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Academic Success Groups for Middle-School Children with ADHD in the Outpatient Mental Health Setting – An Open Trial

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Abstract

Objective—To conduct an open trial assessing the initial efficacy of an intervention focusing on increasing skills related to academic performance (planning, organization, studying, homework behaviors) for middle-school children diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD). The intervention is modeled on evidence-based interventions but designed for administration in the outpatient setting.

Method—Parents and their children diagnosed with ADHD attended 7 weekly group sessions targeting academic, organizational, and homework skills. Parents completed the Homework Problem Checklist and Impairment Rating Scale pre- and post-treatment.

Results—Following intervention, significant improvements in homework completion and management, as well as reductions in academic impairment and improvements in parent confidence and family relations were reported.

Conclusion—Despite limitations including small sample size and lack of a control group, our results demonstrate initial efficacy of an academic skills intervention designed for use in the outpatient setting with middle-school children diagnosed with ADHD on clinically relevant outcome measures.

Keywords

academic performance; ADHD-associated problems; middle school; executive function; treatment

Although academic difficulties are prevalent among children with Attention Deficit/Hyperactivity Disorder (ADHD) (for example, Abikoff et al., 2013; Barkley, 2006; DuPaul & Stoner, 2003), there remains a significant lack of treatment studies that examine effective interventions for improving academic function in youth with ADHD, particularly for middle school children (i.e. those in sixth through eighth grade) with ADHD. Given that the transition to middle school particularly is fraught with increased difficulties for these youth (Langberg, Epstein, Altaye, et al., 2008), there is a strong need for clinical interventions to address the academic difficulties for this population.

Children with ADHD exhibit significant difficulties with sustained attention and distractibility leading to difficulties with starting work, estimating the amount of time

necessary to complete projects, managing time productively, writing down assignments, and turning in assignments (Raggi & Chronis, 2006). Hyperactive symptoms also impact school functioning as youth with ADHD are more likely to have difficulty sitting in their seats, disrupt other students, and touch or play with objects (Mash & Barkley, 2003). Finally, impulsive behavior leads to responding too quickly on tests and failing to wait to begin tasks until they have read the instructions or directions (Zentall, 1993). Importantly, recent research suggests that ADHD symptoms alone do not directly account for poor academic performance but are mediated by deficits in executive function (Langberg et al., 2011; Rapport, Scanlan, & Denney, 1999).

Executive functions (EF) are the processes that allow one to engage plan-fully in goal-directed behaviors as well as to aid decision-making and self-regulation. Deficits in executive function result in difficulties with initiating tasks, completing tasks, managing time and space, and inhibiting responses, all of which are necessary functions when engaging in academic activities. Langberg, and colleagues (Langberg, Dvorsky, & Evans, 2013) examined the relation between EF deficits and academic performance in middle school students. Using multiple indicators of academic performance including school grades, parent and teacher ratings, and parent ratings of difficulties with homework, they found that behaviors related to executive functions, specifically the ability to plan, organize, and make transitions (shift), were the primary predictors of grade point average and homework problems. The impact of these behaviors related to EF on academic performance in middle school youth is not surprising given that the transition to middle school and then to high school results in decreasing teacher and parent support and increased self-reliance on the use of these behaviors independently (e.g., responsibility for maintaining own assignment planners, maintaining organizational skills, turning in homework, etc (Langberg, Becker, Epstein, Vaughn, & Girio-Herrera, 2013). In recent research, it appears that academic impairments get worse as children with ADHD progress through school (Booster, Dupaul, Eiraldi, & Power, 2012).

Current evidence-based treatments for ADHD include the combination of behavioral interventions at home and school paired with the use of stimulant medication (Sibley, Kuriyan, Evans, Waxmonsky, & Smith, 2014). Designing developmentally appropriate interventions targeting middle school children is critical given that they may be less likely to continue taking stimulant medication due to side effects, poor treatment adherence, and a lack of perceived benefit (Lerner & Wigal, 2008). In addition, there is evidence to support that medication generally has less of an effect on academic skills than behavior (O'Connor, Garner, Peugh, Simon, & Epstein, 2015; Swanson et al., 1993). Behavioral interventions for ADHD include parent-training programs, either individual or group-based, and school-based behavioral interventions, such as Daily Report Cards, and there is evidence to support using cognitive-behavioral therapy with some adolescents with ADHD, particularly those with comorbid internalizing disorders (Antshel & Olszewski, 2014). Although these programs demonstrate improvement in behavioral symptoms at home and in the classroom, they lack a focus on improving academic and organizational skills specifically and have little direct impact on academic skills, although Antshel and colleagues (Antshel & Olszewski, 2014) did report that cognitive-behavioral therapy reduced the number of missed classes and school tardiness in adolescents with ADHD (Abikoff et al., 2013). In fact, the majority of the

