Coping Power Dissemination Study: Intervention and Special Education Effects on Academic Outcomes

John E. Lochman, Caroline L. Boxmeyer, Nicole P. Powell, and Lixin Qu
The University of Alabama

Karen Wells
Duke University Medical Center

Michael Windle
Emory University

ABSTRACT: This study examines whether a school-based preventive intervention for children with aggressive behavior affects children's academic outcomes when it is implemented by school counselors in a dissemination field trial. The Coping Power program targets empirical risk factors for aggressive behavior and focuses primarily on teaching social and emotional skills rather than directly intervening around academic performance. This study examined the long-term effects (2 years postintervention) of Coping Power on language arts and mathematics grades in 531 children from 57 schools. Prior analyses found that students of counselors who received intensive training in how to implement Coping Power (CP-IT) had broad improvements in teacher-rated social and academic skills and in teacher-, parent-, and self-reported externalizing behavior problems in comparison to children in a control group and to children whose counselor received more basic training in Coping Power (Lochman et al., 2009). In the present study, students with CP-IT counselors had smaller declines in language arts grades through a 2-year follow-up than children in the control group. Significant effects of CP-IT on mathematics grades were not observed. Special education status did not moderate intervention effects, indicating that special education students' academic outcomes were affected in similar ways by the intervention in comparison with students not in special education. Intervention effects were not evident for children who had basic-trained counselors. These findings have implications for educational policy and underscore the potential for school-based social-emotional interventions such as Coping Power to have a long-term impact on children's academic outcomes.

Schools provide a valuable setting in which to implement prevention and intervention programming for children with disruptive behavior problems (Owens et al., 2005). Children who are at risk for disruptive behavior problems can be identified at early ages in school settings (Essex et al., 2009), and there are fewer barriers to service use in school versus clinic-based settings (Brown & Bolen, 2008). A substantial body of research has documented that disruptive behavior problems often co-occur with poor academic functioning and lower levels of school connectedness (Bennett, Brown, Boyle, Racine, & Offord, 2003; Bradshaw, Buckley, & Ialongo, 2008; Farrington, 1989; Malecki & Elliot, 2002; Najaka, Gottfredson, & Wilson, 2001; Trzselewski, Moffitt, Caspi, Taylor, & Maughan, 2006). Poor academic grades in the middle school years are among the strongest predictors of students' subsequent dropout from school and failure to graduate (Balfanz, Herzog & Maclver, 2007; Bowers, 2010), which in turn affects students' likelihood for adequate occupational and life adjustment (Bowers, 2007). Teacher-assigned grades have been found to be a more potent predictor of school failure than are standardized achievement test scores (Balfanz et al., 2010). Given schools' focus on academic instruction and the importance of academic skills to children's overall development (Dubow, Huesmann, Boxer, Pulkkinen, & Kokko, 2006; Masten, Desjardins, McCormick, Kuo, & Long, 2010), it is crucial to understand how prevention and intervention programs for children with disruptive behavior problems affect children's academic functioning.
Special Education and Academic Outcomes

Children with substantial emotional and behavioral problems and other disabilities are typically placed into self-contained, resource and consultative special education services in their schools (Wagner, 1995). One of the 11 categories of disability in federal special education law is serious emotional disturbance (SED), and externalizing behaviors are especially prevalent among children with the SED classification (Wagner, 1995). Children with SED typically begin having trouble with their behavior in the grade school years (Marden & Cox, 1991) and have increasing levels of conflict with family and peers as they develop (Smith, Lochman, & Daunic, 2005).

A considerable gap exists in the reading, mathematics, science, and social studies achievement for children with disabilities in special education in comparison to their peers in the school setting (Wagner, Newman, Cameto, & Levine, 2006). This gap begins at the time of placement into special education, as special education students have low academic achievement prior to, and at the time of, placement into special education (Hibel, Farkas, & Morgan, 2010). These achievement gaps do not readily dissipate and instead continue for special education students. Special education students have poorer academic achievement and outcomes in later years than do children without disabilities (Gottlieb, Alter, Gottlieb, & Wishen, 1994; Landrum, Tankersley, & Kauffman, 2003; Zabel & Nigro, 1999). Special education students have lower grades, more absenteeism, and higher levels of school dropout than do their peers (Mayer, Lochman & Van Acker, 2005; Wagner, 1995). Special education students' poor school functioning then leads into poor occupational and social success in young adulthood, as they have been found to have limited earnings, poor job stability, and low levels of full-time employment during young adulthood (Carson, Sitlington & Frank, 1995; Frank, Sitlington & Carson, 1995; Wagner, 1995).

