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Cognitive-Behavioral Therapy for ADHD in Adolescents: Clinical Considerations and a Case Series

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Abstract

Although ADHD in adolescents is an impairing and prevalent condition, with community prevalence estimates between 2% and 6%, psychosocial treatments for adolescents compared to younger children are relatively understudied. Our group has successfully developed an evidence base for cognitive-behavioral therapy (CBT) for ADHD in medication-treated adults with ADHD with clinically significant symptoms. In the current paper, we describe an adaptation of this treatment to adolescents, and provide case reports on 3 adolescents who participated in an open pilot trial. The results suggest that the treatment approach was well tolerated by the adolescents and that they experienced clinical benefit. This early report of the approach in adolescents is promising and requires further efficacy testing.

Keywords

cognitive-behavioral therapy; CBT; ADHD; adolescents

ADHD in adolescents is a prevalent and impairing condition. The majority of childhood cases continue to meet criteria in adolescence, contrary to the popular belief that children would grow out of the disorder (see Wolraich et al., 2005). Between 50% and 80% of children diagnosed with ADHD will continue to meet criteria as adolescents (Barkley, Fischer, Edelbrock, & Smallish, 1990; Gittelman, Mannuzza, Shenker, Bonagura, 1985; Barkley, Anastopoulos, Guevremont, & Fletcher, 1991), resulting in 2% and 6% of adolescents having this disorder (Fergusson, Horwood, & Lynskey, 1993; Murphy & Barkley, 1996; Verhulst, van der Ende, Ferdinand, & Kasius, 1997). A community study by Cuffe et al. (2001) found that more than 80% of their sample of seventh, eighth, and ninth graders not only continued to meet criteria for ADHD as they entered their late teens/early twenties, but they also showed significant impairment in their functioning. Typical impairments include academic difficulties, risk for repeating grades, being suspended from school, and dropping out of school (Barkley et al., 1991; Barkley et al., 1990; Fischer, Barkley, Edelbrock & Smallish, 1990). Additionally, adolescents with ADHD are at higher risk for tobacco, alcohol, and substance use and are more likely to engage in high-risk behaviors such as antisocial activities and riskier sexual behaviors (Barkley, Fischer,

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Smallish, & Fletcher, 2004; Tercyak, Peshkin, Walker, & Stein, 2002). Accordingly, adolescence is a time in development when psychosocial intervention may be particularly important because children transition from close supervision with one teacher at school to increased independence, less adult supervision, and less structure.

Although medications have been widely used as an effective treatment for many years in children, adolescents, and adults, psychopharmacotherapy is inadequate as a sole intervention for ADHD. Wilens et al. (2006), for example, in a study of 220 adolescents between the ages of 13 and 18, reported that 52% of participants who received OROS (an osmotic technology system for controlled drug delivery) methylphenidate for adolescent ADHD were rated as “much improved” or “very much improved.” Although this is a promising outcome, this means that 48% were only minimally improved, the same, or worse. Further, average ratings on the ADHD symptom scale (ADHD RS) revealed that, generally, participants in the treatment group, including responders (those who were “much improved” or “very much improved”), still had significant residual symptoms postmedication treatment. Despite medication treatment, most adolescents continue to have residual symptoms, thus necessitating the need for evidence-based psychological treatments, in addition to medications, in order to provide comprehensive treatment (Chronis, Jones, & Raggi, 2006).

Some promising work exists using psychosocial treatments for adolescents with ADHD. Evans et al. (2005) developed a school-based treatment program for middle school youth with ADHD. Evans, Axelrod, and Langberg (2004) completed a pilot test of this treatment program with 7 students diagnosed with ADHD. They found large effect sizes on inattention and school functioning and moderate effect sizes on grades, family functioning, and peer relations. Evans, Schultz, DeMars, and Davis (2011) conducted a study of their Challenging Horizons Program (CHP), an after-school program for young adolescents with ADHD. They randomly assigned 49 middle school students to receive either community care or the CHP. In this study, the students who received the CHP improved more on measures of symptoms and impairment than did the students in the community care condition. Barkley et al. (2001) compared Problem-Solving Communication Training (PSCT) alone with Behavior Management Training plus PSCT in a sample of 97 families who had a teenager with ADHD and oppositional-defiant disorder (ODD). In this study, participants in both conditions produced improvements in parent-teen conflicts, but did not differ from one another. However, significantly more families dropped out of the PSCT than the combined treatment. Taken together, these findings suggest that psychosocial treatments can help with inattention, school functioning, and family functioning.

In a recent review by Evans, Owens, and Bunford (2013), the authors divide psychosocial treatments into “behavioral treatments” in which contingencies are manipulated by others (e.g., parents and teachers) and “training interventions” in which skills are taught to the clients themselves. The authors note that organizational skills training meets criteria for being a well-established treatment, yet there is only one study of this treatment in adolescents (Langberg et al., 2012). The authors suggest that training interventions may be the preferred mode of treatment for adolescents, as adolescents frequently have more than

one teacher, parents monitor adolescents less closely, and it is sometimes difficult to come up with salient rewards for contingency management types of strategies for adolescents.

