneity that would not be expected by chance. If P was less than 0.10 and I² exceeded 40%, we considered heterogeneity to be substantial. In these cases we explored the possible reasons for heterogeneity which included sensitivity analysis with and without studies that were causing the heterogeneity. When subgroup analyses were conducted, differences between groups were tested using within RevMan. To assess the possibility of small study bias, random-effects estimates were compared with fixed-effect estimates. Data were analysed and presented first as intervention v. control (e.g. treatment as usual, active control, waiting list, no treatment), followed by direct comparisons of carer interventions. We conducted a planned subgroup analysis on the basis of the diagnosis of the patient; these analyses were conducted and reported dependent on data availability.

**Results**

From 9220 records 24 studies met inclusion criteria for the review; of these, 20 studies were included in the meta-analysis (Fig. 1). Three studies did not report any eligible outcome and were thus excluded. One study did include relevant outcomes but did not report sufficient data in a format that could be used for meta-analysis. The findings from this study are described narratively. All included studies were published in English. Reasons for excluding 33 studies are summarised in online Table DS1. Two ongoing studies were identified (Table DS1).

**Description of studies**

Studies assigned 1589 carers with a median sample size of 63, ranging from 40 to 225 (Table 1). 22–44 The 20 studies included in meta-analyses randomised 1364 carers (86% of people included in the review). Comparisons included treatment as usual/control compared with psychoeducation, a support group, a combined psychoeducation and support group, problem-solving
bibilotherapy, and self-management. One study compared enhanced psychoeducation with standard psychoeducation, and one study compared psychoeducation delivered by post with practitioner-delivered psychoeducation. Two of the included studies were three-arm studies comparing two active interventions with treatment as usual, and are therefore included in multiple comparisons. One study included a group evaluating an intervention termed ‘psychotherapy’, however, this arm was not included in our review because it did not meet the eligibility criteria outlined above. Experience of caregiving was measured using the Experience of Caregiving Inventory, the Family Burden Interview Schedule, the Social Behaviour Assessment Schedule, the Family Burden Questionnaire, and the Zarit Caregiver Burden Scale. Carer quality of life was measured using the 12-item and 36-item Short Form Health Surveys (SF-12 and SF-36) and satisfaction with services was measured using the Consumer Satisfaction Questionnaire.

Finally, psychological distress was measured using the 12-item and 28-item General Health Questionnaires, the Symptom Rating Test, the Beck Depression Inventory, the Kessler Psychological Distress Scale, and the Clinical Interview Schedule – Revised. For a summary of the components of the interventions provided in the included studies, see online Table DS2.

Seven studies were conducted in China, four in the UK, two in the USA, two in Australia, two in Iran, one in Canada, one in Spain, one in Chile and one in Ireland. The median of the mean age of carers was 49 years, and the median study included 76% women. The median percentage of carers living with patients was 100% (range 49–100); however, this was not reported in six studies. The diagnoses of the patients varied across studies: 16 studies included people with diagnoses of psychosis or schizophrenia spectrum disorder and 3 included people with bipolar disorder. Of the remaining two mixed population studies, the majority of patients had a diagnosis of psychosis and schizophrenia (Table 1).

Quality of included studies

Sequence generation was adequately described in 14 studies and unclear in 7 studies (Fig. 2, online Fig. DS1). There was low risk of bias for allocation concealment in 8 studies but this was unclear for 13 studies. Masking of participants and personnel was not possible; all studies were at high risk of bias per se. For masking of outcome assessment, 14 studies were at low risk of bias, 1 was at high risk of bias and 6 were unclear. At the study level, 12 studies were at low risk of bias for missing data, 6 studies were at high risk of bias and 3 studies were unclear. We were able to confirm by contacting trial authors and checking review protocols that 2 studies were completely free of selective outcome reporting (i.e. clearly reported all outcomes measured). However, 16 studies were at unclear risk of selective outcome reporting and 3 were at high risk. Overall, the primary outcome was measured in a variety of ways (both within and between studies) and follow-up data beyond the end of the intervention were inconsistent. Therefore, there is a high possibility of selective reporting in this review.

Effects of interventions

The results of the meta-analysis of prespecified outcomes are summarised in online Table DS3.

Psychoeducation v. any control

Eight studies with 428 participants were included in the analysis of the experience of caregiving assessed at the end of the intervention. There was very low-quality evidence of a large effect of psychoeducation on experience of caregiving. Four studies with 215 participants provided data up to 6-month follow-up. There was very low-quality evidence of a large effect on the experience of caregiving. Three studies including 151 participants reported very low-quality evidence of a large effect of the intervention on the experience of caregiving at greater than 6-month follow-up. However, despite large effect sizes being reported for the experience of caregiving at all end of treatment and follow-up assessments, heterogeneity was very high (I² = 89%, 79% and 86% respectively) so interpretation of results should be done cautiously. Sensitivity analysis did not explain the possible reason for the high heterogeneity. However, inspection of the forest plots shows that the direction of effect is consistent across studies and the high heterogeneity may have been caused by differences in the magnitude of effects across studies. See online Figs DS2–4 for the corresponding forest plots.

One study including 44 participants found low-quality evidence of no significant difference between psychoeducation and control in quality of life at the end of the intervention. One study with 39 participants found low-quality evidence of no significant difference between the intervention and control in satisfaction with services at either the end of the intervention or up to 6-month follow-up. Two studies with 86 participants were included in the analysis of carer psychological distress, there was very low-quality evidence of no difference between the intervention and control at the end of the intervention. Similarly, there was low-quality evidence of no difference between the groups up to 6-month follow-up. However, one study with
Interventions to improve caregiver experience

18 participants provided data at over 6-month follow-up showing moderate quality of a large effect of psychoeducation over control on psychological distress.28

One study of participants receiving individual psycho-education found the intervention less helpful than group psychoeducation for understanding of medication ( = 8.39, d.f. = 1, P < 0.004).33 Furthermore, those receiving the group psychoeducation intervention found the sessions less useful than participants in the individual psychoeducation group for learning about the community resources available to them ( = 8.69, d.f. = 1, P < 0.004).

Support group v. any control

Three studies including 194 participants provided very low evidence of a large effect on the experience of caregiving at the end of the intervention.36–38 There was low-quality evidence of a moderate effect at up to 6-month follow-up. However, although a clinically large effect was observed, this effect was no longer statistically significant at more than 6-month follow-up. However, although the studies included in the analysis at end of intervention and greater than 6-month follow-up showed large effects favouring support groups, heterogeneity was very high (I² = 85% and I² = 96% respectively). The direction of the effect consistently favoured the intervention and sensitivity analysis showed that high heterogeneity was possibly caused by difference in the magnitude of effect across included studies. One study with 70 participants provided low-quality evidence of a large effect of support groups on psychological distress at the end of the intervention and up to 6-month follow-up.38 See online Figs DS5–7 for the corresponding forest plots.

Psychoeducation plus support group v. any control

One study contributing 49 participants provided low-quality evidence of no effect of psychoeducation plus support group on the experience of caregiving at over 6-month follow-up;35 data were only available for a psychosis and schizophrenia spectrum disorder sample (see online Fig. DS8 for the corresponding forest plots).

<table>
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BPD, bipolar disorder; NR, not reported; SMI, serious mental illness or mood disorder; SSD, schizophrenia spectrum disorder. a. Not included in meta-analysis.

Support group v. any control

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Table 1 Characteristics of included studies, categorised by intervention

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**Fig. 2 Risk of bias summary.**
Problem-solving bibliotherapy v. any control

One study including 114 participants provided low-quality evidence of no effect of problem-solving bibliotherapy on the experience of caregiving at the end of the intervention,\(^3\) and of no statistically significant effect at 6-month follow-up. Data were only available for a psychosis and schizophrenia spectrum disorder sample (see online Figs DS9 and DS10 for the corresponding forest plots). This study provided low-quality evidence of no clinically meaningful difference between intervention and control groups in quality of life at the end of the intervention,\(^3\) but moderate benefit was observed up to 6-month follow-up. There was moderate-quality evidence of a large effect of the intervention on psychological distress at the end of the intervention and up to 6 months later.\(^3\)

Self-management v. any control

One study with 86 participants provided moderate-quality evidence of no effect on self-management on either the experience of caregiving or psychological distress at the end of the intervention.\(^4\) Data were available only for a mixed severe mental illness sample (see online Fig. DS11 for the corresponding forest plots).