Achievement gaps are evident for special education students, even though some special education programs have been successful in improving students' academic achievement (Hanushek, Cain, & Rivkin, 2002). Special education programs have particular challenges because of the large number of special education students with complex needs and because special education staff often have limited training to deal with these complexities. After reviews of various practices in special education research, Landrum and colleagues (2003) and Mayer, Van Acker, Lochman, and Gresham (2009) concluded that unique evidence-based interventions are required, above and beyond general education practices, to address the emotional and behavioral disturbances among special education students. Polsgrove and Smith (2004) suggest that evidence-based interventions should in particular enhance special education children's self-regulation and self-control.

Prevention Program Effects on Academic Outcomes

School-based prevention programs targeted at children with behavioral problems may be uniquely suited to assist the academic achievement of students in special education. The proximal target of such interventions is often to improve the child's social-cognitive, emotional coping, and self-regulation skills, with the hope that improved child behavioral functioning will yield cascading effects on associated outcomes (e.g., Lochman & Wells, 2002a), including improved academic achievement and school connectedness. It is expected that reducing problem classroom behaviors will allow children the opportunity to better focus on academic learning (Conduct Problems Prevention Research Group [CPPRG], 1999). A number of prevention and intervention programs have been shown to be effective in reducing children's disruptive behavior problems and improving children's social and emotional functioning (Greenberg, Domitrovich, & Bumbarger, 2001; Nock, 2003). It is important to empirically examine whether these interventions also have direct or distal impacts on children's academic functioning, including those children receiving special education services.

School-based prevention programs can be separated into universal prevention programs that are delivered to all children in a classroom (typically by a teacher) or targeted prevention programs (divided into selective and indicated interventions) that are delivered to at-risk students (Finch, Lochman, Nelson, & Roberts, 2011). The effects of universal prevention programming on children's academic achievement have not been consistent (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Social and Character Development Research
Consortium, 2010), with some programs finding significant effects only among the highest-risk children (e.g., Jones, Brown, Hoglund, & Aber, 2010). Findings from a universal prevention trial by Ialongo, Werthermer, Brown, Kellam, and Wai (1999) indicated that a combined focus on classroom behavior and enhanced academic instruction can have synergistic effects on academic achievement and behavioral outcomes that a single-focus program may not be able to achieve. A classroom-centered intervention implemented in first grade, which combined the Good Behavior Game with enhanced academic curriculum, was associated with higher scores on standardized achievement tests, greater odds of high school graduation and college attendance, and reduced odds of special education service use in a long-term follow-up study (Bradshaw, Zmuda, Kellam, & Ialongo, 2009).

Other prevention programs have both substantial universal and targeted prevention components and have produced at least short-term effects on academic outcomes. In the Fast Track multiyear prevention program (CPPRG, 1999), kindergarten students who were rated as behaviorally disruptive received a comprehensive set of interventions during first grade, including parent groups, child social skills training groups, parent-child sharing time, home visiting, child peer pairing, and academic tutoring, the latter component directly aimed at academic achievement. At the universal prevention level, all children in the classrooms also received the Promoting Alternative THInking Strategies (PATHS) program from their teachers. By the end of the first-grade year, intervention students had significantly better early reading skills (i.e., basic word-attack skills) and language arts grades than students in the control group (CPPRG, 1999). The improvement in children's basic word-attack skills was among the largest of the intervention effects observed. However, these academic gains were no longer statistically significant in later elementary school years (CPPRG, 2002, 2004).

Targeted prevention programs are those directed only at high-risk students, such as children displaying aggressive behavioral problems. Several of these targeted prevention programs have produced changes in children's academically-oriented, on-task behaviors (Lochman, Burch, Curry, & Lampron, 1984; Walker et al., 1998) and assisted children's ability to remain on grade level (McCord, Tremblay, Vitaro, & Desmarais-Gervais, 1994). In a study of academic outcome effects, children with early-onset aggression participating in the multicomponent Early Risers program have been shown to have significant improvements in academic achievement compared with children in a control condition, with mean achievement scores moving into the normative range between kindergarten and third grade (August, Hektnen, Egan, Realmuto, & Bloomquist, 2002). The Early Risers program offered a comprehensive range of services, including behavioral intervention and academic skill training. Level of child aggression moderated gains in academic achievement. Although the results of the Early Risers study are encouraging, it remains unclear whether a prevention program targeted at aggressive behavior that did not have a direct academic tutoring component could affect the academic outcomes of children with aggressive behavior. It will also be important to determine whether obtained effects on academic outcomes can be extended beyond prevention efficacy studies to studies of real-world dissemination of prevention programs.

