A meta-analysis of controlled research on social skills training for schizophrenia

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CRD summary
This review found that social skills training improved measures of psychosocial functioning and negative symptoms in people with schizophrenia. Methodological limitations in the review suggested that the authors' conclusions should be interpreted with caution.

Authors' objectives
To evaluate the effectiveness of social skills training (SST) for people with schizophrenia.

Searching
PsycINFO and MEDLINE were searched from inception to 2007. Search terms were reported. Reference lists of retrieved articles were screened to identify further studies.

Study selection
Randomised controlled trials (RCTs) of SST were eligible for the review. SST interventions were required to be individually (rather than family) focused and had to include instructions on the skill, live or taped modelling or role-play rehearsal and positive and corrective feedback. Included studies needed a majority of participants with schizophrenia or schizoaffective disorder.

Outcomes of interest included measures of understanding of the training material, performance-based measures of social and daily living skills, measures of community and institutional functioning, and psychiatric symptoms and relapse. Most participants in included studies were male. Most studies were conducted in outpatient settings. Mean duration of illness, where reported, was 16.7 years. The most common interventions focused primarily on social interaction skills, medication and/or illness self-management skills or preparation for return to the community. Duration of treatment ranged from eight hours to 312 hours over two weeks to two years. Control groups received standard care or a variety of other interventions.

The authors stated neither how the papers were selected for the review nor how many reviewers performed the selection.

Assessment of study quality
Validity was assessed based on blinded assessment of outcomes, measurement of inter-rater reliability on outcome measures and use of formal measures of treatment fidelity. The authors did not state how the validity assessment was performed.

Data extraction
Means and standard deviations for each treatment group, together with t, F or p statistics, were extracted and used to derive a measure of effect size (Hedge's g). To correct for small sample bias, Hedge's g was transformed to Cohen's d, which is considered an unbiased measure of effect size. Effect sizes were classified as small (0.2), medium (0.5) or large (0.8 or more).

The authors stated neither how the data were extracted for the review nor how many reviewers performed the data extraction.

Methods of synthesis
For outcomes reported in at least five trials, values of d were combined across studies and weighted by variance using a fixed-effect model. Heterogeneity between studies was assessed using the Q statistic. Values of d were estimated for all studies and for 'unbiased' studies (those where the effect size was calculated from between-group post treatment study results). Risk of publication bias was assessed by calculating a 'fail-safe N' (number of studies with null results needed
to reduce the effect size to a non-significant level). The influence of moderator variables (including patient and intervention characteristics and study design quality) on outcomes was also analysed.

**Results of the review**
Twenty-three RCTs (n = 1,599) were included. Eleven trials reported blinded outcome assessment.

The weighted mean effect size was large and significantly different from zero (indicating a significant positive effect of SST) for measures of understanding the training material (d = 1.2, 95% confidence interval (CI): 0.96, 1.43) and was moderate and significant for performance-based measures (d = 0.52, 95% CI: 0.34, 0.71) and measures of community and institutional functioning (d = 0.52, 95% CI: 0.31, 0.73). Heterogeneity was significant for measures of social and daily living skills.

For negative symptoms of schizophrenia, the effect size was moderate and significantly different from zero (d = 0.4, 95% CI: 0.19, 0.61). Heterogeneity was significant.

For overall symptoms of schizophrenia, effect size was not significantly different from zero (d = 0.15, 95% CI: -0.01, 0.31).

Results for effects of moderator variables on outcomes were reported in the paper. The fail-safe N calculation indicated that publication bias was unlikely.

**Authors' conclusions**
The results supported the efficacy of SST for improving psychosocial functioning in people with schizophrenia.

**CRD commentary**
This review had clear inclusion criteria. The search was limited to two databases and reference lists, so it was possible that some relevant studies were missed. It is unclear whether language restrictions were applied, so the risk of language bias was uncertain. Unpublished studies were not sought. Publication bias was assessed, although the method used was not the most informative. Validity was taken into account by limiting the review to RCTs and by assessing some relevant design features, but other important aspects of validity were not assessed. This made the reliability of the included studies and the synthesis based on them uncertain. Relevant details of included studies were presented. Methods used for study selection, validity assessment and data extraction were not reported, which made it difficult to assess the risk of errors and bias affecting the review process. Studies were combined by meta-analysis. Significant heterogeneity was present for some outcomes and this, together with the clinical heterogeneity of the included studies, suggested that the decision to combine all the studies may not have been appropriate. These limitations suggest that the authors' conclusions should be treated with caution.

**Implications of the review for practice and research**
Practice: The authors did not state any implications for practice.

Research: The authors stated that further research was required in a number of areas, including studies to assess effectiveness of SST by age of onset and level of functioning before onset of schizophrenia, and follow-up to determine the durability of treatment effects.

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