Our group has completed two successful trials of psychosocial treatments for adults with ADHD who were treated with psychopharmacotherapy. In the first trial, we compared cognitive-behavioral therapy (CBT) to maintenance pharmacotherapy only in 31 adult patients who continued to have significant ADHD symptoms despite stable medication treatment (Safren, Otto, Sprich, Perlman, Wilens and Biederman, 2005). At the outcome assessment, those who were randomized to CBT had lower independent assessor rated ADHD symptoms and global severity. The effect sizes for between-group change scores were 1.2 for ADHD symptoms and 1.4 for global severity, both exceeding the “large” designation by Cohen (1992). In our second study of ADHD, we conducted a randomized controlled trial comparing CBT to time--matched relaxation with educational support (RES) in 86 adult patients with continued clinically significant ADHD symptoms despite stable medication treatment (Safren et al., 2010). We also found that participants who received CBT achieved lower posttreatment scores for both the independent assessor rated global severity and ADHD symptom ratings than patients who received RES (Safren et al., 2010).

An open study of CBT with adolescents based on our work with adults was conducted by Antshel, Faraone, and Gordon (2012). These authors studied 68 adolescents with ADHD using an adapted version of the protocol described in our first psychosocial trial (Safren, Otto, Sprich, Perlman, Wilens and Biederman, 2005). They included core modules on psychoeducation and organizing/planning, distractibility, and cognitive restructuring, as well as optional modules on reducing procrastination, improving communication skills, and improving anger/frustration management. They did include parents in all of the sessions except for the sessions on cognitive restructuring, communication, and improving anger/frustration management. Antshel et al. (2012) found that a number of variables were improved at posttreatment, including adolescent self-report of self-esteem and parent and teacher ratings of inattentive symptoms. Additionally, they found that lower doses of medication were needed to maintain the adolescents’ functional improvements over the course of CBT. The authors note that parental participation in the majority of treatment sessions is something that should be considered in future research. They point out that this may have helped with generalization, but may have detracted from the therapeutic alliance between the adolescent and the therapist.

Our CBT model of adult ADHD posits that many of the consequences of neurobiological symptoms of ADHD are maintained or exacerbated by a lack of adequate psychosocial coping skills (Safren, Sprich, Chulvick, & Otto, 2004). By providing compensatory executive functioning training to adolescents, the treatment is designed to prevent the emergence of some of the impairments that can arise as a result of undertreated ADHD. Doing this at the time of adolescence can assist teenagers with the transition to greater independence as adults, when they will not have as much supervision from parents. Accordingly, in the approach, we balance the importance of involving parents with an understanding that, developmentally, adolescence is a time of greater independence. Hence, our intervention sought to help adolescents rely less on their parents and more on their own use of cognitive and behavioral skills (see Chronis et al., 2006). As such, in the current

study, parental participation was limited to two full sessions where the focus was on goal setting and improving parent-adolescent communication and briefly at the end of the other treatment sessions to give parents an opportunity to ask questions and assist with generalization of skills.

Description of CBT for ADHD in Adolescents

The treatment consists of 12 sessions of individual therapy, lasting approximately 50 minutes each. Missed sessions are rescheduled and made up in order to maximize the likelihood of each participant receiving all 12 sessions over a 20-week period of time. The intervention was informed by our CBT intervention work with adults and adolescents with ADHD over the past 12 years as detailed in our published therapist guide, patient manual, and clinical description article (Safren, Otto, Sprich, Perlman, Wilens and Biederman, 2005; Safren, Perlman, Sprich, & Otto, 2005; Safren, Sprich, et al., 2005; Sprich et al., 2010). Modules to foster behavioral change include providing psychoeducation, maximizing motivation with motivational interviewing (Miller & Rollnick, 2012), and CBT skills training components. These modules draw from both traditional cognitive-behavioral approaches as well as approaches used to foster behavioral change in substance abuse; in addition, the modules utilize interventions that target health behavior change where motivations may vary (e.g., Fisher, Fisher, Williams, & Malloy, 1994; Safren, Otto, & Worth, 1999). For example, we typically complete an exercise drawn from the motivational interviewing literature in which we ask the patient to articulate pros and cons for changing in the short term and the long term (Miller & Rollnick, 2012). In this exercise, the individual comes up with reasons why he or she would like to change in the long term and reasons why change is difficult in the short term. The therapist can then validate the difficulties involved in changing behavior but also remind the individual of his or her reasons why change would be desirable in the long term.

The adult treatment includes 12 sessions that are divided into three core modules (organization/planning, distractibility, and cognitive restructuring), two optional modules (procrastination and involvement of a spouse/partner), and a 1-session relapse prevention module. We retained the structure and content of the adult protocol, but we adapted it for adolescents based on the clinical experience of the team and a review of the literature.

