

# A Pilot Evaluation of Small Group Challenging Horizons Program (CHP): A Randomized Trial

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**ABSTRACT.** This study examined the efficacy of an after-school program, the Challenging Horizons Program (CHP), that met four days a week and focused on improving organization, academic skills, and classroom behavior. The CHP was compared with a community control that included involvement in a district-run after-school program that met one to three days a week and focused on preparation for standardized testing. Participants were 48 middle-school youth, referred as experiencing a combination of learning and behavior problems, randomly assigned to either the CHP or the control. Parent and teacher ratings of behavioral and academic functioning were collected at the beginning of the academic year and again after one semester of intervention. Relative to the control, participants in the CHP made significant improvements in parent-rated academic progress, self-esteem, and overall severity of problem. While teacher ratings did not reach significance, CHP participants

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Journal of Applied School Psychology, Vol. 23(1) 2006  
Available online at <http://japps.haworthpress.com>  
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doi:10.1300/J370v23n01\_02

made medium effect size improvements in academic progress and small improvements in overall severity. Core class grades and discipline records were also examined to provide a broad picture of functioning beyond rating scale data. doi:10.1300/J370v23n01\_02 [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2006 by The Haworth Press, Inc. All rights reserved.]

**KEYWORDS.** After-school programs, at-risk, school-based intervention, middle school, school-based mental health, adolescents, dissemination, evidence-based intervention

### ***AFTER-SCHOOL PROGRAMS***

Utilization of after-school programs as a means for delivery of evidence-based mental health services is gaining support (Seligson, 1999; Weisman & Gottfredson, 2001). After-school programs have the opportunity to deliver academic remediation and empirically supported mental health services at a fraction of what it would cost to deliver the same services through other outlets such as primary care and mental health settings (Nabors, Leff, & Mettrick, 2001). After-school programs also provide a framework for the dissemination of evidence-based treatments, while promoting increased service utilization, access to care, and generalization of treatment effects (Evans, 1999; Evans, Langberg, & Williams, 2003). In addition to direct effects, after-school programs also have indirect benefits by preventing students from exposure to the unsupervised after-school hours that are associated with increased drug use, sexual activity, and other high-risk behaviors (Dywer et al., 1990; Shann, 2001). For these reasons, coupled with an effort to improve standardized test scores, public school districts have been offered a significant increase in federal and state funding for the development of after-school programs (e.g., 21st Century After-School Community Learning Centers).

Despite increased funding and support for the development of after-school programs, studies examining after-school program efficacy are rare (Kahne et al., 2001). The available literature suggests that there is considerable variation in the efficacy of the after-school services currently being delivered (Kahne et al., 2001; Shann, 2001). This variation may be because little is known about the specific components that should be included in effective after-school programming (Halpern, 2002). Some models for after-school programming seem to rely on the

notion that academic remediation will be sufficient to increase academic performance and decrease school behavior problems (Seligson, 1999). However, these programs do not specifically address student deficits related to academic skills or behavioral needs other than those directly associated with standardized testing, such as, test-taking skills, knowledge specific to the test, and behavior during the formal hours of the remedial after-school program.

### ***CHALLENGING HORIZONS AFTER-SCHOOL PROGRAM***

The Challenging Horizons Program (CHP) is a manualized after-school program that was originally designed by Steven Evans, PhD, to improve the academic and behavioral functioning of middle-school youth with Attention-Deficit/Hyperactivity Disorder (ADHD) (Evans, 2001). The CHP has undergone a number of pilot evaluations, first at James Madison University in Virginia and recently at Western Psychiatric Institute in Pennsylvania and at the University of South Carolina in South Carolina. Currently, there are three CHP service delivery models including a *primary counselor* model, a *small group* model, and an *integrated* model (Evans, Molina, & Smith, 2005; Langberg & Smith, in press). One or more of the CHP models can be utilized in a given school setting.

Primary counselor CHP is designed to provide after-school services with 1:1 staff to student ratios to serve students with ADHD who are experiencing severe behavioral and academic functioning difficulties. Small group CHP provides after-school services to any student classified as at risk, typically students experiencing a combination of academic and behavioral difficulties, with 3:1 and 12:1 student to staff small groups. In the integrated model, school psychologists, counselors, and teachers deliver a package of evidence-based interventions during the course of the normal school day. As the primary counselor model of CHP leads to the development of small group CHP, and provides the basis for the current small group study, the two published pilot evaluations of primary counselor CHP are reviewed in the following section.

#### ***Primary Counselor CHP***

The first evaluation of the primary counselor model was a small repeated measures pilot study with no control group (Evans, Axelrod, & Langberg, 2004). After participating for at least three months in the

CHP, students showed large improvements, as measured by Cohen's *d* effect sizes on the Impairment Rating Scale (IRS), in academic progress, as rated by parents and teachers, and classroom behavior, as rated by teachers. In addition, about half of the students moved into the clinically normal range of functioning on measures of academic progress and classroom behavior. Students also demonstrated small to medium gains in parent and teacher ratings of overall severity of problems and relationships with peers. As noted in the discussion, the study was limited by the small sample size,  $N = 7$ , inadequate power to find statistical significance, and the lack of a comparison group.

A second evaluation sought to address the basic limitations of the first pilot study by comparing the CHP with a community control group with sample sizes of approximately 15 participants per group (Evans, Langberg, Raggi, Allen, & Buvinger, 2005). Students who participated in CHP demonstrated medium effect size improvements in parent IRS ratings of academic progress, peer relationships, and overall severity of problems as compared with the community control, which made small or no gains. In contrast, teachers indicated that students in CHP made small to medium gains in academic progress but made limited or no improvements in peer relationships and overall severity of problem. The study was limited by the fact that participants were not randomly assigned to the CHP or a control condition. In addition, the authors point out the labor intensive nature of the primary counselor model of CHP and discuss the possibility of future research modifying the 1:1 student to staff method of service delivery to make it less demanding on staff resources.

