

Efficacy of a School-Based Treatment Program for Middle School Youth With ADHD

Pilot Data

STEVEN W. EVANS

James Madison University

JENNIFER AXELROD

University of Maryland at Baltimore

JOSHUA M. LANGBERG

James Madison University

The effects of a set of behavioral and educational interventions provided in a middle-school-based mental health program on the behavior and academic performance of 7 students diagnosed with attention-deficit/hyperactivity disorder (ADHD) were studied. The treatments included educational, social skills and family interventions designed to target school functioning, peer relations, and family functioning. Dependent measures included parent and teacher ratings of ADHD symptoms, daily functioning, and academic grades. Large effect sizes were found on measures of inattention and school functioning. Grades and measures of family functioning and peer relations yielded small to moderate effect sizes. Description of the procedures is provided and implications for advancing school-based mental health care for adolescents with a diagnosis of ADHD are discussed.

Keywords: ADHD; school; adolescents; treatment

Although attention-deficit/hyperactivity disorder (ADHD) is one of the most frequently diagnosed and studied clinical disorders in child psychology (Barkley, 1990), very little is known about the efficacy of treatments for adolescents with this disorder (Smith, Waschbusch, Willoughby, & Evans, 2000). The consensus of longitu-

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dinal studies is that at least half of the children diagnosed with ADHD continue to meet diagnostic criteria for ADHD when they are adolescents (e.g., Barkley, Fischer, Edelbrock, & Smallish, 1990; Barkley, Murphy, & Kwasnik, 1996; Mannuzza, Gittelman-Klein, Konig, & Giampino, 1989; Weiss & Hechtman, 1986). These reports also document considerable impairment associated with ADHD symptoms during adolescence (e.g., academic and interpersonal problems, failure to finish school, high rates of automobile accidents, and a propensity to engage in serious crime and drug use). Thus, there is evidence that ADHD is a chronic disorder that persists past childhood and into adolescence.

Stimulants remain the most widely studied and implemented treatment for adolescents with ADHD. The portion of middle school students receiving stimulant medication increased from 0.6% in 1975 to 3% in 1993 (Safer & Krager, 1994), and stimulant prescriptions for adolescents have increased 2.5-fold from 1990 to 1995 (Safer, Zito, & Fine, 1996). There is growing evidence that stimulants continue to be an efficacious treatment for youth when they enter into adolescence (Evans, Pelham, et al., 2001; Smith, Pelham, Evans, et al., 1998). In fact, there are data suggesting that the response rate to stimulants as youth transition from preadolescents to adolescents is more stable than had been previously thought (Smith, Pelham, Gnagy & Yudel, 1998).

Psychosocial interventions for adolescents have not received the same amount of attention in the research community as medication. According to Smith et al. (2000), four types of psychosocial interventions have demonstrated promising initial results with adolescents with ADHD: (a) note-taking, (b) self-monitoring training, (c) functional assessment with behavioral interventions, and (d) family-based intervention. The effects of a note-taking intervention to treat some of the academic and classroom behavioral problems of adolescents with

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ADHD were reported by Evans, Pelham, and Grudberg (1995). Specifically, adolescents were taught to take structured notes while they listened to a lecture-format American history class. Following this note-taking training, the adolescents with ADHD showed improvement on measures of comprehension, increased levels of on-task behavior, and lower levels of disruptive behavior compared to when they simply listened to the lectures. The effect size for the note-taking intervention was in the moderate range.

Self-monitoring was also reported to be beneficial in a case study in which a student received social and tangible reinforcement for on-task behavior (Stewart & McLaughlin, 1992). This treatment resulted in a large improvement in on-task behaviors and suggests that self-monitoring techniques warrant additional study. Another school-based intervention for adolescents with ADHD involved the use of a functional assessment of the off-task behavior of two middle-school-aged youth, followed by classroom-based behavioral interventions (Ervin, DuPaul, Kern, & Friman, 1998). Following the assessment procedure, functional hypotheses were developed and recommendations were offered to the teachers. The classroom teachers selected the strategies to be used on the basis of practicality and perceived effectiveness. Following the implementation of these interventions, the investigators found large improvements in the on-task behavior of both boys in the targeted classrooms. For both boys, the average percentage of on-task intervals at baseline averaged between 54% and 78%. Following these interventions, the classroom averages ranged from 88% to 95%. Although based on data from only 2 participants, this study supports the use of classroom-based behavioral interventions with adolescents.

