The Prevention of Social Aggression Among Girls

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Abstract

This study represents the first systematic attempt to examine a theory-based program designed to reduce girls’ social aggression and increase positive leadership among peers. Fifth-grade girls from six public schools were randomly assigned within classrooms to the social aggression prevention program (SAPP) and the comparison reading clubs. A school-based small group program, the SAPP was demonstrated to have a positive impact for all students in the domain of social problem solving. For students with high baseline social problems, teachers reported positive changes in SAPP participants’ prosocial behavior. In addition, the content of the program was critical: reading club participants improved their reading achievement at greater rates than SAPP participants. Targeting female students in a program focused on resolving social conflicts from multiple perspectives may be an important addition to broader, multilevel initiatives to prevent aggression and promote leadership in schools.

Keywords: peer relationships; social aggression; girls’ development; intervention study

Introduction

The study of overt aggression in children has a long history (see Coie & Dodge, 1998; Durlak & Wells, 1997; Tremblay, 2000) yet, despite recent media attention (Simmons, 2002; Talbott, 2002; Wiseman, 2002), more subtle and insidious forms of aggression have been neglected in treatment and prevention research. Research has found that involvement in aggressive behavior such as exclusion, manipulation and gossiping predicts social and psychological bruises as painful as physical ones (e.g., Crick & Bigbee, 1998; Crick & Grotpeter, 1995; Galen & Underwood, 1997; Lancelotta & Vaughn, 1989; Prinstein, Boergers & Vernberg, 2001). Children from various backgrounds use and experience social and relational aggression, but its prevalence and impact may be strongest among girls in middle childhood and early adolescence (e.g., Crick, 1995; French, Jansen & Pidada, 2002; Rys & Bear, 1997).

Despite the social and psychological problems experienced by victims and perpetrators and the existence of effective programs to prevent overt aggression, no
investigator has systematically evaluated a program designed to reduce social aggression in schools. In this study, we document and evaluate a program to prevent socially aggressive conflicts and promote positive peer relationships among fifth-grade girls—a group at risk for harm. To our knowledge, this is the first attempt to study these socially and psychologically meaningful behaviors with a school-based group program targeting female students’ use of social aggression. Rather than focusing on boys or ‘at-risk’ populations, the emphasis is on girls—a population largely ignored in aggression research and intervention (see Giordano & Cernkovich, 1997)—and on a general population rather than those considered at risk. Rather than focusing on the more visible direct forms of aggression, the target is social aggression. By studying a new program to prevent social aggression and promote positive leadership among girls in late elementary school, we aim to provide critical information about the way in which social aggression is reduced in schools.

Social, Relational and Indirect Aggression

The overlapping constructs of social, relational and indirect aggression are distinct from overt aggression. Overt aggression involves harming others through face-to-face physical or verbal contact (e.g., Crick & Werner, 1998; Green, Richardson & Lago, 1996). Indirect aggression is the intentional harming of others through circuitous or nonconfrontational methods which make it difficult to identify the perpetrator (see Lagerspetz, Bjorkqvist & Peltonen, 1988). Relational aggression involves direct relational and indirect behavior intended to damage the victim’s peer relationships (Xie, Farmer & Cairns, 2003). Examples include making up stories to get someone in trouble, criticizing a person behind her back, starting nasty rumors and maliciously excluding someone (see Crick, 1996).

Social aggression has been referred to as the use of nonconfrontational behavior that employs the social community toward the intended effect (Cairns & Cairns, 1994; Cairns, Cairns, Neckerman, Gest & Gariepy, 1989). It has been defined by Underwood and colleagues (Galen & Underwood, 1997; Underwood, 2003) as including subtle confrontational behavior (e.g., rolling one’s eyes and turning one’s back), as well as direct relational and nonconfrontational behavior. The addition of subtle confrontational acts may be critical, as these are among the more frequent and harmful type of aggression experienced by early adolescent girls (Paquette & Underwood, 1999; Shute, Owens & Slee, 2002). Although research on all nonovert types of aggression informs this study, the term, ‘social aggression’ will be used.

Recent studies indicate that social aggression is empirically different from overt aggression. Firstly, social aggression perpetration and victimization have been shown to be associated with social and psychological adjustment beyond involvement in overt aggression (Crick & Bigbee, 1998; Prinstein et al., 2001). Secondly, most victims are targets of either social or overt aggression and most perpetrators use one type of aggression mainly (Crick & Grotz, 1995; Crick, Casas & Ku, 1999). Thirdly, the role of the peer or friendship group is qualitatively different. A perpetrator’s use of overt aggression can have the intended negative effect with the participation of only two individuals—perpetrator and victim (Coie et al., 1999). With social aggression, at least three people must be involved for the negative result to occur—perpetrator, victim, and follower(s) (Pepler & Craig, 1995; Xie, Swift, Cairns & Cairns, 2002). Peer followers spread the rumors, enact the exclusion and observe the manipulation; without peers, socially aggressive acts may not harm a victim’s social or psychological...
adjustment. Thus, in social aggression, the broader peer group is a critical component of the aggressive act (O’Connell, Pepler & Craig, 1999; Owens, Shute & Slee, 2000).

Importance of Prevention among Girls

Social aggression has been shown to contribute to children’s social and psychological maladjustment beyond involvement in overt aggression (e.g., Crick & Bigbee, 1998). Perpetrators may experience externalizing problems such as impulsivity and defiance, and internalizing problems such as sadness and anxiety; victims may experience internalizing problems, submissive behavior and difficulty with self-restraint (see Crick & Bigbee, 1998; Crick & Grootpeter, 1995, 1996; Prinstein et al., 2001). Both victims and perpetrators may encounter concurrent and future peer rejection and low social standing (Lancelotta & Vaughn, 1989; Rys & Bear, 1997; Tomada & Schneider, 1997).

Although there is some debate (e.g., Xie, Cairns & Cairns, 2002), studies generally demonstrate that the prevalence and experience of social aggression varies by gender and age (see French et al., 2002; Rys & Bear, 1997; Xie et al., 2003). Girls in late childhood and early adolescence may be involved in social aggression exclusively whereas boys also participate in overt aggression (e.g., French et al., 2002; Lagerspetz et al., 1988; Rys & Bear, 1997). Beyond overt aggression, social aggression may contribute to social maladjustment for girls, but not for boys (Crick, 1996). Girls report more anger and distress in the perpetrator and victim (Crick, 1995; Galen & Underwood, 1997; Paquette & Underwood, 1999) and evaluate relational aggression more positively than do boys (Crick & Werner, 1998). Girls tend to use social aggression against other girls, whereas boys are more likely to use physical aggression against boys (Paquette & Underwood, 1999; Xie, Cairns & Cairns, 2002). Finally, social aggression is normative among fifth through tenth graders, with sex differences and social–psychological difficulties increasing with age (Bjorkqvist, Lagerspetz & Kaukiainen, 1992; Crick, Bigbee & Howes, 1996; Rys & Bear, 1997).

Although the correlates and functions of social aggression remain understudied, the early research provides guidance for intervention development. Investigators have shown a positive connection between children’s use of social aggression and their social intelligence as well as their social network centrality, and a negative correlation between all forms of aggression and empathy (Kaupininen et al., 1999; Xie et al., 2002). Although many studies have demonstrated differences between reactive and proactive overt aggression (Dodge & Coie, 1987), no measure has been developed to examine reactive versus proactive social aggression (see Crick & Werner, 1998). However, Xie et al. (2002) reported that adolescents are more likely to use non-confrontational behavior (e.g., spreading nasty rumors) as instrumental, and confrontational behavior (e.g., excluding from the group) as reactive. Descriptive studies indicate that the function of instrumental social aggression may be to alleviate boredom, seek attention, maintain status, build group cohesion, or set group norms (e.g., Owens et al., 2000; Underwood, 2003). Finally, research on overt aggression verifies the connection between social information processing—e.g., attending to social cues, interpreting others’ intentions, generating responses to a social situation—and aggressive behavior (Crick & Dodge, 1994; Dodge & Schwartz, 1997). Although conclusions about the relationship between social aggression and social information-processing skills are premature (Crick, 1995; Crick & Werner, 1998), the model is a potentially useful framework when considering intervention development to promote positive problem-solving in girls’ social conflicts.
An empirical understanding of the roles and situations that elicit socially aggressive behavior, as well as the theoretical models that guide related programs targeting overt aggression and social competence, provide a framework for the development of the social aggression prevention program (SAPP) (see Bruene-Butler, Hampson, Elias, Clabby & Schuyler, 1997; Conduct Problems Prevention Research Group, 1999; Consortium on the School-Based Promotion of Social Competence, 1996; Guerra, Attar & Weissberg, 1997). The SAPP is a school-based, small group program designed to reduce the perpetration of social aggression, as well as increase empathic behaviors, social problem-solving, and prosocial behavior (Cappella, 2000). Key components include (1) universal involvement of fifth-grade girls in small groups; (2) a 10-session manualized and flexible curriculum imparting essential content while allowing group leaders to respond to social aggression within the group and (3) an emphasis on the varied roles of peers within conflicts (see Appendix A).