### ***Small Group CHP***

The current study reports on the first pilot evaluation of small group CHP, which is designed to serve a diverse population of at-risk students with a wide range of academic and behavioral impairments. This evaluation seeks to address three of the main limitations associated with the two pilot studies of primary counselor CHP. First, this study includes data from a randomized, controlled study of the small group CHP. This will be the first study of any CHP model to include randomization of participants, thereby addressing one of the significant limitations of previous pilot evaluations. Second, this study includes a community control where participants were offered after-school programming designed and operated by the school district. Therefore, the CHP is compared with a community control that includes an intervention similar to what is currently provided in many after-school programs. At the very least

the comparison group is stronger than typical minimal or no treatment community control groups.

A third methodological consideration is that this study begins the process of moving the CHP away from the labor-intensive primary counselor model of service delivery (Langberg & Smith, in press). The core CHP interventions were delivered in small group formats rather than with 1:1 student to staff ratios. In addition, school teachers received training and implemented one third of the CHP programming. Specifically, small group CHP provides after-school services to any student classified as at risk, typically students experiencing a combination of academic and behavioral difficulties, with 3:1 and 12:1 student to staff small groups. Thus, this small group model allows for group delivery of interventions and expands service delivery to include regular school staff, as opposed to the primary counselor CHP which is exclusively staffed by CHP specialists.

## ***METHOD***

### ***Participants***

Small group CHP was implemented at two racially and economically diverse urban schools in the Richland One School District of Columbia, South Carolina. The schools were approximately 65% African American and 35% Caucasian with over 50% of the students eligible for subsidized or free lunches. Program participation was open to any youth who scored “below basic” on a standardized test, the Palmetto Achievement Challenge Test (PACT), given to all middle-school students in South Carolina at the end of each year. Participation was also available through direct referral to the program by teachers or parents who identified students as experiencing general behavioral and academic functioning difficulties, irrespective of any diagnosis.

A sample of 48 students in the 6th and 7th grades, (32 boys and 16 girls) was recruited by sending brochures to parents and teachers and by using a random numbers list to call the parents of students who scored “below basic” on the standardized test. Parents who expressed interest in study participation scheduled a meeting at the school to fill out screening and baseline measures that took approximately 30 minutes to complete. The exclusionary criteria were severely impaired cognitive functioning due to severe psychopathology (e.g., psychosis) or estimated Full Scale IQ < 70. Screening for psychopathology was conducted by

having parents complete the Behavioral Assessment Scale for Children. Students meeting exclusion criteria who were not eligible for participation in the CHP were given appropriate service referrals (i.e., to the University Psychological Services Center).

In addition to the Behavioral Assessment Scale for Children (BASC), baseline measures included the Family Background Questionnaire (FBQ), the Conners Abbreviated Symptoms Questionnaire (ASQ), and the Impairment Rating Scale (IRS). These measures are described in greater detail later in the method section. Active parental and student consent was obtained prior to screening and assignment to groups. All procedures were approved by the University IRB and the study was conducted in accordance with the ethical standards of the American Psychological Association.

Following completion of the screening and baseline measures, parents were asked to draw a number out of a bag. The bag was filled with slips of equal-sized paper labeled with either a number one or a number two written on each. The outside of the bag indicated that drawing a number one placed students in the small group CHP and a number two placed students in the community control. The community control was waitlisted and eligible to begin participation in the CHP at the beginning of the second academic semester. The district operated after-school program was available to all families that were assigned to the community control group. The district after-school program was available a minimum of 1 day a week and a maximum of 3 days a week. The number of days community control students could attend the after-school program was determined by the number of core subject areas on which they scored "below basic" on the PACT. Eighty-five percent of the community control participated in the district-run after-school program an average of 2 days a week. Transportation home from the after-school programs was provided to control and CHP students upon request. Participants in the CHP were 62% African American and 38% Caucasian and participants in the control were 70% African American and 30% Caucasian.

## **MEASURES**

### ***Screening and Background Information***

*Behavioral Assessment Scale for Children (BASC).* The BASC is a comprehensive behavior rating scale completed by parents in about

20 minutes at screening (Reynolds & Kamphaus, 1992; Sandoval & Echandia, 1994). Ostrander, Weinfurt, Yarnold, and August (1998) reported that the BASC is more accurate in differentiating ADHD students from non-ADHD students than the Child Behavior Checklist (CBCL). In addition, a recent review of the published BASC literature reveals that this measure has strong overall psychometric properties (Gladman & Lancaster, 2003). The BASC II was released halfway through this study, and in order to remain consistent, the initial version of the BASC was administered throughout this study.

*Family Background Questionnaire.* The Family Background Questionnaire (FBQ) is a demographics screening tool packaged with the Triple P Teen Parenting materials (Sanders & Ralph, 2001). The Family Background measure provides information needed to calculate Hollingshead Index scores, a measure of socioeconomic functioning (Hollingshead, 1975; Myers & Bean, 1968). In addition, the FBQ yields information regarding additional services the family is receiving, whether or not the child is currently taking medication, as well as the general family constitution.

*Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV), Short Form.* Short forms of the WISC-IV (Wechsler, 2003) serve as excellent tools when performing IQ screenings for research purposes. In the current study, we administered the Block Design and Vocabulary sections of the WISC-IV, which have high reliability and validity coefficients when compared with Full-Scale WISC-IV IQ scores, .916 and .874 respectively (Sattler & Dumont, 2004).

### ***Behavioral/Academic Functioning Dependent Measures***

*Conners Abbreviated Symptom Questionnaire (ASQ-Parent).* We used this measure because of (1) the historical roots of the CHP in treating middle-school students with ADHD, (2) the high likelihood of students in the study to meet criteria for ADHD, and (3) the 10-item Conners Global Index (CGI) portion of the scale is especially useful for repeated administrations. The CGI evaluates the reported problem behaviors found to be critical in assessing the severity of childhood problems. The scale has consistently demonstrated good internal reliability and high test-retest reliability (Blouin, Conners, Seidel, & Blouin, 1989; Conners, 1970; Conners, Sitarenios, Parker, & Epstein, 1998). Conners scale has also demonstrated excellent specificity, sensitivity, and predictive power (Conners et al., 1998). The ASQ was administered to participants' parents at baseline and following the completion of the

first semester of school. The CGI response format requires parents to respond Not at all true (0), Just a little true (1), Pretty much true (2), or Very much true (3), to 10 questions related to their child's behavior.

