Psychosocial Interventions Used to Treat Children with ADHD
Safety and Efficacy

ABSTRACT
Although stimulant therapy is the most common treatment for attention-deficit/hyperactivity disorder (ADHD) in children, it is not always effective in reducing behavioral symptoms. As a result, research on psychosocial interventions has progressed in recent years. This article provides a synopsis of psychosocial interventions for childhood ADHD, with an emphasis on basic behavior management principles, evidence-based interventions, and safety issues. Developmental issues that distinguish psychosocial interventions for children and adolescents are highlighted, and practical recommendations for collaborating with mental health professionals are provided.

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Children and adolescents with attention-deficit/hyperactivity disorder (ADHD) experience impairments that can result in poor long-term outcomes in academic achievement and relationships with peers and family members. The most frequently used treatment for ADHD is stimulant therapy; however, this treatment does not relieve some ADHD-related impairments (Hoza et al., 2005), appears ineffective in reducing behavioral symptoms in up to 30% of cases (Spencer et al., 1996), and is rejected or abandoned by a significant proportion of youth and caregivers.

As a result, research on psychosocial treatments has progressed, as detailed in several recent reviews (Pelham & Fabiano, 2008; Raggi & Chronis, 2006). This article provides a synopsis of psychosocial interventions for childhood ADHD, with an emphasis on basic behavior management principles, evidence-based interventions, and safety issues. We also highlight developmental issues that distinguish psychosocial interventions for children and adolescents, as well as provide practical recommendations for collaborating with mental health professionals.

**PRINCIPLES OF BEHAVIORAL INTERVENTION**

Children with ADHD appear to respond best to clear and consistent behavioral expectations monitored by the adults at home and school. In contrast, psychosocial strategies that emphasize insight-driven change, such as individual counseling, are generally less effective. Behavioral techniques rely on the use of rewards and consequences to shape target behaviors. One of the challenges of using behavioral techniques involves identifying rewards and consequences that are salient enough to result in behavioral change while safely avoiding behavioral side effects. In addition, the schedule that contingencies follow may be based on the frequency, intensity, or duration of a behavior.

In this article, contingencies refers to the relationship between a child's behavior and adult responses to that behavior. Adult responses may be consistent (i.e., fixed) or may fluctuate randomly (i.e., variable) on the basis of the behavior, the environment, and the desired outcomes. Contingencies may involve the application or presentation of a consequence for behavior. For example, to reduce unwanted behavior, the adult may present something undesirable to the child (e.g., additional chores), which is referred to as positive punishment. To increase desired behavior, the adult may provide something desirable to the child (e.g., permission to borrow the car), which is referred to as positive reinforcement.

Alternatively, contingencies can involve the removal of something as a consequence for behavior. For example, to decrease unwanted behavior, the adult may keep something desirable from the child (e.g., restrict access to video games), which is referred to as negative punishment. To increase desired behavior, an adult may remove or reduce an aversive condition (e.g., allow the child to skip chores), which is referred to as negative reinforcement. Because these labels are often confused, it is important to keep them distinct when communicating with patients and other professionals. Both positive and negative reinforcement increase the rate, intensity, or duration of a behavior, and both positive and negative punishment decrease the rate, intensity, or duration of a behavior. Almost all evidence-based psychosocial interventions for youth with ADHD rely on these concepts.

For example, common techniques used with preadolescent children include behavioral systems such as token economies, whereby desired behaviors (e.g., getting ready for school on time) are rewarded with tangible tokens, such as stars, stickers, or poker chips. Undesirable behaviors result in the withholding or removal of tokens or other desirable items or privileges in a process referred to as response cost. Serious behavioral infractions often are addressed successfully with time-out procedures used in conjunction with a token economy.

