Improving outcomes for COPD patients with mild-to-moderate anxiety and depression: a systematic review of cognitive behavioural therapy

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CRD summary
This review concluded that there was limited evidence that cognitive behavioural therapy, when used with exercise and education, could contribute to significant reductions in anxiety and depression in patients with clinically stable and severe chronic obstructive pulmonary disease. These conclusions are likely to be reliable although, as the authors stated, an adequately powered RCT is required to confirm these findings.

Authors' objectives
To evaluate the effectiveness of cognitive behavioural therapy in reducing mild-to-moderate anxiety and depression in patients with stable chronic obstructive pulmonary disease.

Searching
The following databases were searched from inception to May 2006: MEDLINE, EMBASE, CINAHL, PsycINFO and the British Nursing Index. The Cochrane Library (Issue 3) was also searched. Search terms were reported. References were reviewed for additional studies. Current Controlled Trials and the National Research Register were searched for ongoing trials. Only English language papers were considered for inclusion.

Study selection
Randomised and non-randomised controlled trials that compared cognitive behavioural therapy (CBT) with another treatment, in patients (18 years or over) with stable moderate-to-severe chronic obstructive pulmonary disease and mild-to-moderate anxiety and/or depression (on validated self-report scales), were eligible for inclusion. CBT was defined as a psychological treatment which attempted to modify patients' negative thoughts and behavioural responses. Included trials were required to deliver CBT face-to-face. Eligible comparators were standard outpatient or primary care, education about disease management, exercise therapy with/without education, and pharmacotherapy. The primary outcome was change from baseline in anxiety and/or depression.

Randomised controlled trials (RCTs) and non-randomised trials were included in this review. Most trials were based in the USA, with one based in Brazil. The trials evaluated CBT alone or alongside exercise and/or education; comparators included waiting-list control, standard care, exercise, education and/or CBT. The overall population age was over 65 years, and all patients were diagnosed with severe chronic obstructive pulmonary disease. Outcomes were assessed using a range of scales including: the Centre for Epidemiological Studies Depression Scale; Beck Anxiety Inventory. Beck Depression Inventory; Hospital Anxiety and Depression Scale; the State-Trait Anxiety Inventory; and several measures of exercise, education and stress management at six, 10 and 12 weeks.

Studies were selected by one reviewer and checked by a second for eligibility.

Assessment of study quality
Two reviewers independently assessed the internal and external validity of the included trials using a published quality assessment checklist which was slightly modified and included additional criteria as deemed appropriate. The items focused on potential threats to validity posed by selection, attrition, performance and detection biases.

Data extraction
Mean change and standard deviations for anxiety and/or depression scores in intervention and comparator groups were extracted for each trial using a standardised data extraction form.

The authors did not report how many reviewers carried out the data extraction.

Methods of synthesis
Although a formal meta-analysis was not carried out due to heterogeneity between trials and the outcome measures...
reported, effect sizes for changes in depression/anxiety scores were calculated as standardised mean differences (SMD), with 95% confidence intervals (CI), where possible for each trial. The method of Hedges and Olkin was used to correct for small sample sizes. Effect sizes (ES) were designated as small (of 0.20), medium (0.50) and large (0.80), as per Cohen. Results were presented in tables and as a narrative synthesis.

Results of the review
Four trials were included in the review; three RCTs (165 patients) and one non-randomised controlled trial (n=8 patients). Where reported, there were no significant baseline differences between groups in the RCTs, but patients receiving cognitive behavioural therapy in the non-randomised trial were significantly more anxious than patients in the control group. Randomisation was adequate in two trials, but allocation was concealed in only one trial, and blinding was not clearly reported in a further trial. All trials were relatively small in size and did not report power calculations. The results were not always reported as per CONSORT (Consolidated Standards of Reporting Trials) guidelines. None of the four trials appeared to have used intention-to-treat analyses.

Four trials assessed the impact of cognitive behavioural therapy (CBT) on anxiety outcomes, but all used different outcome measures. The CBT groups showed a greater improvement in anxiety than the control groups, but not all of these effects were statistically significant. Only one RCT (30 patients) reported a large statistically significant effect size in favour of CBT; this trial used CBT alongside education and exercise (ES -1.39, 95% CI 2.19 to -0.59).

Three RCTs evaluated CBT for the treatment of depression in chronic obstructive pulmonary disease using various outcome measures. The improvements were consistently in favour of interventions that included CBT, but not all of the effects were statistically significant. The same RCT as mentioned above, reported a large significant difference in favour of CBT with exercise and education versus exercise and education alone.

Authors’ conclusions
There was limited evidence that cognitive behavioural therapy, when used with exercise and education, could contribute to significant reductions in anxiety and depression in patients with clinically stable and severe chronic obstructive pulmonary disease. A well-powered RCT is needed to further explore this area.

CRD commentary
This well-reported review addressed a clear research question using clearly defined inclusion criteria. Despite a relatively comprehensive search strategy, the review may have been vulnerable to both language and publication biases, as only English language studies were included, and the grey literature did not appear to have been explored. The review processes were largely well described, apart from data extraction, and the use of two reviewers to select and quality assess trials was likely to have reduced reviewer error and or bias. The analysis was appropriate, given the variation across the included trials.

Reasonable and cautious conclusions were drawn, which are likely to be reliable.

Implications of the review for practice and research
Practice: The authors stated that there may be scope to improve outcomes in patients with chronic obstructive pulmonary disease and mild-to-moderate anxiety/depression by making psychotherapeutic interventions, such as cognitive behavioural therapy, available as part of community based rehabilitation programmes.

Research: The authors recommended that further well-designed and adequately powered RCTs are required to evaluate both the effectiveness and acceptability of CBT as an intervention for mild-to-moderate depression/anxiety in chronic obstructive pulmonary disease patients. They suggested that future trials should adopt factorial designs and explore the various options for delivery of cognitive behavioural therapy according to setting, group or individual sessions.

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