The curriculum content and activities were guided by the theoretical framework of the ABCD model of development (affective, behavioral, cognitive, dynamic; see Greenberg, Kusché & Mihalic, 1998). In this model, children’s internal and external coping arises from their combined emotion awareness, cognitive understanding and behavioral skills, with the affective component preceding the cognitive and behavioral functions. In middle childhood, children are learning to integrate these components toward the development of self-control and social problem-solving. Using this frame, the SAPP activities were designed to foster emotional awareness of oneself and others in situations that may elicit social aggression, cognitive understanding of the motivation for and consequences of using social aggression and behavioral skills to resolve socially aggressive conflicts with assertive and respectful communication.

Social-interactional theory—in which behaviors are seen as unfolding within social contexts—guides the choice of intervention setting. The program is implemented in school-based, within-gender peer groups where social aggression has been studied and incidents often occur (Craig & Pepler, 2000; Grotpetfer & Crick, 1996; Paquette & Underwood, 1999; Xie, Cairns & Cairns, 2002). Grouping students by classroom and working with all fifth-grade classes in a school takes into consideration the composition of the elementary school day, where students spend the majority of both structured and unstructured time with grade-mates and classmates. Thus, the groups comprise a smaller version of the broader peer context. These small peer groups provide a place where concepts can be discussed, sensitive issues can emerge and skills can be practiced with immediate feedback. When social aggression occurs in the groups, the small size enables the leader to address the behavior for teaching moments.

Studies of sex and age differences in social aggression (reviewed earlier) guide the choice of target population. Although the goal is to prevent social aggression, it is critical for the target population to have prior experience with and understanding of the behavior (Tolan, Guerra & Kendall, 1995). The program focuses on girls in late elementary school, an age at which many have experienced social aggression but may not have ingrained patterns of use. Working with fifth-grade students also increases the possibility that skills and knowledge are carried through the transition to middle school, a potentially vulnerable period for children’s social and emotional development (see Eccles, Lord & Buchanan, 1996; Seidman, Allen, Aber, Mitchell & Feinman, 1994).

Social learning theory informs the composition of the intervention groups (see Bandura, 1973; Craig, Pepler & Atlas, 2000; Huesmann & Eron, 1984). Because social
learning increasingly operates within the peer group as children approach adolescence, all fifth-grade girls are included, rather than only those who perpetrate social aggression. Mixed groups allow students seen as good leaders to model social behavior for their more aggressive peers. The inclusion of all female classmates also acknowledges the critical role of observers and followers in these conflicts. By including all the within-gender peer group, the SAPP increases the likelihood both that a potential perpetrator will refrain from using socially aggressive behavior and that others will refrain from actively or passively supporting a perpetrator’s use of social aggression. The SAPP curriculum emphasizes the varied roles of peers within a conflict, focusing on the perspectives of the victim, perpetrator and follower with the goal of increasing students’ ability to act assertively and respectfully in each role.

Finally, preliminary research on the functions and correlates of social aggression (discussed earlier) inform curriculum content. Because the use of social aggression may be related to students’ desire for social influence, peer status and group cohesion, games and discussions are designed to address issues of group dynamics, social influence and the cycle of aggression. Because of the clear link between aggression and empathy, and aggression and social information-processing skills, the curriculum uses role-playing and activities to promote empathic understanding of others and broaden knowledge of respectful and honest strategies for resolving difficult social situations.

Theory-based Evaluation Design

The research design and aims are intended to match program theory (Birckmayer & Weiss, 2000; Chen, 1994). The first aspect of the research design involves the random assignment of students to intervention and comparison conditions in classrooms. Randomization of students in classrooms recognizes classmates rather than grade mates as the primary peer group for elementary-age students. At the same time, sampling widely in each small group in terms of the participants’ baseline aggression creates a heterogeneous mix of students, thus allowing for positive modeling by prosocial peers.

Secondly, unlike many intervention studies in which students in the control groups receive no intervention or conduct ‘business-as-usual’, control students receive a comparison intervention: a small-group reading club (RC). The RC matches the SAPP in structure and time, but does not include content related to peer relationships or conflict. This allows the study of the curriculum content in producing change, rather than the simple existence of a program. It also offers all research participants a possible benefit. Reading club goals are to increase students’ reading motivation, comprehension and skills through the oral reading of a chapter book and related literacy activities. Print exposure has been shown to be a primary mechanism toward reading achievement regardless of students’ cognitive ability; even in late elementary school, oral reading has been demonstrated to promote improved reading comprehension (Cunningham & Stanovich, 1998; Ouellette, Dagostino & Carifio, 1999; Stanovich, West, Cunningham, Cipielewski & Siddiqui, 1996).

Thirdly, multiple reporters are used to assess outcomes. Both peers and teachers report on students’ aggressive and prosocial behavior; teachers report on students’ empathic behavior and students report their own strategies for social problem-solving in conflict scenarios. Peer-nomination procedures in classrooms have been shown to be reliable and valid and teacher nominations are useful when the teacher is familiar with each student, as in many elementary school classrooms (Crick, 1996; Henington,
Hughes, Cavell & Thompson, 1998). In the assessment of student behavior change over time, teacher reports and observational methods may be most likely to detect that change. However, because it is extremely difficult to capture indirect forms of aggression through observation (O’Connell et al., 1999), peer report and self-reports accompany teacher reports in the assessment of program effectiveness.

Aims and Hypotheses

Examination of this program provides information about overall program effectiveness, the specificity of the effect and the moderators of the effect. The SAPP first is evaluated on the primary goals of changing emotion understanding, social problem-solving and social behavior. We hypothesize that students assigned to the SAPP will show greater empathic behavior, prosocial problem-solving strategies, and leadership behavior, as well as less perpetration of social aggression following program completion, than will RC students. Next, we investigate the specificity of program effects (Reynolds, 1998). If the SAPP curriculum is responsible for the change in students’ social aggression perpetration and prosocial behavior, differences in SAPP and RC students’ overt aggression are expected to be less pronounced or nonexistent. At the same time, we expect RC participants to demonstrate greater improvement in reading skills compared with SAPP participants. Finally, we investigate the SAPP with respect to subgroups of students who may benefit most from participation. Results from related studies indicate that the positive impact of universal preventive interventions may be strongest for children with the most problems at baseline (Eddy, Reid & Fetrow, 2000; Greenberg et al., 1998). We hypothesize that baseline severity of social aggression perpetration and absence of prosocial behavior will moderate treatment effects on key outcomes. We also predict that students receiving a higher dosage of program content will be more positively affected by the curriculum than those at receiving a lower dosage.

Methods

Overview

This study is a longitudinal field experiment with a mixed method, multi-informant design. Random assignment was used to sort students in classrooms to the SAPP and the comparison RC. Wide sampling allowed for a heterogeneous mix of students within each small group—perpetrators of social aggression, victims of social aggression and those identified as uninvolved. Data were collected two to four weeks prior to exposure to the intervention in December (Time 1) and two to four weeks following the end of the intervention in April (Time 2). At both time periods, self-report, peer-report and teacher-report instruments were used to assess participants’ emotion understanding, social problem-solving and social behavior, as well as other internalizing and externalizing symptoms that are not the foci of this study. Program implementation was monitored with weekly session summaries and a self-report survey at Time 2.