Behavior therapists recommend that adults teach children the criteria for earning rewards, response cost, and time-out procedures prior to implementation. Once a token economy is started, progress is visually charted and, at prearranged times, children are encouraged to redeem tokens for rewards, such as toys, candy, or special activities. As children mature or their behavior improves, the criteria for rewards gradually become more challenging, and token trade-ins occur less frequently. In addition, behavior therapists recommend that rewards move from tangible items, such as candy and toys, to special activities and privileges, which are often less costly and more important for older children, as well as easier to provide than tangible items (Bear, 2004).

For high-functioning children and adolescents, token economies may be replaced with behavior contracts. Behavior contracts are written documents that clearly define behavioral expectations and contingencies (Downing, 2002). This process typically begins with negotiations between the adult and the adolescent in an attempt to achieve a consensus regarding behavioral expectations and con-
tingencies. Behavioral therapists frequently find that children and adolescents need help identifying rewards that are both salient and feasible. In addition, parents often need help identifying behavioral expectations that they can realistically monitor. Once these potential difficulties are overcome and an agreement is reached, both parents and children sign the document. Periodically, the behavior contract is revisited to make modifications through continued parent-child negotiation.

**DAILY BEHAVIOR REPORT CARDS**

Another specific psychosocial intervention based on behavioral principles is the use of daily behavior report cards (DBRCs), which also referred to as daily report cards or school-home notes. This intervention is traditionally a school-home collaborative effort, whereby teachers rate the child's progress on specific goals and then send these reports to the caregiver to inform home-based contingencies (Evans & Youngstrom, 2006). Parents review the teacher ratings with their child after school and determine an appropriate level of privileges for the evening.

Criteria are established for various levels of privileges (usually no more than four levels). These levels may include variations in bedtime and time available for television viewing, computer use, telephone calls, being with peers, use of the car, and other privileges. A child who brings home the DBRC with optimal teacher ratings may receive full privileges that evening. Less than optimal ratings result in restrictions to those privileges according to a predetermined schedule.

Whenever DBRCs are implemented, communication between home and school is vital to ensure the intervention remains consistent and problems are quickly remedied. In our experience, we have found that some students avoid their teachers and bring home blank DBRCs or simply “forget” to bring them home. To avoid these problems, we recommend that the lowest level of privileges be reserved for times when the student does not bring home a completed DBRC. This method maintains an incentive for bringing home a DBRC, even when it contains poor marks.

Research on the effectiveness of DBRCs appears promising, especially when DBRCs are used in conjunction with an existing home token economy with response cost procedures (Davies & McLaughlin, 1989; Kelley & McCain, 1995). It should be noted that most studies of DBRCs to date are based on small samples. Still, DBRCs can be effective stand-alone psychosocial interventions and, in other situations, can provide data to inform outcomes for adjunct interventions, such as medications (Evans & Youngstrom, 2006). Indeed, DBRCs are widely used in schools, are adaptable to many situations, and are an acceptable strategy for most teachers (Chafouleas, Riley-Tillman, & Sassu, 2006).

It has been found that DBRCs can be implemented effectively for elementary and middle school-age children, although specific modifications are often needed in middle schools to ensure teacher participation. In a recent study of a middle school consultation program, teachers were encouraged to rate student progress on no more than three behavior goals at a time, using a four-point scale on DBRC stickers affixed to the students’ daily planners (Evans, Serpell, Schultz, & Pastor, 2007). In this manner, teacher ratings could be made quickly and easily, which is particularly important in the fast-paced secondary school environment.

There are two noteworthy limitations of DBRCs. First, given the need for strong school-home communication, DBRC effectiveness can be limited if either parents or teachers fail to implement the procedures and communicate with each other consistently. This limitation can be particularly problematic in secondary schools where children have multiple teachers; however, Evans et al. (2007) found that DBRCs can be used consistently over long periods when the intervention is aimed at one or a few of the child’s classes.

Second, it may be unrealistic in some cases to ask a child who already forgets many tasks and materials to try to remember to also bring home a completed DBRC. We have used methods to reduce this burden, including establishing e-mail communication systems between parents and teachers that include teachers sending the parents a DBRC e-mail without depending on the child.