Enhanced v. standard psychoeducation

One study, contributing 43 participants to the review, provided moderate-quality evidence that enhanced psychoeducation had a moderate effect on the experience of caregiving when compared with standard psychoeducation at the end of the intervention.\(^5\) Data were available from only a single study including a bipolar disorder sample (see online Fig. DS12 for the corresponding forest plot).

Practitioner-delivered v. postal psychoeducation

One study with 40 participants provided low-quality evidence that practitioner-delivered psychoeducation was no more effective than postal psychoeducation for either family distress or psychological distress at the end of the intervention and at up to 6-month follow-up.\(^6\)

Subgroup analysis

A test for difference based on the diagnosis of the patient could only be conducted for the psychoeducation intervention compared with control. All other comparisons included only carers for people with psychosis or schizophrenia and thus no subanalysis was possible. Subgroup data for psychoeducation compared with control was available only for the outcome of experience of caregiving at the end of the intervention and greater than 6-month follow-up. However, the bipolar disorder subgroup accounted for only 11% of the participant data included in this analysis and thus subanalysis based on diagnosis was unlikely to be meaningful.

Discussion

This is the first formal systematic review and meta-analysis of carer-focused interventions for people caring for someone with severe mental illness, and despite shortcomings in the underpinning evidence it suggests that psychosocial interventions specifically aimed at helping carers can lead to both improvements in the experience of caregiving and quality of life, and decreases in burden and psychological distress. The findings of this review are consistent with previous reviews in finding that education and support may be beneficial to those caring for people with severe mental illness.\(^6\) Although most evidence in this review comes from studies of psychoeducation and support groups, with most other interventions evaluated in single studies (often with small numbers of participants), it was not possible to identify with certainty which specific intervention was superior. The evidence is derived from studies of those caring for people with severe mental illness, including schizophrenia spectrum disorders, psychosis, schizophrenia and bipolar disorder, and there is growing evidence that providing these interventions early (in the first episode of psychosis) has benefits for carers.

Strengths and limitations

The limitations of this data-set are substantial. First, the quality of the evidence underpinning critical outcomes in this meta-analysis was very low to moderate. For example, in studies of psychoeducation the experience of caregiving had a large effect size derived from four studies of reasonable size, but the quality was downgraded to ‘very low’ owing to a high risk of bias, significant heterogeneity and a lack of precision. Data on support groups also showed high levels of heterogeneity. It is possible that for both psychoeducation and support groups for carers, the interventions pooled in the analysis had some important differences leading to heterogeneity. Moreover, we sought to combine outcomes across studies, but there was only evidence from one trial for some outcomes and meta-analysis was not always possible. Given the small number of studies and participants, important effects may be statistically insignificant because the analyses lack power, or they may be overestimated by chance or by small study bias. We have reported all results to maximise the transparency and completeness of the review, but many results are limited by the lack of replication, imprecision and risk of reporting bias. Most measures in this review sought to assess subjective, participant-reported outcomes. Compared with objective outcomes, these measures may be associated with more error and greater risk of bias (e.g. response bias). Despite these limitations and variations in effect sizes, the critical outcomes for both psychoeducation and support groups were consistently positive and provide qualified evidence of benefit.

The range of conditions represented in the study populations may have contributed to heterogeneity, but may also have contributed to the external validity of our results. Studies included those caring for people with schizophrenia and other schizophrenia spectrum disorders, first-episode psychosis and bipolar disorder. It is possible that this variation contributed to statistical heterogeneity in the meta-analyses. Although the majority of the evidence relates to carers of people with psychosis, carers of people with other conditions face similar difficulties and challenges, and this evidence may suggest that interventions for carers could be beneficial for a number of populations. Finally, our review of support groups included studies conducted only in East Asian populations, with healthcare settings and practices likely to be substantially different from those found in other countries, thus limiting generalisability. Nevertheless, a variety of countries were represented in the wider review, suggesting consistently beneficial effects across different countries, and we can surmise that support groups are likely to be better than nothing for carers. Indeed, this finding, and those for psychoeducation,
confirm the results of systematic literature reviews of interventions for carers,
and of a systematic review of outcomes for carers in studies of interventions for patients.

**Implications for practice**

The interventions evaluated in this review are themselves complex, and there is a clear argument that a focus on those in a caring role will be beneficial both for them and for patients. Although this review cannot recommend any specific intervention, it does raise the importance of assessing the experience of caregiving, levels of burden and psychological distress, and the quality of life of people caring for someone with severe mental illness, including psychosis, in routine practice. The sometimes substantial improvements in critical outcomes shown in a number of quite varied studies can (at least in part) be taken as evidence of an underlying need that carers have for help, not just as caregivers but as individuals. This supports the view that those caring for someone with severe mental illness would benefit from help and interventions focused on their own needs as an additional component of healthcare service provision for patients supported by carers in the community. Clearly, if a carer assessment suggests that a carer needs help, whether this is to enhance caregiving or to reduce psychological distress and improve quality of life, carer-focused interventions should be considered. The National Institute for Health and Care Excellence (NICE) guideline on psychosis and schizophrenia recommends that all people with psychosis or schizophrenia, including people with first-episode psychosis, should be routinely offered family interventions to promote better outcomes for patients, especially to reduce relapse. The evidence from this review suggests we should also consider carer-focused interventions.

**Implications for research**

Over the past 40 or more years studies have repeatedly shown that relapse rates for people with psychosis can be substantially reduced through family interventions. The positive role that carers can play is clear: at the end of treatment relapse rates are nearly halved, an effect that diminishes over time but may still be impressive. Over the past 40 or more years studies have repeatedly shown that carer-focused family interventions for severe mental illness or offered alongside traditional patient-focused interventions are likely to be helpful to carers. What is less clear is which intervention is likely to benefit carers most, although psychoeducation and support groups are probably the best candidates. In addition, it is not possible to say from the evidence whether carer-focused interventions should be offered alongside traditional patient-focused family interventions for severe mental illness or offered separately. Combining patient-focused family interventions with interventions that focus on carers’ needs may offer advantages. Perhaps a next step could be to develop and evaluate, through a randomised controlled trial, a patient-focused and carer-focused family intervention, comparing it with a traditional patient-focused family intervention, using both patient and carer outcomes, to examine their possible interdependence in the context of first-episode psychosis. Future studies should be registered in advance, be reported in full to avoid reporting biases, be rigorously designed and clearly report information about the carer and patient participants, the interventions, comparison group and the primary outcomes of interest, and should take into consideration previous research regarding the most beneficial components of carer-focused interventions. Better methodology might well require better funding for this largely ignored group of carers.

In our view it is no longer sustainable, nor economically supportable, to ignore the central role that many carers have in the care and support, and effectiveness of therapy, of people with severe mental illness. With the newly emerging consensus on parity of esteem between mental and physical health, now is the time for concerted action to help those caring for people with some of the most impairing of mental health problems.

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**References**


Chien WT, Wong KF. A family psychoeducation group program for Chinese people with schizophrenia in Hong Kong. Psychiatr Serv 2007; 58: 1069–66.


