Effect of psychosocial interventions on social functioning in depression and schizophrenia: meta-analysis

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Background
Psychosocial interventions may contribute to reducing the burden of mental disorders in low- and middle-income (LAMI) countries by improving social functioning, but the evidence has not been systematically reviewed.

Aims
Systematic review and meta-analysis of the effect of psychosocial interventions on social functioning in people with depression and schizophrenia in LAMI countries.

Method
Studies were identified through database searching up to March 2011. Randomised controlled trials were included if they compared the intervention group with a control group receiving placebo or treatment as usual. Random effects meta-analyses were performed separately for depressive disorders and schizophrenia and for each intervention type.

Results
Of the studies that met the inclusion criteria (n = 24), 21 had sufficient data to include in the meta-analysis. Eleven depression trials showed good evidence for a moderate positive effect of psychosocial interventions on social functioning (standardised mean difference (SMD) = 0.46, 95% CI 0.24–0.69, n = 4009) and ten schizophrenia trials showed a large positive effect on social functioning (SMD = 0.84, 95% CI 0.49–1.19, n = 1671), although seven of these trials were of low quality. Excluding these did not substantially affect the size or direction of effect, although the precision of the estimate was substantially reduced (SMD = 0.89, 95% CI 0.05–1.72, n = 863).

Conclusions
Psychosocial interventions delivered in out-patient and primary care settings are effective at improving social functioning in people with depression and should be incorporated into efforts to scale up services. For schizophrenia there is an absence of evidence from high-quality trials and the generalisability of the findings is limited by the over-representation of trials conducted in populations of hospital patients in China. More high-quality trials of psychosocial interventions for schizophrenia delivered in out-patient settings are needed.

Declaration of interest
None.

Depression and schizophrenia cause severe impairments in social functioning and rank among the leading mental health causes of the global burden of disease. Impairment of social functioning, defined as ‘an individual’s ability to perform and fulfil normal social roles’, is a major reason for the high levels of stigma and disability associated with these mental disorders. Although there have been numerous reviews of the clinical effectiveness of interventions for mental disorders, the effect of psychosocial interventions on social functioning has not been reviewed. Only 17 of the 62 Cochrane reviews of psychosocial interventions to treat depression or schizophrenia include social functioning outcomes, with only a tiny fraction of the included trials from low- and middle-income (LAMI) countries (the results of these reviews are summarised in online Table DS1). This review aims to synthesise all randomised controlled trials (RCTs) conducted in LAMI countries evaluating the effectiveness of psychosocial interventions to treat depression or schizophrenia on social functioning outcomes.

Method
The methods and results in this paper are presented according to the PRISMA statement for reporting systematic reviews.

Selection of studies
A protocol for the review was developed in collaboration with a Cochrane information scientist. The Appendix lists the inclusion and exclusion criteria for the review. In summary, the review included all RCTs that assessed the effect of psychosocial interventions on the social functioning of people living with depressive disorders or schizophrenia in LAMI countries. Psychosocial interventions were defined broadly as any non-pharmacological or physical intervention, and comprised structured psychotherapies such as cognitive–behavioural therapy (CBT); psychosocial interventions such as social skills training; alternative therapies including exercise and art therapy; and collaborative care stepped-care interventions that combine a series of different interventions. Trials were included as long as they compared the intervention group with a control group receiving a placebo or treatment as usual (TAU). This ensured that the effectiveness of the intervention was assessed, rather than its equivalence to a similar treatment.

To be included, trials must have quantitatively assessed the effect of the intervention on patient social functioning, measured using a validated tool. Social functioning can be seen as one aspect of disability comprising social and physical functioning, both subdomains of quality of life. Core domains include: occupation, education, household role, marital functioning, parental role, leisure and recreational activities and self-care, as well as an individuals’ satisfaction with their ability to meet these roles. Because social functioning is a subdomain of quality of life, quality of life measures were excluded from the review. Equally, scales reporting general health status (such as the Short Form 36-item questionnaire (SF-36)) were excluded, although studies that reported the results of the social functioning subscale of general health scales were included. Where studies included more than one measure of social functioning, results for the scale...
that captured the most domains of social functioning were extracted.

The search was not restricted by date, language or publication status. The following electronic databases were searched: Medline, PsycINFO, Cochrane Central, Ecolit and ISI Web of Science using Medical Subject Heading (MeSH) terms (or equivalent terms) for published peer-reviewed journal articles. The online supplement lists the full search strategy. Randomised controlled trials for all mental disorders were searched, and those relating to depression and schizophrenia manually selected. The last search was conducted in March 2011. The reference lists of all selected papers were screened and authors of relevant studies contacted to seek additional studies and request information not present in the published paper.

Initial screening of irrelevant abstracts involved one author (M.J.D.S.) searching through the database of search results for papers that were not related to mental health. Two authors (M.J.D.S. and S.C.) then independently screened the titles and abstracts of the remaining search results and the full text copies of all potentially relevant studies to determine whether they met the pre-specified inclusion criteria. Disagreements were resolved by discussion among all authors.

Data were extracted by two authors using a standard data extraction form including inclusion criteria for participants, intervention and control groups, outcome measures and effect estimates. The quality of included studies was assessed using the Cochrane risk of bias tool14 by two authors. Risk of bias was assessed both at the study level (for example sequence generation and allocation concealment) and at the outcome level (for example losses to follow-up for the social functioning outcome). Data for the meta-analyses were extracted by H.L.L. and double checked by M.J.D.S. Where trials reported more than one follow-up time point, data were extracted from the closest time point to 6 months for depression trials and 12 months for schizophrenia trials. These time points were chosen to reflect the longer-term effect that psychosocial interventions are anticipated to have on social functioning outcomes.

**Data analysis**

Statistical analyses were performed using Review Manager 5 for Windows 7. The post-treatment mean and standard deviation (s.d.) of the social functioning score in the intervention and control group were extracted along with the sample size in each group to calculate the standardised mean difference (SMD) for each trial to enable different outcome scales to be pooled. Where cluster RCTs were included, the mean post-treatment scores calculated from an appropriate analysis adjusted for clustering were used to enable them to be combined with the results of individually randomised trials.15 To correct for differences in the direction of the scales (for example some scales increase with increasing severity and others decrease), the mean values from one set of studies was multiplied by −1 to ensure that all the scales point in the same direction. Acknowledging the heterogeneity in interventions and study design, random effects meta-analyses were performed separately for depressive disorders and schizophrenia and within this separately for each intervention type. The I² statistic was used to assess heterogeneity between trials.

A number of sensitivity analyses were conducted. To control for study quality, trials that had a risk of bias for allocation concealment, or for whom allocation concealment could not be assessed but who had a risk of bias for sequence generation and/or masking of outcome assessment, were excluded from the meta-analysis. Separate meta-analyses were conducted to assess the long- and short-term effects on social functioning. Short-term follow-up was defined as less than 6 months for depressive disorders and less than 12 months for schizophrenia, and long-term follow-up as more than 6 months for depression and more than 12 months for schizophrenia. We contacted the authors for missing data necessary for the meta-analysis. Where these data were not available we conducted a sensitivity analysis to exclude those studies with a high risk of bias, including those with bias due to missing data for their outcome assessment. We did not impute missing data as we were unable to obtain the raw data from authors. Lastly, funnel plots for the primary meta-analyses were generated to assess possible publication bias.

**Results**

Figure 1 presents the search and selection process for the review. A total of 9592 unique records were obtained, of which 24 trials met the inclusion criteria. Thirteen papers were in English, ten in Chinese and one in Spanish.

**Measurement of social functioning**

Online Table DS2 lists the social functioning tools used by the included trials. The 24 included trials used 10 different scales to measure social functioning, confirming the previously reported...
lack of consensus on its measurement.\textsuperscript{16} Seven of the included tools were patient self-assessments, and three were clinician-rated. Half were developed to measure social functioning in a psychiatric population, and four specifically for populations in LAMI countries. Many of the tools were sophisticated in their measurement of a number of domains of social functioning, although no tool measured all domains, and had been appropriately validated in either a number of populations, or specifically in the population in which they were used. Table 1 summarises the trials included in the review separately for depression and schizophrenia.

**Effect of psychosocial interventions to treat depression**

In total 11 trials assessed the effect of interventions to treat depression, 6 assessed multicomponent collaborative care interventions, three interpersonal therapy (IPT), 1 problem-solving therapy, and 1 Morita therapy. Four of the trials were from Chile, three from China, and the remainder from India, Brazil and Uganda. The majority of trials were set in out-patient, primary care or community settings. Five of the trials used non-mental health specialists to deliver the intervention through task-sharing. Only one trial was assessed as having an overall risk of bias and nine had long-term follow-up of more than 6 months. Figure 2 presents the forest plot for the main results meta-analysis with follow-up clustered around 6 months. Online Table DS3 reports the characteristics and main findings of the depression trials and online Figs DS1–3 presents the forest plots for the sensitivity analyses.

All 11 depression trials were suitable for inclusion in the meta-analysis. The combined SMD for all interventions was 0.46 (95% CI 0.24–0.69, \( P \leq 0.001 \), \( I^2 = 90\% \), \( n = 4009 \)), indicating small to moderate improvements in social functioning based on the rule of thumb interpretation of SMDs whereby 0.2 represents a small effect, 0.5 a moderate effect and 0.8 a large effect.\textsuperscript{29} Excluding the one trial with a risk of bias did not affect this conclusion, and the magnitude of effect was the same for both short- and long-term follow-up.

There was robust evidence from the six trials evaluating multicomponent interventions for a small improvement in social functioning (SMD = 0.35, 95% CI 0.11–0.59, \( P \leq 0.001 \), \( I^2 = 89\% \), \( n = 3291 \)). These multicomponent interventions involved structured pharmacotherapy, psychoeducation, adherence support and in some cases IPT or cognitive trauma-based therapy. These interventions were often delivered by non-specialist health workers as part of a multidisciplinary team in a stepped-care model. The control arm received TAU, which frequently included access to pharmacotherapy or psychological therapy if indicated.

There was evidence from three trials of a large, positive impact of IPT on social functioning (SMD = 0.84, 95% CI 0.40–1.29, \( P = 0.0002 \), \( I^2 = 67\% \), \( n = 360 \)). Two trials examined the effect of group IPT delivered in 12\textsuperscript{20} or 16\textsuperscript{18} sessions and the third assessed the impact of 16 sessions of individual IPT.\textsuperscript{19} There was not enough evidence to assess the effect of problem-solving therapy or Morita therapy as only one trial respectively assessed these interventions.

