Inequalities and the mental health of young people: a systematic review of secondary school-based cognitive behavioural interventions


CRD summary
The authors concluded that school-based mental health educational programmes based on cognitive-behavioural therapy can reduce depression and anxiety in young people. There was no evidence to assess the impact on suicidal thinking or behaviour. The review was largely well-conducted, but the reliability of the authors’ conclusion is potentially compromised by language bias and an absence of information on study selection.

Authors’ objectives
To evaluate the effectiveness of school-based mental health educational programmes and explore the impact of these interventions on inequalities in young people's mental health.

Searching
MEDLINE, CINAHL, EMBASE, The Cochrane Library, PsycINFO, ERIC, Social Science Citation Index, ASSIA, Trials Register of Public Health Interventions (TROPHI), Database of Public Health Effectiveness Reviews (DOPHER), C2-SPECTR and PsiTri were searched for English-language articles published from 1996 onwards. Various websites were searched, references from relevant reviews and trials were screened and authors were contacted to locate further published and unpublished material. Search terms were reported.

Study selection
Randomised controlled trials (RCTs) of cognitive behavioural interventions that targeted 11 to 19 year olds in secondary schools and reported on at least one outcome related to depression, anxiety and suicidality (actual or attempted suicide and suicidal ideation) were eligible for inclusion in the review. Follow-up in the review was categorised as six time frames from post intervention to four weeks up to greater than 18 months.

The included studies comprised various group-level multi-component interventions with elements of social skills training for problem-solving or reducing negative thinking. Anxiety-reduction interventions also included techniques for problem-solving and coping (such as assertiveness, relaxation, negotiation, positive thinking and communication). Various measurement tools were reported. Different levels of training for intervention providers were evident. The content of interventions was not easily distinguishable in terms of being targeted (addressing high risk population), indicated (addressing potential clinical risk factors) or universally (addressing broad population) provided. Evidence of harm was reported, where data were available. Only one trial was conducted in UK; the others originated in USA, Australia, China, New Zealand and Germany. An adapted PROGRESS Framework was used to describe inequalities. None of the included studies compared the intervention with an active control.

The authors did not state how studies were selected for the review.

Assessment of study quality
Four methodological criteria were used to assess trial quality: findings reported for the stated outcome measures in the aims of the study; inclusion of control/comparison group with equivalent socio-demographic status and use of outcome variables to the intervention group; and provision of pre- and post-intervention data. Only trials considered to be "sound" or "sound despite discrepancies" (the latter took further account of study design and reporting biases) were included in the review. The extent to which attrition was minimised (and it's link with socio-demographic data) was considered. Participant involvement in developing the intervention was reported, where available.

Two independent reviewers carried out the quality assessment. Disagreements were resolved by discussion.

Data extraction
Data were extracted to enable calculation of standardised mean differences (SMD) and 95% confidence intervals. An adapted PROGRESS Framework was used to describe inequalities.

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**Methods of synthesis**
Where there was no statistical heterogeneity, data were pooled in a random-effects meta-analysis (DerSimonian and Laird). Statistical heterogeneity was assessed using the Q test and the I\(^2\) index. Otherwise, a narrative synthesis was presented. Sensitivity or subgroup analyses were conducted to explore the impact of trial quality and specific intervention or population characteristics. Meta-regression was planned to explore the influence of socio-economic status.

**Results of the review**
Seventeen RCTs (n=5,385, range 17 to 1,266) were included in the review. Fifteen trials were considered "sound”. Two studies were rated "sound despite discrepancies”. Fourteen trials reported attrition data and eight of these linked these data to some level of socio-demographic or socio-economic status. There were no reports of participant involvement in developing the included interventions.

**Depression outcomes:**
There was a statistically significant reduction in depression symptoms for all time periods up to three months post intervention (SMD -0.21, 95% CI -0.35 to -0.07; 14 RCTs assessed the period up to four weeks). There was no substantial heterogeneity. The trend remained positive, but non-significant at six and 12 months.

Sensitivity and subgroup analyses showed statistically significant symptom reductions for universally-provided programmes up to four weeks (SMD -0.15, 95% CI -0.25 to -0.05; nine RCTs), indicated provision up to six months (SMD-0.25, -0.42 to -0.08; four RCTs), interventions provided by an existing member of school staff (internal) at four weeks (SMD -0.18, 95% CI -0.30 to -0.07; six RCTs), long interventions (more than 10 sessions) up to three months (SMD -0.27, 95% CI -0.49 to -0.06; three RCTs) and short interventions (up to nine sessions) up to four weeks post intervention (SMD -0.25, 95% CI -0.42 to -0.08; three RCTs). Interventions delivered during the school day were effective for up to four weeks post intervention (SMD -0.15, 95% CI -0.28 to -0.02; 10 RCTs).

**Anxiety outcomes:**
Removal of heterogeneous studies showed reductions in anxiety up to four weeks (SMD -0.23, 95% CI -0.45 to -0.02; five RCTs) and at six months follow-up (SMD -0.18, 95% CI -0.35 to -0.01; three RCTs). No other statistically significant outcomes arose from analyses of universally or indicated provision or type of intervention provider (internal or external). Long duration interventions were effective up to four weeks post intervention (SMD-0.33, 95% CI -0.59 to -0.06; three RCTs). Shorter duration interventions were effective at six-months follow-up (SMD -0.18, 95% CI -0.35 to -0.01; three RCTs). Interventions delivered during the school day were effective up to four weeks after the intervention (SMD -0.23, 95% CI -0.45 to -0.02; five RCTs).

None of the included studies reported on suicidality outcomes. There was limited reporting on the impact of interventions on inequalities in mental health. Four trials reported no differences in intervention effectiveness based on different socio-economic groups, but supporting data were not supplied. The other included studies did not report findings in relation to inequalities.

**Authors’ conclusions**
Cognitive-behavioural therapy interventions can reduce the symptoms of depression and anxiety in secondary school age people. There is no evidence to assess the impact of interventions on suicidal thinking or behaviour.

**CRD commentary**
This review addressed a clear research question and presented explicit and reproducible inclusion criteria. The search
strategy included many relevant sources of data. Attempts were made to minimise publication bias. Studies may have been missed as only English-language studies were included. On the basis of the assessment tool used, the overall quality of included studies appeared to be acceptable, although specific criteria for judging trials as “sound with discrepancies” was not reported. Quality assessment and data extraction were carried out with sufficient attempts to minimise reviewer error and bias; it was unclear whether the same applied for the study selection process. The chosen method of synthesis appeared to be appropriate. Heterogeneity was explored and accounted for in the findings.

This review was largely well-conducted and authors’ conclusion reflects the evidence presented. The reliability of this conclusion is, however, potentially compromised by language bias and the absence of information of how studies were selected for inclusion.

**Implications of the review for practice and research**

**Practice:** The authors stated that future intervention providers should be adequately trained and supported school staff, deliver universally targeted programmes of at least 10 weeks duration and be aware of potential adverse effects related to social stigma.

**Research:** The authors stated that well-conducted randomised controlled trials of cognitive-behavioural therapy interventions were needed in UK secondary schools. Intervention development should involve young people. Interventions should be delivered by existing school staff and include suicidal ideation and behaviours as outcome measures. Comprehensive reporting of socio-demographic data was needed in primary research, as was exploration of differential effects of interventions.

**Funding**

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.