Participants

Participants were drawn from one ethnically diverse urban school district in northern California. Fifth-grade teachers, and teachers of combined fourth/fifth- and fifth/sixth-grade classes were invited to participate and were offered compensation to complete
surveys at two time points. A total of 13 teachers from six schools participated, or one to three teachers per school. The average student body across the schools was 476 students and the average fifth-grade class size was 30 students. Approximately 37 percent of students in the schools were eligible for free or reduced-price lunch.

Researchers visited each classroom in November 2001 to invite the female students to participate. The students were told they would talk with a researcher on two occasions about their thoughts and feelings on topics like friendships and school. They were told they would be assigned to a small group which would meet weekly for 10 weeks to discuss problems in friendships or read books with female protagonists. The students were provided consent materials to bring home; parents were encouraged to call the lead researcher for any questions. A total of 134 parents provided consent for their children to participate, approximately 80 percent of those invited to participate. Between 13 and 32 students participated from each school. Most of the students were enrolled in the fifth grade; 11 percent attended fourth or sixth grade in a combined grade classroom. Participants ranged in age from 9 to 12 years, with a mean age of 10.5 years. The student sample was ethnically diverse: Caucasian (26 percent), African–American (25 percent), Latino (24 percent), Asian–American (19 percent) and other (6 percent).

**Intervention**

**Overview.** Each small group consisted of four to seven girls and one group leader. The groups met weekly for 10 weeks in 40-minute sessions during school hours outside the classroom. Female graduate students in clinical psychology and women with experience in counselling elementary-age children were recruited to lead the SAPP groups. Women with teaching degrees and/or experience in tutoring children in schools led the RC groups. Group leaders for both SAPP and RC interventions were paid a small stipend and were provided all the materials; each group leader was assigned to lead two to three groups within the same school or in neighboring schools. Intervention leaders attended a three-hour training particular to their intervention assignment. Leaders met in group supervision with the lead researcher weekly throughout the 10-week program to discuss implementation issues. During the intervention, the group leaders were present for all sessions and only one was required to reschedule a small group meeting due to an unforeseen event. Student participation in the programs was high. On average, students participated in over nine of the ten group sessions. Nearly one half (49 percent) of students participated in all 10 sessions and over 90 percent attended at least eight of the 10 sessions.

**SAPP.** The SAPP—piloted in one elementary school in northern California in the spring of 1999 (Cappella, 2000)—is a school-based small group program designed to decrease fifth-grade girls’ perpetration of social aggression and increase their prosocial, behavior and social problem-solving skills. Leaders used discussion, role playing, modeling, games and collaboration to (1) increase their knowledge of social aggression; (2) build emotional understanding of oneself and others; (3) promote positive communication and behavior; (4) provide opportunities to observe, model and practice social skills and (5) teach social problem-solving (see Appendix A).

The broad context in which the intervention occurred was the school; the specific context was the within-gender peer group. The program targeted fifth graders, an age at which children may have had experience with social aggression but may not have set
patterns of perpetration. All fifth-grade girls were included and each intervention group included a heterogeneous mix of students, thus acknowledging the critical role of the peer group in incidents of social aggression and enabling modeling from prosocial participants. The curriculum was manualized and flexible. The manual allowed for identification of key competencies to be communicated across all SAPP groups (Coie, Rabiner & Lochman, 1989; Conduct Problems Prevention Research Group, 1999); the flexibility enabled group leaders to take advantage of unique teaching moments stemming from individual and group experiences for salient and memorable interventions (Yalom, 1995, p. 129).

Curriculum content was informed by the ABCD model of development (see Greenberg, Kusché, Cook & Quamma, 1995), related interventions and basic research on social aggression. The ABCD model of development—which emphasizes the integration of emotion, cognition and behavior in the promotion of social and emotional competence—provided a critical framework for the development of a curriculum specific to girls’ use of social aggression (Greenberg & Kusché, 1993). Particular techniques—such as role-playing and games—have been used in other effective programs. Research on social aggression, including the pilot study of the SAPP (Cappella, 2000; Cappella & Weinstein, 2003), informed the development of hypothetical scenarios used to help participants prevent and resolve socially aggressive conflicts from multiple perspectives.

RC. The RC matched the SAPP in structure, but not in content or goals. The aims of the RC were to increase the students’ exposure to words and their basic reading abilities. The curriculum consisted of oral reading from one chapter book and accompanying literacy activities. Throughout the intervention, RC group leaders conducted individual activities rather than group projects and addressed behavioral issues with individually focused techniques. During the first session, the leaders introduced the group and presented several book choices. It was expected that the opportunity to choose the book would increase student involvement. All of the books were adventure stories with a female protagonist; none involved peer relationships as themes. Through the 10 weeks, students kept journals and read aloud from the book, while group leaders directed art activities, writing assignments and discussion of book content and characters.

Measures

Participant and School Demographics. At Time 1, students provided their ages and grade levels their ethnicity was derived from the group leader report. School demographic information—the percent age of students receiving free or reduced-price lunch, school size, and fifth-grade class size—were obtained through public school records. All measures are outlined in Table 1.

Empathic Cognition and Behavior. The children’s empathy was measured in a version of the teacher ratings of empathic behavior scale (Ebling, in press). The original 23-item instrument assesses the teacher’s perspective of school-age children’s empathic behavior (e.g., ‘Goes to the help of someone who has been hurt’) and cognitions (e.g., ‘Is able to understand how others feel and view events’). The first 17 items are rated on a 3-point scale (1 = doesn’t apply, to 3 = certainly applies); Items 18 to 23 are rated on a 5-point scale (1 = not at all, to 5 = extremely). Previous research
<table>
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<th>General Construct</th>
<th>Specific Construct/Scale</th>
<th>Informant</th>
<th>Description</th>
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<tr>
<td>Participant demographics</td>
<td>Age</td>
<td>Self</td>
<td>One-item, open-ended (9.0 to 12.0 years)</td>
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<tr>
<td></td>
<td>Ethnicity</td>
<td>Group leader</td>
<td>One-item (Black, Latina, White, Asian, Other)</td>
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| Participant social/empathic behavior | Children’s social behavior scale | Peer        | Eight items; 5-point scale
|                           |                          |               | (1 = not at all; 5 = almost always)                                         |
|                           | Children’s social behavior scale | Teacher     | Seventeen items; five-point scale
|                           |                          |               | (1 = never true; 5 = almost always true)                                     |
|                           | Empathic behavior scale  | Teacher       | Twelve items; five- and three-point scales
|                           |                          |               | (0 = doesn’t apply; 4 = certainly applies)
|                           |                          |               | (0 = not at all; 2 = extremely)                                              |
| Participant skills and abilities | Social aggression problem-solving scenarios (I & II) | Self          | Three to five items; open-ended responses; coded on three-point scale
|                           |                          |               | (1 = prosocial; 0 = neutral; −1 = antisocial)                               |
|                           | WIAT screen              | Self          | Fifty-five items; two-point scale
|                           |                          |               | (1 = correct; 0 = incorrect)                                                 |
| School demographics       | Student socioeconomic status | Public data files | One item; continuous
|                           |                          |               | (percent eligibility for free lunch)                                         |
| School/class size         |                          | Public data files | Two items; continuous (total enrollment in school and fifth-grade classrooms) |
| Intervention implementation | Weekly session summary (attendance) | Group leader | One item; rated weekly; three-point scale
|                           |                          |               | (1 = present; .5 = present for some of the meeting; 0 = absent)              |
|                           | Weekly session summary (content) | Group leader | One item; rated weekly; three-point scale
|                           |                          |               | (2 = all content; 1 = some content; 0 = no content)                         |
|                           | Group experience         | Self          | Six items; 5-point scale
|                           |                          |               | (1 = not at all; 5 = extremely)                                              |

WIAT = *W*echsler individual achievement test; SES = Socioeconomic status.
has demonstrated this measure to have high internal reliability (alpha = .97; Ebling, forthcoming). The shortened measure used here, the empathic behavior scale—short form, includes the 12 items with the highest intercorrelations in previous studies of similar samples. Alpha coefficients from the empathic behavior scale—short form indicate that the 12-item scale has high internal consistency at both Time 1 (.88) and Time 2 (.89).