Family therapy is frequently recommended for adolescents with ADHD (Robin, 1998) and two studies have examined this type of intervention (Barkley et al., 1992; Barkley et al., 2001). In the first (1992), three types of family-based treatments were compared and all three performed about equally and produced statistically significant improvements on a variety of parent and adolescent rating scales. However, few subjects exhibited clinically significant improvement and the authors concluded that more potent treatments were needed than 8 to 10 one-hour sessions. Subsequently, Barkley and colleagues (Barkley et al., 2001) increased the intensity (doubling the number of

sessions) of the family treatment and again reported statistically significant improvements. Tests of clinical significance measured by a reliable change index and movement into the normal range revealed that only a minority of the participants demonstrated clinically significant improvement. Additional treatment modalities may need to be provided with family treatment in order to achieve the desired benefit.

MULTIMODAL TREATMENT

Whereas a number of studies have demonstrated moderate to large effect sizes for medication treatment and a small number of studies for individual psychosocial interventions, no studies have examined the combined effect of the available treatments with adolescents. Although multimodal treatments have been recommended for youth with ADHD, the early results of the National Institute of Mental Health (NIMH) Collaborative Multisite, Multimodal Treatment Study of Children with Attention-Deficit/Hyperactivity Disorder (MTA) raised questions about their value. The initial reports from The MTA Cooperative Group (1999) indicated that behavioral therapy offered minimal benefit when provided with medication as compared to medication alone. Pelham (1999) questioned these implications, noting that when the effects of the behavioral interventions were assessed (14-month outcomes), the children were still taking the medication but the behavioral interventions were no longer being provided. In support of this argument, Pelham et al. (2000) reported data demonstrating that if the outcomes are measured at a time when both medication and behavioral interventions are active, medication offers very little benefit when offered with behavioral interventions as compared to behavioral interventions alone. Furthermore, Conners et al. (2001) reported that when the MTA outcome variables were combined into a composite measure of outcome, the group receiving combined pharmacotherapy and behavior therapy (even when measured at 14 months, which is after the cessation of the behavioral interventions) significantly outperformed all the other three treatment conditions. These latter reports by members of the MTA investigative team have provided support for the continued development and investigation into psychosocial and multimodal treatments for youth with ADHD.

The Summer Treatment Program (STP) (Pelham & Hoza, 1996) is a multimodal treatment program for children with ADHD. The STP operates as a summer camp for children with ADHD that provides intensive behavioral and pharmacological interventions. Research on the efficacy of a variety of interventions including medication, behavioral interventions, and educational interventions have come out of this program. Furthermore, the STP was included as part of the interventions evaluated in the MTA. The first author developed the adolescent version of the STP with William Pelham (director of the STP) in the early 1990s (Evans & Pelham, 1991; Evans et al., 1995), to extend the age range of the successful STP model.

School-based mental health programs evolved throughout the 1990s (Weist, 1997) and investigators described the likely advantages for generalization and access inherent in these programs (Evans, 1999). The need for integrating treatment outcome research and school-based mental health was pointed out in a review article by Rones and Hoagwood (2000). Although much has been written about the potential advantages of school-based mental health treatment programs (Evans, 1999; Evans, Axelrod, & Sapia, 2000; Weist, 1997), research findings on them are limited. Rones and Hoagwood noted that those school-based treatment programs that have been studied have focused primarily on youth in the primary grades (K-2) or youth diagnosed with mood disorders in high school. Treatment programs for youth in middle school with disruptive behavior disorders have not been reported (Rones & Hoagwood, 2000) or have produced minimal effects (e.g., Dupper & Krishef, 1993).