## Online data supplement

**Interventions to improve the experience of caring for people with severe mental illness: systematic review and meta-analysis**

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<tr>
<th>Amina Yesufu-Udechuku, Bronwyn Harrison, Evan Mayo-Wilson, Norman Young, Peter Woodhams, David Shiers, Elizabeth Kuipers*, Tim Kendall*</th>
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## Appendix DS1  Electronic searches

Embase, Medline, Medline In-Process, PsycINFO – OVID SP

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<tr>
<td>86</td>
<td>audiotapes/ or audiovisual communications media/ or communications media/ or computer applications/ or exp computer assisted instruction/ or computer assisted therapy/ or computer attitudes/ or computer literacy/ or computer mediated communication/ or computer software/ or computer training/ or computers/ or decision support systems/ or digital video/ or educational audiovisual aids/ or electronic communication/ or exp human computer interaction/ or hot line services/ or human computer interaction/ or hypermedia/ or information technology/ or instructional media/ or internet/ or exp mobile devices/ or exp multimedia/ or online therapy/ or programmed instruction/ or exp social media/ or exp social networks/ or telecommunications media/ or telemedicine/ or telemetry/ or exp telephone systems/ or videotapes/</td>
</tr>
<tr>
<td>87</td>
<td>86 use psyh</td>
</tr>
<tr>
<td>88</td>
<td>(((audio$ or cd or cd rom or cdrom or communication or computer$ or cyber$ or (digital adj (assistant$ or divide$)) or dvd or (e$1 adj (communicat$ or consult$ or mail$ or portal$ or tablet$ or visit$)) or electronic$ or email$ or ecommunicat$ or econsult$ or eportal$ or etablet$ or evisit$ or facebook$ or floppy or handheld or hand held or information technolog$ or instant messag$ or interactiv$ or internet or iphone$ or laptop$ or multimedia or multi media or myspace$ or my space$ or online or palmtop or palm top or pc$1 or pda or personal digital or phone$ or portal$1 or reminder system$ or remote consultation$ or short messag$ or skype or sms or (social adj (media or network$)) or tablet$1 or technolog$ or telephone$ or texts or texting or video$ or virtual or web or website or wireless communication or www) adj3 (aid$ or assist$ or based or deliver$ or diary or diaries)) or (video$ adj3</td>
</tr>
</tbody>
</table>
(feedback or information$ or model$) or (virtual adj2 (environment$ or reality))).ti,ab.

((audio$ or cd rom or cdrom or communication aid$ or computer$ or cyber$ or (discussion adj (board$ or group$)) or (digital adj (assistant$ or divide)) or dvd or email$ or ecommunicat$ or econsult$ or etablet$ or evisit$ or (e$1 adj (communicat$ or consult$ or mail$ or tablet$ or visit$)) or facebook$ or floppy or handheld or hand held or information technolog$ or instant messag$ or interactiv$ or internet or iphone$ or laptop$ or mobile or multimedia or multi media or myspace$ or my space$ or online or palmtop or palm top or pc$1 or pda or personal digital or phone$ or portal$1 or reminder system$ or remote consultation$ or short messag$ or skype or sms or (social adj (media or network$)) or tablet$1 or telephone$ or texts or texting or video$ or virtual or web or website or wireless communication) adj7 (advocacy or application$ or approach$ or coach$ or educat$ or exchang$ or guide$1 or help$ or instruct$ or interact$ or interven$ or learn$ or manag$ or meeting$ or module$ or network$ or package$ or participat$ or prevent$ or program$ or psychoanaly$ or psychotherap$ or re hab$ or retrain$ or re train$ or self guide$ or self help or selfguide$ or selfhelp or session$ or skill$ or strateg$ or support$ or teach$ or technique$ or therap$ or train$ or treat$ or work shop$ or workshop$)).ti,ab.

(call in or (caller$1 adj3 (interven$ or program$ or therap$ or treat$)) or callline$ or call line$ or ediar$ or ehealth or elearn$ or etherap$ or (e adj (diar$ or learn or health or therap$)) or telecare or telecommunication or teleconsult$ or telehealth or telemedicine or telepsychology or telepsychiatry or teletherap$ or (tele adj (care or communication or consult$ or health or medicine or psychology or psychiatry or therap$))).ti,ab.

or/83,85,87-90

92 counselling,hw. or religion/ or spiritual care/ or spiritual healing/

93 92 use emez

94 exp religion/ or exp spiritual therapies/

95 94 use mesz, prem

96 pastoral counseling,/ or religion/ or exp religious beliefs/ or religious education/ or exp religious literature/ or exp religious personnel/ or exp religious practices/ or spirituality/

97 96 use psych

98 (church or cleric or clergyman or deity or divinity or divine or faith$ or god or ((higher or supreme) adj being) or inner peace or meditat$ or (pastoral adj3 (care or caring)) or priest or preacher or pray or prayer$ or praying or religious or religiousity or religion$ or spiritual$).ti,ab.

99 (buddhism or buddist$ or christian$ or catholic$ or eastern orthodoxy or jehovah$ witness or protestant$ or hindu* or islam$ or judaism or taoism or sikk or rastafari).ti,ab.

or/93,95,97-99
CINAHL, Ebsco Host

s87
s1 or (s22 and (s23 or s24 or s25 or s26 or s27 or s28 or s29 or s30 or s31 or s32 or s33 or s34 or s35 or s36 or s37 or s38 or s39 or s40 or s41 or s42 or s43 or s44 or s45 or s46 or s47 or s48 or s49 or s50 or s51 or s52 or s53 or s54 or s55 or s56 or s57 or s58 or s59 or s60 or s61 or s62 or s63 or s64 or s65 or s66 or s67 or s68 or s69 or s70 or s71 or s72 or s73 or s74 or s75 or s76 or s77 or s78 or s79 or s80 or s81 or s82 or s83 or s84 or s85 or s86))

s86
s86 ti ((counsel?ing) or ab (counsel?ing) or mw (counsel?ing))

s85
ti ((buddhism or buddist* or christian* or catholic* or "eastern orthodoxy" or "jehovah* witness" or protestant* or hindu* or islam* or judaism or taoism or sikk or rastafari) or ab ((buddhism or buddist* or christian* or catholic* or "eastern orthodoxy" or "jehovah* witness" or protestant* or hindu* or islam* or judaism or taoism or sikk or rastafari))

s84
s84 ti ((church or cleric or clergyman or deity or divinity or divine or faith* or god or ((higher or supreme) n1 being) or "inner peace" or meditat* or (pastoral n3 (care or caring)) or priest or preacher or pray or prayer* or praying or religious or religiousity or religion* or spiritual*) or ab ((church or cleric or clergyman or deity or divinity or divine or faith* or god or ((higher or supreme) n1 being) or "inner peace" or meditat* or (pastoral n3 (care or caring)) or priest or preacher or pray or prayer* or praying or religious or religiousity or religion* or spiritual*)

s83
s83 (mh "religion and religions")

s82
s82 ti ("call in" or (caller * n3 (interven* or program* or therap* or treat*))) or callline* or "call line" or ediar* or ehealth or elearn* or etherap* or (e n1 (dian* or learn or health or therap*)) or telecare or telecommunication or teleconsult* or telehealth or telemedicine or telepsychology or telepsychiatry of teletherap* or (tele n1 (care or communication or consult* or health or medicine or psychology or psychiatry or therap*))) or ab ("call in" or (caller * n3 (interven* or program* or therap* or treat*))) or callline* or "call line" or ediar* or ehealth or elearn* or etherap* or (e n1 (dian* or learn or health or therap*)) or telecare or telecommunication or teleconsult* or telehealth or telemedicine or telepsychology or telepsychiatry of teletherap* or (tele n1 (care or communication or consult* or health or medicine or psychology or psychiatry or therap*))