school interventions target specific behavioral issues in the classroom rather than improving academic skills (Raggi & Chronis, 2006). However, past research has demonstrated a strong negative relation between symptoms of ADHD (particularly inattention) and academic outcomes (Galera, Melchior, Chastang, Bouvard, & Fombonne, 2009; Massetti et al., 2008)

To date, two evidence-based *school-based* interventions targeting academic skills in adolescents with ADHD have been developed, the Challenging Horizons Program (CHP) (Evans, Schultz, Demars, & Davis, 2011), and the Homework, Organization, and Planning Skills (HOPS) intervention (Langberg et al., 2011). The CHP intervention, which involves twice weekly sessions for one year, has been shown to improve academic and social functioning (Evans et al., 2011), and the HOPS program, an eight week program implemented by school mental health providers, produced improvement in parent ratings of organizing materials, planning skills, homework management, and homework completion, as well as reductions in impairment associated with poor organizational skills (Langberg et al., 2011).

The findings of these two school-based interventions are compelling. However, the interventions are not typically available in most schools and involve significant training and oversight of school-based personnel. As academic concerns are a common reason for clinic referral, it is critical to translate existing school-based interventions for use in the clinic setting, especially for adolescents for whom there are fewer treatment options available. We were able to find two interventions designed for use in the clinic setting, the Organizational Skills Training (OST), for third through fifth grade children (Abikoff et al., 2013) and Support Teens' Academic Needs Daily – Group (STAND-G) for high school students (Sibley, Altszuler, et al., 2014; Sibley et al., 2013). The 20-session OST intervention was beneficial in improving the organization, time management, and planning skills of the children, as well as improving their academic functioning, and this skills-based treatment was significantly more effective at improving the academic proficiency of the participants over time than the performance-based intervention (Parents and Teachers Helping Kids Organize or PATHKO) (Abikoff et al., 2013). However, it should be noted that these authors also reported an effect of PATHKO, such that reinforcing children for specific behaviors (such as keeping their desk neat or bringing home all assignments) through the use of a token economy system, improved organization, time management, and planning skills, academic functioning, and family functioning (Abikoff et al., 2013). The STAND-G intervention, which primarily involved parents and teens attending separate groups (eight sessions), was also shown to have therapeutic benefits, including improvements in parental understanding of behavior management, teen understanding of organizational and time management skills, improved communication (parents) and autonomy (teens), as well as improvements in turning in assignments (Sibley, Altszuler, et al., 2014; Sibley et al., 2013).

The OST, PATHKO, and STAND-G findings, taken together with the findings from the CHP and HOPS school-based interventions, suggest that skills training and reinforcement of organizational, planning, and time management skills may be beneficial for children and adolescents with ADHD. However, there have been no empirical studies to examine the benefit of such programs for middle school children, which is often a time at which students are expected to have increasing independence with these skills. Furthermore, while separate

groups for parents and adolescents may be developmentally appropriate for high-school students (i.e., STAND-G), middle school children, who are just transitioning from elementary school, will likely require additional parental involvement.