This study provides pilot data from the first year of implementation of the Challenging Horizons Program (CHP). The interventions included in the CHP are based on many of those used in the adolescent version of the STP, experience with school based mental health, and the psychosocial treatment of literature for this population. The procedures from the literature and STP were modified to include techniques targeting generalization and to take advantage of the resources available in a school setting. In addition to the increased ability to program for generalization in school-based mental health (Evans, Langberg, & Williams, 2003), a school-based model of care was selected to improve access to services. Studies by Adelman, Barker, and Nelson

(1993) and Evans (1999) have reported that youth and their parents experience fewer and different obstacles to care when engaging in school-based services as opposed to clinic-based care. For example, many transportation and fiscal obstacles are encountered less frequently in school-based care than clinic-based care. On the other hand, there is a perception reported by some parents that the quality of care and adherence to standards of confidentiality are lower in a school than in a clinic (Evans, 1999). Consistent with reports describing that most children with mental health disorders who need treatment do not receive care, Jensen et al. (1999) reported that this appears to be true also for youth with ADHD. Given the likely advantages of school-based services and the school-related problems experienced by middle school youth with ADHD, the development of school-based mental health services for youth with ADHD is a logical advancement.

The CHP is a behavioral and educational school-based treatment outcome research program based in a local public middle school. The data reported here represent the pilot data from the first group of participants to participate in the program. Although the sample size is small ($N = 7$), this area of research is new and small sample size studies make up half of the literature. Dependent variables measured changes in ADHD symptoms, functioning, and academic performance.

METHOD

PARTICIPANTS

Participants in the study included 7 middle school students (Grades 6 through 8), diagnosed with Attention-Deficit/Hyperactivity Disorder-Combined Type based on the criteria of the *Diagnostic and Statistical Manual* (4th ed.) (*DSM-IV*) (American Psychiatric Association, 1994). Participants were diagnosed on the basis of DISC-IV (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000), parent interview, results of the ADHD Rating Scale (DuPaul, Power, Anastopoulos, & Reid, 1998), Children's Impairment Scale (CIS)

(Pelham et al., 1996), and the Behavior Assessment System for Children (BASC) (Reynolds & Kamphaus, 1992) completed by the parents and two of the participants' teachers. All participants met the criteria for ADHD according to DSM-IV and data from the rating scales supported the pervasiveness of the symptoms and functional impairment across settings (see Table 1 for descriptive information). Cognitive ability was assessed using the Wechsler Intelligence Scales for Children (Wechsler, 1991) and academic achievement was measured using the Wechsler Individual Achievement Test (The Psychological Corporation, 1992). In addition, all participants in this study participated in the program for at least 3 months during the 1999-2000 school year and were enrolled in the public middle school with primary placement in regular education (half or more of their classes were regular education). The CHP began on November 15, 1999, and 4 of the participants began their participation in the program on that date. Two of the remaining 3 students started during the first week of December and 1 started on March 16, 2000, and all 7 continued until the end of the school year.

PROCEDURES

Students were referred to the CHP by parents, and they received evaluations consisting of the measures described above. Participants attended the program from 3:05 p.m. until 5:15 p.m. 3 days per week. A treatment manual was used to define the behavioral and educational procedures including individual meetings with primary counselors, group therapy, recreation activities, and family interventions. The manual included procedures for individualizing treatment when needed. The interventions are described below and occurred every day of the program.

PRIMARY TIME

After a snack and short period of informal conversation, the children met with their primary counselors. There were four main activities within the primary counselor time: (a) establishing therapeutic relationship, (b) identifying and prioritizing goals, (c) monitoring

TABLE 1
Demographic Information

<i>Demographics</i>	<i>Participants (N = 7)</i>
Mean age	12
Age range	11-13
Gender (male)	5
Number of participants taking stimulant medication	3
IQ (WISC III, Full Scale)	82.71 (7.61)
WIAT-reading	89.71 (14.84)
WIAT-math	82.71 (9.83)
WIAT-writing	85.39 (12.53)
Socioeconomic class (Hollingshead Scale)	
No. of participants in each class	
I	0
II	1
III	1
IV	4
V	1
DISC diagnosis	
ADHD combined type	7
Dysthymic disorder	1

NOTE: Values within parentheses denote standard deviation. ADHD = Attention-Deficit/Hyperactivity Disorder; WISC = Wechsler Intelligence Scale for Children. WIAT = Wechsler Individual Achievement Test.

progress, and (d) negotiating and implementing interventions. Examples of student goals included accurate completion of their assignment notebook each day, raising their hands and answering questions appropriately, and demonstrating socially appropriate behaviors in class and in the program. Once achieved, the focus of the goals shifted to generalization of the gains to other settings.

