Cognitive-behavioral interventions to reduce suicide behavior: a systematic review and meta-analysis

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CRD summary
This review concluded that there was strong evidence that cognitive behavioural therapy (CBT) can reduce suicide behaviour in the short term. However, given concerns about the review methods, the quality of the data, the risk of publication bias and the effects of the differing trial characteristics, the authors' conclusions may not be reliable and should be interpreted with caution.

Authors' objectives
To determine if cognitive-behavioural therapies (CBT) can reduce suicide behaviour.

Searching
PsychINFO and Web of Science were searched for trials published from 1980. Search terms were reported. The reference lists of retrieved articles were examined for further studies and a number of relevant journals were handsearched (see review for further details). Only English-language studies published in peer-reviewed journals were eligible for inclusion in the review.

Study selection
Studies comparing any form of CBT (or a behavioural intervention or an intervention in which CBT is a substantial component) with a control group (such as usual treatment, no treatment, waiting list or an alternative form of treatment) were eligible for inclusion in the review. Eligible studies had to report the incidence of self harm or suicide behaviour.

Included studies assessed standardised, shortened or hybrid dialectic behaviour therapy (DBT), CBT and manual assisted CBT (MACT), with half of the studies including some form of problem-solving training. Interventions were delivered by a range of professions with varying degrees of training and experience. Control groups varied. The mean treatment duration was 19.52 weeks and the mean number of sessions was 25.01. Three-quarters of the studies were performed in adults and the remainder in adolescents. Participant diagnoses differed, but half of the studies excluded patients with psychosis. Included participants generally had either attempted suicide or had suicide ideation, used deliberate self-harm (DSH) or had a borderline personality disorder. Most studies were performed in the USA. Outcome measures were Satisfaction with Life Scale; hopelessness; suicide ideation; and suicidal attempts or plans, probability of suicide and suicide threats.

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

Assessment of study quality
Study quality was assessed using the Clinical Trials Assessment Measure which comprises 15 criteria covering six areas of trial design. This tool was compiled and tested for reliability and validity by the authors. Scores were awarded to each study. The authors did not state how the validity assessment was performed.

Data extraction
The authors stated neither how data were extracted for the review nor how many reviewers performed the data extraction. Data that were most proximal to suicidal behaviours at the end of treatment or within three months of the end of treatment were extracted, along with follow-up data, which was defined as data collected after three months post treatment. Means and standard deviations or mean changes were extracted where available and used to calculate Hedge's g effect sizes with 95% confidence intervals

Methods of synthesis
Effect sizes were pooled using a random-effects model. No statistical test for heterogeneity was reported, but meta regression and subgroup analyses were performed to further investigate potential sources of heterogeneity (further
Details are presented in the review. Publication bias was assessed by visual inspection of funnel plots and using the fail-safe N, Begg and Mazumdar rank correlation test, Kendall's tau and Egger's regression intercept tests.

Results of the review
Twenty-eight comparative studies (n=3,461), 10 of which were cohort studies, were included in the review. Sample sizes varied between 15 and 480. CTAM scores varied between 27 and 89 with a mean score of 55.72 (SD 15.00). Further details of the individual study scores and assessment criteria were not reported. A significant association between poorer study quality and larger effect sizes was reported using meta-regression.

A overall significant Hedge's g effect size in favour of cognitive therapy in comparison with control was reported (-0.59; 95% CI: -0.811, -0.371; z=-5.26, p<0.0001; 25 studies). Subgroup analyses reported that data for adults were statistically significant (combined Hedge's g -0.775; 95% CI: -1.051, -0.498; z=-5.497; p<0.0001; 18 studies) and data for adolescents were not significant. Other subgroup analyses were reported in the review, but some included only small numbers of studies and most showed that subgroups were associated with significant effect sizes.

In all of the analyses performed, publication bias was evident in one or more of the various statistical tests performed.

Authors' conclusions
Evidence suggested strongly that CBT can reduce suicide behaviour in the short term. A significant treatment effect was found for adults (but not adolescents) and for individual CBT treatments when compared with minimal or no treatment controls.

CRD commentary
This review answers a clear research question using broadly defined inclusion criteria for study design and no criteria for types of participants. Electronic databases and other sources were searched. However, there was a risk of publication and language bias as only English language studies published in peer-reviewed journals were eligible for inclusion. The risk of publication bias was confirmed using statistical tests. The risk of reviewer error and bias was unclear as the authors did not report their methods. A quality assessment was performed, but the details of this assessment and the criteria used were not reported, making it difficult to assessed the reliability of individual study data. The range of scores reported suggested that all of the studies had one or more methodological flaws. Further analysis suggested that poorer quality studies overestimated the effect size. The studies also varied widely in terms of how and for how long interventions were delivered, and also with regard to their study populations and design. This suggested that it may not have been appropriate to pool the data, although the authors performed a number of further analyses to try and investigate possible sources of heterogeneity. Some of these additional analyses involved only small numbers of studies and may not be reliable. Overall, given concerns about the review methods, the poor methodology of many of the included studies, the risk of publication bias and the effects of the differing treatments, populations and study designs used, the authors' conclusions may not be reliable and should be interpreted 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 to identify which elements of CBT programs can be effectively and efficiently delivered in groups of targeted high-risk individuals.

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Bibliographic details

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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.