The effectiveness of cognitive and behavioural treatment of chronic pain in the elderly: a quantitative review

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CRD summary
The review evaluated the effectiveness of cognitive and behavioural treatment for chronic pain in elderly patients and found it was significantly effective for chronic pain, but had no effect on medication use or depression, and only a small effect on physical functioning. Review process limitations and methodological issues mean the reliability of the authors' conclusions is unclear.

Authors' objectives
To evaluate the effectiveness of cognitive and behavioural treatment of pain in elderly patients.

Searching
MEDLINE, PsycINFO, Web of Science and the Cochrane Central Register of Controlled Trials (CENTRAL) were searched from 1975 to March 2008. Bibliographies of each retrieved article, reviews and books were handsearched. Search terms were reported.

Study selection
Studies of cognitive and behavioural interventions for chronic pain in elderly patients (aged 60 years or over), where comparisons were made either with controls or before treatment, and focusing on treatment effectiveness, were eligible for inclusion. Studies were excluded if they also included patients younger than 60 years. Eligible interventions had to include at least one element that was consistent with cognitive or behavioural interventions. Individual case studies and studies focusing exclusively on cancer pain, acute pain or post-operative pain were also excluded.

The interventions in the included studies varied widely and included: cognitive, behavioural and other pain management strategies; various self-help management programmes; education; electromyographic biofeedback training; relaxation; and meditation. The number of sessions varied from none to 21, and the time for the latest follow-up ranged from none to 12 months. The interventions were compared to pre-treatment or controls, including waiting list controls. The mean age of the included patients ranged from 65 to 85 years. The outcomes were mainly self-reported measures of pain experience, depression, physical functioning and medication use.

The authors did not state how many reviewers performed the selection.

Assessment of study quality
A formal assessment of study quality was not performed. The authors identified the studies which had control groups and those which only made a pre-treatment post-treatment comparison.

Data extraction
The included studies were coded for outcome measures on pain, analgesic use, depression and physical functioning. Means and standard deviations (SD) were calculated for baseline, post-treatment, and after follow-up. Post-treatment was defined as the time of the first reported outcome of each study, whereas follow-up was defined as the time of the last reported outcome of each study.

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

Methods of synthesis
Effect sizes were calculated by dividing the difference between the means of the post-treatment group and the control group (or pre-treatment group) by the pooled standard deviation of the two groups. The effect sizes were weighted by sample size when overall pooled effect size was determined. Pooled effect sizes were given as z scores with 95% confidence intervals (CI). A value of 0.2 represented a small effect, 0.5 a medium effect, and 0.8 a large effect. Where more than one outcome measure on a construct was available, a mean effect size was calculated and used for the overall
pooled analysis. Pooled analyses were only performed when the results for six or more interventions were available for an individual outcome, so effect sizes for individual interventions were reported for all the studies at post-treatment (for pain experience, depression, physical functioning, and medication use) and follow-up (for pain experience and physical functioning).

**Results of the review**

Twelve relevant studies were identified (614 patients, range 8 to 256), three of which had more than one intervention (giving 16 interventions overall). Seven studies had control groups. Five studies only made pre-treatment post-treatment comparisons.

**Pooled effect sizes at post-treatment:** The pooled meta-analysis showed that participants who received cognitive and behavioural treatment had a significantly lower level of pain than the comparison groups (pre-treatment or control groups) for all 16 comparisons (z score 0.47, 95% CI 0.34 to 0.60). The pooled effect size for medication use for seven comparisons at post treatment was not significant; and neither was that for depression for seven comparisons. The pooled effect size for eight comparisons showed that cognitive and behavioural treatment had a significant, but very small, positive benefit for physical functioning (z score 0.15, 95% CI 0.01 to 0.30).

**Pooled effect sizes at follow-up:** The pooled meta-analysis at follow-up (mean 9.2 months) showed that participants who received cognitive and behavioural treatment had a significantly lower level of pain than the comparison groups (for ten comparisons) at follow-up (z score 0.56, 95% CI 0.41 to 0.71). The pooled effect size (for seven comparisons) showed that cognitive and behavioural treatment had a significant but small positive benefit for physical functioning (z score 0.21, 95% CI 0.05 to 0.37). Pooled analyses were not performed for depression or medication use at follow-up as insufficient results for individual interventions were available.

**Authors' conclusions**

The present meta-analysis provided some evidence for the effectiveness of cognitive and behavioural treatment for chronic pain in elderly patients. However, there were no significant effects of cognitive and behavioural treatment on symptoms of depression, physical functioning and medication use.

**CRD commentary**

The review addressed a well-defined question in terms of participants, interventions, study design and relevant outcomes. Relevant databases were searched, but it was not clear if any language restrictions were applied, and it appeared that unpublished studies were not considered, so some studies may have been missed. Publication bias was not assessed. Study quality was not formally assessed and very little relevant information was provided. It was not clear which of the included studies used controls. No efforts to reduce error and bias in the review process were reported. Some relevant study details were reported, but no details of the sex of participants or loss to follow-up were given. There was little information relevant to the control groups used. Statistical heterogeneity was not assessed. The statistical method used for the meta-analysis seemed appropriate, but the results of controlled and uncontrolled studies were pooled. Sensitivity analyses were not performed. The authors recognised that there were methodological issues related to study quality, outcome measures and treatment in the review. As there were also limitations in the review process, the extent to which the authors’ conclusions are reliable is unclear.

**Implications of the review for practice and research**

**Practice:** The authors did not state any recommendations for practice.

**Research:** The authors identified a need for further research focusing on randomised controlled trials, where interventions are tailored for elderly patients, using recent recommendations for the assessment of pain in elderly persons. A broader more standardised collection of outcomes should be used, to include emotional functioning, sleep problems and quality of life.

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