INTERPERSONAL SKILLS TRAINING

Interpersonal Skills Training group immediately followed the primary time. There were three goals for this group activity period: (a) increasing knowledge of appropriate peer, adult, and family interactions, (b) increasing demonstration of appropriate skills during interpersonal interactions, and (c) improving relationships with peers, adults, and family members. The group sessions involved teaching

and role-playing a set of social skills. Problem-solving steps were taught and participants practiced how to apply these skills to actual social situations. After demonstrating competency in these areas, counselors worked with the students to develop generalization plans that included prompts and contingencies related to the demonstration of the skills in settings other than the group. Frequently, the generalization plans initially targeted situations in the CHP such as recreation activities. Eventually, the plans included classrooms, hallways, homes, and lunchrooms.

RECREATIONAL TIME

The recreational activities were designed to provide an opportunity to practice the skills taught in the CHP. Specifically, the recreational activities required that students appropriately demonstrate their interpersonal skills in emotionally charged situations. In addition to serving as a controlled setting for the practice of interpersonal skills, this activity also focused on the development of sports skills. Observations and self-reports of the adolescents with ADHD referred to our program during the past 2 years revealed that they tend to have very limited sports skills, little knowledge of the most common sports, and very little perceived self-competence in this area. Many described early failure experiences in recreational sports leagues followed by a withdrawal from participation in these types of activities. Many of the failure experiences were related to the symptoms of ADHD, including mistakes made because of not attending to the game, difficult peer relations, and a lack of motivation to persevere throughout a practice, game, or season. Participation in sports and viewing sports are very common social activities for youth (especially males). Accordingly, a goal of the recreation activities was to improve the students' ability to participate at a recreational level in some of the most common sports (e.g., football, basketball, and soccer).

EDUCATION GROUP

After the recreation time, students participated in education group. The goals for the education group included the following: (a) develop

note-taking and study skills and use these skills in classrooms and at home, (b) record assignments in assignment notebooks and bring home the materials needed to complete work, (c) develop written language skills to the point where the students can write a well-organized, grammatically correct, two-page fictional story, and (d) develop and maintain effective systems for storing their materials in the lockers, book-bags, and notebooks. The focus and activities of the education group alternated week by week. Note-taking procedures were similar to those described by Evans et al. (1995). Instruction in written language and study skills resembled common classroom activities related to these areas. As with social skills, counselors developed generalization plans for these skills that began with mastery of the skill in the program and moved to mastery in home and school settings.

During the final 15 minutes of education time, the primary counselor met individually with the student to review his or her assignment notebook to ensure that everything was accurately recorded and that the student had to take home all of his or her books and materials needed to complete the assignments. Counselors also used this time to help the students clean out and organize their lockers, notebooks, and book-bags. The goal of this time period was to ensure that students were prepared and organized to start their homework once they went home. The individual and group education activities were the final activities of each day.

FAMILY INVOLVEMENT

Family interventions included group parent training and individual family counseling. The group parent training meetings were held monthly and focused on topics related to most of the families (e.g., homework management, supporting positive peer relations, and medication). Family counselors attended these meetings and then met with the parents over the course of the month to help them individualize the topics presented to the realities of their home environment. In addition to frequent contacts with families, counselors were also responsible for ongoing communication with teachers to monitor students' progress and promote generalization of program goals. Exam-

ples included tracking homework completion, ensuring that students turned in assignments, and developing and implementing behavior modification plans. Counselors shared this information with parents on a regular basis.