Specifically, for adolescent clients, we adapted the adult treatment protocol to include parents in several full treatment sessions and at the end of each session. This expands upon the single session that exists in the adult treatment for involvement of partners or spouses. However, for adolescents, by design, we involve parents to a greater extent so that they can be aware and supportive of the skills that the adolescents were learning. Parents of adolescents with ADHD, and the adolescent, often have difficulties with communication (Robin, 1998), and the proposed structure can assist in instrumental support of the treatment.

We aim to conduct the first parent/child session early in the treatment (Session 2 or 3 if possible) and the second parent/child session towards the end of treatment (Session 7, 8, or 9). Owing to family logistical constraints, we realize that flexibility in scheduling is required for the sessions involving the parents. We also invite parents into each session for several

minutes so that the adolescent can review the skills that were covered in session, as well as let the parents know what he or she will be working on for CBT homework for the next session. This allows the parent insight into the therapy goals and also provides an opportunity for the therapist to check that the adolescent understands the day's skills and homework and provide corrective feedback if necessary.

Other modifications in adapting the adult treatment protocol to adolescents included changing the examples used in the protocol to be more relevant to adolescents. For example, instead of using an example about prioritizing work tasks, an example about prioritizing school homework assignments is used. Based on the clinical experience of the team, the number of sessions devoted to adaptive thinking was reduced from three to two and a coaching metaphor (Otto, 2000) was used instead of the more formal "thought record." Finally, the protocol was changed to reflect the option of using technology (cell phones, laptops) to keep track of tasks and meetings/appointments.

Like the adult protocol, each intervention session builds on previous material. The beginning of each session also contains a review of all previous material, a review of homework with additional review and problem-solving regarding any material that was not completed or helpful. Similarly, we review adherence to psychopharmacotherapy treatment and offer assistance with reducing barriers to consistent medication use.

Psychoeducation and Organization/Planning (4 Sessions)

Organizing and planning skills are first introduced in this module, but are emphasized throughout the treatment in every session. Throughout the treatment, skills and material learned are cumulative, and the therapists continue to review all previous material in each session.

The first module of treatment is tailored to introduce adolescents to a CBT model of treatment, promote credibility of the approach and motivation, and provide psychoeducation about ADHD as well as training in organization and planning. This process involves helping the adolescent set up an organizational system for keeping track of appointments, assignments, and tests as well as a task list. This can involve using a paper system or a smart phone to set up a system that is effective for each individual. We note that many of these strategies have been used in other cognitive and behavioral approaches (e.g., utilizing a task list); however, the fact that individuals are accountable to the therapist and will return for 12 therapy sessions increases the chances that they will engage in the behaviors long enough that they will become personal habits.

The first problem-solving skill involves instructing the participant to break seemingly overwhelming tasks into manageable steps, with the goal of reducing cognitive avoidance. To help prioritize multiple tasks or schoolwork assignments, adolescents are taught to rate a list of tasks as either "A," "B," or "C" with respect to importance.

A second problem-solving skill involves learning to list the different alternative solutions to a problem and choose the best possible solution. This skill can assist with both

procrastination as well as impulsivity. Overrehearsal of this skill is fostered by daily home-practice assignments.

This module strongly emphasizes skills for organizing both tasks and one's environment. For adolescents, this includes his or her backpack, locker at school, and his or her room (i.e., having a clear workspace for schoolwork). We consider the organization and planning module to be foundational for the modules to come. Hence, we implement this module first so that therapists monitor progress and make any necessary changes at subsequent sessions. In addition, therapists enlist the help of parents, functioning as “treatment extenders” in generalizing the skills to the home environment. For example, in order to facilitate more effective communication between parents and adolescents about topics such as household chores, we often encouraged use of a white board for tracking, including the date they are expected to be completed, and consequences if the tasks are not completed by that date. This intervention reduces parental “nagging” for increasing responsibilities. By including parents and adolescents in the planning process, the therapist is able to troubleshoot any concerns, including financial constraints. If items such as smart phones or white boards are too costly for the family, the therapist suggests lower cost alternatives.

Distractibility (2 Sessions)

The distractibility module incorporates skills learned in the first module on organizing and planning and builds on these skills. In our experience, adolescents with ADHD typically report that they do not complete tasks such as homework, assignments or chores because other, less important, but more appealing, tasks or distractions get in the way. Selected techniques in this module involve determining a baseline length of time that the adolescent can hold his or her attention on any one specific activity. Once this has been accomplished, problem-solving skills learned in the previous module are employed to break the tasks into units that take this amount of time. If they become distracted during the time when working, participants are taught a “distractibility delay” technique that involves writing down the distraction so that they can deal with it when the time period is over. Similar procedures are commonly used in anxiety management and worry control procedures (see Zinbarg, Craske, & Barlow, 1993).