**The Coping Power Program**

The current study will determine whether Coping Power, as disseminated to real-world school counselors, has direct intervention effects on the academic outcomes of children who are exhibiting disruptive and aggressive classroom behavior. Coping Power is a targeted prevention program for later elementary students exhibiting aggressive behavior (Lochman, Boxmeyer, Powell, Barry, & Pardini, 2010). The program includes a 34-session child component (Lochman, Wells, & Lenhart, 2008), which targets empirical risk factors for conduct problems, delinquency, and substance abuse. A contextual social-cognitive model of risk for disruptive behavior problems (Lochman & Wells, 2002a) serves as the foundation for Coping Power and indicates that children with disruptive behavior often arrive at school with a constellation of challenges, including poor emotional self-regulation, greater impulsivity, less developed cognitive skills, and poor social problem solving. They also tend to have overstressed parents with less skillful parenting behavior. In addition, a disproportionate number of children at risk for conduct problems come from socioeconomically disadvantaged neighborhoods and thus attend schools with high
densities of similarly high-risk children. Together, these risk factors can compound both the learning problems and social problems of high-risk children (CPPRG, 1999).

The Coping Power child curriculum uses cognitive behavioral techniques to help children improve their emotional self-regulation, social problem-solving, and peer relations. Coping Power also includes a 16-session parent curriculum (Wells, Lochman, & Lenhart, 2008), which has a standard behavioral parent training component that seeks to improve parental consistency, involvement, and monitoring of children's activities, as well as sessions on stress management and family cohesion building, communication, and problem solving. In the past decade, the Coping Power program has yielded significant improvements in children's disruptive behavior problems across a number of clinical trials (Cabiya et al., 2008; Lochman, Boxmeyer, Powell, Roth, & Windle, 2006; Lochman et al., 2001; Lochman & Wells, 2002b, 2003, 2004; Peterson, Hamilton, & Russell, 2009; van de Wiel et al., 2007) and has had preventive effects on associated outcomes, such as substance use, in long-term follow-up studies up to 4 years after the intervention (Zonnevylie-Bender, Matthys, van de Wiel, & Lochman, 2007). In a recent dissemination study, school counselors in 57 elementary schools were randomly assigned to a control condition or to receive intensive training (CP-IT) or basic training (CP-BT) in the use of Coping Power with targeted aggressive children. Both training conditions included a multiday workshop and monthly follow-up group meetings with counselors. The CP-IT also included performance feedback based on ratings of audiotapes of group sessions. At the end of the intervention period, children who had either CP-IT or CP-BT counselors displayed significant improvements in teacher-rated social and academic behaviors at school in comparison to control children, but only the children in the CP-IT condition had significant reductions in externalizing behaviors according to teacher, parent, and child reports (Lochman et al., 2009).

Although the Coping Power intervention teaches skills to help children succeed in school socially and emotionally, it does not directly focus on academic achievement. Two child group sessions are devoted to helping children improve their organization and study habits. Two parent sessions focus on improving parent's support for children's academic learning. Throughout the intervention, children also set weekly personal goals, which can be related to their behavior (e.g., following directions; staying calm) or academic work (e.g., completing assignments; improving their grade in a particular subject). Despite the well-documented effects of Coping Power on children's behavioral functioning (Lochman et al., 2010), it has remained unknown whether a dissemination of the program under real-world conditions also yields effects on children's academic functioning or special education students in particular. This study examines this question directly for the first time.

The Current Study

The first aim of the study is to examine the effects of CP-IT condition on academic outcomes. This study hypothesizes that children in the CP-IT condition, which produced behavioral improvement in externalizing behavior problems and in teacher-rated social and study skills (Lochman et al., 2009), will display significantly better language arts and mathematics grades than children in the control condition during a long-term 2-year follow-up after the end of the program (Hypothesis 1). This prediction is based on prior findings that children's social skills are related to later academic functioning (e.g., Bowers, 2010). We also hypothesize that the CP-IT intervention effects on language arts and math will be evident on the subset of children who had been identified for special education services prior to or during the intervention period (Hypothesis 2). Because all children, including the children in special education, had profited behaviorally and socially from the CP-IT condition, it was anticipated that relatively better academic functioning would be evident for special education as well as regular education children. A second aim of the study (without directional hypotheses) will examine whether the CP-BT intervention condition, which produced less comprehensive behavioral and social improvement (Lochman et al., 2009), will also influence children's academic outcomes.

Method

Participants

This study was conducted as part of a larger dissemination trial investigating the
effectiveness of the Coping Power preventive intervention. Participants were drawn from 57 public schools within five school systems in north central Alabama. Urban and suburban schools were represented, and there was a wide degree of variability in student populations in terms of poverty rates and racial/ethnic status. As part of the parent study, the Coping Power intervention was delivered at 38 of the participating schools, whereas the 19 remaining schools were assigned to a care-as-usual control condition. The final sample was 65% male. The racial/ethnic makeup of the sample was 84% African American, 14% Caucasian, 1% Hispanic, 1% Native American, Asian, and other races. Within the sample, 29% had a special education classification, and 18% had repeated a grade.