QUALITY ASSURANCE

To ensure that the interventions were being carried out in a manner consistent with the treatment manual, counselors participated in a weekly treatment team meeting and were observed and provided live supervision each day of the program by the director (first author). Changes in program procedures and individual treatment plans were presented and approved at the weekly meeting. In addition, each counselor received individual supervision to monitor and assist with paperwork, develop individual treatment plans, resolve obstacles to progress, and coach the counselor in the procedures and clinical issues being addressed.

MEASURES

The dependent measures reported in this study include grades, the ADHD Rating Scale, and the CIS (the two rating scales were completed by the parents and two teachers at the beginning and end of each participants' participation in the program). The ADHD Rating Scale was used to track changes in parent- and teacher-reported symptoms over time. This scale yields a standard score for Hyperactivity-Impulsivity, Inattention, and Total Score. The CIS is designed to assess functioning independent of diagnosis and provides qualitative and quantitative data on functioning related to peer relations, family relations, academic progress, self-esteem, and classroom functioning. Scores in each domain range from 0 (*no problem*) to 6 (*extreme problem*).

Grades were collected for students for the year prior to their participation in CHP and during the year they participated in CHP. Because the CHP was operating only during the second half of the school year, academic performance was evaluated by comparing the students' grades during CHP with grades from the second half of the previous

year. In addition, slopes of grade point average (GPA) across all grading periods within both school years were calculated and compared between years without CHP and with CHP. Slope of GPA was calculated since there are often trends in academic performance that occur over the course of a school year independent of interventions. For example, schools often report that grades during the early grading periods are the highest for most students. It was expected that the slope of grades would be flat or negative in the year prior to CHP and would be positive during the year the participant was in CHP.

RESULTS

The three standard scores from the ADHD Rating Scale-IV (inattention, hyperactivity, and overall), seven scores from each area of functioning on the CIS, GPA, and slope were entered into a repeated measures MANOVA to identify statistically significant pre/post effects. As expected (because of the small sample size), the overall multivariate effect was not significant at the .05 level. Nevertheless, because of the small sample size and the fact that this is a pilot study, the univariate effects were analyzed and reported in Table 2.

During the past decade, treatment outcome studies have increasingly relied on measures of clinical significance to interpret the effects of an intervention. Jacobson and Truax (1991) described procedures for assessing clinical significance using methods for calculating movement into the normal range and a reliable change index. In addition, the interpretation of effect sizes has been a long-standing practice for understanding the size of the change being reported (e.g., Evans & Pelham, 1991). The advantage of these methods is that they are useful for analyzing data on an individual subject level. Summative statements can then be made about the percentage of participants achieving a certain threshold of change. These techniques are especially useful for studies such as this one with a small sample size.

Effect sizes (ES) are reported for each of the dependent measures in Table 2. Using Cohen's (1992) categories of effect sizes, results are interpreted by category. All teacher ratings on the ADHD Rating Scale revealed improvements in reported ADHD symptoms in the

TABLE 2
Attention-Deficit/Hyperactivity Disorder (ADHD) Rating Scale
and Children's Impairment Scale Data and Significance

	N	M (SD)		ES
		<i>Pre</i>	<i>Post</i>	
ADHD Rating Scale: Parent				
Inattention	7	98.00 (1.15)	95.00 (5.26)	2.61
Hyperactivity	7	95.86 (5.24)	95.00 (5.10)	0.16
Total	7	97.29 (3.30)	95.71 (5.22)	0.48
ADHD Rating Scale: Teacher 1				
Inattention	7	91.57 (6.24)	73.86 (17.39)**	2.84
Hyperactivity	7	90.00 (9.20)	81.71 (15.24)	0.90
Total	7	93.43 (4.72)	80.43 (15.32)*	2.75
ADHD Rating Scale: Teacher 2				
Inattention	4	91.00 (10.86)	74.25 (16.98)*	1.54
Hyperactivity	4	83.00 (7.62)	68.75 (21.84)	1.87
Total	4	89.75 (9.88)	80.75 (5.38)	0.91
Children's Impairment Scale: Parent				
Playmates	7	3.57 (2.37)	2.29 (2.63)	0.54
Siblings	7	2.86 (2.34)	1.57 (2.23)*	0.54
Parents	7	3.71 (2.14)	3.00 (1.53)	0.33
Academics	7	5.14 (1.21)	4.00 (1.53)	0.94
Self-esteem	7	4.29 (2.29)	4.00 (1.83)	0.13
Family	7	4.14 (2.12)	4.43 (1.51)	0.14
Overall	6	4.67 (1.51)	4.50 (1.38)	0.11
Children's Impairment Scale: Teacher 1				
Peers	7	3.86 (1.21)	3.14 (1.95)	0.60
Teacher	7	3.71 (2.14)	3.29 (2.29)	0.20
Academics	7	5.29 (0.49)	3.57 (1.90)	3.51
Classroom	7	4.57 (1.40)	3.29 (1.98)	0.91
Self-esteem	5	3.80 (2.39)	3.00 (1.41)	0.33
Overall	7	5.14 (1.07)	4.14 (1.21)	0.94
Grade point average	7	1.79 (0.395)	1.94 (0.509)	0.38
Slope of GPA	7	-0.058 (0.327)	0.085 (0.161)	0.44