*Impairment Rating Scale (IRS).* The Children's IRS was developed to assess the areas of functioning that typically characterize children with ADHD (Pelham et al., 1996). Although this measure is in the early stages of development, normative data are available and the scale appears to have good psychometric qualities (Pelham, Fabiano, & Massetti, 2005; Waschbusch, Willoughby, & Pelham, 1998). The IRS has shown moderate to good test-retest reliability at 6 months, .60-.89 for parent ratings and .64-.89 for teacher ratings, and good concurrent validity with the Children's Global Assessment of Functioning (CGAS), .55-.73 for parent ratings and .62-.77 for teacher ratings (Fabiano et al., in press; Pelham, Fabiano, & Massetti, 2005). The IRS has also demonstrated good criterion validity as correlated with measures of aggressive behavior and with the Pittsburgh Modified IOWA Conners (Pelham, Milich, Murphy, & Murphy, 1989), and good diagnostic efficiency (Raggi, Evans, Hackethorn, & Thompson, 2003). The IRS includes six questions with response patterns requiring parents and teachers to rate on a scale from 0 = No problem, does not need intervention, to 6 = Extreme problem, needs intervention.

The IRS was administered to each participant's parents at baseline and again following completion of the first semester of school. The IRS was also administered to two teachers for every participant in the study. Teachers were chosen based upon first semester interim grades. Specifically, the teachers associated with each participant's two lowest core class first semester interim grades were asked to complete ratings. As middle-school teachers are unlikely to know students well enough to rate them during the first few weeks of school, teachers rated participants following 1 month of treatment and again after the completion of the first semester of school.

*Academic Grades and Discipline Records.* The academic year in Columbia, SC is divided into four quarters. All students receive report cards with letter grades at the end of each quarter (grade report). Throughout the Richland One school district in Columbia, SC grades are based on a uniform scale where a grade of 0-69 is an F, 70-76 is a D, 77-84 is a C, 85-92 is a B, and 93-100 is an A. In addition, discipline records were collected in order to determine the average number of times students participating in the CHP were suspended or given detention as compared with the control.

### *Analyses*

We hypothesized that each comparison of dependent variables would yield a significant group  $\times$  time interaction, indicating improvement in the behavioral and academic functioning of students randomly assigned to the CHP versus decline or no change in the community control. In addition, because of the small sample size in this study, and to aid in comparison with previous CHP pilot studies, analyses will also emphasize Cohen's *d* and eta-squared measures of effect size. In accordance with the two pilot studies reviewed above, we hypothesized that CHP participants will demonstrate large academic effect size improvements and medium sized behavioral improvements.

In line with previous CHP pilot studies, the IRS was utilized as a dependent measure of behavioral and academic functioning. Instead of conducting repeated measures ANOVAs for each individual question on the IRS we will limit ANOVA comparisons to those IRS functioning domains that are rated as clinically significant problems at baseline for either the CHP or control, that is, a rating of above three (Pelham et al., 1996). As ratings of below three on the IRS, that is, two, one, or zero, indicate no problem, does not need intervention, analyses will focus on those areas rated by parents and teachers as significant problems. Because the IRS is in the beginning stages in terms of collecting normative data, the CGI parent version was also used as a measure of behavioral functioning. In addition, since the CHP has groups that specifically target homework accuracy, homework completion, and physical organization of materials, parent ratings of homework completion and organization specific questions on the Conners Abbreviated Symptom Questionnaire (ASQ) that addressed these issues were analyzed separately.

Finally, in order to provide a broad picture of behavioral and academic functioning that was not strictly reliant upon ratings scales, we examined discipline records and class grades. We will present individual core class grades from semester 1 to semester 2 including science, math, language arts, and history grades. In addition, we will examine the numbers of times students in the CHP are suspended from school or given detention as indicators of the programs impact on behavioral functioning.

### *Procedures*

The CHP operated 4 days a week for 2 hours each day, after school, for the duration of the first semester of school, from September through December. The CHP was run in regular classrooms within the school.

Participants were required to report to the CHP classrooms immediately after school, by 3:50 pm. The program day ended at 5:50 pm, with students either being picked up by their parents or by riding a school-bus home. Program and transportation costs were covered entirely by the school district.

### ***Staff***

Small group CHP was staffed primarily by university junior and senior psychology majors. University students worked at the CHP two days a week and attended one hour of group supervision once a week. University students received a grade and three credit hours for participation. All staff members participated in a week of training sessions prior to CHP commencement. Staff were required to read a manual describing the program, as well as pass a test on the rules and procedures before they were permitted to work in the CHP. Staff were required to re-take the test until they earned a score of 90% or above.

### ***Behavioral Level System***

Small group CHP included a behavioral level system with four levels, each associated with a different set of privileges. Students' weekly level placement was determined by recording the percentage of homework assignments accurately recorded, binder, bookbag, and locker organization, and behavior during the program. Students' levels were evaluated once a week with level changes occurring on Mondays. Each student received a daily behavior card with the color of the card corresponding to their weekly level. Program behavior, organization, and homework recording were operationally defined in the CHP manual and recorded daily on the behavior cards. Students on higher levels were allowed privileges, such as, a choice of snacks, eligibility to be team captains during recreation time, choice of where they sat in the classroom, participation in a student advisory council, and freedom to go in and out of the classrooms without a hall pass. Students on lower levels had to be in sight of a counselor at all times, work on homework during recreation time, and did not get choice of snack.

### ***Check-In***

Students were expected to arrive at the CHP classrooms by 3:50 or they were marked as late. Classrooms were assigned by grade level (6th

or 7th) with no more than 12 students per room. Upon arrival, CHP staff checked students' agenda books to ensure all homework assignments and upcoming tests were accurately recorded. This information was gathered by assigning each staff person to talk to two teachers weekly to obtain information on behavior, homework assignments, and tests. Following agenda checks, students were provided with a snack as determined by level. Students spent the remainder of check-in time working on homework while eating their snack.