**Effect of psychosocial interventions to treat schizophrenia**

Thirteen trials assessed the effect of interventions to treat schizophrenia: 3 trials assessed the effect of family psychoeducation, 1 patient psychoeducation, 1 social skills training, 1 art therapy, 4 multicomponent structured psychotherapies and 3 community-based care interventions. In contrast to the depression trials, most (11/13) were conducted in China in hospital in-patient populations and only two used non-specialists to deliver the intervention. No trials were included from Sub-Saharan Africa or South Asia. Seven were assessed as having a risk of bias and five had strict inclusion criteria limiting the generalisability of the results. Three trials did not contain sufficient data to be included in the meta-analysis,\textsuperscript{30–32} and as we were unable to obtain this information from the authors, these trials are included in the

| Table 1 Summary characteristics of studies included in the review |
|------------------|------------------|------------------|
|                  | Depression studies, \( n = 11 \) | Schizophrenia studies, \( n = 13 \) | Total, \( n \) |
| **Country**      |                  |                  |                |
| Chile            | 4                | 0                | 4              |
| Brazil           | 1                | 1                | 2              |
| China            | 3                | 11               | 14             |
| India            | 2                | 0                | 2              |
| Uganda           | 1                | 0                | 1              |
| Turkey           | 0                | 1                | 1              |
| **Setting**      |                  |                  |                |
| Hospital in-patient | 2              | 7                | 9              |
| Hospital out-patient | 4          | 4                | 8              |
| Primary healthcare | 4               | 0                | 4              |
| Community        | 1                | 2                | 3              |
| **Intervention** |                  |                  |                |
| Psychological therapy | 4               | 9                | 13             |
| Other intervention\textsuperscript{a} | 1 | 1 | 2 |
| Multicomponent collaborative care | 6 | 3 | 9 |
| Intervention delivered by non-mental health specialist | 5 | 2 | 7 |
| **Study design** |                  |                  |                |
| Long-term follow-up\textsuperscript{b} | 9 | 6 | 15 |
| Strict inclusion criteria | 4 | 5 | 9 |
| Small sample size (\(< 50 participants per arm) | 3 | 8 | 11 |
| Assessed as overall high risk of bias | 1 | 7 | 8 |

\textsuperscript{a} Morita therapy and art therapy.

\textsuperscript{b} Long-term follow-up defined as more than 6 months from the start of the intervention for depression, and more than 12 months for schizophrenia.
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moderate effect sizes at less than 12 months’ follow-up
the interventions on social functioning increased over time, with
12 months’ follow-up (SMD = 0.93, 95% CI 0.37–1.49,
increasing to a large effect on social functioning at more than
2 = 95%,
P
reduced due to the smaller pooled sample sizes (SMD = 0.89,
of effect, although the precision of the estimate was substantially

improvements in social functioning. Excluding the seven trials
presents the forest plots for the sensitivity analysis.
around 12 months. Online Table DS4 reports the characteristics
plot for the main results meta-analysis with follow-up clustered
qualitative synthesis of results only. Figure 3 presents the forest
plot for the main results meta-analysis with follow-up clustered
around 12 months. Online Table DS4 reports the characteristics

Test for overall effect: Z = 3.71 (P = 0.002)

1.1.2 Problem-solving therapy
Patel et al (2003)21
−7.1   5  121   −7.6  5.1  133   9.3  0.10 (−0.15 to 0.35)
Subtotal (95% CI)
121

Heterogeneity: not applicable
Test for overall effect: Z = 0.78 (P = 0.43)

1.1.3 Morita therapy
Wei (2005)22
−4.05 2.73 52   −5.97 3.06 52   7.9  0.66 (0.26 to 1.05)
Subtotal (95% CI)
52

Heterogeneity: not applicable
Test for overall effect: Z = 3.26 (P = 0.001)

1.1.4 Multicomponent collaborative care
Patel et al (2011)23a
−16.36 7.3261 684   −17.43 24.4928 732 10.2 0.06 (−0.05 to 0.16)
Patel et al (2011)23b
−16.37 21.3736 476   −15.77 22.8264 537 10.1 −0.03 (−0.15 to 0.09)
Araya et al (2002)24
63.8 30.2 102  44 26.9 109  9.0 0.69 (0.41 to 0.97)
Rojas et al (2007)25
63.6 31.7966 114   60.1 30.4491 116  9.2 0.11 (−0.15 to 0.37)
Vitriol et al (2009)26
−13.59 8.22 36   −16.86 7.13 35  7.1 0.42 (−0.05 to 0.89)
Fritsch et al (2007)27
69.2 26.1399 143   63.8 29.0808 131  9.3 0.20 (−0.04 to 0.43)
Hu et al (2007)28
−12.1 18.1 39   −38.1 15.2 37  6.7 1.54 (1.02 to 2.05)
Subtotal (95% CI)
1594 1697 61.6 0.35 (0.11 to 0.59)

Heterogeneity: χ² = 0.09; χ² = 54.23, d.f. = 6 (P < 0.00001); I² = 89%
Test for overall effect: Z = 2.83 (P = 0.005)

Total (95% CI)
1941 2068 100.0 0.46 (0.24 to 0.69)

Heterogeneity: χ² = 0.12; χ² = 104.81, d.f. = 11 (P < 0.00001); I² = 90%
Test for overall effect: Z = 4.11 (P < 0.0001)
Test for subgroup differences: χ² = 10.99, d.f. = 3 (P = 0.01), I² = 72.7%

Fig. 2 Depression: all studies (6-month follow-up).
Patel et al (2011): a. recruited from public primary healthcare clinics. b. Recruited from private general practice clinics.

seven of these ten studies limits the strength of the evidence from this meta-analysis.
There was good evidence from four trials of large improvements in social functioning due to multicomponent structured psychotherapies against TAU with both groups receiving antipsychotic medication26–35 (SMD = 0.93, 95% CI 0.23–1.63, P ≤ 0.0001, I² = 89%, n = 893). All trials included psychoeducation supplemented with at least two additional therapies comprising skills training, CBT, IPT and family therapy. Three of these trials had a low risk of bias and a sensitivity analysis restricted to these trials did not affect this finding.
There was weak evidence from three poor-quality trials of a large positive effect of psychoeducation on social functioning (SMD = 1.15, 95% CI 0.66–2.25, P ≤ 0.001, I² = 95%, n = 362). Two of these trials assessed the impact of family psychoeducation33,34 and one patient psychoeducation35 compared with TAU, with both groups receiving antipsychotic medication. The meta-analysis was skewed by the study of individual patient
psychosocial interventions, which had a much larger effect than the two family interventions. A fourth trial on family psychoeducation that could not be included in the meta-analysis also reported a significant positive effect on social functioning. As four trials were assessed as having a high overall risk of bias (two because the risk of bias was unknown due to lack of information in the published paper), the level of evidence for psychoeducation is currently weak. There was weak evidence from two trials with a high risk of bias of a small increase in social functioning as a result of art therapy or social skills training as only one study respectively assessed these interventions.

Discussion

Main findings

A total of 11 depression trials from 5 countries and 13 schizophrenia trials from 3 countries were included in this review. Overall, the results show that different types of psychosocial interventions are effective at improving social functioning in people with depression and schizophrenia in LAMI countries. For depression, there is strong evidence that stepped collaborative care interventions, often delivered by non-specialists and comprising structured pharmacotherapy, psychoeducation, adherence support and in some cases structured psychotherapy have moderate effects on improving patient social functioning up to 12 months from start of treatment. There was also some evidence that IPT, often delivered by non-specialists, is effective at improving social functioning over a 12-month period. For schizophrenia, interventions demonstrated a strong effect, but the interpretation of these findings is tempered by the risk of bias associated with seven of the ten trials. The generalisability of these findings is also restricted by the predominance of trials of hospital in-patients...
in China. However, there was good evidence from three high-quality trials that a combination of structured psychological therapies (for example psychoeducation, social skills training and IPT), delivered in combination with antipsychotic medication, leads to large improvements in patient social functioning compared with medication alone.

A striking finding of this review is that improvements in social functioning were maintained at long follow-up periods of over a year. In contrast to clinical improvements that are often observed early in the intervention, improvements in social functioning were sometimes only evident at later stages (for example Li & Arthur and Pang et al). It is likely that improvements in social functioning happen more slowly and subsequently to clinical improvements and that patients who recover symptomatically can be expected to experience a positive change in social functioning. Indeed, in the vast majority of included trials, concurrent improvements in both clinical and social functioning were observed. However, an intervention that improves social functioning may not necessarily have an impact on clinical symptoms: notably, the two trials assessing community care for schizophrenia demonstrated an impact on social functioning even though the intervention had no impact on clinical outcomes. This may be because these interventions involved shifting the locus of care to the community to promote re-integration following a hospital admission, rather than specific treatments for clinical symptoms. Increased efforts are needed to disentangle those aspects of interventions that are effective at improving clinical symptoms and social functioning, in order to ensure they are both cost-effective and acceptable to patients and care providers.

Methodological limitations

We note some of the limitations of the evidence included in this review that affect the strength of conclusions and generalisability of the results, particularly to efforts to scale up services for people with mental disorders in LAMI countries. For schizophrenia there was an absence of evidence from high-quality trials and the generalisability of the findings is limited by the over-representation of trials from China conducted in populations of hospital patients. Trials of task-shifted psychosocial interventions delivered in primary care are urgently needed. In contrast, all but one of the trials included in the depression meta-analysis were methodologically strong.

Additionl limitations of the evidence included in this review include the short follow-up in a third of trials, potentially not allowing sufficient time to detect improvements in functioning in the intervention group. Although both the depression and the schizophrenia reviews show that intervention effects were sustained over greater than a 6- or 12-month period respectively, the precision of this estimate is reduced by the smaller number of trials included in this meta-analysis. Also, the measures of social functioning used by the trials may have affected the results of the review. Most of the scales used by the included trials do not include the full range of social functioning domains listed in online Table DS2, in particular parental functioning. Assessing the impact that depression has on parental roles among women is important as not only are they at a higher risk for depression, but maternal depression has been shown to affect child health and growth. Parental functioning was only measured in two of the ten scales used by the included trials, leading to potential underestimates of the effect of the intervention on social functioning in these trials. Furthermore, few of the tools to measure social functioning were developed or validated for the setting in which they were used, with some exceptions and there is a risk that contextually relevant outcomes, which may have the biggest impact on reducing stigma were not captured. Lastly, no trials were found that evaluated a number of types of psychosocial interventions shown to be effective in high-income countries, such as wellness promotion, vocational rehabilitation and cognitive remediation. Trials in LAMI countries evaluating the effect of these interventions on social functioning outcomes are needed.

On the other hand, the methods used for this review were strong. We used a wide-ranging search strategy with no limitations set on date, publication type or language. This resulted in the identification of a substantial body of previously largely uncited work from China that significantly adds to the body of knowledge particularly on the effectiveness of schizophrenia interventions. We conducted a meta-analysis of similar trials, using outcomes measured at similar time points and with comparable control groups to test the size of the effect of the interventions on social functioning, and examined heterogeneity by study quality.

Implications

The results of this review have a number of implications for future research.

(a) All trials of interventions for mental disorders in LAMI countries should use locally validated social functioning scales to measure social functioning outcomes in addition to measuring clinical and economic outcomes.

(b) Trial participants should be followed up for a sufficiently long time to detect changes in social functioning compared with clinical symptoms. Minimum follow-up times of 6 months for depression and 12 months for schizophrenia are recommended.

(c) Trials (particularly for schizophrenia) should be conducted of psychosocial interventions by non-specialist health workers, to directly inform efforts to scale up mental health services.

(d) Trials are needed of other psychosocial interventions such as wellness promotion, vocational rehabilitation and cognitive remediation, which hold promise for delivering improvements in social functioning but which have not yet been evaluated in LAMI countries.