In this module, adolescents are also taught cue-control procedures: participants are instructed to set alarms on cell phones, watches, or other devices to go off every 30 minutes. Whenever the alarm sounds, participants are instructed to ask themselves whether they have been distracted from the main task at hand, and, if so, to return to that task. Finally, this module teaches techniques for scheduling brief breaks and reducing external environmental distractions (e.g., internet, telephone).

Adaptive Thinking (2 Sessions)

In the third module of treatment, cognitive restructuring skills are implemented in order to maximize adaptive thinking during times of stress and to apply adaptive thinking skills to difficulties associated with ADHD. Although this module is based on the work of Aaron Beck (for a full description of this approach, see Beck, 2011), for this treatment, we use a coaching metaphor to describe the cognitive restructuring approach, rather than trying to

teach adolescents to use complete thought records (Otto, 2000). Accordingly, adolescents are instructed to observe and modify their own internal “coaching style” and learn the most effective ways to coach or encourage themselves for areas that need improvement. The idea is to avoid, as detailed by McDermott (2000), downward spirals of intensifying emotions and cognitive avoidance of circumstances (i.e., homework) that are perceived as overwhelming. This is intended as a skills training module that will allow the adolescents to generalize these skills to situations outside of sessions.

The cognitive restructuring skills also build on previous modules—particularly organizing and planning. If negative thinking/self-statements get in the way of completing tasks, or carrying out goals, these skills are used in conjunction with the problem solving and related material to help participants with task completion.

Procrastination (1 session)—This session is focused on procrastination, utilizing several of the skills from previous modules. For the adolescent population, targets include tasks such as homework, college applications (if appropriate), and organizing one's room. The skills include cognitive restructuring regarding perfectionism, breaking a task into manageable steps, and learning to set realistic goals for completing tasks. These techniques are an adaptation of the classic cognitive techniques described above, as well as techniques from problem-solving therapy (e.g., D'Zurilla & Nezu, 1999). Generally this session is a review of previous skills, but with the focus on procrastination as a target.

Parent Involvement (2 Sessions)

The parents participate fully in two sessions of the treatment along with the adolescent. Parents are also brought in at the end of the other sessions to briefly discuss the content of the sessions as well as home practice assignments. The parent sessions consist of psychoeducation about ADHD as well as the content of the treatment. Although one emphasis of the treatment is to help adolescents transition to self-regulation and prepare for future independence, the parent sessions are used to extend the treatment outside of the sessions during the active treatment phase and after completion of the formal treatment. In particular, parents learn the organization system that the adolescent participant is using, and can help support the patient with this. The goal is to differentiate “positive” support from “negative” support (i.e., nagging) and agree on goals and ways to facilitate achievement of these goals with help.

The parent sessions involve an assessment of parenting style and discussion of contingency management systems to assist with skills practice. The sessions also involve a general discussion of how the parents and the adolescent can work together in implementing the systems discussed in the treatment. Parents are provided with handouts to assist with generalization of skills to the home setting. We have found that this can significantly augment the intervention by facilitating completion of the homework exercises and reducing tension within the family.

Parents are also provided with suggestions regarding how to interact with their child's school and how to advocate for their child with ADHD. This might include requesting a CORE evaluation (a comprehensive evaluation that is conducted either by the school or an

independent practitioner to assess the educational needs of a particular student), advocating for the child to be placed on a 504 plan (a legal document in which the school describes how it will meet the needs of a particular student), or an IEP (an Individualized Education Plan; a plan that is developed by a team consisting of parents and school personnel that outlines goals for the school year as well as any special supports that are needed to help achieve these goals). Examples of supports or accommodations that might be included in these plans are as follows: the student receives duplicate sets of books for home and school; teachers send frequent progress reports to parents; assignments are e-mailed to parents or placed on a website; or the adolescent receives extended time on assignments or tests. These accommodations should be used judiciously, however, given recent evidence that they may not be effective in the long term (please see comments in Discussion section of this issue).

The first parent session takes place early on in treatment (Session 2, if possible). The other session takes place following the adaptive thinking module. The scheduling of the parent sessions is flexible to account for complicated family and work schedules.

Relapse Prevention (1 Session)

The final module is on relapse prevention. Although review of previously learned skills takes place in each and every session, in this session, the adolescent is asked to review each of the skills that were covered and rate the usefulness of each skill. Then, they are provided with a troubleshooting form that matches potential difficulties that may arise with skills that can be implemented to target those difficulties. Finally, they are asked to think about how they will continue to apply the techniques that they have learned and schedule a 2-week self-check-in to assess ongoing use of skills.

Case Series

Participant Recruitment

Individuals eligible for the case series were adolescents aged 13 to 17 who met full criteria for ADHD as their principal diagnosis, and had been on stable medication for ADHD for at least 2 months. Clients were excluded if they had current major depression or panic disorder of at least moderate severity, bipolar or psychotic disorders, or developmental disabilities that might interfere with the patient's ability to assent to or participate in treatment. Three adolescent participants who assented to treatment and whose parents signed consent forms participated openly. These were the first three adolescents who presented for treatment based on study advertisements/recruitment procedures. One additional adolescent presented for treatment, but then decided not to participate because of scheduling difficulties. We treated these adolescents to pilot our approach in preparation for a randomized trial.