### ***CHP Components***

Following check-in, all students participated in two groups daily, with each group lasting 35 minutes. All students received academic remediation group every day plus received one of four manualized skills group daily, so that all students received each of the skills groups once a week. Academic remediation group was run with no more than 12 students per room with a school teacher plus teacher's aide. For CHP skills groups, students were divided into four groups, with a maximum of three students in each, giving a 3:1 student to staff ratio. All CHP skills groups were run by university staff.

*CHP Academic Interventions Group.* The academic interventions group was designed to teach students study skills, note-taking skills, and written language skills. Specific mastery criteria were set for each of the skills taught ensuring that students demonstrated use of the skill, both within the CHP, as well as at home and school. There were three phases of academic interventions group that students worked through at varying paces depending upon skill level. All students started on Phase I, study skills, and were taught to use flash cards and to present verbal and written summaries of class material. During Phase II, note-taking, students were taught to take notes from a lecture and notes from text. As with all phases, students demonstrated skill generalization by showing the group leader notes taken in the regular classroom that were approved by the teacher as accurate and appropriate. Phase III, written language, students learned how to write essays including brainstorming, developing main ideas and supporting details, and organizing their writing.

*CHP Individual Goals Group.* Individual goals group was designed to target the specific problem areas identified by teachers and parents during the screening process as being of most concern. During CHP goals group, point systems and token economies were implemented to provide students with incentives for making specific behavioral and

academic improvements. For example, for students whose teachers reported disruptive classroom behavior as a problem, a daily report card (DRC) was implemented with a system of rewards and consequences. For students whose teachers reported a particular skills deficit, multiplication tables for example, a system of rewards and consequences was put in place contingent upon the use of flash card drills and progress. Each student had both an academic and behavioral goal implemented and monitored. Students' goal progress was discussed and changes were made during the weekly group supervision meetings.

*CHP Organization Group.* During organization group, students were taught a manualized organization system that included binder, bookbag, and locker organization procedures. Each week during organization group, university staff completed a checklist to assess the physical organization of students' materials. Criteria included use of a specific folder, with homework to be completed placed on one side and homework to be turned in placed on the other side, no loose papers in the bookbag, locker, or binder, and use of a specific section for each core class in the binder. Organization criteria were evaluated and recorded weekly and directly impacted students' levels for the following week.

*CHP Homework/Time Management Group.* Homework/time management group was designed to teach students to plan ahead for long-term assignments and tests. Students moved through a series of phases that began with planning out an evening schedule, to planning a weekly schedule, and ending with planning a monthly schedule. Students were asked to record upcoming tests and projects on a calendar. Students then determined how many minutes they would study or work on the project each night up until the test or project was due. In the later phases students were required to have parents initial that their child studied at home or initial that they quizzed their child. After students had schedules checked and had created new schedules, they worked on their most difficult homework assignments for the remainder of group time.

*CHP Academic Remediation Group.* Academic remediation group was run by a certified middle-school teacher and a CHP staff member acting as a teacher's aide. Students were divided by grade with 6th grade students receiving academic remediation group first, while 7th grade students received CHP skills groups. After 35 minutes, students switched and the 7th grade students received the teacher-led academic remediation group while 6th grade students participated in the CHP skills groups. The teacher was provided with one CHP staff person to make behavior calls and assist with delivering the lesson. The content of the academic remediation group was determined by the school district

and was based on the same standardized test curriculum delivered in the district-run after-school program. CHP students participated in academic remediation group for 35 minutes each day, 4 days a week.

*CHP Recreation Group.* The final 35 minutes of each CHP day were devoted to a recreational activity. Students on the two highest CHP behavioral levels chose what activities were played each week and were eligible to be captains in the activities. Activities included kickball, flag-football, ultimate frisbee, board games, and computer time.

*Parent Contact.* Parents of students on the two lowest behavioral levels received daily report cards describing their child's behavior in the CHP. All CHP parents received weekly report cards sent home each Monday summarizing their child's behavioral and academic performance during the previous week. In addition, parents of CHP students who were car riders, approximately 50% of students, had daily contact with CHP counselors when students were picked up from the program. CHP staff had no contact with the community control parents except during the screening process and when post measures were collected over the phone.

### ***District-Run After-School Program***

As mentioned above, 85% of community control students participated in the district-run after-school program. Certified middle-school teachers ran the district after-school program 3 days a week for 2 hours each day. The curriculum was the same curriculum delivered in the CHP academic remediation group and was designed to prepare students for PACT testing. Control participants attended an average of 2 days per week receiving a total of 4 hours of the academic remediation curriculum weekly. Classes were taught in group format with no more than 15 students per classroom. Each program day was devoted to a specific subject area, with Language Arts taught on Tuesday, Math on Wednesday, and Science on Thursday. Students attended according to the subject areas they scored "below basic" on the previous year's PACT test. The program was free for all participants and transportation was provided at the end of each program day.

### ***Treatment Fidelity***

Treatment fidelity was monitored in two ways. First, group leaders were required to keep a folder on each CHP participant where group progress was recorded. For example, group leaders recorded the percentage of binder, bookbag, and locker organization in the folder each

time they met with a student. These folders were reviewed by the staff supervisors and problems or inconsistencies were addressed during weekly supervision. Second, staff supervisors were on-site every program day and observed counselors leading groups. Supervisors then addressed any manual adherence issues with counselors during the weekly group supervision.

## RESULTS

### *Participant Characteristics*

Independent-sample t-tests were calculated to compare participants at baseline in the CHP with participants in the control group on age, gender, ethnicity, diagnostic screening characteristics, Full Scale Short Form IQ scores from the Wechsler Intelligence Scale for Children-Fourth Addition (Wechsler, 2003), and socioeconomic status (Hollingshead, 1975). No significant differences were found on any of the sample characteristics (see Table 1). Pre-treatment equivalence was also achieved for all dependent measures (see Table 2).