NOTE: ES = effect size; GPA = grade point average.

*Significant at .05. **Significant at .01.

large effect size range (ES 0.80). Similarly, parent ratings of inattention symptoms and academic functioning also revealed improvements in the large effect size range. Finally, teachers reported that students' academic functioning and classroom behavior improvement was in the large effect size range. The dependent measures with improve-

ment in the large effect size range had effect sizes ranging from 0.90 to 3.51 and tended to primarily include indices of school functioning.

Medium effect sizes were found on parent ratings of relations with friends and siblings as well as teacher ratings of relationships with peers. Small effect sizes were found on parents' overall rating of ADHD symptoms on the ADHD Rating Scale, parents' ratings of parent-child relationships, teacher ratings of teacher-child relationships, and teacher ratings of self-esteem. In addition, the effect size for the change in GPA and change in slope of GPA were in the small to moderate range. Whereas the change in slope of GPA yielded a small to medium effect size, the direction of the slope changed from slightly declining grades over the course of the previous year to slightly improving grades during the CHP year.

The effect of the program appears to have been greatest on measures related to disruptive behavior and academic performance at school. Medium effect sizes were reported by parents and teachers on the CIS for peer and sibling relations and small effect sizes were reported for adult-child relations by parents and teachers. These findings appear to be consistent across both parent and teacher ratings.

There are various methods for determining clinically significant change and two of the methods reported by Jacobson and Truax (1991) were used in this study. The first method determined the number of participants whose scores from the ADHD Rating Scale (DuPaul et al., 1998) to calculate this midpoint. Scores from the two factors of the ADHD Rating Scale (1. Inattention; 2. Hyperactivity/Impulsivity) from the parents and both teachers were included in this analysis. Prior to treatment, 75 percent of the scores were above the midpoint (i.e., closer to the impaired sample) while only half of the scores were above the midpoint after treatment. In other words, one-third of the scores in the impaired range moved to the healthy range following the treatment.

The second method of calculating clinical significance described by Jacobson and Truax (1991) involves the calculation of a reliable change index and was completed on this data set using the data from the ADHD Rating Scale (see Table 3). The abbreviations in the columns in Table 3 indicate the raters for whom the pre and post scores resulted in improvement with a reliable change index greater than

1.96 (cutoff defined by Jacobson and Truax, 1991). Overall, parents reported clinically significant change ($RC > 1.96$) on 38% of their opportunities to do so and teachers reported clinically significant change on 52% of their opportunities to do so. Some of the scores from each participant were clinically significant on at least one dimension of the rating scale with at least one rater, although there was considerable variability. The numbers ranged from Participant 1, who had only 11% of his ratings indicated clinically significant change, to Participant 2, who had 89% of her scores reveal clinically significant change.