Developing interventions that improve social functioning is important for a number of reasons. First, there is increasing evidence that service users place greater value on improvements in social functioning than improvements in clinical status and that impairments in social functioning are often a key factor in an individual’s decision to seek care. Second, it has been suggested that seeing individuals with mental disorders successfully treated and return to socially productive roles has the greatest impact on reducing stigma and may succeed where concerted efforts at improving mental health literacy have failed. Ultimately, social functioning is seen as an increasingly important factor for reducing the overall burden of mental disorders, particularly for chronic or recurrent conditions such as schizophrenia and depression that cause very high levels of disability.

This review provides strong evidence for depression and weaker evidence for schizophrenia in support of the use of a range of psychosocial interventions, with or without concurrent pharmacological interventions in LAMI countries. Many of the interventions included in the review were delivered by non-specialists in collaborative and/or stepped-care delivery models often in primary care or community settings. The scarcity of specialist human resources in these settings indicates that these packages of care should be delivered by non-specialists working under the supervision of specialists, who provide capacity-building, continued supervision and referral pathways to enhance the effectiveness of these interventions. These findings therefore...
directly informs efforts such as the World Health Organization (WHO) Mental Health Gap Action Programme\(^6\) to scale up mental health services in LAMI countries. This review also supports calls to monitor the social functioning of patients as part of routine clinical practice\(^3,6\) in order to ensure that treatments go beyond clinical effectiveness and meet the wider needs of patients. Providing interventions that improve patient social functioning will not only reduce the burden of mental disorders by enabling people to fulfill a productive social role, but may also be the most effective way to combat stigma.

### Inclusion and exclusion criteria for review

**Study population**

- Included: study conducted in LAMI country as defined by the World Bank. Any age.
- Excluded: study conducted in high-income country.

**Condition of interest**

- Included: depressive disorders and schizophrenia.
- Excluded: other mental disorders, for example substance misuse, bipolar and anxiety disorders.

**Intervention**

- Included: any psychosocial intervention (non-pharmacological) aimed at improving the lives of people with mental health problems and their families. This includes psychotherapy, social and collaborative care interventions where a number of different interventions are combined.
- Excluded: interventions not administered to the person with the mental health problem or their families/carer (for example interventions for healthcare staff).

**Study design**

- Included: individual and cluster RCTs. Effectiveness trials with a placebo or TAU control group.
- Excluded: non-randomised intervention studies, case-control or cross-sectional studies. Equivalence trials with an active control group.

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**Outcome**

- Included: social functioning measured using a validated tool.
- Excluded: individual measures of social functioning such as marital status, employment status or quality of social relationships. Quality of life measures.

**Meta-analysis**

- Included: study reports a quantitative estimate of the effect of the intervention on the outcome suitable for combination in a meta-analysis.
- Excluded: no quantitative estimate of effect suitable for combination in a meta-analysis.

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**References**

1. World Health Organization. The Global Burden of Disease: 2004 Update. WHO, 2004.
2. Kohn R, Saxena S, Levav I, Saraceno B. The treatment gap in mental health care. Bull World Health Organ 2004; 82: 858–66.
3. Hirschfeld RM, Montgomery SA, Keller MB, Kasper S, Schatzberg AF, Moller HS, et al. Social functioning in depression: a review. J Clin Psychiatry 2000; 61: 268–75.
4. Patel V, Thornicroft G. Packages of care for mental, neurological, and substance use disorders in low- and middle-income countries: PLoS medicine series. PLoS Med 2009; 6: e1000160.
5. Patel V, Simon G, Chowdhary N, Kaaya S, Araya R. Packages of care for depression in low- and middle-income countries. PLoS Med 2009; 6: e1000159.
6. Mari J, Razouk D, Thara R, Eaton I, Thornicroft G. Packages of care for schizophrenia in low- and middle-income countries. PLoS Med 2009; 6: e1000165.
7. Dua T, Barbui C, Clark N, Fleischmann A, Poznyak V, van Ommeren M, et al. Evidence-based guidelines for mental, neurological, and substance use disorders in low- and middle-income countries: summary of WHO recommendations. PLoS Med 2011; 8: e1001122.
8. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. PLoS Med 2009; 6: e1000097.
9. Dagnan D. Psychosocial interventions for intellectual disabilities. In Psychiatric and Behavioural Disorders in Intellectual and Developmental Disabilities (eds N Bouras, G Holt): 330–8. Cambridge University Press, 2007.
10. Murray C, Lopez AD. The Global Burden Disease: A Comprehensive Assessment of Mortality and Disability From Disease, Injuries and Risk Factors in 1990 and Projected to 2020. Harvard University Press, 1998.
11. Wiersma D. Measuring social disabilities in mental health. Soc Psychiatry Psychiatr Epidemiol 1996; 31: 101–8.
12. Mueser KT, Tarrier N. Handbook of Social Functioning in Schizophrenia. Allyn & Bacon, 1998.
13. Ware JE, Sherbourne CD. The MOS 36-item short-form health survey (SF-36).1. Conceptual framework and item selection. Med Care 1992; 30: 473–83.
14. Higgins JPT, Green S. Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0. The Cochrane Collaboration, 2011.
15. Gates S. Methodological guidelines. In About The Cochrane Collaboration (Collaborative Review Groups (CRGs)), Issue 2 (eds The Editorial team: Pregnancy and Childbirth Group). Cochrane Collaboration, 2005.
16. Burns T, Patrick D. Social functioning as an outcome measure in schizophrenia studies. Acta Psychiatr Scand 2007; 116: 403–18.
17. Bolton P, Bass J, Neugebauer R, Verdelli H, Clougherty KF, Wickramaratne P, et al. Group interpersonal psychotherapy for depression in rural Uganda: a randomized controlled trial. JAMA 2003; 289: 3171–74.
18. Bass J, Neugebauer R, Clougherty KF, Verdelli H, Wickramaratne P, Ndigoni L, et al. Group interpersonal psychotherapy for depression in rural Uganda: 6-month outcomes. Randomized controlled trial. Br J Psychiatry 2006; 188: 567–73.
19. de Mello MF, Myczkowsik LM, Menezes PR. A randomized controlled trial comparing moclomobide and moclobemide plus interpersonal psychotherapy in the treatment of dysthymic disorder. J Psychoth Pract Res 2001; 10: 117–23.
20. Ye HP, Ming L. Group interpersonal psychotherapy for inpatient with major depression [in Chinese]. Chin Ment Health J 2006; 20: 524–6.
21. Patel V, Chisholm D, Rabe-Hesketh S, Dias-Saxena F, Andrew G, Mann A. Efficacy and cost-effectiveness of drug and psychological treatments for...
common mental disorders in general health care in Goa, India: a randomised, controlled trial. Lancet 2003; 361: 33–9.

22. Wei Q. Effect of new Morita therapy plus antipsychotic drugs in ameliorating post-schizophrenia depression [in Chinese]. Zhongguo Linchuang Kangfu 2005; 9: 72–5.

23. Patel V, Weiss HA, Chowdhary N, Naik S, Pednekar S, Chatterjee S, et al. Lay intervention for schizophrenia inpatients with art as medium [in Chinese]. Zhongguo Linchuang Kangfu 2005; 9: 72–5.

24. Araya R, Rojas G, Fritsch R, Solis J, Jaderesic E, Castillo C, Gonzalez M, et al. Treatment of perinatal depression in low-income mothers in primary-care clinics in Santiago, Chile: a randomised controlled trial. Lancet 2003; 361: 995–1000.

25. Wang NS, Li RQ, Zhan LY, Wang GS, Liu L. The effect of regular health education on rehabilitation of outpatients with schizophrenia in rural areas [in Chinese]. Chin Ment Health J 2007; 21: 186–7.

26. Li X, Li X, Ma X, Ni Y. Effects of social rehabilitation on late-onset schizophrenia [in Chinese]. Chin Ment Health J 2002; 16: 711–3.

27. Pang Y, Huang S, Li X, Hu L, Lin C. The effect of health education on compliance of patients with paranoid schizophrenia in their follow-up therapy [in Chinese]. Chin Ment Health J 2002; 16: 348–50.

28. Verbeke A, Harbord RM. Funnel plots in meta-analysis. Stat J 2004; 4: 127–41.

29. Shulz DF, Chalmers I, Hayes RJ, Altman DG. Empirical evidence of bias. Dimensions of methodological quality associated with estimates of treatment effects in controlled trials. JAMA 1995; 273: 408–12.

30. Chisholm D, Fisher AJ, Lund C, Patel V, Saxena S, Torrncroft G, et al. Scale up services for mental disorders: a call for action. Lancet 2007; 370: 1241–52.

31. Weissman MM. Social functioning and the treatment of depression. J Clin Psychiatry 2001; 61 (suppl 1): 33–4.

32. Rahman A, Malik A, Sikander S, Roberts C, Creed F. Cognitive behaviour therapy-based intervention by community health workers for mothers with depression and their infants in rural Pakistan: a cluster-randomised controlled trial. Lancet 2008; 372: 902–9.

33. Nuechterlein KH, Brown L, Bentler P, Rezzonico S, Navarro S, et al. The vulnerability/stress model of schizophrenic relapse: a longitudinal study. Acta Psychiatr Scand Suppl 1994; 382: 58–64.

34. Delahanty A, Morice R. Rehabilitation of frontal/executive impairments in schizophrenia. Aust N Z J Psychiatry 1996; 30: 760–7.

35. Read UM, Adilbokah E, Niyane S. Local suffering and the global discourse of mental health and human rights: an ethnographic study of responses to mental illness in rural Ghana. Glob Health 2009; 5: 13.

36. Davidson L, White W. The concept of recovery as an organising principle for integrating mental health and addiction services. J Behav Health Serv Res 2007; 34: 104–20.

37. Mental Health Gap Action Programme. Scaling Up Care for Mental, Neurological, and Substance Use Disorders. World Health Organization, 2008.

38. Schomerus G, Schwahn C, Holzinger A, Corrigan P, Grabe H, Carta M, et al. Evolution of public attitudes about mental illness: a systematic review and meta-analysis. Acta Psychiatr Scand 2012; 125: 440–52.

39. Lopez D, Mathers D, Ezzati M, Jamison T, Murray J. Global Burden of Disease and Risk Factors. Oxford University Press and The World Bank, 2006.

40. Kakuma R, Minas H, van Ginneken N, Dal Poz MR, Desiraju K, Morris JE, et al. Human resources for mental health care: current situation and strategies for action. Lancet 2011; 378: 1643–64.