In the current study, we conducted an open trial to assess the initial efficacy of a clinic-based Academic Success for Young Adolescents group targeting improving organizational skills, time management, homework behaviors, and studying for middle-school children diagnosed with ADHD. The skill-based intervention involves elements from the HOPS and OST interventions, adapted for clinic use with this age population, and involved six weekly group sessions targeting specific skill areas (organization, time management, studying, etc.) known to be difficult for this population with both parents and adolescents, and one session with parents only focusing on behavioral mechanisms for change (use of reinforcement, behavioral contracting, and school-based behavioral modifications). To make the intervention more feasible to deliver, we decreased the number of sessions in the HOPS and OST interventions (from 16 and 20 respectively to seven) and increased the involvement and role of the parent. The goals of this open-trial were to assess whether the group improved homework behaviors and reduced academic impairment in adolescents with ADHD. We hypothesized that we would see significant improvements in homework completion and homework management and reductions in academic impairment. Specifically, we hypothesized that this skills-based group intervention would result in improvements on parent ratings for both composite scores for the Homework Problems Checklist as well as the Total Score. In addition, we hypothesized that the group intervention would lead to a reduction on the academic impairment item on the Impairment Rating Scale (IRS) academic progress item and improved score parent confidence in managing their child's academic skills.

Method

Participants

Participants presented to outpatient services at a specialty ADHD clinic in an academic medical center for treatment and were not recruited as a part of a research protocol, but rather agreed to have their data included in a clinical registry. For this particular study, data collected in the fall of 2013 and the spring of 2014 were included. Of 39 possible participants, 35 gave permission for their clinical data to be included in the clinical registry. The use of the clinical registry for this study was approved by the Institutional Review Board at Cincinnati Children's Medical Center. Criteria for participation in the intervention were as follows: (a) identified child was in sixth, seventh, or eighth grade at the start of treatment, (b) child met *DSM-IV-TR* (American Psychiatric Association, 2000) criteria for a diagnosis of ADHD, which may have been initially diagnosed at another institution or with another provider, but was confirmed at the clinic through a clinical interview with a licensed psychologist with a specialization in ADHD, and (c) academic and organizational problems associated with ADHD were a significant concern by parent report. The age range of the 35 middle school children with ADHD whose parents allowed their clinical data to be included in a clinical registry was 10 to 14 years of age ($M = 12.46$, $SD = 0.98$). About 69% of the children were male, 77% were Caucasian, 18% were African-American, 2% were Pacific

Islanders, and 3% did not specify their race. Of the 35 participants, 30 (85.7%) were using private insurance, four (11.4%) were using publicly-funded healthcare (e.g. Medicaid), and one (2.9%) was uninsured. Regarding ADHD subtype, 18 received a diagnosis of ADHD, Combined Type, 15 received a diagnosis of ADHD, Predominantly Inattentive Type, and 1 received a diagnosis of ADHD, Not Otherwise Specified. Co-morbid diagnoses were addressed in the clinical interview, primarily via report of the parents, but were not formally evaluated (i.e. through the use of a structured interview or other assessment tools), nor were they used as a reason for exclusion from the group. Of the 35 children, 26 did not have a comorbid psychological diagnosis; one had Asperger's Disorder, two had a mood/depressive disorder, one had an anxiety disorder, one had Oppositional Defiant Disorder (ODD), one had a learning disability, one had both an anxiety disorder and ODD, and one had both depression and anxiety disorder.

Measures

Homework Problems Checklist (HPC) (Anesko, Schoiack, Ramirez, & Levine, 1987)—Homework completion and homework materials management behaviors were assessed using the parent-completed HPC. The HPC is a 20-item parent-report instrument. For each item, parents rate the frequency of a specific homework problem on a 4-point Likert scale (0 = never, 1 = at times, 2 = often, 3 = very often). Factor analyses indicate that the HPC has two distinct factors (Langberg et al., 2010; Power, Werba, Watkins, Angelucci, & Eiraldi, 2006) measuring homework completion behaviors and homework materials management behaviors. Items from Factor I (Homework Completion) include: (a) Must be reminded to sit down and start homework; (b) Daydreams during homework; (c) Does not complete work unless someone does it with him/her; and (d) Takes an unusually long time to complete homework. Items from Factor II (Homework Materials Management) include: (a) Fails to bring home assignments and materials; (b) Forgets to bring assignments back to class; and (c) Does not know exactly what has been assigned. These two factor scores are combined to generate a Total score. Higher scores on the measure indicate more severe problems. The measure has excellent internal consistency, with alpha coefficients ranging from .90 to .92 and corrected item-total correlations ranging from .31 to .72 (Anesko et al., 1987). The alpha coefficient in the current sample was .79.

