Predictors of efficacy in depression prevention programmes: meta-analysis

Jane-Llopis E, Hosman C, Jenkins R, Anderson P

CRD summary

This review assessed factors predicting response to depression prevention programmes. The authors concluded that prevention programmes can reduce depressive symptoms by 11%. The review showed that some interventions reduce depressive symptoms but, since the results were inconsistent among studies, an overall summary measure of effect is not appropriate.

Authors' objectives

To determine the factors that predict response to depression prevention programmes.

Searching

Current Contents, ERIC, MEDLINE and PsycINFO were searched from 1985 to 2000 for English language publications that could be retrieved through the library system. Published meta-analyses, reviews and reference lists were also searched and members of the Society for Prevention Research were contacted.

Study selection

Study designs of evaluations included in the review

Randomised controlled trials (RCTs) or non-randomised controlled studies with an equivalent comparison group were eligible if they reported pre-test post-test measures and sufficient data to permit calculation of an effect size (ES).

Specific interventions included in the review

Studies of universal, selective or indicated prevention of depression were eligible for inclusion. Studies of pharmacological interventions were excluded. The review classified programmes in the included studies as behaviour, cognition, competence, education, or social support. The programmes were conducted by health care personnel and/or lay personnel.

Participants included in the review

The inclusion criteria were not specified in terms of the participants. The age of the participants in the included studies varied from children (younger than 14 years) to elderly (older than 65 years).

Outcomes assessed in the review

Studies that used objective measures to assess the prevention of depression, the improvement of protective factors for depression or mental health, or the reduction of risk factors related to depression, were eligible for inclusion. Studies were only included in the analysis if they assessed depressive symptoms or the incidence of depression.

How were decisions on the relevance of primary studies made?

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

Assessment of study quality

The studies were assessed and scored using the following items of the Cochrane scale: reporting of defined aims; well-defined intervention; random allocation of the interventions; equivalence of the comparison group; reporting of the sample size; reporting of the pre- and post-intervention data; reporting of the attrition rates; and reporting of the results for all outcomes. The maximum possible score was nine; studies scoring eight or more points were classified as high quality. Two reviewers assessed validity using a coded data entry form. The coders were trained and inter-rater reliability was assessed by double coding a random sample of one in 5 trials.

Data extraction

Two reviewers extracted the data using a coded data entry form. The coders were trained and inter-rater reliability was assessed by double coding a random sample of one in 5 trials (kappa was 0.91). Data were extracted on the characteristics of the participants and interventions, programme development characteristics, implementation characteristics and results. For each study, an ES was calculated using the standardised mean difference for each outcome, adjusted for pre-test measures and small sample sizes. For studies with more than one active intervention programme, the different interventions were treated separately. For studies using multiple measures to assess one programme, the ESs were averaged within each programme.

Methods of synthesis

How were the studies combined?

The studies were combined using a meta-analysis. Unweighted and weighted mean ESs and 95% confidence intervals (CIs) were calculated.

Where studies used multiple programmes, weights were calculated using the Gleser and Olkin method which takes account of dependence among measures.

How were differences between studies investigated?

Statistical heterogeneity was assessed using the Q statistic. A subgroup analysis was used to assess the influence of the following programme characteristics on the results: age of the sample (children, adolescents, adults and elderly); gender (male only, female only, both, not reported); and target of the programme (universal, selective, and indicated). Differences between weighted mean ESs for categorical variables were tested using z-scores. The relationship between ES and continuous and categorical independent variables was explored using weighted least-squares regression. The main effects and interactions between the target group characteristics, gender age and level of risk were tested. Scatter plots and plots of residuals showed no violation of assumptions required for the use of regression models.

Results of the review
Fifty-four trials with 69 programmes were included. The number of patients was not reported.

The unweighted mean ES was 0.25 (95% CI: 0.16, 0.35); the ESs ranged from 1.08 to 1.8. The weighted mean ES was 0.22 (95% CI: 0.14, 0.30). Statistically significant heterogeneity was detected (P<0.001).

There was no statistically significant difference between ESs for the different age groups, or for the group targeted (ES and 95% CI results were reported for subgroups).

There were larger ESs for multi-component programmes that included competence techniques (ES 0.29 with versus ES 0.13 without, P=0.001), programmes with more than 8 sessions (ES 0.26 with versus ES 0.14 without, P=0.045), programmes in which sessions lasted 60 to 90 minutes (ES 0.38 versus ES 0.14 for sessions lasting less than 60 minutes, P=0.016; and ES 0.24 for sessions lasting longer than 90 minutes, P=0.045), targeted programmes delivered by a health care provider (ES 0.28 versus ES 0.10 for lay personnel, P=0.003) and high-quality studies (ES 0.26 versus ES 0.11 for low-quality studies, P=0.009).

Studies in older people showed greater ES for social support programmes (ES 0.92 with versus ES -0.12 without, P<0.001) and a negative effect for behavioural programmes (ES -0.10 with versus ES 0.95 without, P<0.001).

Authors' conclusions
Prevention programmes can reduce depressive symptoms by 11%.

CRD commentary
The review question was clear in terms of the study design, intervention and outcomes. Several relevant sources were searched. No attempts were made to minimise language bias, but some attempts were made to reduce publication bias. The methods used to select the studies were not described, so it is not known whether any efforts were made to reduce errors and bias. Methods were used to minimise bias in the validity assessment and data extraction processes. Validity was assessed using specified established criteria, but the validity of measures used to assess the outcomes was not evaluated.

The data were combined in a meta-analysis and statistical heterogeneity was assessed. The aim of the review was to explore potential predictors, and combining data in a meta-analysis and then examining the influence of prespecified predictors appears appropriate. The authors identified some factors that were associated with an increased effect of the interventions. The review showed that some interventions reduce depressive symptoms but, since the results were inconsistent among the studies, an overall summary measure of effect was not appropriate.

Implications of the review for practice and research
Practice: The authors stated that only prevention programmes with supporting evidence of their effectiveness should be implemented. They also stated that training should be provided to health and mental health care providers in order to reduce and prevent depression in targeted populations.

Research: The authors stated that further adequately powered trials are required to assess the effect of prevention at the onset of depression, and to investigate the role of moderating and mediating variables on the results. They stated that studies should be of a high quality and should report results and potential predictors in detail.

Funding
Dutch Health Research and Development Council (ZON), grant number 2200.0020.

Bibliographic details
Jane-Llopis E, Hosman C, Jenkins R, Anderson P. Predictors of efficacy in depression prevention programmes: meta-analysis. British Journal of Psychiatry 2003; 183(5): 384-397

PubMedID
14594912

Original Paper URL
http://bjp.rcpsych.org/cgi/content/full/183/5/384

Indexing Status
Subject indexing assigned by NLM

MeSH
Adolescent; Adult; Aged; Child; Cognitive Therapy /methods; Depressive Disorder /prevention & control; Female; Humans; Male; Mental Competency; Middle Aged; Randomized Controlled Trials as Topic; Social Support; Treatment Outcome

AccessionNumber
12003008703

Database entry date
31/05/2005

Record Status
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.