



AOTA Evidence Briefs

Chronic Pain

**A product of the American Occupational Therapy Association's Evidence-Based Literature Review Project*

CPAIN #4

Both cognitive therapy and relaxation training may decrease the intensity of pain.

Turner, J. A., & Jensen, M. P. (1993). Efficacy of cognitive therapy for chronic low back pain. *Pain, 52*, 169–177.

Level IA1a

Randomized controlled trial, 20 or more participants per condition, high internal validity, high external validity.

Why research this topic?

Cognitive therapy emphasizes helping patients identify and modify the thoughts and cognitive components related to their pain. Behavioral therapy focuses on helping patients increase behaviors that contribute to their adaptation of pain and decrease behaviors that do not. Cognitive therapy typically is part of a treatment package that includes a variety of cognitive and behavioral methods. Its effectiveness in isolation also is not known. Also, its effectiveness relative to that of behavior therapy is not known.

What did the researchers do?

Turner and Jensen (1993), of the University of Washington (Seattle), compared the effectiveness of cognitive therapy and behavior therapy, separately and in combination, as treatments for patients with chronic low-back pain. The inclusion criteria for participation were adults between ages 20 and 65 years with low-back pain persisting longer than 6 months. Of 282 referrals, 102 (47 men, 55 women) met the criteria. Their average age was 42, and their average duration of pain was 5 years. Of that group, 30 did not complete treatment or the assessment following treatment.

Participants were randomly assigned to one of four groups: relaxation training, cognitive therapy, a combination of cognitive therapy and relaxation training, and waiting-list control. All participants in the first three conditions received group treatments 2 hours a week for 6 weeks. Each group consisted of 5–10 people.

In the relaxation-training condition, the participants received training in muscle relaxation and imagery. At home they were asked to practice what they learned daily, using audiotapes.

In the cognitive-therapy condition, the participants “learned to identify negative motions related to pain and stressful events and to identify associated maladaptive thoughts” (p. 171). Then they learned how to counter those negative thoughts with more adaptive ones. Between sessions they were asked to keep records of their negative feelings and thoughts, the situations in which those feelings and thoughts arose, and their ideas about other ways to respond.

The participants in the combined condition experienced all the elements of the two conditions just described.

The researchers were interested in the following outcome areas: *pain intensity* (as measured by the Visual Analogue Scale); *pain-related physical and psychosocial dysfunction* (as measured by the Sickness Impact Profile); *depression* (as measured by the Beck Depression Inventory); *pain behaviors* (as observed by trained raters, looking at videotapes); and *maladaptive cognitions* (as measured by the Cognitive Error Questionnaire). Assessments were made immediately before and after treatment and at 6 and 12 months following treatment.

What did the researchers find?

Immediately following treatment, on the measure of pain intensity, each treatment group showed **significant** (see *Glossary*) improvement compared with the control group.

On the measures of pain-related physical and psychosocial dysfunction, depression, and maladaptive cognitions, all four groups showed significant improvement over their baseline scores. However, there seemed to be **no significant** (see *Glossary*) difference between any treatment group and the control group.

On the measure of observed pain behaviors, none of the groups showed significant improvement over their baseline scores, and none of the treatment groups showed significant improvement compared with the control group.

At both follow-ups, on all five measures, all three treatment groups showed significant improvement over their baseline scores.

What do the findings mean?

For therapists and other providers, the findings suggest that both cognitive therapy and relaxation training decrease the intensity of pain. As for the researchers' hypothesis that cognitive therapy would enhance relaxation training, they concluded that cognitive therapy "may be equivalent to, but does not necessarily enhance, relaxation training in reducing self-reported pain in low back pain patients who are generally only mildly disabled and not severely depressed" (p. 175).

What are the study's limitations?

The study was well controlled. The high rating (1) that it received on internal validity indicates that the outcomes were due to the interventions and not to some other factor. A bias was present, however.

- *Recall bias*: The self-reported assessments conducted at the 6-months and 1-year follow-up can be susceptible to the recall bias by the participants, which is a confounding effect on the outcomes of the study.
- *Generalization*: The results of this study cannot be generalized to all situations, as the study has focused only on the individuals with mild chronic low-back pain in outpatient settings. The effectiveness of the intervention protocol on the population with severe disabilities in settings other than outpatient is not known. Finally, a small sample size and high dropout rates from all intervention groups certainly are limitations in generalizing the study's effectiveness.

GLOSSARY

nonsignificant (or no significance)—A statistical term that refers to study findings that are likely to be due to chance differences between the groups rather than to other factors (e.g., the treatment of interest). A nonsignificant result is not generalizable outside the study. Like significance, a nonsignificant result does not indicate the clinical effect. Often studies will show nonsignificant results, yet the treatment group's mean will be better than the control group's. This is usually referred to as a *trend in the right direction*. Because significance is closely determined by sample size, nonsignificant results would often become significant if the sample size were increased.

significance (or significant)—A statistical term that refers to the probability that the results obtained in the study are not due to chance but to some other factor (e.g., the treatment of interest). A significant result is likely to be generalizable to populations outside the study.

Significance should not be confused with *clinical effect*. A study can be statistically significant without having a very large clinical effect on the sample. For example, a study that examines the effect of a treatment on a client's ability to walk may report that the participants in the treatment group were able to walk significantly longer distances than the control. However, after reading the study one may find that the treatment group was able to walk, on average, 6 feet, whereas the control group was able to walk, on average, 5 feet. Although the outcome may be statistically significant, a clinician may not feel that a 1-foot increase will make his or her client functional.

■ Terminology used in this document is based on two systems of classification current at the time the evidence-based literature reviews were completed: *Uniform Terminology for Occupational Therapy Practice—Third Edition* (AOTA, 1994) and *International Classification of Functioning, Disability and Health (ICIDH-2)* (World Health Organization [WHO], 1999). More recently, the *Uniform Terminology* document was replaced by *Occupational Therapy Practice Framework: Domain and Process* (AOTA, 2002), and modifications to *ICIDH-2* were finalized in the *International Classification of Functioning, Disability and Health* (WHO, 2001).

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For more information about the Evidence-Based Literature Review Project, contact the Practice Department at the American Occupational Therapy Association, 301-652-6611, x 2040.



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