**PARENT TRAINING**

Parents of children with ADHD can be trained to improve their management of their child’s disruptive and off-task behaviors. Parent training techniques have been developed during the past few decades, and considerable evidence supports its benefit for parents of children with ADHD (Anastopoulos, 1998; Pelham & Fabiano, 2008). Parent training programs typically involve parents attending group meetings and learning how to apply behavior management principles to their parenting practices. Skills are taught at the group meetings, and parents are encouraged to practice the skills between meetings. At subsequent meetings, parents share their attempts to use the techniques, and strategies to overcome problems are addressed (Anastopoulos, 1998).
Parent training frequently lasts between 9 and 20 sessions, involves a didactic presentation of material, and takes place at clinics. A creative modification to traditional parent training—collaborative problem solving using a video presentation of parenting vignettes developed by Cunningham and colleagues—has led to improvements in attendance and participation (Cunningham, Davis, Bremner, Dunn, & Rzasa, 1993). In addition, motivation enhancement techniques have been found to be an effective adjunctive treatment component for increasing parent attendance and participation (Cunningham, Davis, Bremner, Dunn, & Rzasa, 1993). In addition, motivation enhancement techniques have been found to be an effective adjunctive treatment component for increasing parent attendance and participation (Cunningham, Davis, Bremner, Dunn, & Rzasa, 1993).

Attendance and engagement are critical variables in the success of parent training, as studies have shown that the degree with which parents implement the procedures as instructed affects the benefits to the child (Hinshaw et al., 2000).

Parents of children with serious behavioral problems may have difficulty implementing a behavioral program; therefore, group parent training programs may prove inadequate for these families. Individual treatment programs, such as Parent-Child Interaction Therapy (PCIT), have been shown to be effective in treating children with severe behavioral problems (Chronis, Chacko, Fabiano, Wymbs, & Pelham, 2004). Originally designed for young children with conduct problem behavior, PCIT is a brief intervention consisting of two phases: child-directed interaction and parent-directed interaction. PCIT uses behavioral techniques and nondirective interaction skills in play situations to teach parents how to engage in a receptive relationship with their child and to encourage their child to behave in an appropriate manner (Eyberg, Boggs, & Algina, 1995).

Although PCIT has not been examined specifically as treatment for children with ADHD, research suggests that it may be an effective program because of its success in decreasing ADHD-related behaviors in young children with conduct problems (Eyberg et al., 2001). Further research is also needed to determine whether PCIT is effective for older children and adolescents with ADHD.

Parental psychopathology is one variable that may decrease the likelihood that parents implement the procedures learned in parent training and, as a result, compromise the benefits (Sonuga-Barke, Daley, & Thompson, 2002). Because parents of youth with ADHD are at increased risk for meeting diagnostic criteria for ADHD and depression, clinical attention is warranted when recommending parent training. Improvements in parenting have been reported when treating a parent with ADHD with a stimulant medication (Evans, Vallano, & Pelham, 1994) and depressed parents with cognitive-behavioral treatment (Chronis, Gamble, Roberts, & Pelham, 2006). Some kind of adjunctive treatment for a parent may be necessary prior to or in conjunction with parent training, if training is to be effective with parents who have psychopathology.

Modifications to parent training have been made for parents and families of adolescents with ADHD. These revisions have involved an increased emphasis on family therapy instead of group training meetings. Interventions within this approach emphasize many aspects of traditional parent training, but also include content that focuses on communication and problem-solving skills. Parents and adolescents are taught to negotiate agreements and to use behavioral contracts instead of relying on token systems and behavior charts that are common for young children. Initial research on these family interventions indicates potential for meaningful benefit for many families; however, these techniques are not likely to be adequate as the only intervention for many adolescents and their parents (Barkley, Edwards, Laneri, Fletcher, & Metevia, 2001).