DISCUSSION

The results of this pilot study indicate that the CHP may well be an efficacious psychosocial treatment program for middle school youth with ADHD. Effect sizes in this study were as large or larger than effect sizes reported in a recent study assessing the efficacy of methylphenidate on the academic performance and behavior of youth with ADHD of a similar age (Evans et al., 2001). Effect sizes in the medication study contrasting placebo with the best dosage of medication ranged from 0.36 to 0.91, whereas the effect sizes of academic performance and classroom behavior in this study ranged from 0.90 to 3.51. Although the dependent measures and setting differed between the two studies, these results are especially encouraging in light of the fact that these data are from a public middle school setting.

Some of the participants demonstrated clinically significant improvement as measured by movement into the healthy range and reliable change indices greater than 1.96. In fact, following treatment, 3 of the 7 participants' scores were almost all closer to the mean of a healthy sample than an impaired sample. Nevertheless, there continues to be considerable room for improvement. Although the medium effect sizes found on the peer and sibling relations and the small effect sizes found with the adult-child interaction measures are encouraging, these areas warrant additional attention.

There are several limitations to interpreting the findings of this study. First, this is a small sample size. Furthermore, evaluation of this

TABLE 3
**Clinical Significance of Attention-Deficit/
 Hyperactivity Disorder (ADHD) Rating Scale Data**

<i>Participant No.</i>	<i>Raters Whose Scores Reached Clinical Significance</i>		
	<i>ADHD R/S— Hyperactivity/ Impulsivity</i>	<i>ADHD R/S— Inattention</i>	<i>ADHD R/S— Total</i>
1		T1	
2	P, T2	P, T1, T2	P, T1, T2
3 ^a	P, T1	T1	P, T1
4 ^a		P, T1	
5	P	T2	
6	P, T1, T2		T1
7 ^a	T1	T1	T1

NOTE: P = parent rating; T1 = rating from Teacher 1; T2 = rating from Teacher 2.

a. For various reasons these participants had only one teacher rating and therefore the total number of raters for these participants is 2 instead of 3.

program is needed with larger samples and random assignment to condition to determine if the results can be replicated. In addition, it would be useful to compare the effects of this program to a community control group. Little is known about changes that may occur over time without intervention, and comparisons with a control group could help clarify the unique impact of this intervention. In addition, it would be helpful to compare the unique and combined effects of this program with stimulant medication.

It is also important to note that the intervention described in this study is labor intensive. On one hand, intensive and long-term interventions have been recommended for youth with ADHD because of the chronic and challenging aspects of their behavior. On the other hand, labor-expensive programs prove to be a challenge to disseminate. It is possible that this program could be modified to greatly reduce labor expenses, and this is an important direction for research after firmly establishing the efficacy of the model.

School-based mental health models are especially suited to youth with ADHD because of the levels of school dysfunction they exhibit. In addition, there are many advantages believed to be inherent in this model of care related to effectiveness and generalization (Evans,

1999; Evans et al., 2000). The large effect sizes reported in this study are believed to be at least partly attributable to the school-based model employed in the program. There were individualized programs targeting the generalization of behaviors to school settings established for many of the students. Direct and frequent face-to-face communication with school teachers and administrators was a valuable tool in the design and implementation of the interventions.

Many questions remain to be addressed in the development and evaluation of school-based mental health services for special populations. Questions pertaining to the identification of effective techniques, acceptable and feasible methods, and reliable and valid assessment strategies are a few. Public secondary school teachers, counselors, and administrators are excellent partners in the development process and provide critical data about the effectiveness of the techniques.

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Steven Evans received his doctorate from Case Western Reserve University and is currently associate professor of psychology at James Madison University and director of the Alvin V. Baird Attention and Learning Disabilities Center. His research interests are treatment development for adolescents with ADHD and school-based mental health services.

Jennifer Axelrod received her doctorate from the University of Georgia and is currently project director at the Collaborative for Academic, Social, and Emotional Learning (CASEL). During her work on this project she was an intern at James Madison University and was an assistant professor at the University of Maryland School of Medicine and associate director of the Center for School Mental Health Assistance.

Joshua Langberg received his masters degree in Psychological Services from James Madison University in May 2002. He is currently a student in the Clinical/Community Psychology Ph.D. program at the University of South Carolina. His research interests focus primarily on the assessment and treatment of adolescents with ADHD.