**Social Problem Solving.** The social aggression problem-solving scenarios (SAPSS-I and SAPSS-II) were designed for this study to assess children’s knowledge of strategies to resolve socially aggressive conflicts. The scenarios are based on the social behavior questionnaire by Galen and Underwood (1997) and on a measure by Lochman and Dodge (1994) and were pretested in a pilot study for external validity (Cappella, 2000; Cappella & Weinstein, 2003). In individual interviews, the respondents are presented with four hypothetical situations and asked to take the perspective of the victim and the potential perpetrator of social aggression (see Appendix B for scenarios). The victim scenarios include imagining oneself the target of social exclusion and nasty gossip. The perpetrator scenarios are designed to elicit social aggression as a response to an uncomfortable situation. In both sets of scenarios, the Time 2 stories are slightly altered from Time 1 to prevent the effects of memory from influencing results. Finally, two additional scenarios are added at Time 2, for a total of six scenarios, to assess the perspective of a potential follower of social aggression. These scenarios place the respondent in the middle of a socially aggressive conflict—social exclusion and nasty gossiping—and are designed to elicit the continued enactment of the aggression.

After reading each scenario aloud to the respondent, the researcher asks, ‘What do you say or do?’ then probes once, ‘Anything else?’ The responses are recorded verbatim and scored for quality on a similar scale to the one used by Lochman and Dodge (1994). The coding manual includes: prosocial/assertive (1), neutral/unsophisticated (0), and antisocial/aggressive (−1) (see Appendix C for a description of the rubric). When a respondent offered more than one response, the prosocial or antisocial responses were coded and the neutral responses were not; too few participants gave responses across categories (e.g., both a prosocial and a neutral response) to analyze the differences between those who gave multiple different responses and those who did not. The lead investigator provided the coding rubric and rater training on the pilot data. Undergraduate psychology majors unfamiliar with the study hypotheses and intervention participants served as coders. Inter-rater reliability for the individual scenarios ranged from a Cohen’s kappa of .75 to .83. One of the perpetrator scenarios was not coded because of an interviewer report that students did not believe the situation was real.

**Social Behavior.** The children’s use of aggressive and prosocial behavior with peers was assessed by two individually administered measures developed in past research and revised here (Crick, 1995, 1996). First, the children’s social behavior scale—teacher form (CSBS) asks teachers to rate each participant’s use of 15 behaviors on a scale from 1 to 5 (1 = never true to 5 = almost always true). Seven items comprise the relational aggression scale (e.g., ‘This child spreads rumors or gossips about some peers’). Four items comprise the overt aggression scale (e.g., ‘This child threatens to hit or to beat up other children’) and four items comprise the prosocial behavior scale (e.g., ‘This child is helpful to peers’). Because research on social and indirect
aggression indicates the presence of additional behavior not assessed by the CSBS, two items were added to these scales to measure these behaviors (e.g., Lagerspetz et al., 1988; Paquette & Underwood, 1999). One of the additional items captures nonverbal, socially aggressive expressions (e.g., ‘This child rolls her eyes or snubs her nose at other children’), and was hypothesized to correlate with the relational aggression scale. The second additional item measures verbal, directly aggressive expressions (e.g., ‘This child calls peers mean names’), and was hypothesized to correlate with the overt aggression scale. Unlike the way researchers have used this scale previously, teachers were asked to think about and rate children’s behavior over the past **two weeks** in order to assess potential change at Time 2 better. In order to differentiate this revised scale from the original, the relational aggression scale is renamed the social aggression scale and the overt aggression scale is renamed the physical/verbal aggression scale. Alpha coefficients indicated high internal consistency for each subscale at both time points: Social aggression scale time 1 (alpha = .94) and time 2 (alpha = .96), physical/verbal aggression scale time 1 (alpha = .86) and time 2 (alpha = .87), and prosocial behavior scale time 1 (alpha = .87) and time 2 (alpha = .89).

Secondly, a revised peer-nomination instrument, children’s social behavior scale—peer report (Crick, 1995), assessed aggressive and prosocial behavior with peers. On a five-point scale (1 = never to 5 = almost always), children are asked to think about their female classmates’ behavior over the past two weeks and rate the frequency with which they used a behavior. Thus, each participant had an opportunity to rate each of her female classmates on each behavior. This departs from the original scale in which children are asked to nominate up to three students who fit descriptors. The continuous ratings administered in one-on-one interviews enabled each child to be rated by classmates in a private setting. After each data collection period, a mean score was computed for each participant on each item from her classmates’ ratings. Because each classmate was viewed as holding an independent and valuable contribution to understanding an individual participant’s behavior, means were calculated regardless of intercorrelations among classmates’ ratings.

To reduce the time needed to rate each participating classmate on each behavior, the original 14-item scale was collapsed to eight items, capturing the range of behaviors but not repeating behaviors. The relational aggression scale consists of four questions, including a socially aggressive behavior not previously measured. As with the teacher-report measure, this scale is renamed the social aggression scale. The overt aggression scale includes two items, a physically and a verbally aggressive behavior and is renamed the physical/verbal aggression scale. The prosocial behavior and receipt scale includes three items. Alpha coefficients for the revised scales revealed high internal consistency: social aggression time 1 (alpha = .92) and time 2 (alpha = .91), physical/verbal aggression time 1 (alpha = .95) and time 2 (alpha = .92), and prosocial behavior/receipt time 1 (alpha = .94) and time 2 (alpha = .91).

**Reading Achievement.** To learn about the specificity of effects, children’s reading achievement was measured at times 1 and 2 by individual administration of the basic reading subtest of the Wechsler individual achievement test (WIAT) screener. The WIAT is a reliable and valid test of achievement for school-age children (Smith, 2001; The Psychological Corporation, 1992). The basic reading subtest consists of 55 words for students to read aloud. The words grow increasingly difficult and each answer is scored with a 1 (correct) or 0 (incorrect) for a maximum total of 55.
Program Implementation Quality. Group leaders completed a weekly session summary (WSS) following each session. The WSS included quantitative ratings of curriculum completed, student attendance and participant involvement, as well as qualitative descriptions of teaching moments and problems that arose. Following the final group session, child participants were asked to complete the group experience form (QEF), assessing their global perceptions of the ten-week intervention. On the QEF, quantitative and qualitative questions measure the intervention participants’ overall interest in and learning from the program.

Procedures

Intervention Implementation. Group leaders completed session summaries following each session. At the end of the 10 weeks, students completed a confidential survey monitoring the appeal of the interventions and the content of the program.

Intervention Outcomes. At times 1 and 2, peer- and self-report instruments were administered to each child separately in a quiet location outside the classroom. These included a peer-report social behavior questionnaire, a social problem-solving scale and a standardized reading test. At each time point, trained undergraduate research assistants interviewed each child with parental consent for approximately 45 minutes. For the peer-report social behavior questionnaire, with parental consent the child was shown a list of participants in random order. Although concern has been expressed about the ethics of peer-report instruments, research suggests that these reports do not impact on subsequent peer interactions (Weinberger, Tublin, Ford & Feldman, 1990). For the social problem-solving measure, students were assured there were no ‘right’ or ‘wrong’ answers, but they should say what they think they would do. On the reading achievement tests, students were encouraged to do their best.

Self-report pencil-and-paper surveys were administered to the students in classroom groups at times 1 and 2. The students were asked to complete the surveys as a means toward understanding fifth-grade girls’ thoughts and feelings. Trained undergraduate research assistants and graduate student researchers administered the 15-minute self-report surveys. Privacy and the honesty of participant responses were emphasized. An experienced administrator taught the children how to use the response scales prior to their administration and read aloud each item to ensure they understand the content. Undergraduate research assistants were available to answer questions. Students absent during data collection were administered the interview and surveys on an alternative day. When a student missed a question or checked multiple the responses, the researchers returned to the school to allow the child to clarify her response. The only group-administered survey analyzed here was the QEF, administered at time 2.