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**HOMEWORK MANAGEMENT PLAN**

Some parent training interventions focus on a specific set of problems, such as managing homework completion. This is a particularly important problem area, as problems related to the completion of homework are a primary contributor to the aca-
ademic underachievement often associated with children with ADHD. In fact, problems with homework completion are a constant source of tension in many families of children with ADHD. Homework problems may be the result of a variety of issues, including failure to write down homework assignments, failure to take assignments home, distractibility when trying to complete assignments, carelessness when completing assignments, failure to turn in assignments, and opposition and defiance toward parents.

Because homework-related problems are so prevalent and detrimental for children with ADHD, treatments that include comprehensive homework management plans are necessary for many youth to ensure academic success. Unfortunately, very little treatment development and evaluation work has been completed in this area. In 2001, Power, Karutis, and Habboushe developed the Homework Success Program to involve children in the planning and implementation of an intervention designed to target behaviors related to ADHD. This program focuses on the parents helping the child establish a routine, while providing behavioral contingencies in a consistent manner. Other key components of this intervention include time management, goal setting, and learning to anticipate future problems that may arise.

When children enter adolescence and secondary schools, homework problems become increasingly complicated. Parents’ communication with teachers is typically less than it was when the child was younger, the child’s ability to defy the parents increases with age, and the classroom curriculum can be challenging for many parents. As a result, Evans, White, Sibley, and Barlow (2007) developed a Homework Management Plan for secondary school youth that takes these complicating factors into account.

The intervention involves training parents to monitor and apply contingencies to the relatively few behaviors that they can still reliably monitor and enforce. Parents and children negotiate a specific amount of time allocated to schoolwork each evening, and this amount of time is renegotiated after each report card is issued. If the child states that he or she has no homework, the parent instructs the child to study, to find some schoolwork to complete, or to complete tasks provided by the parent (e.g., read and write a summary of a series of newspaper articles). The work provided by parents also helps encourage the child to find his or her own work to complete at another time. Pilot data indicate improvement for many of the youth participating in the study (Murphy, Brown, Boscarino, & Moore, 2004), although considerable work remains to be done in treatment development and evaluation for interventions targeting homework completion.

**Organization Interventions**

Problems with organization have been described in clinical literature (Zentall, Harper, & Stornmont-Spurgin, 1993) and lead to serious impairment for children and adolescents with ADHD. Problems with disorganization affect the child’s ability to track and manage belongings such as school supplies, clothes, toys, and other materials. In addition, youth with ADHD demonstrate disorganized thinking, which manifests as problems organizing time, thoughts, and responsibilities. As a result, disorganization is often reflected in written assignments, problem solving skills, social behavior, and study skills. As children mature, problems with organization lead to difficulty in independently managing a schedule (e.g., work hours), their finances, and other obligations.

Interventions targeting problems with organization have focused specifically on the organization of belongings (Abikoff & Gallagher, 2003; Pfiffner et al., 2007; White et al., 2006). Each of these three organization intervention studies used adult monitoring and behavioral interventions for adherence to the organization criteria. Abikoff and Gallagher (2003) and Pfiffner et al. (2007) focused on the organization of school materials with elementary school-age children. White et al. (2006) targeted school materials with middle school-age youth. Outcome measures included parent and teacher ratings for the studies focusing on young children and observation measures of adherence to organization criteria in the study of middle school youth. All three sets of authors reported gains in organization of school materials, and the Pfiffner et al. (2007) and White et al. (2006) studies reported maintenance of these gains over time.

Considerably more treatment development work is needed that targets impairment related to disorganization. Poorly organized school materials are likely to be associated with poor grades, and disorganization may contribute to many other areas of impairment. As disorganization is a critical problem for youth with ADHD, with manifestations in many areas of impairment, interventions targeting these problems should be a central part of treatment plans for many children and adolescents with ADHD.