Potential participants were identified through a teacher-rating approach (Hill, Lochman, Coie, Greenberg, & CPPRG, 2004; Lochman & CPPRG, 1995), which has been found to be valid and stable over time in previous applications (Hill et al., 2004; Lochman & CPPRG, 1995). During the second half of the school year, third-grade teachers rated all students in their classes using the Teacher Report of Proactive and Reactive Aggression (Dodge, Lochman, Harnish, Bates, & Pettit, 1997), a 6-item measure on which the frequency of three proactively aggressive (e.g., “This child uses physical force [or threatens to use physical force] in order to dominate other kids”) and three reactively aggressive behaviors (e.g., “When this child has been teased or threatened he/she gets angry easily and strikes back”) are rated. Scores ranged from 6 to 30. Across all classrooms rated, students scoring between the 30th and 2nd percentiles were deemed eligible for inclusion in the study. Prior research has indicated the utility and validity of a teacher screen for aggression at the 30th percentile (e.g., Lochman & Wells, 2004). Students whose scores were in the upper 2nd percentile were excluded based on the likelihood that their high scores were indicative of established behavioral problems that would limit the usefulness of an indicated prevention program.

Screening across the 57 participating schools included 3,838 students, 1,422 of whom fell within the 2nd to 30th percentile eligibility range. Contact was made with 670 of these students’ families, 531 of whom agreed to participate. The procedure had aimed to have 10 children screened into the study from each of the 57 schools, and the final sample of 531 was 93% of the originally targeted sample size. We were unable to recruit 10 children for some schools because some schools had fewer than 10 children who met the risk criteria or because an insufficient number of children chose to participate. Reasons for choosing not to participate included parent or child not interested in the study (19), parent unwilling to commit time to the study/too busy (6), family stressors (1), child had been placed on a short-day school schedule (1), child had been placed in a group home (1), parents were concerned about privacy issues (1), parents felt child would not benefit from the program (2), and child was transferring to a school that was not participating in the project or for which the cohort had already been filled (81). In addition, 3 children were not enrolled in the study because they had a sibling who had already been enrolled. Twenty-four participants agreed to the interview and scheduled an appointment but failed to attend the interview (in one case because of a scheduling error) and did not respond to attempts to reschedule. After parents provided informed consent and students provided assent, baseline assessments were completed. Additional assessments were completed at yearly intervals, during the summer months. Parents received a $60 stipend at each data collection wave, and students received $15.

School records were obtained for 66% of the five possible data points for each of the 531 participants across the 5 years of data collection. To examine possible attrition bias, cases who had missing data in 3 or more of the years (and thus had more than half of their data missing) were compared with those with no or lesser amounts of missing data. There were no significant differences in race, gender, baseline screening score, or condition assignment between participants with high attrition versus others. Data were missing completely at random.

Procedure

Participants were enrolled in the study during the summer after third grade, and the Coping Power program was delivered during fourth and fifth grade. Students were recruited in two successive annual cohorts. Information was gathered from students’ academic records on a yearly basis, encompassing Grades 3 through 7. Data were collected from students’ third (baseline), fourth (during intervention), fifth (postintervention), sixth (1-year
follow-up), and seventh (2-year follow-up) grade records. All study procedures were approved by the university's Institutional Review Board.

Coping Power Intervention

The Coping Power program includes child (Lochman, Wells, & Lenhart, 2008) and parent (Wells et al., 2008) components, which are designed to run separately but concurrently. For the present study, school counselors served as leaders of the child and parent groups. Children received the Coping Power program in small groups, which met weekly at their schools for 50 to 60 min. Intervention integrity for this study has been found to be excellent (Lochman et al., 2009). The program comprised 34 sessions, which took place during the last half of the students' fourth-grade year and for the majority of their fifth-grade year. Children also had monthly individual contacts with group leaders to promote student engagement, set personal goals, enhance comprehension of program concepts, and promote skill-transfer beyond the group setting. Content of the Coping Power child component includes goal setting, organization and study skills, emotional awareness, anger management, perspective taking, social problem solving, developing positive peer relationships, and resistance to negative peer pressure.

Parent meetings, designed to run for 90 min, were also held in small groups at the children's schools, during school hours, or after school depending on counselor and parent availability. Parents received a $10 stipend for attending each meeting, and counselors often provided other incentives such as snacks and small prizes. The 16 parent meetings took place on a biweekly basis during the same time frame as the child groups. Content of the Coping Power parent component included skills to support children's academic success, stress management techniques for parents, encouraging positive and prosocial behaviors in children, managing negative and disruptive child behaviors, and promoting positive communication within the family. In addition to these standard parenting skills, parents also received information about the skills their children were learning in the child Coping Power groups, and they were encouraged to support and reinforce their children's use of these skills at home.