41. Patel V. The future of psychiatry in low- and middle-income countries. Psychol Med 2009; 39: 1759–62.
De Silva et al: Effect of psychosocial interventions on social functioning in depression and schizophrenia. Br J Psychiatry 2013; 202: 253–60 (doi: 10.1192/bjp.bp.112.118018)

**Table DS1** Overview of Cochrane systematic reviews on the effect of psychosocial interventions for depression and psychosis on social functioning

| Review                        | Intervention                                           | Total # RCTs included | # RCTs with social functioning outcome | Effect on social functioning                | MA |
|-------------------------------|--------------------------------------------------------|----------------------|----------------------------------------|---------------------------------------------|----|
| **Reviews of psychosocial interventions for depression** |                                                        |                      |                                        |                                             |    |
| **Psychotherapy**             |                                                        |                      |                                        |                                             |    |
| Henken 2007<sup>63</sup>      | Family therapy vs. no intervention or alternative intervention | 6                    | 3                                      | Not significant                            | N  |
| Abbass 2006<sup>64</sup>       | Short-term psychodynamic psychotherapies vs. Treatment as usual | 23                   | 1                                      | Significant positive association.            | N  |
| **Psycho-social interventions** |                                                        |                      |                                        |                                             |    |
| Dennis 2007<sup>65</sup>      | Psychosocial interventions vs. Various                  | 10                   | 2                                      | Mixed results (data not conclusive)         | N  |
| **Reviews of psychosocial interventions for psychosis** |                                                        |                      |                                        |                                             |    |
| **Psychotherapy**             |                                                        |                      |                                        |                                             |    |
| Xia 2011<sup>56</sup>         | Psycho-education vs. standard levels of knowledge provision | 44                   | 9                                      | Significant positive associations.           | Y  |
| McGrath 2000<sup>57</sup>     | Cognitive rehabilitation vs. Intensive Occupational Therapy (IOT) | 3                    | 1                                      | Not significant                            | N  |
| Buckley 2007<sup>58</sup>     | Supportive therapy vs. Cognitive Behavioural Therapy   | 21                   | 2                                      | Mixed results (data not conclusive)         | N  |
| Pharoah 2010<sup>69</sup>     | Family therapy vs. Standard care.                      | 53                   | 4                                      | Significant positive association.            | Y  |
| He 2007<sup>70</sup>          | Morita Therapy vs. Standard care                        | 12                   | 2                                      | Significant positive association.            | Y  |
### Psycho-social interventions

| Author     | Intervention                                                   | Participants | Comparison | Outcome                      | MA  |
|------------|---------------------------------------------------------------|--------------|------------|------------------------------|-----|
| Cleary 2008 | Psychosocial interventions vs. Standard care                  | 25           | Not specified | Mixed results (data not conclusive) | N   |
| Crowther 2001 | Vocational rehab vs. Usual services                         | 18           | 2          | Not significant              | N   |
| Tungpoom 2008 | Life skills programme vs. Attention control condition      | 4            | 1          | Not significant              | N   |
| Gold 2005   | Music therapy vs. Placebo and standard care                  | 4            | 2          | Significant positive association | Y   |
| Ruddy 2005  | Art therapy vs. Standard care and psychosocial intervention  | 2            | 2          | Not significant              | N   |

### Collaborative care models

| Author     | Intervention                                                   | Participants | Comparison | Outcome                      | MA  |
|------------|---------------------------------------------------------------|--------------|------------|------------------------------|-----|
| Kisely 2011 | Community-outpatient care vs. standard care                   | 2            | 2          | Not significant              | Y   |
| Marshall 2003 | Day hospital vs. Inpatient care                           | 9            | 4          | Not significant              | N   |
| Shek 2090   | Day hospital vs. outpatient care                             | 4            | 3          | Mixed results (data not conclusive) | Y   |
| Dieterich 2010 | Intensive Case Management (caseload <20) vs. non-Intensive Case Management (caseload >20) & standard community care | 38           | 15         | Not significant              | Y   |

MA = meta-analysis
| Scale                                      | Description of scale                                                                 | Developed for psychiatric population? | Developed for LMIC population? | Acceptable validity and reliability? | # studies using scale in review | Parental role | Marital role | Household role | Social/recreational activities | Interpersonal relationships | Independence/self care | Occupation/education | Physical limitations | Emotional functioning |
|-------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|---------------------------------|--------------------------------------|-------------------------------|----------------|-------------|----------------|-----------------------------|-----------------------------|------------------------|------------------------|------------------------|-----------------------|
| Short-Form 36 social functioning sub-scale (SF-36) | Self-assessed. Extent and frequency with which health problems interfered with normal social activities. | No                                     | No                              | Yes                                  | 4                             | X             |             |                |                             |                             |                         |                         |                        |                      |
| Social Functioning Scale (SFS)             | Self-assessed. 79 questions covering 7 domains: Social withdrawal, relationships, social activities, recreational activities, independence (performance and competence), employment. Developed to assess functioning essential for integration of people with schizophrenia in the community. | Yes                                     | No                              | Yes                                  | 1                             | X             | X           | X               | X                           | X                           | X                      | X                      | X                      | X                     |
| Lambert’s Outcome Questionnaire (OQ-45.2)  | Self-assessed. 45 items divided into five categories. The items assess the patient’s state in three areas: symptoms, interpersonal relationships, and social role functioning with higher scores representing a dysfunctional population. | Yes                                     | No                              | Not enough data to assess            | 1                             | X             | X           | X               | X                           | X                           | X                      | X                      | X                      | X                     |
| Uganda functional impairment score        | Self-assessed. Locally developed and validated for Uganda sex-specific 9-item questionnaire to assess functional impairment. Scores from 0 “no more difficulty” to 4 “frequently unable to do task” for each item, combined into a single score with higher scores indicating more dysfunction. | No                                      | Yes                             | Yes in this pop.                     | 1                             | X             | X           | X               | X                           | X                           | X                      | X                      | X                      | X                     |
| **Global Assessment of Functioning (GAF)**<sup>82</sup> | Clinician rated. 100-point single item scale. "1-10 persistent danger" to "91-100" superior functioning in a wide range of activities. No symptoms". | No | No | Yes | 1 | X | X | X | X | X | X | X | X |
| **Global Assessment Scale (GAS)**<sup>83</sup> | Clinician rated. 100-point single item scale. From "1-10 hypothetically most impaired individual" to "91-100 hypothetically healthiest individual". Scale designed to assess functioning in psychiatric patients, developed from the GAF. | Yes | No | Yes | 2 | X | X | X | X | X | X | X | X |
| **Social and Occupational Functioning Assessment Scale (SOFAS)**<sup>84</sup> | Clinician rated. 100-point single item scale. From "1-10 superior functioning in a wide range of activities" to "1-10 persistent inability to maintain minimal personal hygiene. Unable to function without harming self or others or without considerable external support". Developed from GAF. | Yes | No | Not enough data to assess | 1 | X | X | X | X | X | X | X | X |
| **World Health Organisation Disability Assessment Scale (WHO-DAS II)**<sup>85</sup> | Self-assessed. Assesses day to day functioning in six activity domains. Results provide a profile of functioning across the domains, as well as an overall disability score. | No | Yes | Yes | 1 | X | X | X | X | X | X | X | X |
| **Social Disability Screening Schedule (SDSS)**<sup>49</sup> | Self-assessed. Adapted from the WHO-DAS. Measures 10 items with 3 levels of scoring: "no loss of social functioning" to "severe loss of social functioning". | Yes | Yes | Yes in this pop. | 12 | X | X | X | X | X | X | X | X |
| **Brief Disability Questionnaire (BDQ)**<sup>86</sup> | Self-assessed. Assesses disability in everyday activities from a low score of 1-6 “not at all impaired” to a high score of 14-22 “definitely impaired”. | No | Yes | Yes in this pop | 1 | X | X | X | X | X | X | X | X |

*The total adds up the 25 as 1 study (Pang 2002)<sup>42</sup> used 2 scales to measure social functioning at different time points.*
| Author Year Country | Trial design and participants | Intervention and control groups | Social functioning outcomes and timing of outcome assessment | Cochrane risk of bias* | Effect on social functioning | Clinical effect | M/A |
|---------------------|-------------------------------|--------------------------------|----------------------------------------------------------|------------------------|----------------------------|---------------|-----|
| **STRUCTURED PSYCHOTHERAPIES** | | | | | | | |
| **Interpersonal therapy** | | | | | | | |
| Bolton 2003^{17}/ Bass 2006^{18} Uganda | Cluster RCT 284 adults living in the community who met DSM-IV criteria for major or sub-syndromal depression, identified through community screening. | Therapy vs. TaU
- Int: 139 people from 15 villages randomised to 16 weeks of weekly 90 minute sessions of community based group interpersonal psychotherapy delivered in gender-specific groups of between 8 – 10 people.
- Ctrl: 145 people from 15 villages randomised to receive usual care (normally no treatment). | Sex-specific 9-item questionnaire to assess functional impairment with higher scores indicating more dysfunction.
- Assessed 4 ½ months* and 10 months post baseline. | Sequence gen L
- Alloc conceal U
- Partic. blind L
- Outcome blind L
- Incomplete out L
- Select report. L
- Other L | Positive association
- The intervention group had significantly lower functional impairment scores at both follow-up times compared to the control group. | Yes | Yes |
| de Mello 2001^{19} Brazil | Individual RCT 35 adults who met ICD-10 criteria for dysthymic disorder (chronic depression), referred to 2 psychiatric hospital outpatient clinics. | Therapy vs. TaU
- Int:16 patients randomized to receive anti-depressant (moclobemide) plus 16 weekly followed by 6 monthly interpersonal therapy (IPT) sessions
- Ctrl: 19 patients randomized to receive anti-depressant (moclobemide) and routine clinical management. | Global Assessment of Functioning (GAF)
- Assessed 12 weeks, 6 months* and 48 weeks from baseline. | Sequence gen U
- Alloc conceal U
- Partic. blind L
- Outcome blind L
- Incomplete out H
- Select report. L
- Other H | No association
- Non-significant trend of greater improvement in mean GAF scores over time in the intervention group compared to the control. | No | Yes |
| Ye | Individual RCT | Therapy vs TaU | Social Disability Screening | Sequence gen L | Positive association | Yes | Yes |
### 2006<sup>20</sup> China

60 patients who were inpatients of a psychiatric hospital between Aug 2004 and May 2005 who met the DSM-IV criteria for depression with an HAMD score of more than 17 and a CRS score of more than 10.

**Int:** 60 patients randomized to receive **group interpersonal psychotherapy for 12 weeks and anti-depressants**

**Ctrl:** 60 patients randomized to receive **anti-depressants**

#### Schedule (SDSS)
Assessed after the 12-week intervention, 3 months * from baseline.

Significantly greater improvement in the intervention group in social functioning after treatment than in the control group (social functioning in both groups improved).

| Allocated conceal | Particip. blind | Outcome blind | Incomplete out | Select report. | Other |
|------------------|----------------|--------------|----------------|---------------|-------|
| U                | L              | U            | H              | L             | U     |

### Patel 2003<sup>21</sup> India

450 adults who scored 15 or more on the Revised Clinical Interview Schedule (CISR) identified through outpatient clinics in 2 general hospitals

**Int:** 150 patients randomized to **problem solving therapy** - 6 sessions delivered by a non-medical health worker over 3 months

**Ctrl:** 150 patients randomized to receive a **placebo pill**.

A further 150 patients were randomized to 6 months of **antidepressant (fluoxetine SSRI)** treatment, but these results are not included in this review.

Disability measured with **Brief Disability Questionnaire (BDQ)**

Assessed 2, 6 months* and 12 months from baseline.

No association

| Sequence gen | Allocated conceal | Particip. blind | Outcome blind | Incomplete out | Select report. | Other |
|--------------|------------------|----------------|--------------|----------------|---------------|-------|
| L            | U                | L              | L            | L              | L             | L     |

No significant differences in functioning at any time point between the placebo and therapy groups.