**Social Intervention**

The social impairment of children with ADHD is a serious concern, as peer rejection and aggression toward peers are predictive of
a range of very serious adjustment problems over time, such as adolescent alcohol and tobacco use (Greene et al., 1999), as well as school dropout, juvenile and adult crime, and adult psychopathology (Parker & Asher, 1987). Because ADHD alone is predictive of many of these same negative outcomes (Klein & Mannuzza, 1991), children with ADHD and social impairment have a particularly poor prognosis (Greene et al., 1996). Given the severity of the problems, significant efforts have been directed toward developing and testing treatment programs specifically designed to target social impairments; however, the initial results have been disappointing. In short, most social skills training (SST) programs have failed to demonstrate efficacy in improving the social problems of children with ADHD (Hoza, 2007; Hoza et al., 2005).

It can be argued that the poor efficacy of SST for children with ADHD stems from children’s inability to generalize the skills learned in treatment (often clinic based) to the settings in which they have the most difficulties with peer problems (e.g., classroom, playground). Results from one study provide modest support for this notion: In a wait-list control study, Pfiffner and McBurnett (1997) compared the efficacy of traditional SST with SST that included a parent-mediated generalization component. Contrary to most findings in the literature, results indicated that both SST groups, compared with a wait-list control, resulted in improvements in parent-rated social skills and behavior problems that persisted at 4-month follow up. Teacher ratings suggested that the SST with the generalization component resulted in greater improvement in classroom social skills than did the SST alone. However, the two treatment groups were not equivalent at baseline, and those in the SST group without parent intervention were actually rated more highly by teachers at posttreatment than were the participants in the SST group with parent intervention. Finally, there were only 9 individuals in each of the three groups (SST, SST with parent-mediated generalization, and the wait-list control); thus, caution is warranted when interpreting these findings. Nevertheless, the findings by Pfiffner and McBurnett (1997) suggest a need for additional study in this area.

However, the majority of the literature to date suggests that SST is minimally effective for the treatment of social impairment in youth with ADHD. It may be that the treatments developed to improve social functioning are targeting skills that are not causally related to social functioning. Recent studies have investigated the specific behaviors and cognitive processes that may account for the social impairment associated with youth with ADHD, and this line of investigation may lead to the development of new treatments (Mrug, Hoza, Pelham, Gnagy, & Greiner, 2007).

**SAFETY AND SIDE EFFECTS**

The safety of psychosocial treatments for children with ADHD has received very little attention, especially compared with the focus on side effects associated with medication treatments. Reviews of treatments for children with ADHD have noted the lack of attention on the safety of psychosocial treatment (Smith, Waschbusch, Willoughby, & Evans, 2000), especially in light of the fact that reports of detrimental effects have been available for many decades (McCord, 1978). Given the limited literature in this area, the review below highlights potential side effects described in the literature, as well as side effects identified through our experience.

Dishion, McCord, and Poulin (1999) reported that “deviancy training” may be a problematic side effect of providing group treatment to delinquent youth. The investigators reported that deviant youth train and encourage deviancy among their peers when they are in a group and cautioned against this method of treatment. Since the initial report, data suggest that this may only occur in certain situations (Mager, Milich, Harris, & Howard, 2005), and others have argued that there is little support for iatrogenic effects of deviancy training (Weiss et al., 2005). Further clarification is needed to understand the problems that may be associated with this side effect, and clinicians are encouraged to be aware of the emerging literature in this area to inform their treatment practices.