s81
s81 ti ((audio* or "cd rom" or cdrom or "communication aid" or computer* or cyber* or (discussion n1 (board* or group*))) or (digital n1 (assistant* or divide)) or dvd or email* or ecommunicat* or econsult* or etablet* or evisit* or (e n1 (communicat* or consult* or mail* or tablet* or visit*)) or facebook* or floppy or
| s79 | (mh "therapy, computer assisted") |
| s78 | (mh "text messaging") |
| s77 | (mh "telemetry") |
| s76 | (mh "telemedicine") |
| s75 | (mh "telecommunications") |
| s74 | (mh "software") |
| s73 | (mh "social networking") |
| s72 | (mh "programmed instruction") |
| s71 | (mh "optical disks") |
| s70 | (mh "multimedia") |
| s69 | (mh "telephone information services") |
| s68 | (mh "electronic mail") |
| s67 | (mh "decision support systems, clinical") |
| s66 | (mh "decision making, computer assisted") |
| s65 | (mh "computer systems") |
| s64 | (mh "computing methodologies") |
| s63 | (mh "computer user training") |
| s62 | (mh "computer literacy") or (mh "computers, portable") or (mh "computers and computerization") |
| s61 | (mh "communications media") |
| s60 | (mh "computer assisted instruction") or (mh "computers, hand-held") or (mh "therapy, computer assisted") |
| s59 | (mh "wireless communications") or (mh "telephone") |
| s58 | (mh "audiovisuals") |
| s57 | (mh "attitude to computers") |
| s56 | ti ( ((rebuilding or “re building”) n2 life n2 (families or friends)) or (journey n2 |
hope) or (strategy n2 “enhance working partnerships” n2 (carers or families)) or (therap* n2 (wellbeing or recover*)) or (triangle n2 care) or “wellness recovery action planning” or “carers trust family liaison service**” or “family sensitive practice” or “meriden project*” or “recovery college*” or sympra or “ward champion” or “young diverse minds” ) or ab (((rebuilding or “re building”) n2 life n2 (families or friends)) or (journey n2 hope) or (strategy n2 “enhance working partnerships” n2 (carers or families)) or (therap* n2 (wellbeing or recover*)) or (triangle n2 care) or “wellness recovery action planning” or “carers trust family liaison service*” or “family sensitive practice” or “meriden project*” or “recovery college*” or sympra or “ward champion*” or “young diverse minds” )

s55

s54
partner * or relative * or sibling * or “significant other” * or spous * or “step relationship” * or wife * or wives) n1 (based or counsel * or deliver * or interact * or led or mediat * or operated or provides or provider * or run *))

s53

(s52

(mh "patient centered care”) or (mh "case management (omaha)”) or (mh "case management")

s51

(mh "managed care programs+”)

s50

(mh "continuity of patient care+")

s49

((assertive n1 community n1 treatment) or ((care or case) and management) or (care n1 programme n1 approach) or (madison n4 model$) or (training n2 (community n1 living)) or cpa or ptc or tcl) or ab ((assertive n1 community n1 treatment) or ((care or case) and management) or (care n1 programme n1 approach) or (madison n4 model$) or (training n2 (community n1 living)) or cpa or ptc or tcl)

s48

((psychosocial* or “psycho social*”) ) or ab ( ((psychosocial* or “psycho social*”) ) or mw ( ((psychosocial* or “psycho social*”) )

s47

((emotional* or practical* or group*) n2 support) or (support* n5 (interven* or program* or therap* or treat*))) or ab ( ((emotional* or practical* or group*) n2 support) or (support* n5 (interven* or program* or therap* or treat*)))

s46

((advocac* or advocate* or befriend* or “be * friend”* or buddy or buddies or ((community or lay or paid or support) n1 (person or worker*)) or ((community* or home) n1 (based or visit*)) or ((consumer* or friend* or lay or mutual* or peer* or social* or volunteer*) n3 (help* or network* or support* or visit*)) or ((consumer* or peer* or social* or support* or volunteer*) n2 (group* or network*)) or ((consumer* or friend* or lay* or peer* or user* or volunteer*) n1 (based or counsel* or deliver* or interact* or led or mediat* or operated or provides or provider* or run*)) or ((consumer* or friend* or lay* or peer* or relation* or support*) n3 (trust*)) or (coping n3 (behavior* or skill*)) or (emotion* n1 (focus* or friend* or relation*)) or (“dyadic or loneliness” n2 (intervention* or program* or therap* or treat*)) or (“emotion* or “one to one” or transition”) n1 (support*) or (lay n1 (led or run)) or (lay or peer) n5 (advisor* or consultant or educator* or expert* or facilitator* or instructor* or leader* or person* or tutor* or worker*)) or “expert patient*” or “mutual aid” or (peer* n3 (advic* or advis* or counsel* or educat* or mentor*)) or (social n1 (adapt* or support*)) or “supportive relationship*” or “social interaction program*” or “support* listening” or “recover inc” or “schizophrenics anonymous” or “visit* service*”)}
or (voluntary n3 worker*) or (volunteer n5 (trained or aide))) or ab ( (advocac*
or advocate* or befriend* or be* friend* or buddy or buddies or ((community or
lay or paid or support) n1 (person or worker*)) or ((community* or home) n1
(based or visit*)) or ((consumer* or friend* or lay or mutual* or peer* or social*
or volunteer*) n3 (help* or network* or support* or visit*)) or ((consumer* or
peer* or social* or support* or volunteer*) n2 (group* or network*)) or
((consumer* or friend* or lay* or peer* or user* or volunteer*) n1 (based or
counsel* or deliver* or interact* or led or mediat* or operated or provides or
provider* or run*)) or ((consumer* or friend* or lay* or peer* or relation* or
support*) n3 trust*) or (coping n3 (behavior* or skill*)) or (emotion* n1 (focus*
or friend* or relation*)) or ((dyadic or loneliness) n2 (intervention* or program*
or therap* or treat*)) or ((emotion* or “one to one” or transition*) n1 support*) or
(lay n1 (led or run)) or ((lay or peer) n5 (advisor* or consultant or educator* or
expert* or facilitator* or instructor* or leader* or person* or tutor* or worker*))
or “expert patient*” or “mutual aid” or (peer* n3 (advic* or advis* or counsel*
or educat* or mentor*)) or (social n1 (adapt* or support*)) or “supportive
relationship*” or “social interaction program*” or “support* listening” or
“recover inc” or “schizophrenics anonymous” or “visit* service*” or (voluntary
n3 worker*) or (volunteer* n5 (trained or aide))) )

(mh "community networks") or (mh "consumer advocacy") or (mh "education,
nonprofessional") or (mh "group processes") or (mh "health information
networks") or (mh "home health aide service (saba ccc)") or (mh "home health
aides") or (mh "home health care") or (mh "home rehabilitation") or (mh "home
visits") or (mh "ineffective family coping, compromised (nanda)") or (mh "peer
counseling") or (mh "peer group") or (mh "psychotherapy, group") or (mh
"rehabilitation, vocational") or (mh "social network analysis (saba ccc)") or (mh
"social networks") or (mh "social support (iowa noc)") or (mh "social work") or
(mh "social work practice") or (mh "social work, psychiatric") or (mh "social
work service") or (mh "social workers") or (mh "support group (iowa nic)") or
(mh "support groups") or (mh "support, psychosocial+") or (mh "support
system enhancement (iowa nic)") or (mh "telephone information services") or
(mh “trust") or (mh "volunteer workers") or (mh "voluntary health agencies")

ti ( ((adult* or client* or consumer* or inpatient* or outpatient* or participant*
or patient* or “service user*”) n2 (involv* or participat*)) or ((behav*
or psychologic*) n3 (adapt* or adjust*)) or cope or copes or coping ) or ab ( ((adult*
or client* or consumer* or inpatient* or outpatient* or participant* or patient* or
“service user*”) n2 (involv* or participat*)) or ((behav* or psychologic*) n3
(adapt* or adjust*)) or cope or copes or coping )

(ti ( (booklet* or brochure* or leaflet* or pamphlet* or poster* or psychoeducat*
or “psycho educat*” or workbook* or “work book*” or (adult* or client* or
consumer* or health or inpatient* or outpatient* or participant* or patient* or
“service user*”) n2 (educat* or focus* or information* or knowledge or learn*
or literac* or promot* or taught or teach*)) or empower* or ((oral or printed or
written) n3 (material* or inform*)) ) or ab ( (booklet* or brochure* or leaflet*
or pamphlet* or poster* or psychoeducat* or “psycho educat*” or workbook* or
...
"work book*" or ((adult* or client* or consumer* or health or inpatient* or outpatient* or participant* or patient* or "service user"*) n2 (educat* or focus* or information* or knowledge or learn* or literac* or promot* or taught or teach*) or empower* or ((oral or printed or written) n3 (material* or inform*)) )

s42 (mh "adaptation, psychological") or (mh "consumer participation")

ti (("expert patient"* or ("hearing voices" n2 (group* or network* or support*))) or (minimal n1 (contact or guidance)) or helpseek* or (help* n2 seek*) or (mutual n1 (aid* or help or support*))) or "recovery model*" or ("smart recovery") ) or ab ( ("expert patient"* or ("hearing voices" n2 (group* or network* or support*))) or (minimal n1 (contact or guidance)) or helpseek* or (help* n2 seek*) or (mutual n1 (aid* or help or support*)))