Impairment Rating Scale (IRS)—The IRS was developed to assess the areas of functioning that typically characterize children with ADHD (Fabiano et al., 2006). The adapted parent version of the IRS used in this study consists of seven items, six of which reflect rationally derived areas of functioning known to be negatively affected by ADHD (peer relations, sibling relations, parent-child relations, academic progress, self-esteem, and impact of the child's behavior on the family) as well as a single overall severity/impairment rating. These seven items are rated by the parent on a 0 (signifying *no impairment*) to 6 (signifying *extreme impairment*) scale. Scores of three or higher on any item of the IRS are considered to reflect significant impairment (Fabiano et al., 2006). The psychometric properties of the IRS have been measured in four separate clinic and community samples (Fabiano et al., 2006). The IRS demonstrates excellent temporal stability and evidence of convergent and discriminant validity. Furthermore, the IRS is highly effective in discriminating between children with and without ADHD (Fabiano et al., 2006) and is

sensitive to treatment effects (Evans, Langberg, Raggi, Allen, & Buvinger, 2005; Evans, Serpell, Schultz, & Pastor, 2007). To assess parent confidence a single item was added to the end of the IRS asking parents to rate their confidence in their ability to manage their child's problematic behaviors (in this case academic skills). This was an 11-point scale in which parents were asked, "Please rate your confidence in your ability to manage your child's problematic behaviors on the following scale:" followed by the numbers 0 through 10 with the following anchors: "0 = *unable to manage problematic behaviors*, 5 = *able to manage about 50% of the time*, and 10 = *few or no problems managing problematic behaviors*."

Procedures

The intervention, described below, was offered in a group format with parents and adolescents attending together for six of seven 90-minute weekly sessions; parents attended one session individually. Parents, most typically mothers (>80%), completed the HPC, IRS, and parental confidence question before or at the beginning of the first session of group and at the last session of group. The IRS and parental confidence question were completed on an electronic kiosk used to collect quality improvement data and the HPC was completed on paper. Data for this study were obtained from five separate groups ranging in size from five to nine families each.

Intervention

The intervention included an overview of the association between executive function deficits, ADHD symptoms, and academic performance, in addition to teaching specific academic and organizational skills. The first session, with the parents and adolescents together, and the second session, with the parents alone, provide an overview of the diagnosis of ADHD, related executive function deficits, and implications for treatment (session one), as well as developmental transitions from childhood to adolescence, behavioral modification strategies, behavioral contracting, and discussion of possible academic interventions in the school setting (session two). Training in negotiation and behavioral contracts was also included (session three) to incentivize and increase use of target skills in the school-home setting and promote maintenance of skills after the group ended. Behaviors included in the contract varied by family based on their needs (i.e., using a planner, completing homework by a certain time, using an organizational system, etc.), with the emphasis placed on clearly defining specific behaviors, limiting the range of behaviors initially targeted, and reinforcing the child for becoming more independent in using these skills. For example, the parent and child may negotiate to determine that writing down a specific number of assignments in their planner will allow the child a specific amount of free time (e.g. recording assignments could earn 5 minutes of cell phone time per class recorded). The following three sessions teach specific skills to further allow the parents and child define, measure, and reinforce specific academic behaviors. These include improving time management skills by prioritizing activities to create efficient schedules and creating and using a binder organizational system (session four), specifically defining studying and teaching study tools, such as flashcards that allow the child to show the parent a study product (session five), and teaching summarizing skills and the use of additional study skills, such as acrostics and acronyms (session six). The final session reviews all strategies learned in group and adapting the behavioral contracts to address future behavioral issues and to

increase the independence of the child in using these strategies. See Table 1 for a summary of intervention details. The treatment was manualized, with the session outlines and notes being handed out to the families each week, although the psychologists had the flexibility to spend more or less time on any particular skills as needed. The groups were facilitated by licensed psychologists with specialization in ADHD.

Analyses

Repeated measures analyses of variance using SPSS were conducted examining main effects for time for the two HPC composite scores and HPC total score, each item on the IRS, the IRS total composite score, and parent-rated confidence in managing behavior.

Correlations between attendance, insurance type (private insurance coded as 1 or public insurance/uninsured coded as 0) and change scores (pre minus post) on the HPC, IRS, and parent confidence question were computed to explore whether attendance was associated with ratings of behavioral outcomes, and whether change in homework problems corresponded with change in IRS and confidence ratings.