### OTHER INTERVENTIONS

#### Morita therapy

**Wei 2005<sup>22</sup>**

Individual RCT

**Non-conventional treatment + drug vs. drug**

Disability measured with **Social Disability Screening Schedule (SDSS)**

Positive association

| Sequence gen | Allocated conceal |
|--------------|-------------------|
| L            | U                 |

Yes | Yes
### China

104 adults who met CCMD-3 for post-schizophrenic depression, with at least 18 points for HAMD total score; identified through a provincial psychiatric hospital.

Int: 52 patients randomized to receive 12-week-long Morita therapy and anti-depressant in Morita therapy sickrooms.

Ctrl: 52 patients randomized to receive inpatient treatment as usual and anti-depressant (aminazine and venlafaxine).

Assessed immediately after the 12-week-intervention, 3 months* from baseline.

**Partic. blind** | **L**   **Outcome blind** | **H**   **Incomplete out** | **H**   **Select report.** | **L**   **Other** | **U**
--- | --- | --- | --- | --- | --- | --- | ---

Significantly better social functioning in the intervention group compared to the control group at 3 months.

### India

2796 adults diagnosed with ICD-10 depression were recruited from 12 public and 12 private primary health care clinics.

Int: 1648 patients randomised to receive up to 6 months of collaborative stepped care comprising psycho-education, anti-depressants, inter-personal therapy and psychiatric referral. Cases were managed by a lay health counsellor who oversaw the non-drug treatments, including diagnosis and prescription by a primary care physician, and supervision from a psychiatrist.

Ctrl: 1148 patients randomised to receive enhanced usual care (given screening results and a training manual).

12-item WHO Disability Assessment Schedule (WHO-DAS II)

Assessed 2, 6 months* and 12 months from baseline.

**Sequence gen** | **L**   **Alloc conceal** | **L**   **Partic. blind** | **L**   **Outcome blind** | **L**   **Incomplete out** | **L**   **Select report.** | **L**   **Other** | **L**
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---

Significantly better social functioning scores in the intervention compared to the control group at 2 months follow-up in public Primary Health Care centres only. No significant difference between intervention and control groups at 6 or 12 month follow-up in public PHCs. No significant difference in private GP practices at any time point.

**Yes, but in public clinics only**

**Yes**
| **Araya** 2003<sup>24</sup> | **Chile** | Individual RCT | 240 adult females who met DSM-IV criteria for major depression, identified through 3 primary-care clinics. | **Multi-component intervention vs. TaU** | Int: 120 patients randomized to 3-months of multi-component stepped care led by non-medical health workers, comprising 7 weekly psycho-education group therapy sessions for all patients, and structured pharmacotherapy delivered by the primary care physician for those with severe/persistent depression, along with treatment adherence support. Ctrl: 120 patients randomised to receive treatment as usual. | **Social functioning subscale of the SF-36** | Assessed 6 months* and 9 months from baseline. | Sequence gen | L | Positive association | Yes | Yes |
| | | | | | | | | Alloc conceal | L | Partic. blind | L | Outcome blind | L | Incomplete out | L | Select report. | L | Other | H |
| **Rojas** 2007<sup>25</sup> | **Chile** | Individual RCT | 230 mothers at any stage during their first postnatal year who met DSM-IV criteria for postnatal depression, identified through 3 primary health clinics. | **Multi-component intervention vs. TaU** | Int: 114 mothers randomized to receive a multi-component intervention involving 8 weekly psycho-educational groups, treatment adherence support, and pharmacotherapy if needed. Ctrl: 116 mothers randomized to receive usual care including all services normally available in the primary health clinics. | **Social functioning subscale on the SF-36** | Assessed 3 and 6 months* from baseline | Sequence gen | L | Positive association | Yes | Yes |
| | | | | | | | | Alloc conceal | L | Partic. blind | L | Outcome blind | L | Incomplete out | L | Select report. | L | Other | L |

* Significant improvements in social functioning in intervention group compared to TaU at both 6 and 9 months from baseline.

* Significantly better social functioning scores in intervention group compared to TaU at 3 months but not 6 months.
| Study                          | Design          | Setting                                                                 | Sample Description                                                                 | Interventions                                                                                           | Outcome Measures                                                                                          | Findings                                                                                           | Randomization | Allocation | Participation | Outcome | Reporting |
|-------------------------------|-----------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------|-------------|--------------|----------|-----------|
| Vitriol et al. 2009          | Individual RCT  | Chile                                                                  | 87 adult women who met ICD-10 criteria for severe depression and who had a history of childhood traumatic experiences, referred to a hospital outpatient clinic. | Multi-component intervention vs. TaU: 44 patients randomized to receive 3 months of out-patient structured intervention by a multidisciplinary team including medication and weekly cognitive trauma-based therapy. Ctrl: 43 patients randomized to receive TaU following clinical guidelines including psychotherapy and medication. | Social role functioning subscale on the Lambert's Outcome Questionnaire (OQ-45.2) with high scores (max 36) indicating worse social functioning. Assessed 3 and 6 months* from baseline. | No significant difference in social functioning scores between the control and intervention groups at 3 months. Borderline significantly better functioning in the intervention compared to the control group at 6 months. | Yes           | Yes         | U           | L        | U         |
| Fritsch et al. 2007          | Individual RCT  | Chile                                                                  | 345 adult mothers living with children aged 6-16 years who met DSM-IV criteria for major depression, identified through 5 primary-care clinics. | Multi-component intervention vs. TaU: 175 received pharmacological intervention with telephone re-enforcement including treatment adherence and psycho-education by trained non-professional staff. Ctrl: 170 received usual care in primary care including pharmacotherapy and psychological therapy. | Social functioning subscale of the SF-36. Assessed 3 and 6 months* from baseline. | The intervention group had borderline statistically significant better social functioning scores than the control group at 3 months, with borderline non-significantly better functioning at 6 months. | Yes           | Yes         | L           | L        | U         |
| **Hu, 2007**<sup>28</sup> China | Individual RCT | Multi-component intervention vs. TaU | Social Disability Screening Schedule (SDSS) |
| --- | --- | --- | --- |
| 76 adults who meet the Chinese Classification of Mental Disorders v3 (CCMD3) criteria for depression, identified through the inpatient department of a psychiatric hospital. | Int: On discharge, 39 patients randomised to receive 1.5 – 2 years family-based treatment package including medication, psychotherapy, positive intervention and maintenance therapy. Ctrl: 37 randomised to standard outpatient treatment. | Assessed 6 months*, 12, 18 and 24 months from baseline. |
| **Positive association** | The intervention group had significantly better social functioning scores than the control group throughout the follow-up period. Time of follow-up not reported in paper. |
| Sequence gen | L | | |
| Alloc conceal | U | | |
| Partic. blind | L | | |
| Outcome blind | L | | |
| Incomplete out | H | | |
| Select report. | H | | |
| Other | U | | |
| Yes | Yes | | |
| Author Year | Trial design and participants | Intervention and control groups | Social functioning outcomes and timing of outcome assessment | Cochrane risk of bias* | Effect on social functioning | Clinical effect | M/A |
|-------------|--------------------------------|---------------------------------|---------------------------------------------------------------|------------------------|------------------------------|-----------------|-----|
| Xiang 1994<sup>30</sup> China | Individual RCT. 77 adults with schizophrenia or affective psychoses (69 schizophrenia; 8 affective disorders) living in three rural communities. | **Family psycho-education vs. TaU**  
Int: 36 patients randomized to receive community-based family psycho-education plus drug treatment (haloperidol decanoate) for 4 months.  
Ctrl: 41 patients randomized to receive drug treatment (haloperidol decanoate) only. | **Social Disability Screening Schedule (SDSS)**  
Assessed immediately post-intervention at 4 months* from baseline. | Sequence gen U  
Alloc conceal U  
Partic. blind L  
Outcome blind L  
Incomplete out U  
Select reporting U  
Other H | Positive association  
Significantly better improvements in social functioning in intervention group compared to controls. | Yes | No as no data in the paper |
| Li 2005<sup>33</sup> China | Individual RCT  
101 psychiatric hospital in-patients who met CCMD–II–R criteria for schizophrenia and was living with a family member at least 3 months prior to the current hospital admission. Respondents identified through | **Family psycho-education vs. TaU**  
Int: 46 patients and their families randomized to receive 44 hours of psycho-education and skills training while in hospital, plus 2 hours per month for 3 months post-discharge.  
Ctrl: 55 patients and their families randomized to receive standard inpatient treatment. | **Chinese version of the Global Assessment Scale (GAS)**  
Assessed at 6 and 12 months* from baseline. | Sequence gen H  
Alloc conceal H  
Partic. blind L  
Outcome blind H  
Incomplete out H  
Select report. L  
Other H | Positive association  
Significant improvements in social functioning in intervention group at 9 months post-discharge, but not at 3 months or at discharge. | Yes, at 9 months only | Yes |
| Study | Design | Setting | Intervention | Outcome | Randomization | Allocation Concealment | Participant Blindness | Outcome Blindness | Completeness | Reporting | Other |
|-------|--------|---------|--------------|---------|---------------|------------------------|----------------------|-------------------|--------------|----------|-------|
| Wang 2008 | Individual RCT | 220 then-outpatients (all rural) who were once inpatients of an ‘An Kang’ (enforced treatment) psychiatric hospital between Jun 2002 and Oct 2003, and met the CCMD-3 criteria for schizophrenia | Family psycho-education vs. TaU | Social Disability Screening Schedule (SDSS) | | | | | | | |
| | | Int: 110 patients randomized to receive **monthly family-psycho education** (once a month in year 1, once every two months in year 2) on disease knowledge and management with their family, and **anti-psychotic medication** and **outpatient consultations** on a regular basis | | Assessed, **6, 12 months**, 18 and 24 months from baseline. | | | | | | | |
| | | Ctrl: 110 patients randomized to receive **anti-psychotic medication** and **outpatient consultations** on a regular basis. | | | | | | | | | |
| Wei 1997 | Individual RCT | 100 inpatients in a psychiatric hospital who met CCMD-2 criteria for schizophrenia with positive symptoms | Patient psycho-education vs. TaU | Social Disability Screening Schedule (SDSS) | | | | | | | |
| | | Int: 50 patients randomized to receive 4 weeks of **psycho-education** about independent living, family relationships, social relationships and knowledge | | Assessed, **1 year and 1 month** post-baseline. | | | | | | | |
Social Skills training

| Cui 2004 | Individual RCT | 100 male patients who were inpatients in a general hospital between 1999 and 2001 who met the CCMD-2-R criteria for schizophrenia, and have had the condition for more than 5 years. | Therapy vs. TaU | Int: 50 patients randomized to receive 12-week group social skills training course and stable anti-psychotic medication | Social Disability Screening Schedule for inpatients (SDSI) | Assessed post-intervention 12 weeks* from baseline. | Sequence gen | Positive association | Yes | Mean scores not reported |
|----------|----------------|----------------------------------------------------------|---------------|----------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------|------------|------------------------|-----|------------------------|
| Ctrl: 50 patients randomized to receive stable anti-psychotic medication | | | | | | | Alloc conceal | U | Partic. blind | L | Outcome blind | L | Incomplete out | H | Select report. | H | Other | U |

Multi-component structured psychotherapy

| Chen 2003 | Individual RCT | 64 patients who were inpatients in a psychiatric hospital between Jul 2001 and | Therapy vs. TaU | Int: 32 patients randomized to receive 10-weekly session of psycho-education and social skills training plus their usual anti- | Social Disability Screening Schedule (SDSS) | Assessed 1 year 10 weeks* from baseline. | Sequence gen | Positive association | Yes | Yes |
|----------|----------------|----------------------------------------------------------|---------------|----------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------|------------|------------------------|-----|------------------------|
| | | | | | | | Alloc conceal | U | Partic. blind | L | Outcome blind | L | Incomplete out | L | Select report. | H | Other | U |

under control after receiving previous treatment. about schizophrenia and its treatment. Involved lectures, exams and role-plays.