The teachers were asked to complete behavior and achievement rating scales for each participating student in the classroom during the same week in which the researchers collected the data from the students. The rating scales were reviewed with the teachers and the researchers were available to answer questions in person and by telephone. The teachers were expected to spend approximately 15 to 20 minutes for each student’s ratings, for a total of approximately four hours at each time period. Teachers received $5 for the completion of each female student’s ratings at each time period; on average, they received a total of approximately $120 upon completion of the study.

In order to insure less biased ratings, efforts were made to keep the teachers unaware of the student’s intervention condition. The SAPP and RC groups from a classroom
met at the same time. During the first session when the participants learned their group assignment, students’ names were called in random order by one of the group leaders and separated into groups after leaving the classroom. For the remaining sessions, the students met the leader in the meeting place or both leaders picked up the girls together. The teachers were told the surveys informed us of the ways in which female students’ friendships, behaviors and achievement develop over time.

Data Analytic Plan

Chi-square analyses were used to determine if there were significant ethnic differences between the intervention groups. Analysis of variance (ANOVA) procedures were performed to assess time 1 between-group differences in the dependent variables: empathy, social behavior, social problem-solving and reading achievement. The ANOVA techniques also were conducted to ascertain any significant between-group differences in intervention implementation or appeal.

The main effects of the intervention were tested with ANOVA and ANCOVA (analysis of covariance) techniques. The ANCOVA procedures were used for all analyses except for two social problem-solving scenarios for which there was no pretreatment measure. In one other scenario with no pretreatment measure, an ANCOVA procedure was used with a theoretically and statistically related pretreatment measure (Keppel & Zedeck, 1989). Multivariate analyses were not used because the dependent variables were regarded as relatively independent and correlations among dependent variables varied considerably. This study also represents the first systematic attempt to implement and evaluate a school-based program to prevent social aggression and promote positive leadership among girls. As a new area of intervention research, it is important to learn precise information about which domains the intervention affected (e.g., emotion, cognition, or behavior) and which it did not. Thus, univariate analyses were conducted as a means toward a more focused understanding of the impact of intervention.

Interaction effects were tested to assess if differences were stronger for, or present only for, those with higher levels of social problems at time 1 (see table 2 for a list of all analyses). Hypothesized moderators included baseline social aggression perpetration and baseline prosocial behavior. Power analyses for ANOVA techniques based on standard procedures outlined in Cohen (1983) assumed a $p < .05$, two-tailed test of significance. For a medium effect size, the power of the test for group differences in a sample of 134 was 82 percent, adequate to detect between-group differences. Finally, there were no missing data. One student who participated in time 1 data collection was unable to participate in the intervention or time 2 data collection because of a family move; her data were excluded from all analyses. Complete data were available for all other participants. Proactive data gathering procedures were used to help minimize missing data.

Results

Baseline Differences

No significant demographic differences (ethnicity, age) were found in intervention group assignment. Likewise, no significant differences were found in time 1 empathic behavior, social behavior, or social problem-solving (see table 3 for raw means and
There was a significant between-group difference in time 1 reading achievement: students assigned to the SAPP had higher baseline reading achievement on the WIAT screener than students assigned to the RC, $F(1,132) = 8.43, p < .01$. Peer- and teacher reports of social behaviors were moderately correlated and therefore were analyzed separately.

### Intervention Implementation

The median level of curriculum content received was 1.67 on a scale from 0 to 2, or ‘most’ of the content. The mean post-intervention appeal of the group activities, members and leader ranged from 3.89 to 4.51 on a scale from 1 to 5, or ‘liked a lot’. No significant implementation or appeal differences emerged by intervention group assignment. Students in the SAPP and RC attended the sessions at similar rates and received approximately the same levels of intervention content. Students in the two intervention programs reported a statistically similar appeal of the group activities, group leader and other group members. Because of generally high attendance, content and appeal, no interaction effects were tested with these as potential moderators.

### Intervention Effects

**Empathic Behavior.** There was no significant main effect for group comparisons of teacher-reported empathic behavior. In the SAPP versus RC comparison, the ANCOVA showed a marginally significant group X baseline effect, indicating that the SAPP had a marginal impact on those with baseline social aggression perpetration levels at least

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Main Effect Size ($d$)</th>
<th>Interaction Effect Size ($d$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teacher-report (empathy, social behavior)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empathy</td>
<td>n.s.</td>
<td>.60†</td>
</tr>
<tr>
<td>Prosocial behavior</td>
<td>n.s.</td>
<td>.62*</td>
</tr>
<tr>
<td>Social aggression</td>
<td>n.s.</td>
<td>.29†</td>
</tr>
<tr>
<td><strong>Peer-report (social behavior)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prosocial behavior</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Social aggression</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td><strong>Self-report (social problem-solving)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perpetrator perspective</td>
<td>n.s.</td>
<td>.90*</td>
</tr>
<tr>
<td>Follower: exclusion</td>
<td>.62**</td>
<td>n.s.</td>
</tr>
<tr>
<td>Follower: gossiping</td>
<td>.42*</td>
<td>n.s.</td>
</tr>
<tr>
<td>Victim: exclusion</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Victim: gossiping</td>
<td>.40*</td>
<td>n.s.</td>
</tr>
<tr>
<td><strong>Standardized test (achievement)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading achievement</td>
<td>.27*</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

1 Positive effect of involvement in reading clubs.
† $p < .10$, * $p < .05$, ** $p < .01$. 

Table 2. Data Analyses: Main and Interaction Effect Sizes
Table 3. Pre- and Post-intervention Means and Standard Deviations for the Social Aggression Prevention Program (SAPP) and Reading Club (RC) Participants

<table>
<thead>
<tr>
<th>Construct/Variable</th>
<th>Pre-intervention</th>
<th></th>
<th>Post-intervention</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SAPP M SD</td>
<td>RC M SD</td>
<td>SAPP M SD</td>
<td>RC M SD</td>
</tr>
<tr>
<td><strong>Emotion understanding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empathic behavior (TR)</td>
<td>15.76 5.97</td>
<td>14.95 5.43</td>
<td>17.26 5.56</td>
<td>16.30 5.92</td>
</tr>
<tr>
<td><strong>Social cognition</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perpetrator perspective (SR)</td>
<td>-.26 .74</td>
<td>-.14 .77</td>
<td>.17 .76</td>
<td>-.02 .72</td>
</tr>
<tr>
<td>Follower perspective—exclusion (SR)</td>
<td>— —</td>
<td>— —</td>
<td>.50 .58</td>
<td>.17 .49</td>
</tr>
<tr>
<td>Follower perspective—gossiping (SR)</td>
<td>— —</td>
<td>— —</td>
<td>.19 .60</td>
<td>-.06 .59</td>
</tr>
<tr>
<td>Victim perspective—exclusion (SR)</td>
<td>.30 .57</td>
<td>.13 .70</td>
<td>.36 .59</td>
<td>.11 .59</td>
</tr>
<tr>
<td>Victim perspective—gossiping (SR)</td>
<td>.30 .67</td>
<td>.30 .63</td>
<td>.24 .58</td>
<td>.14 .66</td>
</tr>
<tr>
<td><strong>Social behavior</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social aggression perpetration (PR)</td>
<td>1.75 .57</td>
<td>1.70 .49</td>
<td>1.73 .52</td>
<td>1.68 .48</td>
</tr>
<tr>
<td>Social aggression perpetration (TR)</td>
<td>4.60 5.33</td>
<td>5.27 5.72</td>
<td>4.76 6.37</td>
<td>4.94 5.55</td>
</tr>
<tr>
<td>Prosocial behaviors/receipt (PR)</td>
<td>6.28 1.20</td>
<td>6.51 1.03</td>
<td>6.32 1.20</td>
<td>6.47 .95</td>
</tr>
<tr>
<td>Prosocial behaviors (TR)</td>
<td>8.87 3.72</td>
<td>8.75 3.52</td>
<td>9.91 3.58</td>
<td>9.16 3.78</td>
</tr>
<tr>
<td>Physical/verbal aggression perpetration (PR)</td>
<td>1.82 .69</td>
<td>1.80 .61</td>
<td>1.85 .65</td>
<td>1.84 .64</td>
</tr>
<tr>
<td>Physical/verbal aggression perpetration (TR)</td>
<td>1.70 2.91</td>
<td>1.58 2.78</td>
<td>1.74 3.37</td>
<td>1.48 2.12</td>
</tr>
<tr>
<td><strong>Reading achievement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WIAT screener</td>
<td>38.29 6.67</td>
<td>34.94 6.66</td>
<td>40.03 6.56</td>
<td>38.30 6.33</td>
</tr>
</tbody>
</table>