s41 (mh "consumer participation") or (mh "adaptation, psychological")

s40 ti (((self n1 (administer* or assess* or attribut* or care or change or directed or efficacy or help* or guide* or instruct* or manag* or medicat* or monitor* or regulat* or reinforc* or "re inforc*" or support* or technique* or therap* or train* or treat*)) or selfadminister* or selfassess* or selfattribut* or selfcare or selfchange or selfdirected or selfefficacy or selfhelp* or selfguide* or selfinstruct* or selfmanag* or selfmedicat* or selfmonitor* or selfreinforc* or "self re inforc*" or selfsupport* or selftechnique* or selftherap* or selftrain* or selftreat* ) ) or ab ( ((self n1 (administer* or assess* or attribut* or care or change or directed or efficacy or help* or guide* or instruct* or manag* or medicat* or monitor* or regulat* or reinforc* or "re inforc*" or support* or technique* or therap* or train* or treat*)) or selfadminister* or selfassess* or selfattribut* or selfcare or selfchange or selfdirected or selfefficacy or selfhelp* or selfguide* or selfinstruct* or selfmanag* or selfmedicat* or selfmonitor* or selfreinforc* or "self re inforc*" or selfsupport* or selftechnique* or selftherap* or selftrain* or selftreat* ) )

s39 (mh "self administration") or (mh "self care") or (mh "self care agency") or (mh "self medication")

s38 ti (famil* n2 consultation*) or ab (famil* n2 consultation*)

s37 (mh "family therapy (iowa nic)")

s36 ti ( (problem* n3 (skill* or solv*)) ) or ab ( (problem* n3 (skill* or solv*)) )

s35 (mh "problem solving") or (mh "family problem solving communication")

s34 ti (((didactic or systemic) n3 (coach* or communicat* or educat* or instruct* or interven* or knowledge* or learn* or program* or taught* or teach* or therap* or train* or treat*)) ) or ab (((didactic or systemic) n3 (coach* or communicat* or educat* or instruct* or interven* or knowledge* or learn* or program* or taught* or teach* or therap* or train* or treat*)) )

s33 ti ((booklet* or brochure* or educat* or empower* or leaflet* or multimedia or "multi media" or pamphlet* or poster* or psychoeducat* or "psycho educat"* or (oral or printed or written) n3 (inform* or material*)) or workbook* or "work book*")) or ab ((booklet* or brochure* or educat* or empower* or leaflet* or multimedia or "multi media" or pamphlet* or poster* or psychoeducat* or (oral or printed or written) n3 (inform* or material*))) or (oral or printed or written) n3 (inform* or material*))
<table>
<thead>
<tr>
<th>Term</th>
</tr>
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<tr>
<td>“psycho educat*” or ((oral or printed or written) n3 (inform* or material*)) or workbo...</td>
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<tr>
<td>s32 (mh &quot;teaching&quot;) or (mh &quot;teaching materials+&quot;) or (mh &quot;communication skills training&quot;)</td>
</tr>
<tr>
<td>s31 (mh &quot;programmed instruction&quot;)</td>
</tr>
<tr>
<td>s30 (mh &quot;problem-based learning&quot;)</td>
</tr>
<tr>
<td>s29 (mh &quot;patient education&quot;) or (mh &quot;patient education (iowa nic) (non-cinahl)&quot;)</td>
</tr>
<tr>
<td>s28 (mh &quot;models, educational&quot;)</td>
</tr>
<tr>
<td>s27 (mh &quot;health promotion&quot;) or (mh &quot;health promotion (saba ccc)&quot;) or (mh &quot;mental health promotion (saba ccc)&quot;) or (mh &quot;health promoting behavior (iowa noc)&quot;)</td>
</tr>
<tr>
<td>s26 (mh &quot;knowledge: health behaviors (iowa noc)&quot;) or (mh &quot;knowledge: health resources (iowa noc)&quot;)</td>
</tr>
<tr>
<td>s25 (mh &quot;health information management&quot;) or (mh &quot;health knowledge (iowa noc) (non-cinahl)&quot;) or (mh &quot;health knowledge and behavior (iowa noc) (non-cinahl)&quot;&quot;) or (mh &quot;health knowledge&quot;)</td>
</tr>
<tr>
<td>s24 (mh &quot;health education&quot;)</td>
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<tr>
<td>s23 (mh &quot;consumer health information&quot;)</td>
</tr>
<tr>
<td>s22 s2 or s3 or s4 or s5 or s6 or s7 or s8 or s9 or s10 or s11 or s12 or s13 or s14 or s15 or s16 or s17 or s18 or s19 or s20 or s21</td>
</tr>
<tr>
<td>s21 ti (((home n2 (care or caring)) or ((informal or “non professional”) n5 (care or nursing)) or “care giv*” or caregiv* or carer* or “community based” or couples or “home nursing” or daughter* or famil* or father* or friend* or “home based” or husband* or marital* or mother* or multifam* or neighbor* or “next of kin” or niece or nephew* or parent* or partner* or relative or relatives or sibling* or “significant other*” or spous* or “step relationship*” or wife* or wives)) or ab (((home n2 (care or caring)) or ((informal or “non professional”) n5 (care or nursing)) or “care giv*” or caregiv* or carer* or “community based” or couples or “home nursing” or daughter* or famil* or father* or friend* or “home based” or husband* or marital* or mother* or multifam* or neighbor?* or “next of kin” or niece or nephew* or parent* or partner* or relative or relatives or sibling* or “significant other*” or spous* or “step relationship*” or wife* or wives))</td>
</tr>
<tr>
<td>s20 (mh &quot;family services&quot;)</td>
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<tr>
<td>s19 (mh &quot;visitors to patients&quot;)</td>
</tr>
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<td>s18 (mh &quot;spouses&quot;)</td>
</tr>
<tr>
<td>s17 (mh &quot;siblings&quot;) or (mh &quot;sibling support (iowa nic)&quot;) or (mh &quot;sibling relations&quot;)</td>
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<tr>
<td>s16 (mh &quot;sibling relations&quot;)</td>
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<tr>
<td>s15 (mh &quot;parent-child relations+)&quot;)</td>
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| s14 (mh "parents+")}
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<tr>
<th>s13</th>
<th>(mh &quot;nuclear family+&quot;)</th>
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<td>s12</td>
<td>(mh &quot;marriage&quot;)</td>
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<td>s11</td>
<td>(mh &quot;intergenerational relations&quot;)</td>
</tr>
<tr>
<td>s10</td>
<td>(mh &quot;home nursing&quot;)</td>
</tr>
<tr>
<td>s9</td>
<td>(mh &quot;family&quot;)</td>
</tr>
<tr>
<td>s8</td>
<td>(mh &quot;family therapy&quot;) or (mh &quot;family therapy (iowa nic)&quot;)</td>
</tr>
<tr>
<td>s7</td>
<td>(mh &quot;family relations&quot;)</td>
</tr>
<tr>
<td>s6</td>
<td>(mh &quot;family nursing&quot;)</td>
</tr>
<tr>
<td>s5</td>
<td>(mh &quot;family health&quot;) or (mh &quot;family health (iowa noc) (non-cinahl)&quot;) or (mh &quot;family member health status (iowa noc) (non-cinahl)&quot;)</td>
</tr>
<tr>
<td>s4</td>
<td>(mh &quot;family conflict&quot;)</td>
</tr>
<tr>
<td>s3</td>
<td>(mh &quot;family characteristics&quot;)</td>
</tr>
<tr>
<td>s2</td>
<td>(mh &quot;community networks&quot;)</td>
</tr>
<tr>
<td>s1</td>
<td>ti ( caregiv* or carer or &quot;care giv*&quot;) or ab ( caregiv* or carer or &quot;care giv*&quot;) or mw ( caregiv* or carer or &quot;care giv&quot;)</td>
</tr>
</tbody>
</table>
### Table DS1  Studies not included in the review