In order to provide additional evidence for academic functioning pre-treatment equivalence, we examined PACT scores, a statewide standardized test, from the previous school year. In the two main PACT subject areas, Language Arts and Math, 76% of the CHP group scored “below basic” on at least one of the two subtests as compared with 67% of the control. These findings support the assertion that randomization achieved pre-treatment equivalence for academic functioning. If there were any differences, the PACT test information indicates that the CHP participants may actually have been the more severe group at baseline.

TABLE 1. Descriptive Statistics for Treatment and Control at Baseline

Variable	Small Group CHP			Control		
	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>M</i>	<i>SD</i>	<i>Range</i>
Age	11.76	.70	11-13	11.89	.57	11-13
Grade	6.52	.51	6-7	6.48	.58	6-7
SES <sup>a</sup>	3.45	1.2	II-V	3.22	.89	II-V
WISC IQ	94.7	16.3	71-117	90.1	19.1	71-123

Note: SES = socioeconomic status; WISC = Wechsler Intelligence Scale for Children-IV-Short-Form.

<sup>a</sup>Hollingshead (1975).

*n* = 21 for small group CHP, *n* = 27 for control group.

TABLE 2. Dependent Measures for Treatment and Control

Variable	Small Group CHP Pre		Control Pre		Small Group CHP Post		Control Post		F Value	n <sup>2</sup>	Cohen's <i>d</i> CHP	Cohen's <i>d</i> Control
	M	SD	M	SD	M	SD	M	SD				
Parent CGI	9.14	7.0	6.93	5.7	4.86	4.6	8.78	6.5	15.35**	.25	.74	-.30
Parent IRS Academic Progress	3.19	1.8	3.26	1.7	2.05	1.3	3.70	1.9	9.30*	.17	.73	-.24
Parent IRS Self-Esteem	2.95	2.4	2.7	1.8	1.86	1.9	2.96	2.0	5.69*	.11	.50	-.13
Parent IRS Overall Severity	3.24	2.1	2.70	1.9	1.86	1.4	2.74	1.9	9.11*	.17	.77	-.02
Teacher IRS Academic Progress	4.09	1.3	4.27	1.6	3.09	1.7	4.06	1.78	3.89	.08	.66	.12
Teacher IRS Overall Severity	3.07	1.59	3.02	1.91	2.73	1.36	3.39	1.69	2.39	.05	.23	-.20
Parent ASQ Organization	1.67	1.1	1.96	.76	1.00	.95	2.33	.73	11.03*	.19	.65	-.51
Parent ASQ Homework	1.00	.84	1.44	.9	1.05	1.02	1.78	1.09	.87	.02	-.05	-.34

Note: Group differences at baseline were tested with two-tailed, independent sample *t* tests. Small group CHP and the control are statistically equivalent at baseline,  $p > .05$  on all dependent measures. Group  $\times$  time interactions were tested with repeated measures ANOVAs. CGI = Conners Global Index, IRS = Impairment Rating Scale, ASQ = Conners Abbreviated Symptom Questionnaire.  $n = 21$  for small group CHP,  $n = 27$  for control group for parent ratings,  $n = 24$  for control teacher ratings. \*\* $p < .001$ , \* $p < .01$

Magnitude of between group effects was examined with (eta-squared;  $\eta^2$ ) where .01 = A small effect, .06 = A medium effect, and .14 = A large effect, and with in group effects were calculated with (Cohen's  $d$ ), where .02 = A small effect, .05 = A medium effect, and .08 = A large effect (Cohen, 1988).

### ***Parent Ratings–Impairment Rating Scale (IRS)***

A repeated measures MANOVA consisting of all six questions on the parent IRS, including relationship with other children, relationship with parent, academic progress, impact on family, self-esteem, and overall severity of problems, approached significance  $F(1, 47) = 2.03, p = .085, \eta^2 = .23$ . Although the MANOVA did not reach significance, an eta-squared effect of .23 is classified as a large interaction effect and suggests that the nonsignificant finding may have been due to low power. An examination of parent IRS means at baseline revealed that the CHP and control groups were functioning above, or close to, the cutoff for clinically significant problems on three of the six functioning areas; academic progress, self-esteem, and overall severity of problems. Thus, in addition to limited power, the MANOVA analysis of parent IRS measures was limited by a ceiling effect because three areas of functioning were not rated as clinically significant problems at baseline or follow-up. Consequently, follow-up repeated measures ANOVAs were limited to those functioning areas classified as clinically significant problems at baseline (i.e., means above 3 on the IRS).

### ***Academic Progress***

A repeated measures ANOVA examining parent ratings of *academic progress* on the IRS revealed a significant group  $\times$  time interaction,  $F(1, 47) = 9.30, p = .004, \eta^2 = .17$ . Parents indicated that participants in the CHP moved from exhibiting clinically significant academic impairment at baseline ( $M = 3.19, SD = 1.81$ ) to below the cutoff for clinical significance following completion of the first school semester ( $M = 2.05, SD = 1.32$ ). Parents of students in the control group rated academic progress as a clinically significant concern at baseline ( $M = 3.26, SD = 1.79$ ) and indicated that academic progress continued to be a clinically significant problem on post-test ratings ( $M = 3.70, SD = 1.86$ ). An eta-squared of .17 suggests that the CHP had a large effect on academic progress relative to the control. In addition, Cohen's  $d$  effect size analy-

ses demonstrate that the interaction was driven by medium to large gains for CHP participants,  $d = .74$ , and a small effect in the negative direction for control participants,  $d = -.24$  (see Table 2).

### ***Self-Esteem***

A repeated measures ANOVA examining parent ratings of *self-esteem* on the IRS revealed a significant group  $\times$  time interaction,  $F(1, 47) = 10.836$ ,  $p = .021$ ,  $\eta^2 = .11$ . Parents of CHP participants indicated that self-esteem approached the clinically significant problem cutoff at baseline ( $M = 2.95$ ,  $SD = 2.4$ ) and improved following one semester of intervention ( $M = 1.86$ ,  $SD = 1.9$ ). In comparison, while parents of control participants also rated self-esteem close to the clinically significant problem cutoff at baseline ( $M = 2.70$ ,  $SD = 1.8$ ) they indicated that problems with self-esteem worsened slightly over the semester ( $M = 2.96$ ,  $SD = 2.0$ ). Cohen's  $d$  measure of effect size reveals that CHP participants made medium improvements in parent ratings of self-esteem,  $d = .50$  (see Table 2).