Therapists and setting

The therapists were doctoral-level clinical psychologists with experience in conducting CBT for ADHD. Therapists met weekly for supervision with the study PI (Safren). Additionally, audio recordings were made of all therapy visits. All visits were conducted in an outpatient clinic.

Assessments

Baseline Diagnostic Evaluation—The baseline evaluation was conducted with the participating parent and adolescent together and included the Structured Clinical Interview for DSM-IV (SCID-IV; First, Spitzer, Gibbon, & Williams, 1995), supplemented by sections of the Kiddie Schedule for Affective disorder and Schizophrenia-Epidemiologic Version (Kiddie-SADS-E; Orvaschel, 1985) to assess ADHD. For ADHD symptoms, Kiddie SADS-E questions were worded in the past tense, and participants and participating parents were also asked if similar problems were currently present. The following criteria are needed to obtain a definite diagnosis of ADHD: (a) meeting full DSM-IV criteria by the age of 7 and at the present time, (b) the subject and parent must describe a chronic course of ADHD symptoms from childhood until the time of assessment, and (c) the subject and parent must endorse a moderate or severe level of impairment attributable to the ADHD symptoms. During the baseline evaluation, participants were given the self-report measures to complete and return to the clinic during their independent assessment.

Independent Assessments—Independent assessments were conducted at baseline and at posttreatment with the adolescent subject and the participating parent. The independent assessor was a doctoral-level psychologist with considerable experience and specific training in assessing ADHD. The assessments of ADHD symptoms after the initial evaluation were conducted by an independent assessor who was not the study therapist. Although this was an open trial, the independent assessor was also working on an adult study that compared CBT to Applied Relaxation. The independent assessor was not informed that this was an open study where all subjects received treatment, only that he would be asked to do the same assessment battery with adolescent subjects as he was doing with adult subjects in an ongoing randomized controlled trial. Self-report measures were also administered at baseline and post-treatment.

ADHD severity ratings: First, the independent assessor administered the ADHD rating scale to each participant along with one or both parents (DuPaul, Power, Anastopoulos, & Reid, 1998). This scale, updated for DSM-IV, assesses each of the 18 individual symptoms of ADHD using an identical 4-point severity grid (0 = *not present*; 3 = *severe*; minimum total score = 0, maximum total score = 54). This scale has been shown to be correlated with a diagnosis of ADHD in adults, and has been shown to be sensitive to medication effects in pediatric and adult samples (Buitelaar et al., 2007; Levin et al., 2006).

Associated anxiety and depression: The independent assessor administered the Hamilton Depression Scale (HAM-D; Hamilton, 1959a) and the Hamilton Anxiety Scale (HAM-A.; Hamilton, 1959b). These scales are widely used in psychiatric research and have historically strong psychometric reliability and validity.

Global severity and impairment: The independent assessor rated Clinical Global Impression (CGI; NIMH, 1985) for severity (1 = *not ill*, to 7 = *extremely ill*) and, at posttreatment, improvement (1 = *very much improved*, to 7 = *very much worse*). Finally, the independent assessor rated patients on the Global Assessment of Functioning (GAF; APA, 1994).

Demographics (collected only at baseline): This self-report questionnaire included age, sex, sexual orientation, race, ethnicity, and educational, relationship, religious, and employment status.

Self-reported ADHD severity: Participants rated level of severity on each of the 18 symptoms of ADHD using the Current Symptoms Scale (Barkley & Murphy, 1998). Participants completed the Current Behavior Scale, which assesses difficulties that are associated with ADHD, including core symptoms, and difficulties with executive function (Barkley & Murphy, 2006). This scale contains 99 items on which participants rate their behavior (0 = *never or rarely*, 3 = *very often*), currently being evaluated for psychometric validity by R. Barkley (NIMH: ADHD in Adults, Comorbidities and Adaptive Impairments).

Description of Cases and Outcomes

To demonstrate some of the mechanics of the treatment, what follows is a brief description of three adolescents who participated in an open pilot of this intervention. Identifying information has been omitted or changed in order to protect the confidentiality of the subjects. We provide a description of each participant's course of treatment, along with some of the unique issues and challenges that presented with each specific case.

Case 1: Jane—Case 1, who we will refer to as “Jane,” was in the tenth grade at a high school in Central Massachusetts and lived with her parents. At baseline, she met criteria for ADHD (CGI = 4 “markedly ill”), social anxiety disorder (CGI = 3 “mildly ill”), generalized anxiety disorder (CGI = 3 “mildly ill”) and agoraphobia without panic disorder (CGI = 3 “mildly ill”) on the structured diagnostic interview completed by her and her father. She and her father reported that she had had social difficulties and moderate difficulties with family due to her ADHD symptoms. They noted that she was a B/C student, but occasionally received very low grades on quizzes or tests. She was prescribed stimulant medication by her primary care physician.