*Note: TR = Teacher-report; SR = Self-report; PR = Peer-report; WIAT = Wechsler individual achievement test.*
one half a standard deviation above the mean (see Table 4). Participants in the SAPP with high teacher-reported social aggression at Time 1 were slightly more likely than participants in the RC to have higher teacher-reported empathic behavior at Time 2, $F(1,129) = 2.91, p < .10$. The effect size was $d = .60$, or a medium–large effect, whereas the $d$ for the low aggression subgroup was .05. (Effect sizes for all significant and marginally significant findings can be found in Table 2.)

Social Problem Solving. The hypothetical situation designed to elicit social aggression perpetration showed no main effect of group assignment. An ANCOVA to test for interaction effects showed a significant group X baseline interaction for the perpetration-eliciting situation so that SAPP benefit occurred only for those with peer-reported social aggression perpetration at Time 1 one half a standard deviation above the mean or more, $F(1,129) = 5.54, p < .05$. Students who were assigned to the SAPP and peer-identified as socially aggressive at Time 1 were more likely than RC students to report more prosocial or assertive and less antisocial or aggressive problem-solving strategies at Time 2 (see Table 4). The effect size of this interaction was $d = .90$, or a large effect, whereas the $d$ for the low aggression group was .07.

In two problem-solving scenarios in which the respondent was placed in the middle of a socially aggressive conflict as a potential follower, the analyses revealed significant main effects for group assignment (see Table 5). The first scenario, in which the respondent was asked by perpetrators to enact social exclusion, an ANCOVA was run with the Time 1 perpetrator scenario as the covariate. Results indicated that participants in the SAPP were more likely to suggest prosocial/assertive problem-solving strategies to resolve the conflict and less likely to suggest antisocial/aggressive strategies at Time 2 than were students in the RC, $F(1,131) = 12.72, p < .01$. The effect size was $d = .62$. In the second scenario in which the respondent was asked to spread nasty gossip, no Time 1 social problem-solving scenario was statistically related to this scenario, thus a simple ANOVA was run. It indicated a significant main effect for group assignment so that students involved in the SAPP were more likely than those in the RC to report prosocial strategies and less likely to report antisocial strategies at Time 2 to handle the situation, $F(1,132) = 5.87, p < .05$.1 The effect size for this finding was $d = .42$. For both of these scenarios, the analyses of potential interactions with baseline aggression perpetration were nonsignificant.

The ANCOVA revealed a main effect of group assignment for a hypothetical scenario in which the respondent was the victim of nasty gossip. Participants assigned to the SAPP were more likely than comparison participants to propose more prosocial and less antisocial problem-solving strategies, $F(1,131) = 4.83, p < .05$ (see Table 5). The effect size for this finding was $d = .40$. No interaction effect was found with high baseline social aggression perpetration as the potential moderator. For a second situation in which the respondent was asked to imagine herself as a victim of social exclusion, no Time 1 social problem-solving scenarios were statistically related to the scenario, thus simple ANOVAs were run. The ANOVAs revealed no main effects for group assignment and no interaction effects for group X baseline social behaviors.

Social Behavior. There were no main effects of peer- or teacher-reported prosocial behavior by group assignment. The ANCOVA revealed an interaction effect for group X baseline social behavior, where the positive effect of the SAPP on teacher-reported prosocial behaviors was present for students with baseline prosocial behaviors one half a standard deviation below the mean or more, $F(1,129) = 5.93, p < .05$ (see Table 4).
Table 4. Intervention Interactions and Adjusted Means

<table>
<thead>
<tr>
<th>Social problem-solving—perpetrator perspective: Baseline social aggression X intervention</th>
<th>SAPP</th>
<th>RC</th>
<th>F</th>
<th>d</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>High baseline PR social aggression (n = 46)</td>
<td>.40</td>
<td>-.24</td>
<td>5.54</td>
<td>.90</td>
<td>.05</td>
</tr>
<tr>
<td>Average-low baseline PR social aggression (n = 99)</td>
<td>.04</td>
<td>.05</td>
<td>.07</td>
<td>n.s.</td>
<td>.09</td>
</tr>
<tr>
<td>Prosocial behaviors—teacher-report: Baseline prosocial behaviors X intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low baseline TR prosocial behaviors (n = 40)</td>
<td>7.63</td>
<td>5.91</td>
<td>5.93</td>
<td>.62</td>
<td>.05</td>
</tr>
<tr>
<td>Average-high baseline TR prosocial behaviors (n = 94)</td>
<td>10.77</td>
<td>10.74</td>
<td>.01</td>
<td>.01</td>
<td>n.s.</td>
</tr>
<tr>
<td>Empathy—teacher-report: Baseline social aggression X intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High baseline TR social aggression (n = 35)</td>
<td>16.69</td>
<td>13.05</td>
<td>2.91</td>
<td>.60</td>
<td>.10</td>
</tr>
<tr>
<td>Average-low baseline TR social aggression (n = 99)</td>
<td>17.43</td>
<td>17.67</td>
<td>.21</td>
<td>.05</td>
<td>n.s.</td>
</tr>
<tr>
<td>Social aggression perpetration—teacher-report: Baseline social aggression X intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High baseline TR social aggression (n = 35)</td>
<td>8.25</td>
<td>10.11</td>
<td>2.76</td>
<td>.29</td>
<td>.10</td>
</tr>
<tr>
<td>Average-low baseline TR social aggression (n = 99)</td>
<td>3.72</td>
<td>2.76</td>
<td>1.66</td>
<td>.19</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

TR = Teacher-report; SR = Self-report; PR = Peer-report; SAPP = Social aggression prevention program; RC = Reading club.
The effect size for this interaction effect was $d = .62$, or a medium–large effect, whereas the $d$ for the high prosocial behaviors subgroup was .01.

There were no main effects for peer- or teacher-reported social aggression perpetration. The ANCOVA revealed a marginally significant group X social behavior interaction for teacher-reported social aggression perpetration (see Table 4). The benefit of participation in the SAPP on teacher-reported social aggression perpetration was marginally present for those students with baseline social aggression half a standard deviation above the mean or more, $F(1,129) = 2.76, p/.10$. The effect size for this marginally significant interaction was $d = .29$, or a small effect, whereas the $d$ for the low social aggression group was .19.

Specificity of Effects

The ANCOVA revealed a significant main effect for group assignment on reading achievement, with participants of the RC showing greater improvement at time 2 on a standardized test of reading achievement than participants of the SAPP, $F(1,131) = 4.83, p < .05$ (see Table 5). The effect size for the finding was $d = .27$. As expected, there were no main effects or interaction effects for peer- or teacher-reported physical/verbal aggression perpetration.

Discussion

This study represents the first systematic attempt to alter and study girls’ social aggression and positive leadership among peers. Fifth-grade girls from six public schools were randomly assigned within classrooms to the SAPP and the comparison RC. The SAPP is a school-based, small group program designed to reduce social aggression and increase empathy, social problem-solving, and prosocial leadership among girls. The SAPP was demonstrated to have a positive impact for all students within the domain of social problem-solving. For students with high baseline social problems, teachers reported positive change within the domain of prosocial behavior. In addition, the content of the program was critical: RC participants improved their reading achievement at greater rates than SAPP participants and no differences were found for aggressive behavior not addressed in the program.

