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Evidence-based psychosocial treatments for children and adolescents with attention-deficit/hyperactivity disorder

Andrea M. Chronis *, Heather A. Jones, Veronica L. Raggi

University of Maryland, College Park, United States

Abstract

Despite the vast literature supporting the efficacy of stimulant medication in the treatment of attention-deficit/hyperactivity disorder (ADHD), several limitations of pharmacological treatments highlight the clear need for effective psychosocial treatments to be identified. A large evidence base exists for behavioral interventions, including parent training and school interventions, which has resulted in their classification as "empirically validated treatments." Additionally, social skills training with generalization components, intensive summer treatment programs, and educational interventions appear promising in the treatment of ADHD. Given the chronic impairment children with ADHD experience across multiple domains of functioning, multimodal treatments are typically necessary to normalize the behavior of these children. The state of the ADHD treatment literature is reviewed, important gaps are identified (e.g., treatment for adolescents), and directions for future research are outlined within a developmental psychopathology framework.

Keywords: ADHD; Behavior therapy; Parent training

Attention-deficit/hyperactivity disorder (ADHD) is the primary reason for referral to mental health services among school-aged children (Barkley, 1998). Children with ADHD display chronic and pervasive difficulties with inattention, hyperactivity, and impulsivity that result in profound impairments in academic and social functioning across multiple settings (typically, at home, in school, and with peers). Effective treatments for ADHD consist of stimulant medication and behavior modification. Although the efficacy of stimulant medication in the treatment of ADHD is well established, purely pharmacological approaches to treatment fall short of optimal outcomes for a number of reasons, highlighting the need for effective psychosocial treatments to be identified.

A large and convincing evidence base exists for behavioral parent training and behavioral school interventions, which has resulted in their classification as "empirically validated treatments" according to American Psychological Association (APA) Division 53 criteria (Lonigan, Elbert, & Johnson, 1998; Pelham, Wheeler, & Chronis, 1998). Behavioral interventions involve manipulating environmental factors that are antecedents to (e.g., setting, structure) or consequences of (e.g., adult attention) the maladaptive behavior. Given the chronic and pervasive nature of ADHD, behavioral treatments (like medication) must be implemented consistently over the long-term in each setting in which impairment is present (Chronis et al., 2001). Effective psychosocial treatments for ADHD will be reviewed herein, and will be presented within a developmental psychopathology framework (Holmbeck, Greenley, & Franks, 2003).

* Corresponding author. University of Maryland, Department of Psychology, College Park, MD 20742, United States.
E-mail address: achronis@psyc.umd.edu (A.M. Chronis).

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1. Developmental psychopathology framework

The developmental psychopathology framework has as one of its initial considerations the *developmental appropriateness of behavior.* Developmental appropriateness is critical in arriving at a diagnosis of ADHD, setting appropriate goals for treatment, and appreciating environmental demands that are at play during any given developmental period. For example, many of the behaviors that characterize ADHD (e.g., difficulty sustaining attention, high activity level) are normative at certain stages of development, and may or may not be viewed as impairing depending on the environmental expectations at a particular developmental stage (Lahey et al., 1998). Thus, prior to diagnosis the child's behavior must be compared to developmental norms, impairment in functioning must be assessed across multiple domains, and appropriate treatment goals must be based on normative functioning for the child's age.

Treatments must also be *developmentally sensitive*, meaning that they must involve careful consideration of the child's level of cognitive development and his/her developmental needs and challenges (Holmbeck et al., 2003). In this regard, behavioral treatments for younger children must include consequences that are tangible, offered frequently, and presented immediately following the behavior so that children comprehend the connection between their behavior and the consequence. Likewise, treatments for adolescents must consider their desire for autonomy, for example, by involving them more fully in the treatment process. Across all age groups, consequences must be chosen that are meaningful and motivating for the individual at that particular stage of development. For example, time out may be a less appropriate punishment for adolescents. Rather, loss of privileges or activities (e.g., talking on the telephone, going to the mall with friends, obtaining access to the car) may be much more effective punishments for adolescents. Similarly, treatments must be *modified at developmental transitions* using developmentally sensitive behavioral strategies to reflect the behaviors that are most impairing at the time (e.g., disorganization at the transition to middle school; Chronis et al., 2001).

Finally, the developmental psychopathology perspective emphasizes that *children exist within multiple contexts*—most notably, home and school—that may include a multitude of risk and/or protective factors that must be modified or fostered in treatment in order to enhance developmental outcomes (Mash, 1998). By definition, ADHD symptoms and impairment must exist in at least two settings (APA, 1994). Treatments must therefore be implemented in each setting to bring about maximum benefit (Pelham et al., 1998). Furthermore, effective psychosocial treatments for ADHD rely on parents and teachers as agents by which treatment is delivered directly to the children. A vast literature suggests that the behaviors of children with ADHD are stressful to parents, and the same is likely true for teachers (Fischer, 1990; Johnston & Mash, 2001). Furthermore, many parents of children with ADHD experience psychopathology themselves (Chronis, Lahey et al., 2003), which is associated with suboptimal response to ADHD treatments (e.g., Sonuga-Barke, Daley, & Thompson, 2002). Therefore, comprehensive treatments rely upon a thorough assessment of the strengths and weaknesses of the child *and* his/her environment (e.g., the family, peer group, classroom setting) so that treatments can target child, parent, and other environmental contributors to the problem behavior across multiple settings.

We will now turn to a discussion of effective treatments for children with ADHD, beginning with a discussion of the efficacy and limitations of pharmacological interventions and the rationale behind the need for psychosocial treatments. We will then review the literature on effective and promising psychosocial treatments for ADHD.

2. Treatments for children with ADHD

2.1. Stimulant medication

The widespread use and evidence for the efficacy of stimulant medication are overwhelming. In fact, treatment effects of stimulants surpass evidence for pharmacological treatment of any other child psychiatric disorder. It is estimated that at least 85% of children diagnosed with ADHD are medicated with stimulants (Olfson, Gameroff, Marcus, & Jensen, 2003). Stimulant medication has been shown to have large, beneficial effects on a number of outcome measures, particularly measures of ADHD symptoms for the majority of children for whom they are prescribed (see Swanson, McBurnett, Christian, & Wigal, 1995 for a review). In the classroom, stimulants have been found to reduce classroom disruption and increase on-task behavior, compliance, and academic productivity. Additionally, stimulants have been shown to decrease negative social behaviors, including aggression, inappropriate peer interactions, and negative parent–child interactions.

However, there are several important limitations to an exclusively pharmacological approach in the treatment of ADHD. These include the limited effects of stimulant medication on problems such as academic achievement and peer relationships, the fact that up to 30% of children do not show a clear beneficial response to stimulants, the inability to