Jane and her parents reported feeling that she was not working up to her full potential at school. Additionally, her ADHD symptoms, as well as her anxiety, hindered her social relationships. She reported having a few close friends and not being involved in many social activities. Jane's father noted that Jane and her parents frequently argued about homework and chores, and that this put a strain on family relationships. Jane reported that she often had difficulties keeping track of her homework assignments. At the time of the first meeting, she did not have a sufficient organizational system for her tasks or papers. In the first module of treatment she decided to begin using a paper planner to keep track of tasks and appointments. She found this strategy helpful and bought various colored pens in order to implement a color-coding system to prioritize her tasks. She appeared to take a lot of pride in her system and both she and her family reported that they were pleased that she was able to execute this new system successfully. Together, the therapist and Jane also generated feasible strategies for continuing this organization into other areas, such as her backpack and bedroom.

During the module devoted to reducing distractibility, Jane realized that she often overestimated the amount of time that she would be able to sit and work on a task without

getting distracted. Once she made this realization and implemented a strategy discussed in session, breaking her tasks down into smaller 20-minute chunks, she was able to complete much more of her homework. Through the “adaptive thinking” module, Jane recognized that she often predicted negative outcomes when she worked on large projects. Jane noted that, as a result of this, she felt little motivation to work on the projects. This created a self-fulfilling prophecy in which she did not work on the projects until the last minute and subsequently received a poor grade. Once she and her therapist recognized this, Jane was able to coach herself differently and start projects earlier. Jane reported that she was also able to use the adaptive thinking strategies to target some of her negative thinking regarding her anxiety, which she found helpful.

For Jane, the family sessions were most helpful in allowing Jane and her parents to calmly discuss the strategies that she was using to stay organized and complete her tasks. Although she was not always using the strategies perfectly, her parents were able to see the level of effort it would require for her, and they became more supportive of her efforts. They reported that there were fewer arguments in the family during the later portion of the therapy.

At the posttreatment assessment, Jane's ADHD CGI score went from a 4 (*markedly ill*) to a 2 (*borderline ill*), and her score on the ADHD symptom checklist went from a 21 to a 3 (see Table 1). This represents an 86% reduction in symptoms from pre- to posttreatment, which would be considered “clinically significant” using the convention that a reduction of 30% or greater is considered clinically significant (Steele, Jensen, & Quinn, 2006).

Case 2: Tyler—Case 2, “Tyler,” was in the ninth grade during his participation in the study. Tyler lived with his parents and siblings. At baseline, he met criteria for ADHD, inattentive subtype, but neither he nor his mother endorsed any other Axis I disorders on the structured diagnostic interview. The clinician-rated CGI for ADHD at baseline was a 5, indicating that the participant was “markedly ill.” Tyler and his mother reported that he had a solid group of friends, was active in sports and other social activities, and had good family relationships. Both the participant and his mother reported that schoolwork was the area most impacted by ADHD. Specifically, he had poor grades and had particular difficulty with math. He qualified for special accommodations at school because of his ADHD symptoms. He was prescribed stimulant medication by a psychiatrist in his community. He had been on a stable dose of this medication for approximately 9 months prior to beginning the study, which continued throughout his participation in the study. He did not take his medications during a 4-week vacation that occurred towards the end of his participation in the study, but resumed taking his usual dose when his vacation was over.

During the organization and planning sessions, Tyler identified improving study habits as his primary therapy goal. He actively participated in these sessions, was able to come up with multiple examples, and demonstrated a thorough understanding of the rationale for each of the skills presented. For example, in session, he was able to draft an example task list and prioritize the items on that list. He also demonstrated proficiency in other tasks such as breaking tasks down into smaller parts so they were more manageable (i.e., term paper). He understood the rationale for organizing papers (i.e., papers from prior classes) and stated that

these skills were useful to him. One should note that, despite his active effort in session, he did not remember to bring in his task list and calendar until the sixth session. He reported that he had excellent compliance with skills on his homework sheet, but he was not bringing in requested items to therapy, and his mother reported having difficulty getting her son to show her his task list and calendar. It should be noted that Tyler's therapy sessions took place at the end of the school year when he did not have many homework assignments, which may have contributed to his reluctance to use his task list and calendar.

In the distractibility module, Tyler was able to generate ways to reduce distractions at home when he was studying (i.e., using earplugs, doing homework when his sister wasn't home). He also particularly related to the skills of taking brief but frequent "stretching" breaks while completing homework in order to reduce distractibility and maintain focused attention for brief periods of time. In the adaptive thinking module, Tyler had some difficulty coming up with examples of any negative mood states and, therefore, he had difficulty coming up with negative automatic thoughts. He reported not having any negative thoughts or mood states about ADHD, but was able to describe one episode of being "upset" with his younger sister when she "bugs [him]." He appeared to understand the concept of the model and was able to relate to the list of cognitive distortions, although, again, he was unable to come up with any situations in which he noticed these distortions. This may have been due, in part, to the fact that he reportedly did not have any comorbid anxiety or depression.

