



## A meta-analysis of behavioral parent training for children with attention deficit hyperactivity disorder

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### ABSTRACT

This meta-analysis examined the effect of behavioral parent training on child and parental outcomes for children with attention deficit hyperactivity disorder. Meta-analytic procedures were used to estimate the effect of behavioral parent training on children with attention deficit hyperactivity disorder. Variables moderating the intervention effect were examined. Forty studies were included and generated an overall moderate effect size at post-treatment and a small effect size at follow-up. The majority of outcome categories were associated with a moderate effect size at post-treatment that decreased to a small effect size at follow-up. Parenting competence was the only outcome that had a large effect, which decreased to moderate at follow-up. The strength of the effect differed between questionnaire and observation measures. Behavioral parent training is an effective intervention for children with attention deficit hyperactivity disorder. Sustainability of the effects over time is a problem that awaits further scrutiny. Recommendations for further research and clinical practices are provided.

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## 1. Introduction

Attention deficit hyperactivity disorder (ADHD) is a developmental disorder that may seriously affect a child's home, school, and social functions (American Psychiatric Association, 2000). Observational studies of children with ADHD and their parents found conflicted parent-child interaction patterns and less positive parenting practice (Deault, 2010). Participation in daily activities, such as going to bed or completing homework, might be challenging for children with ADHD and their parents and adversely affect their parent-child relationships (Segal, 2000; Segal & Hinojosa, 2006). Several studies have found that ADHD is associated with significantly increased parenting stress (Deault, 2010).

Behavioral therapy is an empirically supported intervention for children with ADHD, but is often labor intensive (Hinshaw, 2009). Therefore, parent involvement in implementation of behavioral therapy is suggested and may promote

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generalization of the intervention benefits from the clinic or school to the home setting (Matson, Mahan, & LoVullo, 2009). In addition, parent participation in intervention is critically important for improving treatment outcomes for children with ADHD (Chu & Reynolds, 2007).

Behavioral parent training (BPT) is an intervention to help parents stop stressful patterns of parent–child interaction. BPT primarily emphasizes social contingencies in which the parent provides positive reinforcement for the child's prosocial behavior and ignores or punishes negative behavior by nonphysical discipline techniques such as removal of privileges or time out (Antshel & Barkley, 2008). The benefit of BPT is to create better fit among parent–child interactions in social settings such as school, the park, and after-school events (Antshel & Barkley, 2008; Barkley, Robin, & Benton, 2008).

A meta-analysis reviewed 16 studies of parent-involved psychosocial treatment for children with ADHD (Corcoran & Dattalo, 2006). These studies generated a small effect compared with an alternate or no treatment, whereas a higher effect was found on children's emotional disturbance and academic performance. Effects on the ADHD symptoms and behavioral problems were relatively minor and were suggested to be targeted by other interventions. However, the previous meta-analysis only included 16 studies, and no follow-up outcomes were reported. To address the limitations of the previous review, the current meta-analysis used more specific selection criteria (i.e., behaviorally oriented parent training programs), expanded outcomes (i.e., child and parental variables, questionnaire and observational measures, and immediate and follow-up effects), and analyzed a larger number of studies.

## 2. Methods

### 2.1. Searching strategies

Electronic databases were searched (Medline, Psych INFO, Pubmed, CINAHL, Cochrane Clinical Trials and ERIC) for possible studies. Key words used to identify articles were *behavioral parent training*, *parent training*, *parent group*, *behavior problem*, *attention deficit*, *hyperactivity*, *hyperactive*, and *ADHD*. References of the retrieved articles were searched. Book chapters, major reviews, and meta-analytic reports about parent training and children with ADHD or disruptive behavior were also searched and their reference lists inspected.

### 2.2. Inclusion criteria

Studies reported between 1970 and 2011 were included in this meta-analysis if they (a) investigated the effects of BPT, (b) included parents of children with ADHD, (c) included empiric data for the meta-analysis, (d) had a group comparison design, and (e) had at least a comparison group in addition to a BPT group. BPT was defined as the therapy aiming at establishing a behavioral contingency program for parents.

### 2.3. Data collection and identification of studies

Approximately 1000 abstracts or articles were retrieved and reviewed, and about 200 reports of parent training for children with ADHD were screened. A total of 40 studies from 48 reports met the inclusion criteria and were included in this meta-analysis. The reference lists of excluded studies were provided by requests to the authors.

### 2.4. Outcome variables

The outcome categories included (1) the child's behavior as measured by parent or teacher questionnaire and by laboratory or home observation, (2) parenting behavior as measured by parent questionnaire and by laboratory or home observation, and (3) parental perception of parenting. Outcomes of the child's behavior referred to increased positive behavior and decreased disruptive behavior. Outcomes of parenting behavior referred to changes in child-rearing behavior. Outcomes of parental perception of parenting included changes in the parent's sense of parenting stress and competence. In this meta-analysis, the effects of BPT on the child's behavior, parenting behavior, and parental perception of parenting were estimated. The overall effect was calculated by including all of the above variables.

### 2.5. Moderating variables

Because of the theoretic relevance and the availability of data, certain potential methodological or substantive moderators were coded and underwent further analysis:

1. Methodological characteristics: an 8-point methodological vigor index.
2. Participant characteristics: age, child's comorbid diagnosis, single parenthood, parental depression, and family socioeconomic status.
3. Intervention characteristics: type of experimental group (BPT combined with other intervention or BPT only), delivery mode of the BPT program, the intervention program, and types of comparison groups.

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