Results

Although 35 participants agreed to allow use of their data for research purposes, 9 did not complete any rating scales (most often because the parent did not attend the first and last session but did attend interim sessions, $n = 7$). Of the 24 participants with rating scale data, there was complete HPC data on 18 (75%) and complete IRS data on 21 (88%). To explore whether individuals with missing data differed significantly from those with complete HPC, IRS, and parent confidence pre and post data, independent samples T-tests were conducted comparing the groups on severity at pre (IRS overall severity), demographics (age, gender, race), ADHD subtype, and attendance. The groups with and without missing data did not differ on severity at pre on demographic variables (race, age, ethnicity) or ADHD subtype (all p 's > 0.1). However, those with missing data attended fewer sessions ($M = 5.2 \pm 2.0$) than those with complete data ($M = 6.7 \pm 0.5$). All variables were normally distributed.

Attendance averaged 5.83 ± 1.74 of the seven sessions and did not significantly differ across the five academic skills groups [$F(4, 30) = 1.02, p = 0.41$]. As expected, we observed significant improvements in homework completion, homework management, and HPC total score, reductions in academic impairment ratings, and increased parental confidence in managing their child's academic behaviors (Table 2). We also observed a significant reduction in impairment for the family in general as well as overall severity domains. An examination of effect sizes showed these effects to be large for all significant variables except parental confidence which was moderate. No significant changes were observed for the peer, sibling, and parental relationship or self-esteem impairment domains. Since scores on the IRS of three or higher on any item of the IRS are considered to reflect significant impairment (Fabiano et al., 2006) we computed frequencies for each response choice at pre and post for the academic impairment item. At pre 80.6% of the sample had a rating of three or greater; at post, 43.4% of the sample had a rating of three or greater. Interestingly, attendance was not shown to correlate with significant changes (pre minus post) in HPCIRS, and parent confidence ratings (see Table 3). However, there was a significant correlation

between attendance and pre-post change on the IRS Family in General rating such that individuals who reported the most improvement in family functioning attended the most sessions. Neither the change scores on the IRS academic progress item nor the change scores on parent confidence significantly correlated with the HPC factors (see Table 3). Finally, none of the change scores were significantly associated with insurance type.

Discussion

The purpose of this open trial was to examine the initial efficacy of the Academic Success for Young Adolescents Group, a seven session group for children in middle school diagnosed with ADHD, which targeted skills including organization, time management, and planning, and provided parents with behavioral management strategies aimed at improving homework and academic skills (Kazdin, 1996; Loren et al., 2013). Overall, the participants in the group were rated by their parents as improving in all academic domains assessed, including homework completion, homework management, and academic progress, in addition to improvements in overall impairment, family functioning, and parental confidence in managing their adolescent's academic behavior. Additionally, there were much fewer children rated as impaired at post (40%) than at pre (80%), which suggests the intervention was experienced as clinically meaningful for behaviors in the academic domain. Relatedly, the only significant correlation of change scores with attendance was for the IRS "Family in General" item, which assesses the impact of the child's behavior on the family as a whole. This suggests that, in addition to the improvements noted, parents who attended more sessions of the group also reported better family function. Although not statistically significant, a moderate association ($r = 0.4$) was observed between changes in homework behaviors (HPC total) and parent confidence, suggesting that improvements in homework impairment may increase the confidence of the parents in managing these behaviors, although this needs to be examined further. These results indicate promising effectiveness of skills-focused group for adolescents with ADHD in the clinic setting, although the current study has a number of limitations that must be addressed in future research.

In an attempt to compare the strength of our findings with those obtained in the HOPS or OST studies, we computed Cohen's d effect sizes for the HPC total scores reported for HOPS ($d = 1.08$) (Langberg, Epstein, Urbanowicz, Simon, & Graham, 2008) and for OST ($d = 1.75$) (Abikoff et al., 2013). Although somewhat smaller, the effect size of 0.8 we observed is large and clinically meaningful. Although the IRS academic progress item was significantly improved from pre to post, the overall effect size for this item was somewhat smaller; this may be because our intervention was only seven weeks in duration, and it may take longer to show an effect on academic progress with continued use of the trained skills. Future studies with long-term follow-up data are needed to assess this hypothesis. Interestingly, our findings of improved parental confidence and overall family functioning suggest that involving the parent in the intervention, and including content regarding behavioral contracting and negotiation was a useful tool for parents that translated to domains beyond academic impairment. Additional research is warranted to assess this hypothesis, although it should be noted that the OST intervention was also shown to improve family cohesiveness and reduce conflict (Abikoff et al., 2013) and the STAND-G program improved parent-child communication (Sibley, Altszuler, et al., 2014; Sibley et al., 2013).