<table>
<thead>
<tr>
<th>Study</th>
<th>Reason for exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Excluded studies</strong></td>
<td></td>
</tr>
<tr>
<td>Anderson 1986</td>
<td>Sample not relevant</td>
</tr>
<tr>
<td>Barrowclough 1999</td>
<td>Intervention not aimed at improving carer experience or reducing carer burden</td>
</tr>
<tr>
<td>Barton 2008</td>
<td>Intervention not aimed at improving carer experience or reducing carer burden</td>
</tr>
<tr>
<td>Bazzoni 2003</td>
<td>Non-English</td>
</tr>
<tr>
<td>Berkowitz 1984</td>
<td>Non-RCT</td>
</tr>
<tr>
<td>Birchwood 1992</td>
<td>Non-RCT</td>
</tr>
<tr>
<td>Brooker 1992</td>
<td>Non-RCT</td>
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<tr>
<td>Carra 2007</td>
<td>No relevant outcome</td>
</tr>
<tr>
<td>Chien 2010</td>
<td>Intervention not carer-focused (no carer-only sessions)</td>
</tr>
<tr>
<td>Cozolino 1988</td>
<td>No relevant outcome</td>
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<tr>
<td>Das 2006</td>
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</tr>
<tr>
<td>Fiorillo 2011</td>
<td>Intervention not carer-focused (no carer-only sessions)</td>
</tr>
<tr>
<td>Fraser 2008</td>
<td>Non-RCT</td>
</tr>
<tr>
<td>Kageyama 2007</td>
<td>Intervention not carer-focused (no carer-only sessions)</td>
</tr>
<tr>
<td>Kane 1990</td>
<td>Non-RCT</td>
</tr>
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<td>Kulhara 2008</td>
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<td>Murray 1997</td>
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<td>Van Gent 1991</td>
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<td>Xiong 1994</td>
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**Current studies**

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Note: The numbers in superscript refer to the page numbers in the original document.
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**Additional references**


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therapeutic alliance focused interventions for parents of a daughter or son with a


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<td>Carra 2007</td>
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<tr>
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</tr>
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<td>Vangent, 1991</td>
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<p>| Sessions | 48 | 24 | 10 | 12 | 12 | 12 | 18 | 12 | 8 | 3 | 18 | 12 | 12 | 7 | / | 5 | / | 14 | 8 | 12 | 10 | 6 | 4 | / |
|----------|----|----|----|----|----|----|----|----|---|---|----|----|----|---|---|---|---|----|---|----|---|----|---|----|---|
| Group format | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Stress - coping skills training | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Communication skills training | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Problem-solving skills training | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Importance &amp; management of carer’s own wellbeing | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |</p>
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<th>Unstructured peer/mutual support</th>
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<th>Adopting new positive roles &amp; improving relationships with the service user</th>
<th>Relaxation methods</th>
<th>Service user participation</th>
<th>Features of program determined by family</th>
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<tr>
<td>Information about the disorder, how to prevent relapse &amp; treatment options</td>
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<tr>
<td>Managing symptoms or behavioural problems</td>
<td>●</td>
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<tr>
<td>Understanding &amp; accessing mental health services, information about resources, benefits &amp; support</td>
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<td>Features of program determined by family</td>
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NOTES TAU = Treatment as usual
### Fig. DS1  Detailed risk of bias

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<th>Allocation concealment (selection bias)</th>
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<th>Blinding of outcome assessment (detection bias)</th>
<th>Incomplete outcome data (attrition bias)</th>
<th>Selective reporting (reporting bias)</th>
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<td>?</td>
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<td>Lobban 2013</td>
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<td>Table DS3</td>
<td>Summary of pooled effects</td>
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<td>Studies</td>
<td>Participants (n)</td>
<td>Effect size</td>
<td>Heterogeneity</td>
<td>Quality</td>
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<td>SMD (95% CI)</td>
<td>$\chi^2$, $I^2$, $P$</td>
<td>(GRADE)</td>
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<td><strong>Psychoeducation v. any control</strong></td>
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<tr>
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<td>8</td>
<td>428</td>
<td>−1.03 (−1.69, −0.36)</td>
<td>89%; 63.58</td>
<td>Very low&lt;sup&gt;a,b&lt;/sup&gt;</td>
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<tr>
<td>Up to 6 month follow-up</td>
<td>4</td>
<td>215</td>
<td>−0.92 (−1.51 to −0.32)</td>
<td>79%; 14.42 (P=0.003)</td>
<td>Very low&lt;sup&gt;a,b&lt;/sup&gt;</td>
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<tr>
<td>&gt;6 month follow-up</td>
<td>3</td>
<td>151</td>
<td>−1.29 (−2.4 to −0.18)</td>
<td>86%; 13.99 (P=0.0009)</td>
<td>Very low&lt;sup&gt;a,b&lt;/sup&gt;</td>
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<tr>
<td>Quality of life</td>
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<td>41</td>
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<td>−0.30 (−0.84 to 0.24)</td>
<td>38%; 1.62 (P=0.20)</td>
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<td>Up to 6 month follow-up</td>
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<td>−0.34 (−0.76 to 0.08)</td>
<td>0%; 0.95 (P=0.33)</td>
<td>Low&lt;sup&gt;a,d&lt;/sup&gt;</td>
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<tr>
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<td>3</td>
<td>194</td>
<td>−1.16 (−1.96 to −0.36)</td>
<td>85%; 13.07 (P=0.001)</td>
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<td>166</td>
<td>−0.67 (−0.99 to −0.35)</td>
<td>0%; 2.01 (P=0.37)</td>
<td>Low&lt;sup&gt;a,c&lt;/sup&gt;</td>
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<td>2</td>
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<td>70</td>
<td>−0.99 (−1.48 to −0.49)</td>
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<td>Low&lt;sup&gt;a,c&lt;/sup&gt;</td>
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<tr>
<td>Psychological distress</td>
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<tr>
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<td>49</td>
<td>−0.28 (−0.84, 0.29)</td>
<td>NA</td>
<td>Low&lt;sup&gt;a,d&lt;/sup&gt;</td>
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**Problem-solving bibliotherapy v.**
### Table DS3  Summary of pooled effects

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<th>Participants (n)</th>
<th>Effect size</th>
<th>Heterogeneity</th>
<th>Quality (GRADE)</th>
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<tr>
<td></td>
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<td>SMD (95% CI)</td>
<td>$I^2; X^2 (P)$</td>
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<td><strong>any control</strong></td>
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<td>Up to 6 month follow-up</td>
<td>1</td>
<td>114</td>
<td>-0.5 (-0.87 to -0.12)</td>
<td>NA</td>
</tr>
<tr>
<td>Psychological distress</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End of intervention</td>
<td>1</td>
<td>114</td>
<td>-1.57 (-1.79 to -1.35)</td>
<td>NA</td>
</tr>
<tr>
<td>Up to 6 month follow-up</td>
<td>1</td>
<td>111</td>
<td>-1.54 (-1.95 to -1.13)</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Self-management v. any control</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience of caregiving</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End of intervention</td>
<td>1</td>
<td>86</td>
<td>-0.19 (-0.58 to 0.2)</td>
<td>NA</td>
</tr>
<tr>
<td>Psychological distress</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End of intervention</td>
<td>1</td>
<td>86</td>
<td>-0.32 (-0.73 to 0.09)</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Enhanced psychoeducation v. standard psychoeducation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience of caregiving</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End of intervention</td>
<td>1</td>
<td>43</td>
<td>-0.64 (-1.25 to -0.03)</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Practitioner-delivered v. postal psychoeducation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family burden</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End of intervention</td>
<td>1</td>
<td>40</td>
<td>-0.41 (-1.04 to 0.21)</td>
<td>NA</td>
</tr>
<tr>
<td>Up to 6 month follow-up</td>
<td>1</td>
<td>40</td>
<td>-0.41 (-1.03 to 0.22)</td>
<td>NA</td>
</tr>
<tr>
<td>Psychological distress</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End of intervention</td>
<td>1</td>
<td>40</td>
<td>-0.38 (-1.0 to 0.25)</td>
<td>NA</td>
</tr>
<tr>
<td>Up to 6 month follow-up</td>
<td>1</td>
<td>40</td>
<td>0 (-0.62 to 0.61)</td>
<td>NA</td>
</tr>
</tbody>
</table>