### ***Overall Problem Severity***

A repeated measures ANOVA of the *overall problem severity* question on the IRS also produced a significant group  $\times$  time interaction,  $F(1, 47) = 9.11$ ,  $p = .004$ ,  $\eta^2 = .17$ . Participants in small group CHP moved from exhibiting clinically significant overall problems at baseline ( $M = 3.24$ ,  $SD = 1.86$ ) to no longer exhibiting clinically significant problems after one semester of intervention ( $M = 1.86$ ,  $SD = 1.93$ ). Parent ratings of control group overall problem severity indicated no change, ( $M = 2.7$ ,  $SD = 1.8$ ) on both baseline and post-test ratings. An eta-squared of .17 is indicative of a large interaction effect, with a Cohen's  $d$  effect size for CHP participants of .77, also in the medium to large range (see Table 2).

### ***Clinical Significance–Parent (IRS)***

Overall severity of problems was rated as a clinically significant issue for 71% of CHP participants pre-intervention and remained a clinically significant issue for 43% post-intervention. This is compared with the control where 52% met clinically significant problem criteria at pre-test and 67% at post-test. Likewise, 67% of CHP participants were rated as demonstrating clinically significant academic progress problems pre-in-

tervention as compared with 43% after one semester of intervention. The control again demonstrated a worsening trend, 63-74%, respectively.

### ***Parent Ratings–Conners Global Index (CGI)***

Due to the fact that the IRS is in the beginning stages of validation, the parent CGI was utilized as an additional measure of behavioral functioning. A repeated measures MANOVA conducted with the 10-item CGI as the dependent variable revealed a significant group  $\times$  time interaction,  $F(1, 47) = 15.35, p < .001, \eta^2 = .25$ . Parents rated small group CHP participants as exhibiting fewer behavioral functioning difficulties following completion of the first school semester, baseline ( $M = 9.14, SD = 7.0$ ), and post treatment ( $M = 4.86, SD = 4.63$ ). In contrast, parents of students randomly assigned to the control reported that behavioral functioning became more impaired over the semester, baseline ( $M = 6.93, SD = 5.67$ ), and post treatment ( $M = 8.78, SD = 6.48$ ). An eta-squared of .25 is classified as a large effect and indicates that the small group CHP intervention had a large positive impact on behavioral functioning as compared with the pre to post trend of the control (see Table 2).

### ***Parent Ratings–Organization and Homework Completion***

A repeated measures ANOVA conducted for the organization question on the ASQ revealed a significant group  $\times$  time interaction,  $F(1, 47) = 6.35, p = .002, \eta^2 = .19$ . An eta-squared of .19 indicates that participants in small group CHP made large improvements in organization as compared to the control. A repeated measures ANOVA examining the question completes homework, on the ASQ, did not reveal a significant group  $\times$  time interaction,  $F(1, 47) = .48, p = .36, \eta^2 = .02$ . Further analysis did reveal significant main effects of treatment at post test ratings,  $t(47) = -2.37, p = .02$ . Parents of CHP participants indicated that homework completion did not change over the course of the semester, baseline ( $M = 1.00, SD = .84$ ) to post-test ( $M = 1.05, SD = 1.02$ ), whereas homework completion became more of a problem for the control, baseline ( $M = 1.44, SD = .89$ ), post-test ( $M = 1.78, SD = 1.09$ ). An eta-squared of .019 indicates that the small group CHP had a small effect on homework completion as compared with the control.

### ***Teacher Ratings–IRS***

Teacher ratings for three control participants were missing at baseline and, therefore, those students are not included in the teacher rating analy-

sis. There were no missing teacher ratings for the CHP group. A repeated measures MANOVA on all six questions of the teacher IRS did not reveal a significant group  $\times$  time interaction,  $F(1, 44) = .91, p = .5, \eta^2 = .13$ . At baseline teachers indicated that CHP and control participants were functioning in the clinically significant problem range in two functioning areas, academic progress and overall severity of problem, and follow-up ANOVAs were run for those two areas of functioning.

### ***Academic Progress***

A repeated measures ANOVA conducted on the *academic progress* question of the teacher IRS approached significance,  $F(1, 44) = 3.9, p = .055, \eta^2 = .08$ . Teachers indicated that CHP participants improved from ( $M = 4.09, SD = 1.3$ ) at baseline towards the clinically normal range of functioning after one semester of treatment ( $M = 3.09, SD = 1.7$ ). In comparison, teachers of control participants indicated that, while progress was made, control students were still functioning well with in the clinically significant problem range after one semester, ( $M = 4.27, SD = 1.6$ ) and ( $M = 4.06, SD = 1.8$ ), respectively. Cohen's  $d$  measure of effect size indicates that small group CHP participants made a medium improvement in teacher rated academic progress,  $d = .66$ , as compared with the control which made a small gain,  $d = .12$  (see Table 2).

### ***Overall Severity***

A repeated measures ANOVA examining teacher ratings of *overall problem severity* did not reach significance,  $F(1, 44) = 2.39, p = .13, \eta^2 = .053$ . Nevertheless, the trend did favor CHP participants, whom teachers rated as improving slightly after one semester of treatment ( $M = 3.07, SD = 1.6$ ) to ( $M = 2.73, SD = 1.37$ ) as compared with the control ( $M = 3.02, SD = 1.91$ ) at baseline to ( $M = 3.39, SD = 1.7$ ) after one semester. Cohen's  $d$  effect sizes reveal that, while small group CHP participants made a small improvement in overall severity according to teachers,  $d = .23$ , the control group made a small move towards worse overall functioning,  $d = -.21$  (see Table 2).

### ***Grades***

An examination of class grades was conducted comparing mean grades at quarter 1 and quarter 2 in the four core classes, Science, History, Math, and Language Arts. As in most schools, quarter 1 grades

were calculated by teachers after the completion of 1 month of school. Therefore, students had already been exposed to the CHP or control for close to 1 month.