Measures

Average language arts and mathematics teacher-reported grades were obtained from the students' school records for Grades 3 to 7. Grades were averaged across the four reporting times for each academic year, and scores ranged from 0 to 100. Teachers were unaware of the differences in the training conditions for counselors (CP-IT vs. CP-BT) during Grades 4 and 5, and teachers were unaware of all condition assignments (CP-IT, CP-BT, control) in Grades 3, 6, and 7.

Information about students' special education status was also obtained from their academic records. Information gathered included whether or not the student received special education services and, if so, the category under which the student received services. Examples include emotional disturbance (ED), other health impairment, specific learning disability, and developmental delay. For the purpose of this study, students whose only classification was in the gifted category were not coded as receiving special education services. Special education status was based on whether school records during the third- to fifth-grade years indicated the student was receiving special education services. In our sample, 29.7% were receiving special education services; of these, 70% were male.

Analytic Strategy

We conducted analyses with a multilevel growth curve model to estimate baseline and annual change in academic grades for each student from third to seventh grade. Given the nested nature of the data set (longitudinal data collected from students within schools), hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002) was used.

At a first step in the growth-curve estimation procedure, we estimated both linear and curvilinear unconditional models for language arts and math. The coefficient for the quadratic form (the time-squared term) was significant for the language arts CP-IT condition and was a trend for the CP-BT condition; the variance components were significant for both language arts CP-IT condition and was a trend for the CP-BT condition; the variance components were significant for both language arts and math in both conditions. In all cases, the curvilinear growth model was significantly different from the linear growth model by deviance test, and Akaike Information Criterion was slightly smaller for curvilinear growth model. Therefore, adding the time-squared term improved the fit of the
models to the data. In this curvilinear growth model, individual growth trajectories and quadratic form comprised at the Level 1 model captured the longitudinal nature of the data. The student’s academic grades at year \( t \) for student \( i \) in the school \( j \); \( Y_{ij} \) is a linear function of time variable and random error, \( \epsilon_{ij} \). The model equation for Level-1 was specified as

\[
Y_{ij} = \pi_{0ij} + \pi_{1ij}T_{ij} + \pi_{2ij}T_{ij}^2 + \epsilon_{ij}.
\]

The data were collected by academic year. We defined the time interval \( T = 0, 1, 2, 3, \) and \( 4; \) therefore, the intercept \( \pi_{0ij} \) represented the initial score for student \( ij \), that is, language arts grade at third grade; the time slope \( \pi_{1ij} \) represented the growth rate for student \( ij \) during the study period; and the coefficient of the quadratic form \( \pi_{2ij} \) represented the extent to which the trend accelerates or decelerates over time. \( \epsilon_{ij} \) was assumed to be normally distributed with a mean 0 and variance \( \sigma^2 \). The two growth parameters provided the patterns of change over time during the study period.

The individual growth parameters of the Level 1 model became the outcomes variables in the Level 2 model. This between-student model allowed us to examine the relation of the student special education status (yes = 1, no = 0) and the individual growth parameters. Baseline student-level variables (\( X_{kj} \)) were included as control variables (sex, race, severity of screening score, repeated grade, dysregulation, outcome expectations for aggression, angry attributions, peer behavioral norms, socioeconomic status, maternal depression, parent monitoring, community problem score) in each level of the model and were removed from the model if they were not significant (Lochman, Wells, Qu, & Chen, in press). The model equation for Level 2 was specified as

\[
\pi_{0ij} = \beta_{0ij} + \beta_{0ij} \cdot \text{Special} - \text{ED}_{ij} + \sum_{k=2}^{k} \beta_{0kj}X_{kj} + r_{0ij}
\]

\[
\pi_{1ij} = \beta_{10j} + \beta_{11j} \cdot \text{Special} - \text{ED}_{ij} + \sum_{k=2}^{k} \beta_{1kj}X_{kj} + r_{1ij}
\]

\[
\pi_{2ij} = \beta_{20j} + \beta_{21j} \cdot \text{Special} - \text{ED}_{ij} + \sum_{k=2}^{k} \beta_{2kj}X_{kj} + r_{2ij},
\]

where \( k = 2, 3, 4 \ldots \) indicate the \( k \)th student-level control variable.

The variation among schools in the growth parameters of academic grade scores is captured in the Level 3 and Level 2 models. Each of the coefficients from the Level 2 model can be outcome variables in the Level 3 model. There were three intervention conditions assigned randomly to 57 schools in the current study (CP-IT: Coping Power–Intensive Training; CP-BT: Coping Power–Basic Training; control). In one set of HLM analyses, the condition variable involved a comparison of CP-IT to the control condition (condition variable: CP-IT = 1, control = 0), and in the other set of HLM analyses, the condition variable involved a comparison of CP-BT to the control condition (condition variable: CP-BT = 1, control = 0). One of the condition variables (CP-IT; CP-BT) was added in the Level 3 model of each HLM to examine the intervention effect, as well as the interaction effects of condition and student special education characteristics on the growth rate of the academic grade outcomes.