GRADE, Grading of Recommendations Assessment, Development and Evaluation; NA, not applicable; SMD, standardised mean difference.

a. Risk of bias.
b. Inconsistency.
c. Indirectness.
<table>
<thead>
<tr>
<th>Studies</th>
<th>Participants (n)</th>
<th>Effect size</th>
<th>Heterogeneity</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SMD (95% CI)</td>
<td>( I^2 ); ( \chi^2 (P) )</td>
<td>(GRADE)</td>
</tr>
</tbody>
</table>

d. Imprecision.
e. Publication or reporting bias.
### Fig. DS2  Psychoeducation v. any control, experience of caregiving, end of intervention

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Std. Mean Difference</th>
<th>SE</th>
<th>Total</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carrier interventions</td>
<td>TAUCControl</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>5.1.1 Psychoeducation for schizophrenia/psychosis</td>
<td>-0.24 *</td>
<td>0.67</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Bechet 2005</td>
<td>-0.65 ** 0.325</td>
<td>19</td>
<td>23</td>
<td>12.7%</td>
</tr>
<tr>
<td>Ohta-Kishimoto 2007</td>
<td>-0.66 * 0.197</td>
<td>37</td>
<td>47</td>
<td>13.9%</td>
</tr>
<tr>
<td>Kossi 2008</td>
<td>-0.67 ** 0.276</td>
<td>42</td>
<td>47</td>
<td>13.6%</td>
</tr>
<tr>
<td>Shait 2012</td>
<td>-0.67 ** 0.276</td>
<td>42</td>
<td>47</td>
<td>13.6%</td>
</tr>
<tr>
<td>Chang 2015</td>
<td>-0.67 ** 0.276</td>
<td>42</td>
<td>47</td>
<td>13.6%</td>
</tr>
<tr>
<td>Green 2007</td>
<td>-0.67 ** 0.276</td>
<td>42</td>
<td>47</td>
<td>13.6%</td>
</tr>
<tr>
<td>Rozekiller 1988</td>
<td>-0.67 ** 0.276</td>
<td>42</td>
<td>47</td>
<td>13.6%</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>-0.67 ** 0.276</td>
<td>42</td>
<td>47</td>
<td>13.6%</td>
</tr>
</tbody>
</table>

Heterogeneity: Tau² = 0.81, Chi² = 82.04, df = 6 (P = 0.00001), I² = 90%
Test for overall effect: Z = 3.94 (P = 0.003)

### Fig. DS3  Psychoeducation v. any control, experience of caregiving, up to 6 month follow-up

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Std. Mean Difference</th>
<th>SE</th>
<th>Total</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carrier interventions</td>
<td>TAUCControl</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>5.2.2 Psychoeducation for schizophrenia/psychosis</td>
<td>-0.26 * 0.039</td>
<td>28</td>
<td>34</td>
<td>15.3%</td>
</tr>
<tr>
<td>Kossi 2008</td>
<td>-0.26 * 0.039</td>
<td>28</td>
<td>34</td>
<td>15.3%</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>-0.26 * 0.039</td>
<td>28</td>
<td>34</td>
<td>15.3%</td>
</tr>
</tbody>
</table>

Heterogeneity: Tau² = 0.77, Chi² = 63.50, df = 7 (P = 0.00001), I² = 90%
Test for overall effect: Z = 3.03 (P = 0.002)
Test for subgroup differences: Chi² = 2.23, df = 1 (P = 0.14), F = 55.1%

### Fig. DS4  Psychoeducation v. any control, experience of caregiving, > 6 month follow-up

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Std. Mean Difference</th>
<th>SE</th>
<th>Total</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carrier interventions</td>
<td>TAUCControl</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>5.3.3 Psychoeducation for schizophrenia/psychosis</td>
<td>-0.24 * 0.049</td>
<td>10</td>
<td>18</td>
<td>37.5%</td>
</tr>
<tr>
<td>Chien 2004B</td>
<td>-0.24 * 0.049</td>
<td>10</td>
<td>18</td>
<td>37.5%</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>-0.24 * 0.049</td>
<td>10</td>
<td>18</td>
<td>37.5%</td>
</tr>
</tbody>
</table>

Heterogeneity: Tau² = 0.47, Chi² = 7.18, df = 1 (P = 0.007), I² = 89%
Test for overall effect: Z = 1.60 (P = 0.11)

### Fig. DS4  Psychoeducation v. any control, experience of caregiving, > 6 month follow-up

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Std. Mean Difference</th>
<th>SE</th>
<th>Total</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carrier interventions</td>
<td>TAUCControl</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>5.3.4 Psychoeducation for bipolar disorder</td>
<td>-2.94 * 1.444</td>
<td>14</td>
<td>29</td>
<td>23.7%</td>
</tr>
<tr>
<td>Madison 2012</td>
<td>-2.94 * 1.444</td>
<td>14</td>
<td>29</td>
<td>23.7%</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>-2.94 * 1.444</td>
<td>14</td>
<td>29</td>
<td>23.7%</td>
</tr>
</tbody>
</table>

Heterogeneity: Not applicable
Test for overall effect: Z = 3.85 (P = 0.0001)

### Fig. DS4  Psychoeducation v. any control, experience of caregiving, > 6 month follow-up

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Std. Mean Difference</th>
<th>SE</th>
<th>Total</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carrier interventions</td>
<td>TAUCControl</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>-2.94 * 1.444</td>
<td>14</td>
<td>29</td>
<td>23.7%</td>
</tr>
</tbody>
</table>

Heterogeneity: Tau² = 0.78, Chi² = 13.99, df = 2 (P = 0.0003), I² = 86%
Test for overall effect: Z = 2.26 (P = 0.02)
Test for subgroup differences: Chi² = 3.45, df = 1 (P = 0.03), I² = 91.6%
Fig. DS5  Support groups v. any control, experience of caregiving, end of intervention

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Std. Mean Difference</th>
<th>SE</th>
<th>Carer Interventions</th>
<th>TAU/Control</th>
<th>Std. Mean Difference</th>
<th>IV, Random, 95% CI</th>
<th>Std. Mean Difference</th>
<th>IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support groups for schizophrenia/psychosis</td>
<td>-0.74 (95% CI: -1.32, -0.16)</td>
<td>0.24</td>
<td>34</td>
<td>24</td>
<td>32.5%</td>
<td>-0.74 (95% CI: -1.32, -0.16)</td>
<td>-0.74 (95% CI: -1.32, -0.16)</td>
<td></td>
</tr>
<tr>
<td>Chien 2004A</td>
<td>-1.50 (95% CI: -2.61, -0.39)</td>
<td>0.28</td>
<td>36</td>
<td>26</td>
<td>33.3%</td>
<td>-1.50 (95% CI: -2.61, -0.39)</td>
<td>-1.50 (95% CI: -2.61, -0.39)</td>
<td></td>
</tr>
<tr>
<td>Chien 2004A</td>
<td>0.76 (95% CI: 0.25, 1.27)</td>
<td>0.25</td>
<td>35</td>
<td>25</td>
<td>34.3%</td>
<td>0.76 (95% CI: 0.25, 1.27)</td>
<td>0.76 (95% CI: 0.25, 1.27)</td>
<td></td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>97</td>
<td>97</td>
<td>100.0%</td>
<td>-1.16 (95% CI: -1.59, -0.73)</td>
<td>-1.16 (95% CI: -1.59, -0.73)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Test for overall effect Z = 2.05 (P = 0.04)

Test for subgroup differences: Not applicable

Fig. DS6  Support groups v. any control, experience of caregiving, up to 6 month follow-up