In our experience, one of the most frequent causes of undesirable treatment effects is poorly implemented practices. We hear parents and professionals make statements such as, “I have tried all of those behavioral interventions, and none of them work.” Frequently, it is discovered that these individuals have tried interventions but have implemented them inconsistently and over a very short period of time. People frequently give up on interventions quickly if the response is not perfect and complete improvement. Patience and persistence are frequently required for psychosocial interventions to be successful. When they are implemented poorly or briefly, the conclusion that the interventions do not work can serve as an obstacle to obtaining appropriate treatment. The conclusion that “nothing works” may also serve a protective purpose, as it relieves the clinician from continuing to try to help the child or adolescent with ADHD.
Other common examples of poor implementation we have experienced include minimalist attempts to use these techniques. When consulting with parents and professionals, we frequently discover that monitoring is less than adequate, contingencies are inconsistently implemented, and rewards and consequences are not considered important. Evidence-based psychosocial treatments for youth with ADHD are frequently oversimplified, and as a result are either ineffective or possibly counterproductive and may lead to not pursuing effective care. Classifying these outcomes as side effects of psychosocial treatment is debatable, as almost any potent treatment provided in an inappropriate manner may cause harm. Nevertheless, the availability of these interventions and their frequent misuse prompted us to include this discussion. There is little accountability for adherence and competence when providing evidence-based practices in the health care and education systems, suggesting that these problems are likely to continue to be widespread.

One side effect that is often a concern of many professionals and parents is providing interventions that lead to child reliance on rewards and consequences. This concern is amplified when the contingencies rely heavily on tangible rewards and consequences, such as candy or stickers. Although this is a common concern, it is an area that has not received the research attention necessary to inform treatment planning. According to our experience, when proper shaping and tapering procedures are used, there is little risk of this potential side effect; however, this remains an issue that needs investigation.

Another side effect we have observed involves the choice of privileges made contingent on behavioral improvement. We have worked with many parents of young adolescents who are frustrated that they cannot find anything important enough to modify their child’s behavior. For example, parents frustrated by their 13-year-old son’s poor performance in school may threaten to pull their son off the basketball team if he does not complete his homework. Once he is pulled off the team, he quits caring about basketball, and even when allowed to return to the team, he declines. For many youth, the cumulative effect of losing benefits and failing goals may be to quit caring. This can lead to a situation where the child is performing just as poorly as he or she ever was and no longer has the enjoyment or success of any activities. We have found that balancing rewards and consequences can reduce the likelihood of this situation; however, there is no research on the appropriate balance of rewards and consequences with young adolescents or the use of certain activities as outcomes. The cumulative effect of stripping children of the activities that shape their identity or self-worth because of failed outcomes could be a very undesirable and damaging side effect of psychosocial treatment.

KEY POINTS

1. One of the challenges of using behavioral techniques involves identifying rewards and consequences that are salient enough to result in behavioral change while safely avoiding behavioral side effects.
2. Examples of behavioral interventions include daily behavior report cards, parent training, homework management plans, organization interventions, and social interventions; however, side effects do exist for such psychosocial treatments, and safety must be considered.
3. People frequently give up on interventions quickly if the response is not perfect and complete improvement, yet patience and persistence are frequently required for psychosocial interventions to be successful.

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PRACTICAL ISSUES AND CONCLUSION

Providing effective psychosocial treatment requires expertise and time. It is unlikely that primary care providers will have the time in their interactions with patients to provide these treatments appropriately; however, they may have the opportunity to help parents become wise consumers of psychosocial treatment and to work in collaboration with those who provide this care. Referring patients to professionals in clinics or schools who provide effective evidence-based psychosocial treatment can be a tremendous service to patients. Collaboration with these providers may also enhance the treatment provided by the primary care provider. Timing changes in medication so that they do not occur simultaneously with changes in psychosocial treatment will help isolate the effects of medication and psychosocial treatment so appropriate modifications to dosage can take place.

In addition, some psychosocial techniques, such as the DBRCs, can be used to carefully assess the effects of medication (Evans & Youngstrom, 2006). Children with moderate to severe impairment are unlikely to show an adequate
response to any one of these interventions when provided individually. Prioritizing and sequencing the medication and psychosocial treatment is a clinical challenge and one for which little data exist. As a result, coordinating care across modalities remains an ideal in both the health and education fields so that decisions regarding dosage and sequencing of treatments can be made as a team that includes the parents.

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