The efficacy of cognitive-behavioral interventions for reducing anxiety sensitivity: a meta-analytic review

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CRD summary
This review concluded that cognitive-behavioural therapy was efficacious in reducing anxiety sensitivity in both treatment-seeking patients and those at risk. There were a number of limitations in the review which suggest that the authors' conclusions should be treated with caution.

Authors' objectives
To compare the efficacy of cognitive-behavioural therapy with control conditions for the reduction of anxiety sensitivity.

Searching
The following databases were searched: PsycINFO, MEDLINE and Scopus from 1986 to February 2008. The search start date was the year that the Anxiety Sensitivity Index (ASI) was developed. Search terms were provided. Experts from outside the USA were contacted to identify further studies published or in press in their respective languages. Reference lists of empirical studies, meta-analyses, review articles and articles in press were searched manually.

Study selection
To be eligible for the review, studies had to include participants over 18 years of age, randomly assigned to cognitive, behavioural or cognitive-behavioural interventions or to control conditions; anxiety sensitivity had to be measured using a version of the ASI. Single case studies were excluded, as were studies combining cognitive-behavioural therapy and pharmacotherapy.

In included randomised controlled trials (RCTs), both treatment-seeking and at-risk participants were included. Primary diagnoses in the treatment-seeking groups included panic disorder, tinnitus, claustrophobia and social phobia; most studies were of panic disorder. The at-risk participants all had elevated anxiety sensitivity, which varied across the trials. Control conditions across both types of participants included waiting lists and a variety of psychological treatments. All but one of the trials evaluated outcomes using the ASI-16.

The authors did not state how many reviewers were involved in the selection of studies for the review.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Data were extracted separately for treatment-seeking and at-risk groups. Between-group effect sizes were calculated for each trial using Hedges' g and 95% confidence intervals (CI). In trials that reported data for multiple treatment groups, the treatment groups were combined in order to provide one comparison and one effect size per trial. Authors were contacted if data were insufficient.

Two researchers independently extracted data.

Methods of synthesis
Analyses were limited to data from completer samples. Weighted overall mean effect sizes for treatment-seeking and at-risk groups were calculated using random-effects models. Heterogeneity was investigated using Cochran's Q statistic.

A number of variables were investigated as potential effect modifiers: publication year, control condition, and amount of therapist contact.
Publication bias was assessed using the fail-safe N method.

**Results of the review**

Twenty-four RCTs were included in the review (n=1,851 participants).

Cognitive-behavioural therapy in treatment-seeking groups (n=711 participants, 16 RCTs) had a mean effect size of 1.40 (95% CI 1.00 to 1.81). Cognitive-behavioural therapy in at-risk groups (n=1,140 participants, eight RCTs) had a mean effect size of 0.74 (95% CI 0.39 to 1.08). Statistically significant heterogeneity among trials was observed for both types of participants (p<0.001 for both).

Publication year was not statistically significantly related to effect size for either type of participant. Control condition did not moderate effect size in at-risk groups, but in treatment-seeking groups waiting-list control conditions showed larger effect sizes than psychological control conditions. Effect size varied as a function of therapist contact in treatment-seeking groups, but not for at-risk groups.

There did not appear to be evidence of publication bias.

**Authors' conclusions**

Cognitive behavioural therapy was efficacious in reducing anxiety sensitivity.

**CRD commentary**

This review was based on defined inclusion criteria for participants, intervention, outcomes and study design. Searching encompassed a range of methods and the exclusion of unpublished studies was investigated through an assessment of publication bias. The authors did not report using methods designed to reduce reviewer bias and error at any stage of the review process.

No assessment of trial validity was made, so the impact of individual trial quality on results was unclear. Analyses were based on completer samples, which might also bias results. Given the clinical variation and statistical heterogeneity observed, it may not have been appropriate to pool trials. A number of moderator variables were investigated, although there may have been insufficient power to detect effects in cases where none were observed.

Given these considerations, it is appropriate to treat the authors' conclusions 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 more research is needed to determine the mechanisms by which cognitive-behavioural therapy exerts its effects on anxiety sensitivity. Future studies should use more rigorous methodology, consider potential moderating effects of personal factors on the relationship between cognitive-behavioural therapy and anxiety sensitivity and use a more recent version of the ASI, such as the ASI-3.

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