Of note, we had a large percentage of individuals with the Predominantly Inattentive Type of ADHD (44%), which is higher than typical ADHD clinical trials, though consistent with rates reported in the OST (Abikoff et al., 2013). Individuals with significant inattentive symptoms present with academic problems that may be due to a pattern of low motivation for learning and internal drive, less interest in challenging tasks, less persistence, and being more easily discouraged (Carlson, Booth, Shin, & Canu, 2002). These issues may result in more parents of adolescents with the Predominantly Inattentive Type of ADHD seeking clinical interventions targeting academic skills, rather than seeking interventions targeting disruptive behavior which is often the focus of available treatment interventions for ADHD.

Limitations include that a comparison waitlist or placebo treatment control group was not utilized to control for multiple confounds. An active control group is necessary to rule out the potential concomitant effects of parental attention and practice and expectancy effects. It has been reported that simply informing parents that they will receive an intervention may lead to reductions in parent ratings of problem behaviors (Patterson & Forgatch, 1995), and that parents just spending time with their child can impact behavior (Gardner, Ward, Burton, & Wilson, 2003). Thus additional research with an active control group is critical. We did not include teacher ratings or objective measures of school performance which would be critical secondary effects of the intervention. Consistent with most clinical registries, there was significant missing data resulting in a small sample size, which can result in a potentially non-representative population; however, the results demonstrated that the individuals with missing data did not differ significantly to those with complete data, suggesting the groups were comparable. Data were not available to examine potential moderators and mediators of intervention effects such as ADHD severity, comorbidity, ancillary measures of academic performance (e.g., grades), medication status, treatment adherence, etc. Also, treatment fidelity was not monitored.

Despite these limitations, our results suggest that a brief academic skills intervention can be successfully implemented in an outpatient setting with good attendance, and that improvements can be obtained on academic outcomes that are clinically meaningful to families (i.e., reduced homework problems, improved confidence in managing the adolescent's academic behaviors, etc.). This work is important since current evidence-based treatments for ADHD emphasize management of behavioral symptoms of ADHD, as opposed to academic skills, and do not generally target adolescents, for whom there are few evidence-based treatments. Future research is necessary to further explore the benefits of an academic skills program in the clinical setting, including the use of a control group, increased consistency in data collection, assessment and inclusion of potential moderating or mediating factors, and the use of broader measures of academic functioning including teacher reports and grades, as well as follow-up data collection after a longer period of time. Additionally, future studies will need to identify potential mediators to identify what promotes change in impairment ratings in addition to the improved academic skills. For example, it may be that increased parental monitoring drives change in outcomes. Alternatively, we speculate that parents working with other parents will experience some level of normalization related to their adolescent's homework challenges, thereby changing expectations and perceptions of their child's behavior. Studies with active control groups

focusing on different targets or demanding less parent involvement may help disentangle these hypotheses.

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Biographies

Heather Ciesielski, PhD is an assistant professor in the Center for ADHD. Her clinical and research interests include the evaluation of children, especially preschool children, with ADHD and related concerns, the clinical utility of group therapy interventions for children and their parents, and executive function skills and deficits in children with ADHD.

Leanne Tamm, PhD is an associate professor of pediatrics in the Center for ADHD at CCHMC whose research interests focus on numerous aspects of the functioning of children with ADHD including brain–behavior relationships, executive function, efficacy of treatment with contingencies and medication, and prevention/early intervention.

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Jessica E. M. Cyran, PhD is a staff psychologist in the Center for ADHD at CCHMC who provides assessment and therapy services for families of children and adolescents with ADHD.

Jeffery N. Epstein, PhD is a professor of pediatrics in the Division of Behavioral Medicine and Clinical Psychology at CCHMC, director of the Center for ADHD, and a professor in the Department of Psychology, University of Cincinnati. His research includes the development and dissemination of improved assessment and intervention services for children with ADHD.