Ctrl: 50 patients randomized to standard inpatient treatment
| Study | Design Type | Country | Sample Size | Inclusion Criteria | Intervention | Control | Outcome | Results |
|-------|-------------|---------|-------------|--------------------|--------------|---------|---------|---------|
| Guo 2010 China | Individual RCT | China | 1268 | DSM-IV criteria for schizophrenia or schizophreniform disorder within past 5 years, and on maintenance treatment, identified through 10 outpatient psychiatric clinics | Psycho-education vs. TaU | 635 patients randomized to receive 12 months (48 sessions) of group psychosocial treatment comprising psycho-education, family intervention, skills training, and CBT plus their usual antipsychotic medication. | 635 patients randomized to receive their usual antipsychotic medication only (various). | Positive association | Significantly greater improvement in functioning scores over time in intervention group compared to controls. |
| Yildiz 2004 Turkey | Individual RCT | Turkey | 30 | Clinically stable adults with DSM-IV schizophrenia were recruited from 2 hospital outpatient clinics | Therapy vs. TaU | 15 patients randomised to receive weekly sessions in an 8 month psychosocial skills training program including psycho-education, interpersonal therapy and family therapy plus their normal medication. | 15 patients randomised to receive standard out-patient care | Positive association | Significant improvements in social and general functioning scores in the intervention compared to the control group after the intervention. |
## Zimmer 2007 Brazil

**Individual RCT.**

56 adults with schizophrenia or schizoaffective disorder (ICD-10 criteria) identified through an outpatient program of a general hospital.

**Therapy vs. TaU**

Int: 20 patients randomized to receive 12 weekly sessions of group Integrated Psychological Therapy (IPT), designed to reduce basic cognitive defects in patients with schizophrenia and including cognitive differentiation, social perception, verbal communication, social skills training, interpersonal problem-solving and psycho-education components, plus routine medication.

Ctrl: 36 patients randomized to receive standard outpatient treatment including routine medication. (2:1 ratio, ctrl:int).

**Social and Occupational Functioning Assessment Scale (SOFAS).**

Assessed post-intervention at 3 months* from baseline.

- Sequence gen: L
- Alloc conceal: U
- Partic. blind: L
- Outcome blind: L
- Incomplete out: H
- Select report: L
- Other: H

**Positive association**

Significantly greater improvements in GAF and SOFAS mean scores in intervention group compared to controls.

### OTHER INTERVENTIONS

#### Art Therapy

**Meng 2005 China**

Individual RCT

100 patients who were inpatients admitted for compulsory treatment for least 2 months in a psychiatric hospital between Mar-Sep 2003.

**Art therapy vs. TaU**

Int: 50 patients randomized to receive art therapy (twice a week for 15 weeks in groups of 6-8) plus regular therapy.

Ctrl: 50 patients randomized to

**Chinese version of the Global Assessment Scale (GAS).**

Assessed after the intervention, 4 months* from baseline.

- Sequence gen: U
- Alloc conceal: U
- Partic. blind: L
- Outcome blind: U
- Incomplete out: L
- Select report: L
- Other: L

**Positive association**

Significant improvements in social functioning in intervention group compared with control group.

Yes Yes
and met ICD-10 criteria for schizophrenia receive regular therapy (except art)

### MULTI-COMPONENT COMMUNITY-BASED CARE INTERVENTIONS

| Study | Design | Participants | Intervention | Control | Outcome Measures | Randomization | Reporting |
|-------|--------|--------------|--------------|---------|-----------------|---------------|-----------|
| Li 2002 | Individual RCT | 76 patients who were newly admitted inpatients of a psychiatric hospital between Jun 1999 and Mar 2001, and met the CCMD-2-R criteria for first onset schizophrenia. | Community care intervention vs TaU | Int: 38 patients randomized to receive weekly home care and social rehabilitation and regular antipsychotic medication (mainly sulpiride) for a maximum of 3 months. Ctrl: 38 patients randomized to receive standard inpatient care and regular antipsychotic medication (mainly sulpiride) | Social Disability Screening Schedule (SDSS) Assessed after the intervention, up to 3 months* from baseline. | Sequence gen | Positive association |
| Pang 2002 | Individual RCT | 240 in-patients (all males) who were admitted to two general hospitals between 2004 and 2006 (3 years) and met the CCMD-2 criteria for paranoid schizophrenia. | Community care intervention vs TaU | Int: 120 males were randomized to receive 4 weeks of individual psycho-therapy as an inpatient plus medication (mainly chlorpromazine) and routine clinical follow-ups. Post discharge, family involvement in therapy sessions and community involvement to support patients not living with family and to | Social Disability Screening Schedule (SDSS) assessed 2 years and 1 month* from baseline. Chinese version of the Global Assessment Scale (GAS) assessed 1 month from baseline only. | Sequence gen | Positive association |

* Significant improvement in social functioning in intervention group after treatment but not the control group; difference between intervention group and control group after treatment was significant.
encourage adherence.

Ctrl: 120 males were randomized to receive medication (mainly chlorpromazine) followed by routine clinical follow-ups.

Xiong 1994
China

Individual RCT.

63 patients admitted to hospital diagnosed with schizophrenia (DSM-III-R) and living with at least one family member.

Int: 34 randomised to receive an individualised family-based multi-component intervention lasting 1 to 2 years including monthly 45 minute family counselling sessions and 90 minute family group sessions, home visits and medication supervision, followed by maintenance treatment. Ctrl: 29 randomised to receive standard outpatient treatment including usual medication.

Social Disability Screening Schedule (SDSS)

Assessed 6, 12 months* and 18 months post-baseline.

Sequence gen U
Alloc conceal U
Partic. blind L
Outcome blind L
Incomplete out L
Select report. H
Other H

Positive association

At the 6, 12, and 18-month evaluations, intervention group had better social functioning scores than control group, but this was only significant at 12 and 18 months (no statistics reported).

Risk of bias rating:

- **Low risk of bias**
- **Unclear**
- **High risk of bias**

Additional references

63 Henken, H.T., et al., *Family therapy for depression*. Cochrane Database Syst Rev, 2007(3): p. CD006728.
64 Abbass, A.A., et al., *Short-term psychodynamic psychotherapies for common mental disorders*. Cochrane Database Syst Rev, 2006(4): p. CD004687.
65 Dennis, C.L. and E. Hodnett, *Psychosocial and psychological interventions for treating postpartum depression*. Cochrane Database Syst Rev, 2007(4): CD006116.
66 Xia, J., L.B. Merinder, and M.R. Belgamwar, *Psychoeducation for schizophrenia*. Cochrane Database Syst Rev, 2011(6): p. CD002831.
67 McGrath, J., Hayes, R.L., Cognitive rehabilitation for people with schizophrenia and related conditions. Cochrane Database of Syst Rev, 2000(3): p. CD000968. [AQ13 Please add a full reference for this study (included in Table DS1).]
68 Buckley, L.A., T. Pettit, and C.E. Adams, Supportive therapy for schizophrenia. Cochrane Database Syst Rev, 2007(3): p. CD004716.
69 Pharoah, F., et al., Family intervention for schizophrenia. Cochrane Database Syst Rev, 2010(12): p. CD000088.
70 He, Y. and C. Li, Morita therapy for schizophrenia. Cochrane Database Syst Rev, 2007(1): p. CD006346.
71 Cleary, M., et al., Psychosocial interventions for people with both severe mental illness and substance misuse. Cochrane Database Syst Rev, 2008(1): p. CD001088.
72 Crowther, R., et al., Vocational rehabilitation for people with severe mental illness. Cochrane Database Syst Rev, 2001(2): p. CD003080.
73 Tungpunkom, P. and M. Nicol, Life skills programmes for chronic mental illnesses. Cochrane Database Syst Rev, 2008(2): p. CD000381.
74 Gold, C., et al., Music therapy for schizophrenia or schizophrenia-like illnesses. Cochrane Database Syst Rev, 2005(2): p. CD004025.
75 Ruddy, R. and D. Milnes, Art therapy for schizophrenia or schizophrenia-like illnesses. Cochrane Database Syst Rev, 2005(4): p. CD003728.
76 Kisely, S.R., L.A. Campbell, and N.J. Preston, Compulsory community and involuntary outpatient treatment for people with severe mental disorders. Cochrane Database Syst Rev, 2011(2): p. CD004408.
77 Marshall, M., et al., Day hospital versus admission for acute psychiatric disorders. Cochrane Database Syst Rev, 2003(1): p. CD004026.
78 Shek, E., et al., Day hospital versus outpatient care for people with schizophrenia. Cochrane Database Syst Rev, 2009(4): p. CD003240.
79 Dieterich, M., et al., Intensive case management for severe mental illness. Cochrane Database Syst Rev, 2010(10): p. CD007906.
80 Birchwood, M., et al., The Social Functioning Scale. The development and validation of a new scale of social adjustment for use in family intervention programmes with schizophrenic patients. Br J Psychiatry, 1990. 157: p. 853-9.
81 Lambert, M., Introduction to psychotherapy research., in Psychotherapy Research, L. Beutler and M. Crago, Editors. 1991, America Psychological Association: Washington DC.
82 Hall, R., Global Assessment of Functioning. A modified scale. . Psychosomatics, 1995. 36: p. 267-275.
83 Endicott, J., et al., The global assessment scale. A procedure for measuring overall severity of psychiatric disturbance. Arch Gen Psychiatry, 1976. 33(6): p. 766-71.
84 American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorder, (4th edn) (DSM–IV). APA, 1994.
85 World Health Organization, World Health Organization Disability Assessment Schedule II (WHODAS II). WHO, 2001.
86 Von Korff, M., et al., Self-report disability in an international primary care study of psychological illness. Journal of Clinical Epidemiology, 1996. 49(3): p. 297-303.
**Fig. DS1** Sensitivity analyses for depression studies: high-quality only

| Study or Subgroup                  | Experimental | Control | Std. Mean Difference | IV, Random, 95% CI |
|------------------------------------|--------------|---------|----------------------|--------------------|
| **1.1.1 Interpersonal Therapy**    |              |         |                      |                    |
| Bolton 2003/Bass 2006              | -4.3         | 4.7     | 103                  | -8.7               |
| De-Mello 2001                      | 84.6         | 10.4    | 11                   | 79.2               |
| Ye 2006                            | -1.87        | 1.6     | 60                   | -4.73              |
| **Subtotal (95% CI)**              | 174          | 23.0%   | 186                  | 0.84 [0.40, 1.29]   |
| Heterogeneity: Tau² = 0.10; Chi² = 6.12, df = 2 (P = 0.05); I² = 67% |
| Test for overall effect: Z = 3.71 (P = 0.0002) |