Implementation quality was high across the SAPP and comparison RC. Group leaders reported completion of most of the curriculum content; the average participant

<table>
<thead>
<tr>
<th>Table 5. Intervention Main Effects and Adjusted Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social cognition: follower (exclusion)</td>
</tr>
<tr>
<td>Social cognition: follower (gossiping)</td>
</tr>
<tr>
<td>Social cognition: victim (gossiping)</td>
</tr>
<tr>
<td>Reading achievement</td>
</tr>
</tbody>
</table>

1 Positive effect of reading clubs on improved reading achievement. SAPP = Social aggression prevention program; RC = Reading club.
attended nine of 10 sessions and reported high appeal of program activities and affiliation with group leaders. These results are striking. For a program in an overburdened school district, attendance is not assured and students have numerous requirements demanding their time (see Eargle, Guerra & Tolan, 1994). Because the vast majority of students and teachers invited to participate accepted the invitation, high attendance and appeal reflect factors other than self-selection, such as genuine teacher support of the programs and student interest in them. Efforts were made prior to the intervention to consider teacher needs and create supportive relationships with school staff. The intervention curricula valued student interests, and group leaders had experience with and training in the appropriate areas. The high implementation quality increases the likelihood that the results indicate actual level of program effectiveness.

Participation in the SAPP had a positive impact on students’ social problem-solving abilities. Beyond social problem-solving skills at baseline, students who participated in the SAPP were able to articulate more prosocial strategies to resolve difficult social situations after the program than were students in the RC. This was true from multiple perspectives: when placed in the middle of a hypothetical socially aggressive conflict as a potential follower and when imagining oneself a victim of nasty gossip. In a scenario designed to elicit perpetration of social aggression, initial social aggression perpetration moderated the relationship between group assignment and social problem-solving. The SAPP participants with the most socially aggressive behavior at baseline volunteered more assertive and respectful problem-solving strategies after the intervention than their similarly aggressive RC counterparts.

In addition to change in social problem-solving, teachers witnessed behavior change among students in the SAPP. The SAPP participants identified as socially aggressive before the intervention were slightly more likely than comparable RC participants to have more empathy and less social aggression perpetration after the intervention. The SAPP also had a positive impact on teacher-reported prosocial behavior for students identified with low levels of prosocial behaviors at the start. Finally, analyses of the specificity of effects revealed that the actual curriculum imparted in the intervention, not simply the existence of an intervention, was critical: RC participants improved their reading achievement at greater rates than SAPP participants and no differences were found for aggressive behaviors not addressed in the program.

The strong effect of the SAPP on the students’ ability to articulated prosocial strategies to resolve difficult social situations from multiple perspectives mirrors the emphasis in the intervention on the importance of the whole peer group in perpetuating and resolving conflicts. Participants spent several sessions role playing difficult social situations and discussing the role of each member in preventing or resolving the conflict. The situations were realistic, complex in their social dynamics, and they were repeated several times through the latter half of the intervention. The explicit activities designed to promote other competencies, such as emotion understanding, occurred earlier in the intervention and were limited to fewer sessions.

Strong results in the domain of social problem-solving may have been expected for methodological and theoretical reasons as well. Unlike the measures used to assess empathy and social behavior, social problem-solving was a self-report measure coded for quality of strategy. Self-report measures may be the first to show change, as change may begin within the individual before it transfers outside. Research on and theories of behavior change also indicate that it is not surprising to find cognitive change before behavioral change (Greenberg & Kusché, 1993; Guerra & Slaby, 1990; Stevahn, Johnson, Johnson, Oberle & Wahl, 2000). If the intervention had been longer in
duration, the learning may have had more time to transfer to observable behavior. Alternatively, if the follow-up data had been collected several months after program completion, more behavioral adjustment may have occurred. Although cognitive change does not always lead to behavior change, it is seen as an important step in that direction (Greenberg et al., 1995).

Only one scenario tested in the social problem-solving domain was not influenced by intervention participation. That scenario invited participants to imagine themselves a victim of social exclusion in which their peers used subtle methods to hurt the protagonist (e.g., by turning their backs and closing a circle). The scenario was unique in the understated nature of the aggression used. Rather than advocate an assertive response to the exclusion, many participants noted they would simply walk away; the social exclusion being seen as an affront best handled with acquiescence. One explanation for the lack of intervention effect is the focus of the curriculum content on more direct forms of social aggression. Another may have to do with the age of the participants. Research suggests that subtle forms of aggression increase with age, with pre- and elementary-school children practicing more direct forms of social aggression (Bjorkqvist et al., 1992; Crick et al., 1999).

In addition to participants’ knowledge of prosocial problem-solving strategies, a statistically borderline intervention effect was found on socially aggressive participants’ empathic cognition and behavior. This finding is notable for two reasons. First, the effect size of the interaction was robust: in an intervention study where a small–medium effect is expected, a large effect size may indicate a meaningful finding. The limited number of students in the highly socially aggressive subgroup may have made it difficult to reach statistical significance. In addition, the trend toward an increase in empathy among the most socially aggressive students was demonstrated in a rigorous measure of empathic cognition and behavior. Given findings from related studies, the emphases in the SAPP, and the impact of this program on social problem-solving, a self-report measure of emotional understanding may have been more likely to reveal sizeable change (Greenberg et al., 1995; Stevahn et al., 2000). The improvement teachers perceived in student empathy among the aggressive subgroup may indicate that the intervention design and activities made a difference in students’ emotional and cognitive understanding of others.

As with other studies with multiple reporters assessing similar constructs, there were disparate outcomes by reporter for the same behavior (Achenbach, 1991; Wolchik et al., 2000). When teachers, but not students, reported on students’ social behavior, a positive intervention impact was found for prosocial behavior among the subgroup of students with low levels of prosocial behavior at the start of intervention. The discrepancy by reporter may reflect the different contexts in which the behavior is being observed: the classroom versus the lunchroom and playground; it may take more time to alter behavior in less organized and supervised environments. In addition, the observer may be defining the behaviors differently: for example, teachers and students may see ‘being kind’ to peers in distinct ways. Last, even though the peer-report measures were altered to increase their ability to capture change, they remain perceptions of behavior, not actual behavior. In this case, teacher perceptions may be more flexible than peer perceptions: reputations in peer groups are formed early and tend to remain stable even when outside observers detect change (Coie & Dodge, 1983; Hymel, Wagner & Butler, 1990; Stoolmiller, Eddy & Reid, 2000).

Overall, the SAPP had a stronger impact on positive social behavior—empathic and prosocial behavior—than on negative. The effect on positive behavior likely is related
to the program, which emphasized prosocial leadership, alternatives to aggressive behavior and empathic understanding. However, there was a trend toward a decrease in social aggression perpetration for the most socially aggressive students. The small effect size was notable given that no differences were found in the more overt forms of aggression not targeted by the intervention. To have a stronger impact on socially aggressive behavior, it may be necessary to add school, classroom and/or family components to this small peer-group program. The additional components may be incorporated from bullying interventions with no-tolerance policies around aggression or from multilevel programs that enhance citizenship, co-operation and respect for diversity (Greenberg et al., 2003; Ortega & Lera, 2000; Roland, 2000; Weissberg & Greenberg, 1998).

The intervention appeared to have the broadest impact on students who began the program with more social problems. This result matches other intervention studies where individuals with the most problems at baseline change the most (Eddy et al., 2000; Greenberg et al., 1998). Some prevention scientists choose to include only ‘high-risk’ individuals in their programs. Although it cannot be tested empirically here, the universal inclusion of all girls in fifth-grade classrooms may have been critical, allowing teaching and modeling to occur between participants as well as from the group leader. Group leaders, whose age and gender were designed to promote a mentoring relationship, reinforced student participants who modeled positive leadership and empathy with peers. The group process, in which socially aggressive incidents were discussed for salient learning moments, required the perspectives of students who were prosocial leaders, as well as those who were involved in social aggression as perpetrators, victims and followers.