The model equation for Level 3 was specified as

\[
\beta_{10j} = \gamma_{100} + \gamma_{101} \cdot \text{Condition}_j + U_{10j}
\]

\[
\beta_{11j} = \gamma_{110} + \gamma_{111} \cdot \text{Condition}_j + U_{11j}
\]

\[
\beta_{20j} = \gamma_{200} + U_{20j}
\]

\[
\beta_{21j} = \gamma_{210}
\]

\[
\beta_{22j} = \gamma_{220}
\]

Results

The means and standard deviations of children’s academic grade outcomes at each of the five time points are provided in Table 1. Comparability of children’s academic grades were tested across the three conditions in Grade 3, and there were no significant baseline
### TABLE 1
Children’s Academic Achievement Mean Scores and Standard Deviations

<table>
<thead>
<tr>
<th>Grade</th>
<th>M</th>
<th>SD</th>
<th>Grade</th>
<th>M</th>
<th>SD</th>
<th>Grade</th>
<th>M</th>
<th>SD</th>
<th>Grade</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPT-IT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language arts</td>
<td>82.0</td>
<td>9.5</td>
<td>Math</td>
<td>80.3</td>
<td>10.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPT-BT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language arts</td>
<td>82.2</td>
<td>10.0</td>
<td>Math</td>
<td>81.6</td>
<td>9.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language arts</td>
<td>80.6</td>
<td>9.0</td>
<td>Math</td>
<td>78.2</td>
<td>10.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

differences in language arts grades across the conditions, \( F(2) = 1.36, \) ns. There were baseline differences for math grades, \( F(2) = 4.60, \) \( p < .02, \) with the CPT-BT condition having significantly higher baseline math grades than the control condition, \( F(1) = 9.03, \) \( p < .01. \) The CPT-IT and control conditions did not have significant differences in math grades. In terms of descriptive characteristics, the three conditions (CPT-IT, CPT-BT, and control), respectively, had 75%, 89%, and 87% African American participants; had 60%, 63%, and 72% male participants; had aggression screener scores of 16.9, 17.2, and 18.2; and had special education rates of 31%, 28%, and 30%. These descriptive characteristics were included among the control variables in the analyses.

Table 2 summarizes the results of the four HLM analyses conducted on the two academic grades outcomes (language arts, mathematics), with separate HLM analyses for the CPT-IT and CPT-BT intervention variables. The tests for slopes (G100) in the unconditional models for the two analyses for the two dependent variables were, for language arts in the HLM for CPT-IT, \( t(37) = .71, \) \( p = ns \) (\( B = 0.51, \) \( SE = .71 \)); for math in the HLM for CPT-IT, \( t(37) = -1.89, \) \( p = .066 \) (\( B = -1.48, \) \( SE = .78 \)); for language arts in the HLM for CPT-BT, \( t(37) = -0.47, \) \( p = ns \) (\( B = -0.37, \) \( SE = .80 \)); and for math in the HLM for CPT-BT, \( t(37) = -2.67, \) \( p = .012 \) (\( B = -2.04, \) \( SE = .76 \)). Hypothesis 1 predicted that there would be significant main effects of the CPT-IT condition on the linear growth curve results for the two dependent variables across time. Table 2 indicates that this hypothesis was significantly supported for language arts grades. The CPT-IT condition did not have a significant effect on mathematics grades. Figure 1 indicates the linear growth results for the three conditions on language arts grades. Hypothesis 2 predicted that there would be no moderation of CPT-IT intervention effects by children’s special education status. The results in Table 2 indicate that neither of the 2 HLM analyses produced significant special education by CPT-IT intervention effects.

Although intervention effects on academic outcomes were not hypothesized for the CPT-BT intervention condition, CPT-BT effects were also examined in two HLM analyses, as indicated in Table 2. There were no CPT-BT intervention effects on academic grades. Special education status also did not significantly influence CPT- BT intervention effects.