| **1.1.2 Problem Solving Therapy**  |              |         |                      |                    |
| Patel 2003                         | -7.1         | 5       | 121                  | -7.6               |
| **Subtotal (95% CI)**              | 121          | 10.1%   | 133                  | 0.10 [-0.15, 0.35]  |
| Heterogeneity: Not applicable       |
| Test for overall effect: Z = 0.78 (P = 0.43) |

| **1.1.4 Multi-component collaborative care** |              |         |                      |                    |
| Patel 2011 - Public PHC             | -16.36       | 7.3261  | 684                  | -17.43             |
| Patel 2011 - Private GP             | -16.37       | 21.3736 | 476                  | -15.7              |
| Araya 2003                          | 63.8         | 30.2    | 102                  | 44                 |
| Rojas 2007                          | 63.6         | 31.7966 | 114                  | 60.1               |
| Vitriol 2009                        | -13.59       | 8.22    | 36                   | -16.86             |
| Fritsch 2007                        | 69.2         | 26.1399 | 143                  | 63.8               |
| Hu 2007                             | -12.1        | 18.1    | 39                   | -38.1              |
| **Subtotal (95% CI)**               | 1594         | 66.9%   | 1697                 | 0.35 [0.11, 0.59]   |
| Heterogeneity: Tau² = 0.09; Chi² = 54.23, df = 6 (P < 0.00001); I² = 89% |
| Test for overall effect: Z = 2.83 (P = 0.005) |

| **Total (95% CI)**                  | 1889         | 100.0%  | 2016                 | 0.45 [0.22, 0.68]   |
| Heterogeneity: Tau² = 0.12; Chi² = 99.32, df = 10 (P < 0.00001); I² = 90% |
| Test for overall effect: Z = 3.82 (P = 0.0001) |
| Test for subgroup differences: Chi² = 8.40, df = 2 (P = 0.01), I² = 76.2% |
**1.1.1 Interpersonal therapy**

| Study or Subgroup          | Experimental Mean | SD | Total | Control Mean | SD | Total | Weight | IV, Random, 95% CI |
|----------------------------|------------------|----|-------|--------------|----|-------|--------|-------------------|
| Bolton 2003/Bass 2006      | -4.3             | 4.7 | 103   | -8.7         | 7.5 | 113   | 9.7%   | 0.69 [0.42, 0.97]  |
| De-Mello 2001              | 77.2             | 9.6 | 11    | 77.7         | 14.4 | 13    | 4.2%   | -0.04 [-0.84, 0.76]|
| Ye 2006                    | -1.87            | 1.6 | 60    | -4.73        | 2.83 | 60    | 8.2%   | 1.24 [0.84, 1.63]  |

Subtotal (95% CI) 174 186 22.0% 0.72 [0.17, 1.28]

Heterogeneity: Tau² = 0.18; Chi² = 9.53, df = 2 (P = 0.009); I² = 79%
Test for overall effect: Z = 2.56 (P = 0.01)

**1.1.2 Problem solving therapy**

| Study or Subgroup | Experimental Mean | SD | Total | Control Mean | SD | Total | Weight | IV, Random, 95% CI |
|-------------------|------------------|----|-------|--------------|----|-------|--------|-------------------|
| Patel 2003        | -7.1             | 5  | 121   | -7.6         | 5.1 | 133   | 10.0%  | 0.10 [-0.15, 0.35] |

Subtotal (95% CI) 121 133 10.0% 0.10 [-0.15, 0.35]

Heterogeneity: Not applicable
Test for overall effect: Z = 0.78 (P = 0.43)

**1.1.3 Morita therapy**

| Study or Subgroup | Experimental Mean | SD | Total | Control Mean | SD | Total | Weight | IV, Random, 95% CI |
|-------------------|------------------|----|-------|--------------|----|-------|--------|-------------------|
| Wei 2005          | -4.05            | 2.73 | 52    | -5.97        | 3.06 | 52    | 8.1%   | 0.66 [0.26, 1.05]  |

Subtotal (95% CI) 52 52 8.1% 0.66 [0.26, 1.05]

Heterogeneity: Not applicable
Test for overall effect: Z = 3.26 (P = 0.001)

**1.1.4 Multi-component collaborative care**

| Study or Subgroup | Experimental Mean | SD | Total | Control Mean | SD | Total | Weight | IV, Random, 95% CI |
|-------------------|------------------|----|-------|--------------|----|-------|--------|-------------------|
| Patel 2011 - Public PHC | -16.41          | 12.9829 | 705    | -18.11       | 13.9286 | 733    | 11.4%  | 0.13 [0.02, 0.23]  |
| Patel 2011 - Private GP   | -16.38          | 23.7433 | 482    | -15.72       | 18.4476 | 572    | 11.2%  | -0.03 [-0.15, 0.09]|
| Araya 2003          | 63.8            | 30.2 | 102   | 44           | 26.9 | 109   | 9.6%   | 0.69 [0.41, 0.97]  |
| Rojas 2007          | 82.2            | 31.7966 | 114    | 63.9         | 30.4491 | 116    | 9.8%   | 0.59 [0.32, 0.85]  |
| Vitriol 2009        | -14.52          | 6.79 | 39    | -17.14       | 7.95 | 40    | 7.5%   | 0.35 [-0.09, 0.80] |
| Fritsch 2007       | 84.3            | 26.1399 | 158    | 77.9         | 29.0608 | 149    | 10.3%  | 0.23 [0.01, 0.46]  |

Subtotal (95% CI) 1600 1719 59.8% 0.30 [0.09, 0.51]

Heterogeneity: Tau² = 0.05; Chi² = 35.09, df = 5 (P < 0.00001); I² = 86%
Test for overall effect: Z = 2.80 (P = 0.005)

Total (95% CI) 1947 2090 100.0% 0.41 [0.21, 0.62]

Heterogeneity: Tau² = 0.09; Chi² = 81.73, df = 10 (P < 0.00001); I² = 88%
Test for overall effect: Z = 3.98 (P < 0.0001)
Test for subgroup differences: Chi² = 7.94, df = 3 (P = 0.05), I² = 62.2%
Fig. DS3 Sensitivity analyses for depression studies: long-term follow-up (>6 months)

| Study or Subgroup                  | Experimental Mean | SD | Total | Control Mean | SD | Total | Weight | Std. Mean Difference IV, Random, 95% CI | Std. Mean Difference IV, Random, 95% CI |
|------------------------------------|-------------------|----|-------|--------------|----|-------|--------|----------------------------------------|----------------------------------------|
| **1.1.1 Interpersonal Therapy**    |                   |    |       |              |    |       |        |                                        |                                        |
| Bolton 2003/Bass 2006              | -3.6              | 5.4 | 103   | -9.5         | 8.1 | 113   | 10.6%  | 0.85 [0.57, 1.13]                      |                                        |
| De-Mello 2001                     | 86.6              | 11.8| 11    | 80.8         | 13.6| 12    | 4.8%   | 0.44 [-0.39, 1.27]                     |                                        |
| Subtotal (95% CI)                 | 114               |    |       | 125          |    |       | 15.4%  | 0.81 [0.54, 1.07]                      |                                        |
| Heterogeneity: Tau² = 0.00; Chi² = 0.84, df = 1 (P = 0.36); I² = 0% | Test for overall effect: Z = 5.97 (P < 0.00001) |
| **1.1.2 Problem Solving Therapy** |                   |    |       |              |    |       |        |                                        |                                        |
| Patel 2003                        | -7.5              | 5.4 | 116   | -6.5         | 5   | 127   | 10.9%  | -0.19 [-0.44, 0.06]                    |                                        |
| Subtotal (95% CI)                 | 116               |    |       | 127          |    |       | 10.9%  | -0.19 [-0.44, 0.06]                    |                                        |
| Heterogeneity: Not applicable      | Test for overall effect: Z = 1.49 (P = 0.14) |
| **1.1.3 Multi-component collaborative care** |                   |    |       |              |    |       |        |                                        |                                        |
| Patel 2011 - Public PHC           | -16.19            | 17.3289 | 685 | -17.61 | 40.1187 | 701 | 12.3%  | -0.05 [-0.06, 0.15]                    |                                        |
| Patel 2011 - Private GP           | -16.58            | 24.12 | 460 | -15.93 | 20.2166 | 521 | 12.1%  | -0.03 [-0.15, 0.10]                    |                                        |
| Araya 2003                        | 70.1              | 26.7 | 104  | 51.2       | 28.9 | 107   | 10.7%  | 0.68 [0.40, 0.95]                      |                                        |
| Vitriol 2009                      | -13.59            | 8.22 | 44   | -16.86     | 7.13 | 43    | 8.8%   | 0.42 [-0.00, 0.85]                     |                                        |
| Rojas 2007                        | 63.6              | 31.7966 | 114 | 60.1     | 30.4491 | 116 | 10.9%  | 0.11 [-0.15, 0.37]                     |                                        |
| Fritsch 2007                      | 69.2              | 26.1399 | 143 | 63.8     | 29.0608 | 131 | 11.1%  | 0.20 [-0.04, 0.43]                     |                                        |
| Hu 2007                           | -12.1             | 18.1 | 39   | -38.1      | 15.2 | 37    | 7.7%   | 1.54 [1.02, 2.05]                      |                                        |
| Subtotal (95% CI)                 | 1589              |    |       | 1656       |    |       | 73.6%  | 0.35 [0.10, 0.59]                      |                                        |
| Heterogeneity: Tau² = 0.09; Chi² = 54.15, df = 6 (P < 0.00001); I² = 89% | Test for overall effect: Z = 2.81 (P = 0.005) |
| Total (95% CI)                    | 1819              |    |       | 1908       |    |       | 100.0% | 0.35 [0.12, 0.58]                      |                                        |
| Heterogeneity: Tau² = 0.11; Chi² = 86.38, df = 9 (P < 0.00001); I² = 90% | Test for overall effect: Z = 3.01 (P = 0.003) |
| Test for subgroup differences: Chi² = 28.76, df = 2 (P < 0.00001), I² = 93.0% |                                        |
**Fig. DS4 Sensitivity analyses for schizophrenia studies: high-quality studies only**

| Study or Subgroup | Experimental Mean | SD | Total | Control Mean | SD | Total | Weight | Std. Mean Difference IV, Random, 95% CI | Std. Mean Difference IV, Random, 95% CI |
|-------------------|------------------|----|-------|--------------|----|-------|--------|----------------------------------------|----------------------------------------|
| 2.1.1 Multi-component structured psychotherapies |                  |    |       |              |    |       |        |                                        |                                        |
| Chen 2003         | -4.04            | 3.89 | 32    | -7.63        | 4.27 | 31    | 32.6% | 0.87 [0.35, 1.39]                      |                                        |
| Guo 2010          | 82.9             | 8.1998 | 406   | 80.8         | 9.3465 | 338   | 36.8% | 0.24 [0.10, 0.38]                      |                                        |
| Zimmer 2007       | 43.25            | 6.54 | 20    | 34.14        | 4.53 | 36    | 30.6% | 1.69 [1.05, 2.32]                      |                                        |
| Subtotal (95% CI) | 458              |     |       | 405          |     |       | 100.0%| 0.89 [0.85, 1.72]                      |                                        |
| Heterogeneity: Tau\(^2\) = 0.48; Chi\(^2\) = 23.07, df = 2 (P < 0.00001); I\(^2\) = 91% |
| Test for overall effect: Z = 2.09 (P = 0.04) |
| Total (95% CI)    | 458              |     |       | 405          |     |       | 100.0%| 0.89 [0.05, 1.72]                      |                                        |
| Heterogeneity: Tau\(^2\) = 0.48; Chi\(^2\) = 23.07, df = 2 (P < 0.00001); I\(^2\) = 91% |
| Test for overall effect: Z = 2.09 (P = 0.04) |
| Test for subgroup differences: Not applicable |