Table 1**Summary of Session Content**

Session	Content	Attendees
1: ADHD psycho-education/orientation to treatment	Overview of ADHD, including related executive functioning deficits and treatment rationale.	Parent(s) and adolescent
2: Behavioral management skills/contracting	Behavioral management skills, behavioral contracting and reinforcement systems. Coaching on how to implement, monitor, and reward use of the organization and homework management interventions at home.	Parent(s)
3: Communication/problem solving/contracting	Parent-adolescent dyads develop individualized behavioral contract targeting improving academic/organizational/homework management skills.	Parent(s) and adolescent
4: Academic skills – Binder/planner	Binder organization skills including having one binder for all courses, a specific location for homework, and no loose papers allowed. Use of planner such as documenting homework assignments and teacher confirmation of accuracy	Parent(s) and adolescent
5: Academic skills – Binder/planner/flash cards	Review and problem solving of previous skills. Flash card skills including summarizing key concepts in three to five words.	Parent(s) and adolescent
6: Academic skills – Binder/planner/flash cards/summarizing	Review and problem solving of previous skills. Summarizing skills included learning how to use storyboarding techniques.	Parent(s) and adolescent
7: Planning for adherence, maintenance	Review skills and focused on planning and problem-solving for future adherence.	Parent(s) and adolescent

Table 2

Results Examining Change in Ratings from Pre to Post

	Pre Intervention Mean (SD)	Post Intervention Mean (SD)	F	η^2	d
HPC Homework Completion	34.06 (8.65)	27.41 (7.71)	$F(1,16)=23.7, p<.001^{**}$	.60	.80
HPC Homework Management	16.53 (5.52)	13.00 (4.83)	$F(1,16)=31.3, p<.001^{**}$	.66	.66
HPC Total	50.59 (13.36)	40.41 (11.47)	$F(1,16)=31.6, p<.001^{**}$	.66	.80
IRS Relationship with Peers	1.38 (1.43)	1.57 (1.60)	$F(1,20)=1.0, p=.33$	.05	.12
IRS Relationship with Siblings	2.36 (1.95)	1.93 (1.77)	$F(1,20)=1.7, p=.21$	.12	.23
IRS Relationship with Parents	2.48 (1.69)	2.24 (1.81)	$F(1,20)=0.4, p=.55$	.02	.14
IRS Academic Progress	3.76 (1.22)	2.71 (1.55)	$F(1,20)=7.8, p=.01^*$	.28	.75
IRS Family in General	3.67 (1.35)	2.62 (1.34)	$F(1,20)=11.8, p=.003^{**}$	.37	.77
IRS Self Esteem	3.00 (1.81)	3.14 (1.68)	$F(1,20)=0.2, p=.70$	.01	.08
IRS Overall Severity	3.95 (1.16)	2.76 (1.26)	$F(1,20)=23.6, p<.001^{**}$	.54	.98
IRS Parental Confidence	6.19 (2.14)	7.10 (2.32)	$F(1,20)=5.07, p=.04^*$	.20	.40

Note: SD = standard deviation; HPC = Homework Problem Checklist; IRS = Impairment Rating Scale;

* $p<.05$;** $p<.001$; η^2 = partial eta squared (.02 ~ small; .13 ~ medium; .26 ~ large).

Table 3
Bivariate Correlations of Change Scores for Variables that Significantly Improved from Pre to Post

	1	2	3	4	5	6	7	8
1. HPC Homework Completion	--							
2. HPC Homework Management	.59 [*]	--						
3. HPC Total	-.96 ^{***}	-.79 ^{***}	--					
4. IRS Academic Progress	.004	-.23	.08	--				
5. IRS Family in General	-.28	.17	.15	-.31	--			
6. IRS Overall Severity	-.42	-.11	.36	-.46 [*]	.76 ^{***}	--		
7. Parent Confidence	-.35	-.29	.37	.05	.12	.11	--	
8. Attendance	.04	.27	-.12	-.26	.47 [*]	.12	.08	--
9. Insurance Type	-.30	.05	.21	.07	.11	.07	-.25	.25

change score (pre minus post);

^{*}

p<.05;

^{***}

p<.01