### Discussion

These results are the first to examine the long-term effects (2 years after intervention) on academic grades of a prevention program targeting children’s aggressive behavior that was disseminated to real-world elementary school counselors. Hypothesis 1 was partially supported, as there was a statistically significant overall effect of the program when provided by intensively-trained counselors (CPT-IT) on children’s language arts grades, but there was no effect of CPT-IT on math grades. Hypothesis 2 was partially supported, as special education status did not moderate CPT-IT intervention effects on language arts. Thus, CPT-IT children who had been identified for special education had better language arts grades across the long-term follow-up than did control children who were in special education. In addition to the hypothesized results, the current study found that Coping Power

Behavioral Disorders, 37 (3), 192–205

May 2012 / 199
### Table 2
Summary of Growth Rate Effects on Academic Grades from Three-level Growth Curve Analyses

<table>
<thead>
<tr>
<th></th>
<th>Fixed Effect</th>
<th>Random Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
</tr>
<tr>
<td><strong>CP-IT vs control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language arts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear growth, G100</td>
<td>.15</td>
<td>.72</td>
</tr>
<tr>
<td>CP-IT, G101</td>
<td>1.00</td>
<td>.47</td>
</tr>
<tr>
<td>Special ed, G110</td>
<td>3.91</td>
<td>1.38</td>
</tr>
<tr>
<td>X CP-IT, G111</td>
<td>.140</td>
<td>.86</td>
</tr>
<tr>
<td>Math</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear growth, G100</td>
<td>-1.81</td>
<td>.81</td>
</tr>
<tr>
<td>CP-IT, G101</td>
<td>.52</td>
<td>.46</td>
</tr>
<tr>
<td>Special ed, G110</td>
<td>-.15</td>
<td>.72</td>
</tr>
<tr>
<td>X CP-IT, G111</td>
<td>.79</td>
<td>.88</td>
</tr>
<tr>
<td><strong>CP-BT vs control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language arts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear growth, G100</td>
<td>-.57</td>
<td>.84</td>
</tr>
<tr>
<td>CP-BT, G101</td>
<td>.29</td>
<td>.51</td>
</tr>
<tr>
<td>Special ed, G110</td>
<td>2.61</td>
<td>1.31</td>
</tr>
<tr>
<td>X CP-BT, G111</td>
<td>.34</td>
<td>.85</td>
</tr>
<tr>
<td>Math</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear growth, G100</td>
<td>-1.907</td>
<td>.82</td>
</tr>
<tr>
<td>CP-BT, G101</td>
<td>-.50</td>
<td>.560</td>
</tr>
<tr>
<td>Special ed, G110</td>
<td>-.55</td>
<td>.77</td>
</tr>
<tr>
<td>X CP-BT, G111</td>
<td>1.42</td>
<td>.91</td>
</tr>
</tbody>
</table>

Note. G100 to G111 refer to linear growth terms in the HLM analyses.

*p < .05; **p < .01.

---

Figure 1. Intervention condition effects on language arts grades. CP-IT = intensive training for Coping Power; CP-BT = basic training for Coping Power. Year 0 = third grade; Year 1 = fourth grade; Year 2 = fifth grade; Year 3 = sixth grade; Year 4 = seventh grade.

---

Coping Power, Special Education, and Academic Achievement

The overall finding that Coping Power produced significant effects on language arts grades for all of the targeted at-risk children, helping to slow the decline in these grades across time, is an important finding. Although some prior targeted prevention programs (August et al., 2002) and targeted + universal prevention programs (CPPRG, 1999) have produced effects on at-risk children's academic achievement, these programs had tutoring components that were specifically directed at academic achievement. Other prevention programs have either produced mixed findings on

---

200 / May 2012  
Behavioral Disorders, 37 (3), 192–205
academic achievement or the academic effects were not sustained across time (CPPRG, 2002, 2004). The current findings suggest that a targeted prevention program delivered by real-world counselors, and that produces changes in children's behavioral problems by the end of intervention, can have strong generalized effects on all of the targeted children's grades, at least in terms of language arts. The results of this study indicate clearly that the Coping Power program, when it is delivered through an intensive training format to real-world counselors, does have significant effects on the language arts grades of both regular and special education students. Children who are receiving special education services have relatively low academic achievement, and their academic outcomes in general remain lower than their peers (Landrum et al., 2003). Thus, Coping Power has academic effects on the children who are most in need of assistance with academic performance and helped to prevent the academic decline that could occur for these children as they move into early and middle adolescence.

This beneficial effect of Coping Power on academic outcomes may have occurred for several reasons. First, as described previously in the introduction, children who received Coping Power from intensively trained counselors displayed significant reductions in externalizing behavior problems by postintervention according to all three informant groups (teachers, parents, and children; Lochman et al., 2009), and they had significant improvements in teacher-rated social skills and study skills. Their reduced level of behavior problems and improved study skills likely permitted them to better attend to and comprehend classroom teaching at school and to work on homework at home. In addition, reduced behavior problems may have improved the children's relationships with their teachers, which may have led children to show improved effort academically and led teachers to be more patiently persistent in teaching them. The previous finding (Lochman et al., 2009) that the CP-IT condition was more effective than the CP-BT condition in producing behavioral and social effects coincides with the pattern of findings on academic outcomes in the present study and supports this first possible explanation of the findings. Second, CP-IT counselors were found to have higher-quality program implementation than CP-BT (Lochman et al., 2009). Thus, counselors in the CP-IT condition provided the program more completely (with greater attention to teaching moments and to providing feedback about children's behavior in group) and implemented it in a manner that likely permitted the children to learn more of the skills more deeply. Because children who had basically trained counselors did not have these behavioral effects at the end of intervention and did not display long-term gains in language arts grades, the current findings of differential results for the conditions underscore the importance of intensive training for this type of targeted prevention program and support the basic conceptual model underlying the program (i.e., short-term gains in behavior can produce long-term effects on important life outcomes).