![Forest plot](chart.png)
Fig. DS5 Sensitivity analysis for schizophrenia studies: short-term follow-up (<12m)

| Study or Subgroup | Experimental | Control | Std. Mean Difference | Std. Mean Difference |
|-------------------|--------------|---------|----------------------|----------------------|
|                    | Mean | SD | Total | Mean | SD | Total | IV, Random | 95% CI | IV, Random | 95% CI |
| 2.1.1 Psycho-education | Li 2005 | 77.1 | 10.2 | 36 | 76.4 | 13.6 | 33 | 11.0% | 0.06 [-0.41, 0.53] |
|                    | Wei 1997 | -1.1 | 0.4 | 50 | -1.9 | 0.6 | 50 | 11.3% | 1.56 [1.11, 2.01] |
| Subtotal (95% CI) | 86 | 83 | 22.3% | 0.81 [-0.66, 2.28] |
| Heterogeneity: | Tau² = 1.07; Chi² = 20.29, df = 1 (P < 0.00001); I² = 95% |
| Test for overall effect: | Z = 1.08 (P = 0.28) |

2.1.2 Multi-component structured psychotherapy

| Chen 2003 | -4.45 | 3.34 | 32 | -8.57 | 5.27 | 31 | 10.6% | 0.93 [0.40, 1.45] |
| Yildiz 2004 | 132.6 | 33.85 | 15 | 96.2 | 30.24 | 15 | 8.2% | 1.10 [0.33, 1.88] |
| Guo 2010 | 79.8 | 10.3657 | 512 | 77.9 | 9.9506 | 472 | 13.6% | 0.19 [0.06, 0.31] |
| Zimmer 2007 | 43.25 | 6.54 | 20 | 34.14 | 4.53 | 36 | 9.5% | 1.69 [1.05, 2.32] |
| Subtotal (95% CI) | 579 | 554 | 41.9% | 0.94 [0.19, 1.68] |
| Heterogeneity: | Tau² = 0.51; Chi² = 31.09, df = 3 (P < 0.00001); I² = 90% |
| Test for overall effect: | Z = 2.45 (P = 0.01) |

2.1.3 Art Therapy

| Meng 2005 | 67.79 | 15.03 | 50 | 56.93 | 15.24 | 50 | 11.7% | 0.71 [0.31, 1.12] |
| Subtotal (95% CI) | 50 | 50 | 11.7% | 0.71 [0.31, 1.12] |
| Heterogeneity: | Not applicable |
| Test for overall effect: | Z = 3.45 (P = 0.0006) |

2.1.4 Multi-component community care

| Pang 2002 | 67.28 | 6.5 | 120 | 66.23 | 6.81 | 120 | 12.9% | 0.16 [-0.10, 0.41] |
| Li 2002 | -1.61 | 4.56 | 38 | -3.64 | 4.05 | 38 | 11.2% | 0.47 [0.01, 0.92] |
| Subtotal (95% CI) | 158 | 158 | 24.1% | 0.25 [-0.03, 0.53] |
| Heterogeneity: | Tau² = 0.01; Chi² = 1.34, df = 1 (P = 0.25); I² = 26% |
| Test for overall effect: | Z = 1.77 (P = 0.08) |

Total (95% CI)

| 873 | 845 | 100.0% | 0.71 [0.36, 1.06] |

Heterogeneity: Tau² = 0.23; Chi² = 66.51, df = 8 (P < 0.00001); I² = 88%
Test for overall effect: Z = 3.99 (P < 0.0001)
Test for subgroup differences: Chi² = 5.42, df = 3 (P = 0.14), I² = 44.6%
### Fig. DS6 Sensitivity analysis for schizophrenia studies: long-term follow-up (>12m)

| Study or Subgroup | Experimental Mean | SD | Total | Control Mean | SD | Total | Weight | IV, Random, 95% CI | Std. Mean Difference IV, Random, 95% CI |
|-------------------|------------------|----|-------|--------------|----|-------|--------|------------------|-------------------------------------|
| **2.1.1 Psycho-education** | | | | | | | | | |
| Li 2005 | 78 | 10.3 | 36 | 70.2 | 15.9 | 33 | 16.0% | 0.58 [0.10, 1.06] | |
| Wang 2008 | -1.8 | 1.1 | 98 | -3.3 | 1.1 | 95 | 17.2% | 1.36 [1.04, 1.67] | |
| Wei 1997 | -0.8 | 0.3 | 50 | -2.1 | 0.7 | 50 | 15.7% | 2.40 [1.88, 2.91] | |
| **Subtotal (95% CI)** | 184 | | 178 | | | | 48.9% | 1.44 [0.55, 2.33] | |
| **Heterogeneity:** Tau² = 0.57; Chi² = 25.29, df = 2 (P < 0.00001); I² = 92% | | | | | | | | |
| Test for overall effect: Z = 3.17 (P = 0.002) | | | | | | | | |

| **2.1.2 Multi-component structured psychotherapies** | | | | | | | | |
| Chen 2003 | -4.04 | 3.89 | 32 | -7.63 | 4.27 | 31 | 15.7% | 0.87 [0.35, 1.39] | |
| Guo 2010 | 82.9 | 9.22 | 406 | 80.8 | 8.41 | 338 | 17.9% | 0.24 [0.09, 0.38] | |
| **Subtotal (95% CI)** | 438 | | 369 | | | | 33.6% | 0.50 [-0.11, 1.11] | |
| **Heterogeneity:** Tau² = 0.16; Chi² = 5.30, df = 1 (P = 0.02); I² = 81% | | | | | | | | |
| Test for overall effect: Z = 1.61 (P = 0.11) | | | | | | | | |

| **2.1.5 Multi-component community care** | | | | | | | | |
| Pang 2002 | -1.37 | 0.68 | 120 | -1.6 | 0.92 | 120 | 17.5% | 0.28 [0.03, 0.54] | |
| **Subtotal (95% CI)** | 120 | | 120 | | | | 17.5% | 0.28 [0.03, 0.54] | |
| **Heterogeneity:** Not applicable | | | | | | | | |
| Test for overall effect: Z = 2.18 (P = 0.03) | | | | | | | | |

**Total (95% CI)** | 742 | 667 | 100.0% | 0.93 [0.37, 1.49] | 0.93 [0.37, 1.49] | |
| **Heterogeneity:** Tau² = 0.45; Chi² = 97.62, df = 5 (P < 0.00001); I² = 95% | | | | | | | |
| Test for overall effect: Z = 3.26 (P = 0.001) | | | | | | | |
| Test for subgroup differences: Chi² = 6.15, df = 2 (P = 0.05), I² = 67.5% | | | | | | | |
**Fig. DS7** Funnel plot of main depression analysis. [AQ14 Please note forest plot has been altered to funnel plot – as detailed in text (and another heading that is no longer being included) – please confirm this is correct.] This is correct.
**Fig. DS8** Funnel plot of main schizophrenia analysis. [AQ15 Please note forest plot has been altered to funnel plot – as detailed in text (and another heading that is no longer being included) – please confirm this is correct.] This is correct.
Online supplement

1. exp Developing Countries/

2. (algeria or egypt or libya or morocco or tunisia or cameroon or central african republic or chad or congo or "democratic republic of the congo" or equatorial guinea or gabon or burundi or djibouti or eritrea or ethiopia or kenya or rwanda or somalia or sudan or tanzania or uganda or angola or botswana or lesotho or malawi or mozambique or namibia or south africa or swaziland or zambia or zimbabwe or benin or burkina fasor or cote d’ivoire or gambia or ghana or guinea or guinea-bissau or liberia or mali or mauritania or niger or nigeria or senegal or sierra leone or togo or antigua or bahamas or barbados or cuba or dominica or dominican republic or grenada or guadeloupe or haiti or jamaica or martinique or netherlands antilles or puerto rico or "saint kitts and nevis" or saint lucia or "saint vincent and the grenadines" or "trinidad and tobago" or "virgin islands of the united states" or belize or costa rica or el salvador or guatemala or honduras or nicaragua or panama or latin america or argentina or bolivia or brazil or chile or colombia or ecuador or french guiana or guyana or paraguay or peru or suriname or uruguay or venezuela or kazakhstan or kyrgyzstan or tajikistan or turkmenistan or uzbekistan or borneo or brunei or cambodia or east timor or indonesia or laos or malaysia or mekong valley or myanmar or philippines or singapore or thailand or vietnam or bangladesh or bhutan or india or afghanistan or bahrain or iran or iraq or israel or jordan or kuwait or lebanon or oman or qatar or saudi arabia or syria or turkey or united arab emirates or yemen or nepal or pakistan or sri lanka or china or korea or macao or mongolia or acores or bermuda or falkland islands or comoros or madagascar or mauritius or reunion or seychelles or fiji or new caledonia or papua new guinea or vanuatu or guam or palau or hawaii or pitcairn island or samoa or tonga). ab,ti.

3. 1 or 2

4. exp Mental disorders/

5. (mental* adj2 (health or ill* or disorder* or disab*)).ab,ti.

6. (( or (psychotic or mood or affective or obsessive?compulsive or panic or stress or child?behavio?r or child?mental or common mental)) adj2 disorder*).ab,ti.

7. (psychiatric or psychiatry or psycholog* or neurotic or neurosis or neuroses or depress* or anxiet* or anxious or schizophreni* or schizotyp* or psychos* or mania or manic or delusion* or OCD or phobia* or phobic or somatic or somatoform or suicid* or dement* or Alzheimer* or epilep*).ab,ti.

8. ((substance or drug* or alcohol) adj3 (use* or misuse or abus*)).ab,ti.

9. 4 or 5 or 6 or 7 or 8

10. 3 and 9

11. social function* or functional status or patient function* or personal function* .ti.ab.

12. 10 and 11

13. randomized controlled trial.pt.

14. controlled clinical trial.pt.

15. randomized.ab.

16. placebo.ab.

17. drug therapy.fs.

18. randomly.ab.

19. trial.ab.

20. groups.ab.

21. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
22. animals.sh. not (humans.sh. and animals.sh.)
23. 21 not 22
24. 12 and 23
Effect of psychosocial interventions on social functioning in depression and schizophrenia: meta-analysis
Mary J. De Silva, Sara Cooper, Henry Lishi Li, Crick Lund and Vikram Patel
BJP 2013, 202:253-260.
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