Finally, the inclusion of a comparison program to foster reading skills was critical to both participants and researchers. Schools, teachers and parents may have been more willing to participate, knowing that all students would receive something of potential benefit. Intervention researchers often learn after completing a study that control schools or classrooms, with the nominal fees acquired from participation, purchase related programs that negate their ‘control’ condition (N. Guerra, personal communication, 18 March 2003). In the current study we were able to regulate the experience of the ‘control’ students by offering a comparison program—similar in design and structure, but different in goals and content. Thus, the results reflect what occurred within the groups rather than their simple existence. The fact that RC participation led to improved reading skills on a standardized measure of reading achievement as compared with SAPP participation indicates that the content of the programs drove the positive results.

The present study has several limitations. Firstly, because there is no ‘business-as-usual’ control group, this study cannot examine the impact of the intervention structure on fifth-grade girls’ peer relationships. Secondly, because the comparison and experimental students come from the same classrooms, it is possible that SAPP students transmitted their learning to RC students, leading to positive change in peer interactions for all. Thirdly, although valid and reliable observational measures of social aggression in schools are not yet available, it would have been useful to have a third measure of social aggression to supplement the perceptions of students and teachers. Fourthly, we were not able to discern which aspect of the intervention was most effective in creating positive social change. Finally, given the resources necessary to implement and evaluate these programs, the sample size is small, thus reducing the ability to examine possible contextual differences in program effectiveness.
Conclusion

Social aggression has been demonstrated to be a meaningful social and psychological problem for girls in the middle grades. The practice has received much popular attention but little intervention study. We document the first systematic study of a theory-based program to prevent social aggression and promote positive leadership among girls in late elementary school. The results demonstrate that including female classmates in a flexible small group program focused on the perspectives of multiple peers within girls’ social conflicts can have a positive impact on girls’ social problem-solving and prosocial behavior, particularly for the students with the most social problems at the start. In a rigorous and unique research design, we compared participation in this social program to a matched reading program, thus examining the effect of curriculum content in creating positive and domain-specific change for participants.

In the future, it will be important to implement this intervention on a broader scale, examining potential differences in effectiveness across contexts and the translation of skills over time to new peer contexts (e.g., middle school). It may be true that particular school environments or group leaders allow for the highest quality implementation and the strongest positive change in social behavior across time. It is also essential to include additional measures of emotional understanding and social behavior for the most reliable and valid assessment of change in the classroom and school contexts. Finally, a program targeting social aggression from multiple perspectives may be an important supplement to broader, multilevel initiatives to prevent overt aggression and promote positive leadership in schools.

References


**Note**

1. Without a covariate, this result should be interpreted with caution. However, given that there was a large main effect from the related social problem-solving measure reinforces the integrity of this finding.
## Appendix A. Social Aggression Prevention Program Conceptual Model

<table>
<thead>
<tr>
<th>Framework</th>
<th>Social Learning Theory</th>
<th>Social Interactional Theory</th>
<th>Empirical Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mixed groups for modeling of positive leadership by group leaders and peers</strong></td>
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<tr>
<td><strong>School-based, within-gender small groups; Within-class assignment to groups</strong></td>
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<tr>
<td><strong>Include all fifth-grade girls; Target hypothesized mechanisms underlying social aggression</strong></td>
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</tbody>
</table>

| **Emotional Awareness** | Building understanding of one’s own and others’ emotions within social situations that may elicit social aggression; Increasing use of emotion language in problem-solving |
| **Cognitive Understanding** | Increasing knowledge of socially aggressive incidents (e.g., triggers, multiple perspectives), group dynamics, social influence and cycle of aggression as it relates to girls’ peer relationships |
| **Behavioral Skills** | Teaching social problem-solving skills from the perspective of the victim, follower and potential perpetrator; Practicing respectful and honest communication from multiple roles |

<table>
<thead>
<tr>
<th>Methods</th>
<th>Discussion</th>
<th>Games</th>
<th>Role Plays</th>
<th>Practice</th>
<th>Feedback</th>
</tr>
</thead>
</table>

| **Empathic Behavior** | Increased empathic and prosocial leadership behavior |
| **Social Problem-Solving** | Increased quality of social problem-solving strategies |
| **Social Behavior** | Decreased social aggression perpetration |
### Appendix B. Social Aggression Problem-Solving Scenarios

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Time 2</th>
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<tbody>
<tr>
<td>Before lunch, you find a note that the girls in your class passed around. It says: ‘___ is ugly. Don’t be her friend’. The note is about you (victim: gossiping).</td>
<td>Before lunch, you walk into the girls’ bathroom and see two girls whispering and reading some words that had been written on the bathroom wall. After they leave, you see that the words say: ‘___ is stupid. Don’t be her friend’. It has your name on it (victim: gossiping).</td>
</tr>
<tr>
<td>Four girls in your grade are talking about a movie they have just seen when you walk up to the group. The girls see you, stop talking, turn their backs and close the circle so you can’t join (victim: exclusion).</td>
<td>Four girls in your grade are standing in a group talking about a party they went to last weekend when you start walking up to the group. When the girls see you, they stop talking, turn up their noses and pretend you’re not there (victim: exclusion).</td>
</tr>
<tr>
<td>Your teacher says she will be assigning partners for a class project. You are really hoping to work with your best friend, but the teacher says you have to work with Jackie, who is really annoying. You have plans with your best friend after school, but Jackie won’t leave you alone (perpetrator perspective).</td>
<td>The science teacher assigned partners for a project. Instead of getting to work with your best friend, you have to work with Latika, who everyone thinks is weird. At recess, Latika won’t leave you and your best friend alone (perpetrator perspective).</td>
</tr>
<tr>
<td>You want to be friends with a group of girls in your class. Finally, the girls tell you they want to be your friend too. But they say you can hang out with them only if you stop hanging out with another girl, Lilian, who they don’t like very much (follower: exclusion).</td>
<td>You want to be friends with a group of girls in your class. Finally, the girls tell you they want to be your friend too. But they say you can hang out with them only if you stop hanging out with another girl, Lilian, who they don’t like very much (follower: exclusion).</td>
</tr>
<tr>
<td>After lunch, your friend Leticia writes a note about another girl in your class. The note says: ‘Sandy is ugly. Don’t be her friend’. Leticia tells you to pass the note on (follower: gossiping).</td>
<td>After lunch, your friend Leticia writes a note about another girl in your class. The note says: ‘Sandy is ugly. Don’t be her friend’. Leticia tells you to pass the note on (follower: gossiping).</td>
</tr>
</tbody>
</table>
Appendix C. Coding Rubric for Social Aggression Problem-Solving Scenarios

1. Prosocial/assertive
   - Talk to the perpetrator in a *direct, non-confrontational, empathic* way
   - Talk to an *adult* (teacher, parent, principal, older sister) for *advice, help, support*
   - Boost self-esteem with *positive self-statements*
   - Use *emotion-focused coping*
   - Seek *social support* from friends
     - *I would say, ‘I don’t really believe this note is correct, so I’m not going to pass it on because it’s really going to hurt her feelings and I wouldn’t like it if you ever said that to me’.***
     - *I’d think that I know who I am and I know I’m not ugly. I believe in myself and I don’t care what other people say.***
     - *I’d be really sad and I’d walk away and find some friends who actually want me in their group and respect me.*

0. Neutral/unsophisticated
   - Talk to perpetrator in a *direct, but neutral or unsophisticated* way
   - Do *little* or *nothing*; Be passive, avoid decision
   - Tell an *adult* for *no expressed reason* or to get the aggressor *punished*
     - *I’d ignore it and go on.***
     - *I’d say, ‘I’m not passing that note. I’m not trying to get in trouble in class’.***
     - *I’ll give it to the teacher.*

−1. Antisocial/aggressive
   - Use *verbal aggression*
   - Use *social aggression*
   - Use *physical aggression*
     - *I’ll be mad and I’ll go to all the people who I think do that and I’ll say the same thing to them and add something back—like, ‘Look, you’re facing the mirror too. You’re ugly too’.***
     - *I’ll write a note and stick it in their desk and do the same thing, if someone does something to me just do it right back. I’m not to blame if I didn’t start it. Whoever did it, I would get the paper and rip it up in their face with my other friends.*