Preventing the onset of depressive disorders: a meta-analytic review of psychological interventions
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CRD summary
The authors concluded that preventive interventions could significantly reduce the incidence of depressive disorders compared with treatment-as-usual control groups but, in view of limitations within the evidence, this conclusion should be considered with caution. The reliability of the authors' cautious conclusions is uncertain given the poor quality trials included in the review and a lack of reporting of review methods.

Authors' objectives
To evaluate the effects of preventive interventions on the incidence of major depressive disorders.

Searching
PubMed, PsycINFO, EMBASE, the Cochrane Central Register of Controlled Trials (CENTRAL) and Digital Dissertations databases were searched to June 2007 for published and unpublished articles in any language. Search terms were reported. Reference lists of retrieved articles, reviews and meta-analyses were also scanned for additional papers.

Study selection
Randomised controlled trials (RCTs) evaluating the effects of a preventive intervention for depressive disorders compared with a no-treatment control group were eligible for inclusion. Eligible trials had to use a standardized diagnostic interview at baseline. Trials were also included that evaluated interventions aimed at reducing depressive disorders as a consequence of specific events (such as postnatal depression or post stroke depression) and did not have a pre-test assessment of depressive disorders, but reported a post-test assessment. Trials explicitly reporting including subjects with depressive disorders who received an intervention were excluded. The primary outcome of interest was the incidence of new cases of depressive disorders.

Intervention types included universal prevention (such as school programs and mass media campaigns aimed at the general population), individual programs aimed at high risk groups, and those aimed at individuals who have some symptoms of a mental disorder but did not meet the diagnostic criteria. Interventions included cognitive behavioural therapy, interpersonal psychotherapy/psycho-education, problem solving therapy, and debriefing compared with usual care. The majority of interventions were targeted at adults, but some interventions targeted adolescents. Participants in the included trials were pregnant women, mothers of pre-term babies, primiparous women, primary care patients, and students.

The authors did not state how papers were selected for the review, or how many reviewers conducted the selection.

Assessment of study quality
Validity was assessed using criteria devised by the Cochrane Collaboration and evaluating allocation to conditions by an independent third party; blinding of outcome assessors; and completeness of follow-up data.

The authors did not state how many reviewers conducted the validity assessment.

Data extraction
Data were extracted to calculate the incidence rate ratio (IRR) as the incidence rate of developing a depressive disorder in intervention participants compared to the incidence rate in control participants. The incidence rate ratio calculation was based on person-years. Odds ratios (OR) and 95% confidence intervals (CI) and absolute risk differences were also calculated for outcomes.
The authors did not state how many reviewers conducted the data extraction.

**Methods of synthesis**
Data from individual trials were pooled and the mean incidence rate ratio calculated using a random-effects model. The assumption of an underlying constant hazards model used for the incidence rate ratio was examined by calculating pooled odds ratios and absolute risk differences (without taking into account the difference in follow-up periods between trials). The number-needed-to-treat (NNT) was calculated as the inverse of the absolute risk difference. Statistical heterogeneity was assessed using the Q statistic and the $I^2$ statistic. In addition cumulative meta-analysis was conducted. A mixed-effects random-effects analysis was used to examine the influence of: type of prevention; target group; age group; inclusion or exclusion of major depression at baseline; intervention; and intervention format. Differences between subgroups were tested using a fixed-effect model. Publication bias was evaluated by inspection of a funnel plot on the incidence rate ratio and by Duval and Tweedie's trim and fill method.

**Results of the review**
Nineteen RCTs (n=5,806 participants) were included in the review. Seven trials reported allocation to groups by an independent party, eight trials reported blinding of outcome assessors and nine trials conducted an intention-to-treat analysis. Drop-out rates ranged from 1 to 41%. Follow-up ranged from three to 36 months.

There was evidence of a reduction of the incidence of depressive disorders in the intervention groups compared with control groups (IRR 0.78, 95% CI 0.65 to 0.93). There was evidence of low to moderate heterogeneity for this analysis ($I^2=32.81\%$). The pooled absolute risk difference was -0.045 (95% CI -0.073 to -0.016), with a number-needed-to-treat of 22.

Sub-group analysis found some evidence that prevention based on interpersonal psychotherapy (IRR 0.14, 95% CI 0.05 to 0.44; three RCTs) may be more effective than prevention based on cognitive-behavioural therapy (IRR 0.84, 95% CI 0.71 to 1.00;15 RCTs). There were no significant differences between target groups and types of prevention (universal, selective or indicated).

Other results were reported.

**Authors’ conclusions**
There were clear indications that preventive interventions can significantly reduce the incidence of depressive disorders compared with treatment-as-usual control groups, but in view of limitations within the evidence, this conclusion should be considered with caution.

**CRD commentary**
The review addressed a broad question encompassing a wide range of intervention types. Several relevant sources were searched and efforts were made to reduce language and publication bias. There was no evidence of publication bias after formal assessment. Methods used to select trials, assess validity and extract data were not described, so it was unclear whether efforts were made to reduce reviewer error and bias. Validity was assessed using established criteria, but results were only partially reported.

Trials were combined in a meta-analysis and statistical heterogeneity was assessed. Although meta-analysis may not have the most appropriate method of synthesis given the differences between trials, various potential sources of heterogeneity were examined using sub-group analysis. The authors appropriately stated that, in view of the small number of trials and differences in interventions, target populations and drop-out rates, together with the relatively low quality of the included trials, their conclusion should be regarded with caution. The reliability of the authors' cautious conclusion is uncertain given the poor quality trials included in the review and a lack of reporting of review methods.

**Implications of the review for practice and research**
**Practice:** The authors stated that prevention could have a larger role in the further reduction of the burden of disease of depressive disorders.
Research: The authors did not state any implications for research.

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