During the first family session, Tyler's mother attended and the therapist and the mother had a productive discussion about how his symptoms have affected his relationships with family. What was interesting about the second session, which both parents attended, was that the participant's father was able to discuss with his son his own symptoms of ADHD when he was growing up, and the difficulties he faced that he wanted his son to avoid. This discussion appeared to allow the family to bond further. In addition to discussing the ADHD skills he had been working on, the therapist and family also discussed strategies that might improve communication at home around ADHD symptoms.

At the posttreatment assessment, Tyler's ADHD CGI score decreased from a 5 (*markedly ill*) to a 3 (*mildly ill*), and his score on the ADHD symptom checklist decreased from a 15 to a 9 (see Table 1). This represents a 40% reduction in symptoms which would be considered a "clinically significant" reduction (Steele et al., 2006).

Case 3: Sally—Case 3, "Sally," was in the eighth grade at a middle school located in the Western suburbs of Boston during the time that she participated in the study. She lived with her parents and siblings. According to her and her mother when they completed the structured interview, at baseline, Sally met criteria for ADHD (CGI rating of 6 "severely ill") and social anxiety disorder (CGI rating of 3 "mildly ill"). Sally and her mother reported that she experienced significant school difficulties as the result of her ADHD symptoms. They reported that she was getting Ds and Fs in all of her major classes and would likely need to repeat the eighth grade and/or go to summer school if she was not able to make significant improvements in her school performance. She was on two different stimulant medications, prescribed by a neurologist, at baseline. She had been on these medications for several months prior to starting the study.

Initially, Sally did not appear interested in participating in the treatment. She had agreed to come because her parents were upset about her grades, but she reported that she did not think she was capable of learning new skills or achieving better grades. She was cooperative in session, and could generate examples of strategies that she might be able to try, in theory. However, she came unprepared to sessions, either forgetting to bring her task list or other homework assignment, or bringing in barely completed homework.

A turning point for this case came during the first parent session. When discussing factors that may have led to Sally's trouble with turning in her homework, Sally and her mother brought up the issue that Sally had multiple large textbooks that were quite heavy for her to carry around in her backpack. Sally and her mother explained that Sally would frequently take these books out of her backpack, put them in her locker, and subsequently forget to bring them home. Both Sally and her mother reported that this caused arguing and frustration between the two of them: that is, when Sally was planning on doing her homework, she was often unable to complete it because she did not have the necessary textbooks at home. The therapist, mother, and Sally practiced problem-solving in the family session and developed a plan for the mother to ask the school if it would be possible to provide Sally with two sets of textbooks, one to leave at school, and one to leave at home. Sally's mother did make this request and the school agreed to add this provision to Sally's existing 504 Plan. This minor logistical change seemed to be an impetus for change—Sally felt less frustrated, was more willing to use the CBT strategies taught in session, and able to do her homework for school.

Sally was able to identify strategies to help reduce her distractibility, including leaving her cell phone under her pillow and closing Facebook on her computer when she was doing homework. She was also able to identify ways in which she might be saying unhelpful coaching statements to herself during the adaptive thinking module (e.g., “I’m going to have to repeat the eighth grade no matter what, so why bother trying?”). Once she recognized these negative thoughts, she was able to increase her effort level. Although she did not raise her grades to As, she was able to raise her grades from Ds and Fs to Cs and Ds by the end of the school year and did not need to repeat the eighth grade. Both Sally and her parents reported feeling pleased with the outcome and hoped that Sally would be able to continue to apply her CBT skills in high school.

At the posttreatment assessment, Sally's ADHD CGI score decreased from a 6 (*severely ill*) to a 4 (*markedly ill*) and her score on the ADHD symptom checklist decreased from a 26 to an 18 (see Table 1). This represents a 31% reduction in symptoms, thus achieving “clinical significance” (Steele et al., 2006).

Discussion

This paper describes our adaptation of CBT for ADHD in adults to the adolescent population. Key changes included involving the parents, catering skills to homework from school, use of technology, and less emphasis on cognitive restructuring strategies. We also presented an example case series. Although these three adolescents in the case series found benefit from this approach, much more work needs to be done before definitive conclusions

about efficacy can be drawn. Some clinical considerations in modifying the approach to adolescents are summarized below.

In our adaptation we emphasized skill relevancy to the adolescents' lives. We found that this was best accomplished by forming a strong alliance with the adolescents. For example, initially using the task list to track social activities, and then moving to tracking homework and chores, was a way to foster motivation and target skills to activities most important to the client. Once the adolescents saw the utility of the skill set by remembering more "fun" activities, it was easier to transition to having them use skills for less fun, but required tasks.