We expected main effects of grades at each quarter, rather than group by time interactions, because the CHP program started well before the first quarter grades were reported. However, independent-sample t-tests revealed that the only significant between group differences were for Science grades at quarter 2,  $t(46) = 2.49$ ,  $p = .016$ . We should note that that trend in means favored the CHP, but the following mean differences were not statistically significant at the .05 level. In Science, students in small group CHP performed better at quarter 1 ( $M = 81.1$ ,  $SD = 10.6$ ) than the control group ( $M = 75.3$ ,  $SD = 12.1$ ) and significantly outperformed the control on quarter 2 grades, CHP, ( $M = 83.4$ ,  $SD = 8.5$ ) control, ( $M = 76.5$ ,  $SD = 9.8$ ). In History, students in the CHP ( $M = 78.4$ ,  $SD = 13.9$ ) performed better than the control ( $M = 74.4$ ,  $SD = 12.6$ ) at quarter 1, and continued to score higher at quarter 2, CHP, ( $M = 77.8$ ,  $SD = 12.6$ ) control, ( $M = 75.9$ ,  $SD = 11.5$ ). In Math, CHP participants ( $M = 77.4$ ,  $SD = 9.6$ ) scored higher at quarter 1 than the control ( $M = 73.4$ ,  $SD = 11.5$ ) with the gap narrowing at quarter 2, CHP, ( $M = 77.6$ ,  $SD = 11.5$ ) control, ( $M = 76.8$ ,  $SD = 8.7$ ). In Language Arts, the treatment group ( $M = 81.7$ ,  $SD = 6.8$ ) outperformed the control ( $M = 78.9$ ,  $SD = 8.9$ ) at quarter 1, with scores remaining practically unchanged for both groups at quarter 2, CHP ( $M = 81.8$ ,  $SD = 6.5$ ) control, ( $M = 78.2$ ,  $SD = 9.3$ ).

### *Discipline Records*

The district where the CHP is run in South Carolina records the numbers of times each student is suspended or given a detention during the school year. The majority of students in this study were in elementary school the previous year, with an entirely different schools and principles. For this reason, the previous years discipline records would not provide a reasonable comparison for demonstrating pre-treatment equivalence. Accordingly, examination of discipline records from the semester during which this study took place must be viewed with caution. With this caution in mind, it appears that the CHP was associated with fewer officially recorded behavior problems. Specifically, as a group, students in the CHP were suspended a total of five times during the course of the semester and served detention six times. This is compared with the control group that was suspended twice as often, a total of ten times, and received almost twice as many detentions, also ten.

## **DISCUSSION**

This is the first study to examine the efficacy of the small group delivery model of the CHP and the results are promising. The present study evaluated small group CHP by randomly assigning participants to small group CHP or to a community control for one semester of the school year. Results indicate that participants in the small group CHP made a number of significant behavioral and academic improvements relative to the control.

The sample for this study was recruited from a list of students who scored “below basic” on standardized testing and from teacher and parent referrals to the program. This method of recruitment resulted in a sample that was experiencing both behavioral and academic functioning difficulties, with the latter being the greater of the two concerns. According to the IRS, participants in both the control and CHP were rated as exhibiting clinically significant problems at baseline in the areas of academic progress and overall severity by both parents and teachers and in the area of self-esteem by parents. Group  $\times$  time interactions were found for all clinically significant problem areas on parent IRS ratings with the CHP improving relative to the control. Teacher ratings indicated that while students made academic progress and improved in overall severity of problems, relative to the control, these changes were not significant. Cohen’s *d* analyses of effect size indicate that CHP participants made medium to large gains in those areas of functioning rated as clinically significant problems at baseline (see Table 2). In addition, the group by time interaction that was found for parent ratings of behavior on the CGI supports the IRS findings that the CHP positively impacts behavioral functioning.

The current findings do suggest that small group CHP has the potential to positively impact a diverse group of students and may, in fact, produce outcomes comparable with the primary counselor service delivery model. This is an important finding, and suggests that a less staff intensive CHP program (i.e., the small group CHP) can still produce significant benefits. As the CHP undergoes further changes to the manual with effectiveness as a priority, the ability to deliver group-based services will become vital. It remains to be seen if the primary care model of CHP is specifically more effective with students with ADHD than the small group model.

### ***School-Relevant Outcomes***

In the present study, grade data were collected for each of the four core subject areas, Science, Math, Language Arts, and History. Unfor-

tunately, quarter 1 grades were not tabulated and made available until students had received 1 month of intervention, thus leaving no true baseline for grades. We would hypothesize that the month of intervention CHP students received would significantly impact quarter 1 grades. Examination of grade data did reveal that at quarter 1 CHP participants had nominally higher grades than the control in each of the four major subject areas, but these differences were not statistically significant. At quarter 2, CHP maintained higher grades in each class and scored significantly higher than the control in Science. However, finding no significant group by time interactions for core class grades is a notable shortcoming of this evaluation of small group CHP.

We should note that grades are multiply determined and may not respond as quickly to intervention as the rating data. Previous evaluations of the primary counselor model suggest that class grades may be slower to respond to intervention as compared with parent ratings of academics. It is likely that there is a time lag such that effects of programs such as the CHP may not be evident in one semester, so longer follow ups are needed. Furthermore, it may be that, compared with ratings, more intervention is necessary to significantly impact grades. Thus, it may be that a full year of the skills taught in CHP (i.e., study skills, organization, and time management), will begin to have a greater impact on grades, compared with only one semester of intervention.

Another trend in school-relevant outcomes that favored the CHP was the official discipline record of detentions and suspensions. Specifically, evaluation of discipline records indicates that CHP participants were suspended and given detention less frequently than the control group. While the ability to positively impact disciplinary referrals is an important finding, this finding is limited by the small number of referrals and that fact that pre-treatment equivalence of disciplinary records was not established due to limitations in the data available for this study.