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Std. Mean Difference</th>
<th>SE</th>
<th>Carer Interventions</th>
<th>TAU/Control</th>
<th>Std. Mean Difference</th>
<th>IV, Random, 95% CI</th>
<th>Std. Mean Difference</th>
<th>IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support group for schizophrenia/psychosis</td>
<td>-0.60 (95% CI: -1.39, -0.20)</td>
<td>0.21</td>
<td>32</td>
<td>24</td>
<td>25.0%</td>
<td>-0.60 (95% CI: -1.39, -0.20)</td>
<td>-0.60 (95% CI: -1.39, -0.20)</td>
<td></td>
</tr>
<tr>
<td>Chien 2004A</td>
<td>-1.01 (95% CI: -2.49, 0.47)</td>
<td>0.28</td>
<td>35</td>
<td>25</td>
<td>45.5%</td>
<td>-1.01 (95% CI: -2.49, 0.47)</td>
<td>-1.01 (95% CI: -2.49, 0.47)</td>
<td></td>
</tr>
<tr>
<td>Chien 2004A</td>
<td>0.5 (95% CI: 0.24, 0.76)</td>
<td>0.24</td>
<td>35</td>
<td>25</td>
<td>100.0%</td>
<td>0.5 (95% CI: 0.24, 0.76)</td>
<td>0.5 (95% CI: 0.24, 0.76)</td>
<td></td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>91</td>
<td>91</td>
<td>100.0%</td>
<td>-0.67 (95% CI: -0.99, -0.35)</td>
<td>-0.67 (95% CI: -0.99, -0.35)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Test for overall effect Z = 4.14 (P < 0.0001)

Test for subgroup differences: Not applicable

Fig. DS7  Support groups v. any control, experience of caregiving, > 6 month follow-up

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Carer interventions Mean</th>
<th>SD</th>
<th>Total</th>
<th>TAU/Control Mean</th>
<th>SD</th>
<th>Total</th>
<th>Std. Mean Difference</th>
<th>IV, Random, 95% CI</th>
<th>Std. Mean Difference</th>
<th>IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support group for schizophrenia/psychosis</td>
<td>15.8</td>
<td>3.1</td>
<td>38</td>
<td>25.5</td>
<td>3</td>
<td>38</td>
<td>46.6%</td>
<td>-3.12 (95% CI: -5.79, -0.44)</td>
<td>-3.12 (95% CI: -5.79, -0.44)</td>
<td></td>
</tr>
<tr>
<td>Chien 2004A</td>
<td>21.3</td>
<td>3.9</td>
<td>32</td>
<td>29.2</td>
<td>9.1</td>
<td>35</td>
<td>50.1%</td>
<td>-0.80 (95% CI: -1.44, -0.16)</td>
<td>-0.80 (95% CI: -1.44, -0.16)</td>
<td></td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>70</td>
<td>53</td>
<td>100.0%</td>
<td>-4.95 (95% CI: -7.42, -2.48)</td>
<td>-4.95 (95% CI: -7.42, -2.48)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Test for overall effect Z = 1.89 (P = 0.06)

Test for subgroup differences: Not applicable

Fig. DS8  Psychoeducation + support group v. any control, experience of caregiving - >6 month follow-up

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Carer interventions Mean</th>
<th>SD</th>
<th>Total</th>
<th>TAU/Control Mean</th>
<th>SD</th>
<th>Total</th>
<th>Std. Mean Difference</th>
<th>IV, Random, 95% CI</th>
<th>Std. Mean Difference</th>
<th>IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support group for schizophrenia/psychosis</td>
<td>-7 &amp; 26</td>
<td>25</td>
<td>100.0%</td>
<td>-0.05 (95% CI: -0.41, 0.31)</td>
<td>-0.05 (95% CI: -0.41, 0.31)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>26</td>
<td>23</td>
<td>100.0%</td>
<td>-0.05 (95% CI: -0.61, 0.51)</td>
<td>-0.05 (95% CI: -0.61, 0.51)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Test for overall effect Z = 0.16 (P = 0.87)

Test for subgroup differences: Not applicable
Fig. DS9  Problem-solving bibliotherapy vs. any control, experience of caregiving, end of intervention

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Std. Mean Difference</th>
<th>SE</th>
<th>Carer Interventions Total</th>
<th>TAUC/Control Total</th>
<th>Std. Mean Difference IV, Random, 95% CI</th>
<th>Std. Mean Difference IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1.5 Problem-solving bibliotherapy vs schizophrenia/psychosis</td>
<td>-0.17 1.16581033</td>
<td>80</td>
<td>58 100.0%</td>
<td>-0.17 [-2.45, 2.11]</td>
<td>-0.17 [-2.45, 2.11]</td>
<td></td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td></td>
<td>58</td>
<td>100.0%</td>
<td>-0.17 [-2.45, 2.11]</td>
<td>-0.17 [-2.45, 2.11]</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: Not applicable</td>
<td>Test for overall effect: Z = 0.16 (P = 0.85)</td>
<td>Test for overall effect: Z = 0.16 (P = 0.85)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. DS10  Problem-solving bibliotherapy vs. any control, experience of caregiving - up to 6 month follow-up

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Std. Mean Difference</th>
<th>SE</th>
<th>Carer Interventions Total</th>
<th>TAUC/Control Total</th>
<th>Std. Mean Difference IV, Random, 95% CI</th>
<th>Std. Mean Difference IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2.9 Problem-solving bibliotherapy vs schizophrenia/psychosis</td>
<td>-1.09 0.11214216</td>
<td>80</td>
<td>58 100.0%</td>
<td>-1.09 [-3.52, 0.34]</td>
<td>-1.09 [-3.52, 0.34]</td>
<td></td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td></td>
<td>58</td>
<td>100.0%</td>
<td>-1.09 [-3.52, 0.34]</td>
<td>-1.09 [-3.52, 0.34]</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: Not applicable</td>
<td>Test for overall effect: Z = 1.48 (P = 0.14)</td>
<td>Test for overall effect: Z = 1.48 (P = 0.14)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. DS11  Self-management vs. any control, experience of caregiving, end of intervention

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Std. Mean Difference</th>
<th>SE</th>
<th>Carer Interventions Total</th>
<th>TAUC/Control Total</th>
<th>Std. Mean Difference IV, Random, 95% CI</th>
<th>Std. Mean Difference IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1.4 Supported self-management for mixed SMI</td>
<td>-0.19 0.18097959</td>
<td>80</td>
<td>58 100.0%</td>
<td>-0.19 [0.55, 0.20]</td>
<td>-0.19 [0.55, 0.20]</td>
<td></td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td></td>
<td>58</td>
<td>100.0%</td>
<td>-0.19 [0.55, 0.20]</td>
<td>-0.19 [0.55, 0.20]</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: Not applicable</td>
<td>Test for overall effect: Z = 0.95 (P = 0.34)</td>
<td>Test for overall effect: Z = 0.95 (P = 0.34)</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Fig. DS12  Enhanced psychoeducation vs. standard psychoeducation, experience of caregiving, end of intervention

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Std. Mean Difference</th>
<th>SE</th>
<th>Enhanced Psychoeducation Total</th>
<th>Standard Psychoeducation Total</th>
<th>Std. Mean Difference IV, Random, 95% CI</th>
<th>Std. Mean Difference IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.2 Bipolar disorder</td>
<td>-0.64 0.31377551</td>
<td>80</td>
<td>24 100.0%</td>
<td>19 100.0%</td>
<td>-0.64 [-1.25, 0.00]</td>
<td>-0.64 [-1.25, 0.00]</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td></td>
<td>24</td>
<td>100.0%</td>
<td>19 100.0%</td>
<td>-0.64 [-1.25, 0.00]</td>
<td>-0.64 [-1.25, 0.00]</td>
</tr>
<tr>
<td>Heterogeneity: Not applicable</td>
<td>Test for overall effect: Z = 2.04 (P = 0.04)</td>
<td>Test for overall effect: Z = 2.04 (P = 0.04)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Test for subgroup differences: Not applicable
Interventions to improve the experience of caring for people with severe mental illness: systematic review and meta-analysis
Amina Yesufu-Udechuku, Bronwyn Harrison, Evan Mayo-Wilson, Norman Young, Peter Woodhams, David Shiers, Elizabeth Kuipers and Tim Kendall
BJP 2015, 206:268-274.
Access the most recent version at DOI: 10.1192/bjp.bp.114.147561

Supplementary Material
Supplementary material can be found at:
http://bjp.rcpsych.org/content/suppl/2015/04/14/206.4.268.DC1

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