Second, we found that it was important to work with adolescents independently, while also attending to the relationship between the parents and the adolescent. As stated above, this approach was based on our treatment model that was already used successfully with adults with ADHD, involving spouses or significant others. While we modified skills to apply to adolescents, we approached teaching skills with the idea that adolescents could take an active part in tailoring what worked or did not work for them. While they were still accountable to school and their parents, we found that adolescents were more cooperative and there was more room for compromise when adolescents felt they had some control over how the skills were used. Our approach still incorporated family and parent involvement, but it was the adolescent who was the chief collaborator with the therapist, thus allowing for increased independence and opportunities to build confidence by mastering skills. This was appropriate in a developmental context as adolescence is a time of increasing independence from parents (Erikson, 1968).

The open trial results should be considered as such, and therefore has a number of limitations. While these were the first three treatment completers before initiating a randomized trial, this case series has a small sample size and no control group. Clearly, the treatment needs to be tested with a larger sample size and a control group before definitive conclusions can be drawn. Further, there were aspects of our treatment that may not be feasible in all communities. For example, we had a considerable amount of parent involvement, asking parents to bring the adolescents to all therapy sessions, and participate in sessions as well as home practice. Not all parents will have the resources to commit this much time and resources to their child's therapy. Additionally, we sometimes asked families to use items such as white boards or smart phones. Many families do not have the financial means to purchase such items; however, less expensive alternatives (i.e., paper and pencil, free calendar systems that can be downloaded in the therapist's office) can be utilized instead.

Another limitation of this study is that we did not fully assess whether the behavioral changes we observed in session generalized to reductions in functional impairment. The aim of this study was to reduce symptoms via coping/executive functioning training. We partially assessed the generalization to the home environment by having the parents participate in the assessments. However, future studies should include more formal assessments of functional impairment at home by parent report and functional impairment at school by teacher report and objective measures (e.g., transcripts), as well as including a measure of social functioning. Also, our subjects may not be representative of adolescents with ADHD. For

example, two out of the three subjects were female, and ADHD is more common among males. Replication with a larger sample size would address this issue.

The changes we observed are somewhat inconsistent with those typically observed in the literature in the sense that we were able to effect changes in symptoms in a relatively small number of sessions that were primarily conducted with adolescents alone (with some parent involvement). We believe that this may be due to the fact that our participants were somewhat older than the adolescent subjects studied in the literature (mostly young adolescents/middle school students) and our participants may have been more motivated for behavior change. However, our sample is quite limited and if our approach is studied in the future with a more rigorous experimental design, we will be able to draw more firm conclusions regarding the utility of our approach.

One component of our treatment that merits further study is the use of school supports, such as those listed in 504 Plans and IEPs. Although these supports may provide help in the short term, it is possible that they interfere with the ability of adolescents to independently learn the skills that they ultimately need to organize themselves. Harrison, Bunford, Evans, and Owens (2013) reviewed the literature on educational accommodations and found that many commonly used accommodations have very little evidence supporting their effectiveness. These authors express concern that accommodations may be provided instead of needed interventions to reduce or eliminate impairment associated with disabilities. Thus, these accommodations are in need of additional study and in our future work we will stress that parents should be cautious in their use of school supports.

Another component of our treatment that should be studied further is the inclusion of the cognitive restructuring module. It is possible that the inclusion of this component is helpful to address the negative thoughts that might arise from repeated failures and/or comorbid anxiety or depression. It may also be helpful to address unhelpful thinking patterns often observed in individuals with ADHD. On the other hand, like any clinical strategy, it may not be useful for all individuals; thus, a trained CBT therapist should employ clinical judgment to fit the modules to the relevance of the client. It is also possible that ADHD subtype may be important in determining whether this treatment, or components of this treatment, is beneficial for particular individuals. This should be examined in larger follow-up studies. Finally, the role of medication compliance should be studied. Although we did discuss medications with the participants and parents, we did not have a formal treatment component pertaining to medication adherence. These issues should be examined in larger follow-up studies.

In conclusion, we found that we were able to adapt our adult CBT treatment to the adolescent age range, and that, in a case series, three participants had success in learning skills for managing ADHD. This initial data can be used to lay the groundwork for future trials. Within the treatment sessions, using a collaborative approach, the adolescent participants themselves had ideas, suggestions, and creative solutions that had not emerged in our work with adults. Future testing of the approach should include a larger sample, random assignment to either CBT or a control condition, and use of an independent assessor

who is blind to treatment condition. It is our hope that future work will lead to the development of much-needed psychosocial treatments for this population.

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Table 1

Baseline and Posttreatment Symptom and Severity Ratings

	Baseline	Post-Treatment	% Change
<i>Case 1</i>			
16 yo Caucasian girl CGI	4	2	
ADHD Symptom Checklist	21	3	86%
<i>Case 2</i>			
14 yo Caucasian boy CGI	5	3	
ADHD Symptom Checklist	15	9	40%
<i>Case 3</i>			
13 yo Caucasian girl CGI	6	4	
ADHD Symptom Checklist	26	18	31%