



# AOTA Evidence Briefs

## Attention Deficit/Hyperactivity Disorder

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

### A#4

## **Cognitive behavioral therapy may improve the home behavior of children with ADHD**

Fehlings, D. L., Roberts, W., Humphries, T., & Dawe, G. (1991). Attention deficit hyperactivity disorder: Does cognitive behavioral therapy improve home behavior? *Journal of Developmental and Behavioral Pediatrics, 12*, 223–228.

### **Level: IA1a**

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

### **Why research this topic?**

Stimulant drugs do not seem to improve important cognitive skills like problem solving in children with attention-deficit/hyperactivity disorder (ADHD), nor do they seem to affect long-term outcomes. Further, some parents object to the use of stimulants for treatment of their children. So educators and researchers are looking at alternative treatments; among them, cognitive behavioral therapy. This therapy “attempts to increase self-control and problem-solving abilities by helping the child... (1) define the nature of the problem, (2) reflect on all the possible solutions and (3) choose one solution and evaluate its outcome” (p. 223). Instructional strategies used in this kind of therapy include modeling, role-playing, and self-instruction. The role of cognitive behavioral therapy (CBT) in managing ADHD is controversial, however, and no studies of it have shown improvements in children’s behavior at home.

### **What did the researchers do?**

Fehlings and her colleagues (1991), all of the Hospital for Sick Children (Toronto, Canada), studied the effects of CBT on the home behavior of children with ADHD. The participants in their study were 26 boys. They were selected from a pool of children who had been referred by their pediatricians or school boards to the Hospital for Sick Children. All had been diagnosed with ADHD using the criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed. rev.); were between 7 and 13 years of age (average age was 9.5 years); had been rated by their parents as 15 or higher on the Conners 10-item scale and 150 or higher on the Self-Control Rating Scale; and had scored 85 or higher on the verbal subtests of the Wechsler Intelligence Scale for Children–Revised. Children on medication were excluded.

The researchers randomly assigned the boys to one of two groups: CBT or supportive therapy (the control group). The members of both groups received individual instruction at the clinic twice a week for 6 weeks (60 minutes per session), and their families received instruction in the home every 2 weeks for 16 weeks (2 hours per session). The same behavioral therapist worked with the two groups.

The boys in the CBT group were taught cognitive behavioral strategies, including a five-step process for problem solving. In the beginning they worked on academic problems and tasks. Later they undertook interpersonal activities that focused on home behavior. The therapist used a token reinforcement system to reward the boys for correct responses. The family sessions focused on education about ADHD and instruction in cognitive behavioral strategies.

The boys in the supportive therapy group spent the same amount of individual time with the therapist but did not learn cognitive behavioral strategies. The therapist used a token reinforcement system with this group as well. The family sessions focused on education about ADHD. Parents were listened to supportively and were not instructed in cognitive behavioral strategies.

The outcome areas of interest to the researchers were as follows: *impulsivity assessed behaviorally* (as rated by parents and teachers using the Self-Control Rating Scale); *inattention* (as rated by parents and teachers using the Attention Problem subscale of the Revised Behavior Problem Checklist); *activity level at home* (as rated by parents using the Modified Werry Weiss Activity Scale); *impulsivity assessed cognitively* (as measured by the Revised Matching Familiar Figures Task); and *self-concept* (as rated by the child using the Piers Harris Self-Concept Scale). The measures were taken before treatment, 4 months after entering the study (but after the termination of treatment), and 5 months after the termination of treatment. In addition, independent assessors reviewed randomly selected videotapes of the children during their individual sessions to document the therapist's faithfulness to the assigned treatments.

### **What did the researchers find?**

Parent ratings of activity level at home showed **significant** (see *Glossary*) improvement in the CBT group at 4 months after the beginning of treatment and at 5 months after the termination of treatment. There was no effect of CBT on inattention or impulsivity according to parent rating. Supportive listening had no effect on any parent ratings.

Teacher ratings of inattention and impulsivity showed no change in either therapy group, although the authors argued that inattention improved more in the CBT group since the difference "approached significance."

Child ratings of self-concept showed significantly greater improvement in the CBT group than in the supportive therapy group. On this measure, the CBT group showed significant improvement at 4 months after the beginning of treatment and at 5 months after the termination of treatment.

Divorce and depression were present in four of the families involved in the study, two in each group. The researchers removed the data for these families and then reanalyzed the parents' ratings. On inattention, as rated by parents, the CBT group now showed significantly greater improvement than the supportive therapy group.

### **What do the findings mean?**

For therapists and other providers, the findings suggest that CBT is effective in managing the one aspect of home behavior problems of children with ADHD. Further, there may be a generalization of the effects to other environments.

### **What are the study's limitations?**

Some of the statistical analyses may have been inappropriate. For example, instead of using the repeated measures ANOVA appropriate to their design, they did multiple *t*-tests. Considering the number of tests, the effects were limited and weak. Furthermore, post hoc analyses involved dropping subjects whose parents they classified as moderate to severe dysfunctional. This classification was based on whether parents were undergoing a divorce, without any other independent measure of dysfunction reported.

## **Glossary**

**significance (or significant)**—A statistical term, this refers to the probability that the results obtained in the study are not due to chance, but to some other factor (such as 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 group. However, if you read the study you 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 believe that a 1-foot increase will improve his or her client's function.

■ 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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