**Why Effects on Language Arts and not on Math Grades?**

Why is it that short-term improvements in children's behavior following intervention might be linked to longer-term improvements in language arts grades and not math grades? Children's social skills have been found to have a strong relation with their academic performance in general (Malecki & Elliott, 2002), and children's prosocial behavior (sharing, cooperating, helping others when faced with problems) has been found to have a direct effect on grades (Wenzel, 1993) and on reading and math achievement (Caprara et al., 2000). Links between children's interpersonal behaviors and their reading achievement have been especially noted (Lim & Kim, 2011; Wang & Algozzine, 2011) and appear to be bidirectional. Children with poor social skills in kindergarten have remained behind their peers through sixth grade (McClelland & Hansen, 2011), whereas children who have difficulty learning to read have had later externalizing problems (Halonen et al., 2006; Willcutt & Pennington, 2000). Notably, given the findings of the present study, the relation between children's social behaviors and their math achievement was smaller than between their interpersonal skills and their language arts grades (DiPerma & Elliott, 1999).

There are several potential explanations for the link between children's social behavior and their reading and language arts skills (Lim & Kim, 2011). First, children with better social skills are likely to have more cooperative interactions with peers and teachers, and this
is likely to lead to greater success during group reading activities. Second, children's behavioral regulation skills may underlie both their social skills and their reading development. Children's attentiveness, task persistence, and organization skills are believed to influence children's listening and reading comprehension (Lim & Kim, 2011), and those same regulation skills have been a direct focus of the Coping Power program. Certain basic aspects of the Coping Power program may also have beneficial effects on the reading achievement of aggressive children. As described earlier, the program has two child sessions on organizational and study skills; children can select weekly personal goals related to academic behaviors, and there are two parent sessions that focus on increasing parents' involvement in children's learning. These program elements may have had an active effect on children's academic effort and completion of school work. Perhaps more importantly, children in the CP-IT condition displayed positive gains in teacher-rated academic and social skills by the end of the program (Lochman et al., 2009). Thus, children's acquisition of positive behaviors in the school setting may have had an effect on their academic achievement across time, in addition to the reduced externalizing behavior problems.

**Limitations**

It would have been useful to have later adolescent outcomes, including graduation rates, to know whether these encouraging findings for the intervention effect on the academic achievement of children in special education can translate into longer term educational, and eventually occupational, outcomes. A second limitation is that we were unable to formally disentangle whether outcome effects were due to additional attention that children received or to actual program effects, although the greater effects of the CP-IT condition in comparison to the CP-BT condition (which would have provided comparable levels of attention to children) suggests that the effects are likely due to the program when it is well-implemented. A third limitation is that the sample did not include other racial and ethnic groups (Hispanic, Native American) at high enough rates to determine program effects with these groups. A fourth limitation is that we were unable to screen the full level of 10 children from each school into the sample; 7% of the targeted sample size was not achieved due to limited numbers of children meeting the screening criteria at some schools and to families who declined or were unavailable to participate. Another limitation was that missing data were evident across time, especially in the latter years. Our analytic approach estimates the missing data points and attrition bias were not evident for the attrition participants, but it would have been useful to have had full data throughout this entire longitudinal period.

**Summary**

These results are the first to demonstrate long-term academic achievement gains for children in special education who participated in a preventive intervention that primarily targeted risk factors for aggressive behavior and was delivered by real-world school counselors. The results also indicate that children in regular education who participated in the preventive intervention were influenced in the same way as children in special education. Future research can explore the specific program elements that contribute to the long-term effects on children's grades, can determine whether school-level variables related to academic achievement (school climate, class size, staff turnover) affect intervention effects on these outcomes, and can determine whether the program effects on academic outcomes do have a direct effect on improved school retention and occupational outcomes in later years. These findings have implications for educational policy and emphasize the importance of school-based social-emotional interventions such as Coping Power on children's academic outcomes.

**REFERENCES**


**AUTHORS' NOTE**

The completion of this study was supported by a grant from the National Institute on Drug Abuse (R01 DA016135).

Address correspondence to John E. Lochman, Department of Psychology, The University of Alabama, Tuscaloosa, AL 35487-0348.

**MANUSCRIPT**

Final Acceptance: 7/3/2012