### *Community Control*

Our study raises some questions about the efficacy of the district-run after-school program. Despite attending the district-run after-school program and receiving a variety of community based services, students declined on a number of behavioral and academic functioning measures during the semester. This downward functioning spiral is similar to the trend reported with the treatment as usual control in the Evans, Langberg et al. (2005) paper and suggests that focusing on academic remediation is not a sufficient intervention for this high-risk population.

### ***Improving Access to Care***

One of the main reasons the CHP is operated in school settings is to increase access to care (Evans, 1999; Langberg & Smith, in press). In this study, we were able to serve a number of students from low SES families, many of whom reported having no access to transportation. In fact, 30% of CHP participants' families reported making less than \$25,000 a year with 25% never having completed high school. These are families who would typically have limited or no access to mental health services.

### ***Sustainability***

It is important to note that the entire budget for this study was covered by the school district that was our partner in providing the program. An important consequence of the evaluation data reported in this paper, was that the school district agreed to continue funding at the same level for the following year. Thus, CHP has essentially become part of the school district's yearly budget. This type of university-school partnership is an excellent model for introducing evidence-based interventions to schools (Langberg & Smith, in press). Such partnerships should generate programs that are acceptable, feasible and sustainable as ongoing evidence-based programs. The commitment by the school district has created a sustainable program with considerable promise of providing effective intervention.

### ***Limitations***

This is the first evaluation of the small group CHP and there are some noteworthy limitations associated with this study. First, this study is a small sample pilot evaluation of small group CHP. The findings are significantly limited by small sample size and low power. In fact, the small *N* nature of this study and high variability in some outcome measures (e.g., grades) likely impacted our ability to find statistically significant effects. In addition, the CHP was compared with a community control rather than a multifaceted intervention of equal duration and intensity. Therefore, while we can state that the CHP improved participants behavioral and academic performance as compared with the normal trend of functioning, we can make no inferences about the relative efficacy of the small group CHP as compared with similar evidence-based interventions. Furthermore, it is possible that findings were driven in large part by differences between the CHP and control with respect to service

hours provided. Future research will examine the mechanisms responsible for change and specifically, the relative importance of the specific CHP interventions as compared with increased exposure to staff and structured time after school.

Second, this study emphasized rating scale data from parents and teachers. Parents were involved in the randomization process and were made aware of group assignment, potentially biasing ratings. As parents and teachers are key components of the CHP intervention, for example, daily report cards, it is not feasible to provide sufficient controls for positive and negative motivational effects. The question of potentially biased ratings from parents and teachers involved in interventions is a problem common to numerous published evidence-based parent-training and school-based consultation interventions (e.g., Barkley, Edwards, Laneri, Fletcher, & Metevia, 2001). In addition, parents and teachers of participants in the community control knew that control students were guaranteed enrollment in the CHP during the second semester of school. With guaranteed enrollment, there should have been little reason to exaggerate the severity of functioning. In addition, we included core class grades and discipline records, which are less likely to have been impacted by motivational effects.

A third limitation pertains to issues of treatment fidelity and uncertainty about which elements of the program resulted in the greatest benefits to the students. The limited resources of this pilot study did not allow for rigorous assessment of fidelity pertaining to each of the CHP groups. Treatment fidelity was monitored through informal observations of groups, staff folder checks, and treatment plan checks. The lack of specific fidelity observations precludes investigation of specific program mediators of outcomes and the extent to which the program, as conceived, corresponds with the program, as delivered. Therefore, we recommend that future studies of the small group CHP collect more in-depth fidelity data and, if there is variation in fidelity, examine how these variations correspond with outcomes.

A fourth limitation of this study is the reliance on the IRS as a primary dependent measure. Due to financial and feasibility constraints comprehensive measures such as the BASC were only collected at pre-test were not evaluated as dependent measures. Although ongoing research and published research suggests that the six items on the IRS are in fact reliable and valid as individual constructs (Fabiano et al., in press; Pelham, Fabiano, & Massitti, 2005) it is essential that future research with the CHP include more established measures of symptoms and functioning.

### ***Future Research***

The findings associated with this study suggest that over the course of one semester the small group CHP can produce positive effects on middle-school students exhibiting a wide range of behavioral and academic functioning difficulties. It is important to determine if benefits stabilize or continue to accrue after one semester of treatment (i.e., a CHP dosage study). Specifically, a full year trial of small group CHP needs to demonstrate that the program can significantly impact core class grades. Future research should not only examine change over a full school year, but might also include longitudinal follow-up studies of students who have participated in CHP interventions. Students who participate in small group CHP are those students typically categorized as at-risk for future, more severe problems. If the behavioral and academic improvements are maintained throughout middle school and into high school, the CHP may prevent many of the problems frequently encountered by at-risk students, such as delinquency and substance abuse.

It is essential that future research compare the CHP with other multifaceted interventions of similar duration and intensity. Although the CHP has demonstrated beneficial effects against community controls, a true efficacy comparison with larger numbers of participants is needed so that more firm conclusions can be drawn. While the community comparison in this study included participation in a district-run after-school program, the program was not equal in terms of duration, intensity, and evidence-base. In addition, conducting larger  $N$  studies of the CHP will allow for determinations about the specific program components that mediate treatment effects. As it was not feasible in this study to randomly assign such a small group of participants to receive different CHP components, we were limited in our ability to draw conclusions about specific moderators and mediators of treatment effects.

In conclusion, we propose that our results provide preliminary empirical support for multifaceted after-school programming. Such a finding should not be surprising considering that most academic problems are multiply determined and poor test performance is often associated with many other academic and behavior problems. Unimodal, academic remediation programs, might be appropriate for students with specific academic deficits or limitations in test-taking skills. However, for the more typical multi-problem middle-school student, more comprehensive intervention may be necessary to have a meaningful impact. Indeed, a disturbing trend for some outcome measures was that students in the control condition deteriorated. No such deterioration was seen for

students in the multimodal CHP program. Pending replication and extension of these findings, it seems likely that the CHP or similar multimodal programs might be a good investment for school districts concerned with helping students who are falling behind as indicated by poor standardized test performance.

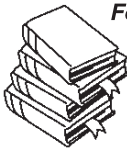
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