

## REDUCING ADOLESCENTS' INVOLVEMENT WITH RELATIONAL AGGRESSION: EVALUATING THE EFFECTIVENESS OF THE CREATING A SAFE SCHOOL (CASS) INTERVENTION

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This study examined the effectiveness of a comprehensive, school-based intervention program, Creating A Safe School (CASS; The Ophelia Project) designed to reduce relational aggression (RA) and relational victimization (RV). Sixth-grade students ( $N = 406$ ) were surveyed before and after the intervention. Program effects were tested using a repeated-measures design. Results revealed significant reductions in RA and RV among students who reported initially high levels of involvement. Findings also showed that decreasing approval of RA accounted for a significant amount of variance in changes in RA between pre- and posttest. These results provide initial evidence of the effectiveness of the CASS intervention model in reducing RA among early adolescents.  
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Relational aggression (RA) is a form of aggression in which harm is inflicted through the damage and/or manipulation of peer relationships (Crick & Grotpeter, 1995). Examples of RA include malicious gossip, social exclusion, and threats to withdraw friendship (Crick, Bigbee, & Howes, 1996). Widespread interest in the study of RA has developed in light of evidence that it is prevalent among school-age children (Owens, Shute, & Slee, 2000) and is as emotionally harmful and stressful as physical aggression (PA; Paquette & Underwood, 1999; Sharp, 1995). Importantly, RA is significantly associated with social and psychological maladjustment during childhood, adolescence, and young adulthood for perpetrators and victims (Bearman & Moody, 2004; Crick & Grotpeter, 1995; Prinstein & La Greca, 2004; Sullivan, Farrell, & Kliewer, 2006; Werner & Crick, 1999). For example, relational victimization (RV) is linked with higher rates of internalizing disorders, suicidal ideation, somatic complaints, disordered eating, externalizing disorders, and substance abuse (Bearman & Moody, 2004; Nixon, Linkie, Coleman, & Fitch, 2010; Prinstein & La Greca, 2004; Sullivan et al., 2006). Without intervention, RA remains moderately stable over time for children (Crick, 1996; Vaillancourt, Brendgen, Boivin, & Tremblay, 2003), increases across early adolescence (Bjorkqvist, Lagerspetz, & Kaukiainen, 1992; Scheithauer, Hayer, Petermann, & Jugert, 2006; Werner & Hill, 2010), and places children at risk for future maladjustment (Crick, Ostrov, & Werner, 2006).

Although a substantial number of research studies have been conducted on RA over the past two decades, little is currently known about how to prevent or reduce this specific form of aversive behavior. The primary goal of the current study is to examine the effectiveness of a school-based program designed to reduce RA among middle-school students. In addition, the differential impact of the intervention is examined for students showing different levels of risk (i.e., baseline levels of aggression and victimization).

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*Prevention and Intervention of Childhood Aggression*

The majority of prevention and intervention work points to the utility of a systems approach to reducing aggressive behaviors and promoting positive social relationships (Greenberg, et al., 2003; Nation et al., 2003; Weissberg, Kumpfer, & Seligman, 2003). Systems approaches are generally whole-school or universal approaches that involve addressing aggression as a group process supported by members of the school community. For example, a whole-school intervention program may involve educating onlookers about the deleterious effects of their decision (whether conscious or unconscious) to remain silent (e.g., do nothing) when they are aware of ongoing aggression. According to a recent study, when bystanders do intervene to discourage the bullying, the majority of efforts are effective (Hawkins, Pepler, & Craig, 2001). One prominent example of the effectiveness of the systems approach is Olweus's Anti-Bullying Prevention Program. Evaluations of this program have shown significant reductions in children's self-reported aggression and victimization over a two-and-a-half-year period (Olweus, 1993, 1997). These findings are notable given that a recent review concluded that 90% of anti-bullying programs fail to demonstrate effectiveness (Smith, Schneider, Smith, & Ananiadou, 2004).

One limitation of the Olweus program and other evidence-based interventions is that their specific impact on relationally oriented forms of aggression is unknown. This is significant given that the aforementioned studies have documented an *increase* in RA during early adolescence. Importantly, RA has been shown to be conceptually and empirically distinct from overt forms of aggression (Crick & Grotpeter, 1996; Vaillancourt et al., 2003), with a potentially different etiology and developmental course (Cote, Vaillancourt, Barker, Nagin & Tremblay, 2007). These findings point to the need for specific prevention and intervention efforts to address RA.

Other anti-bullying intervention efforts have focused on changing *classroom levels* of peer victimization (see Rock Solid Foundation W.I.T.S. Resource Manual, 2001) as well as *individual attitudes* toward peer aggression (see Second Step Middle School/Junior High program). With respect to the former, Leadbeater, Hogg, and Woods (2003) found that classroom levels of victimization among elementary age students were generally stable across a 2-year period; however, the intervention did predict moderate decreases in classroom levels of RV and physical victimization (PV) compared to those in control schools. The effects of the Second Step Middle School/Junior High program, another demonstrated effective prevention program, was evaluated by Van Schoiack-Edstrom, Frey, and Beland (2002). Although these researchers did not examine changes in students' relationally aggressive behavior, they did assess program effects on students' *attitudes* about relational and PA, a demonstrated predictor of aggressive behavior (Henry et al., 2000; Huesmann & Guerra, 1997). Results demonstrated that students who received the intervention program in their second year of middle school became less tolerant of RA compared to students in the control schools. Importantly, this was the first study to demonstrate effects of a school-based intervention on changing students' beliefs about RA.

Although progress has been made toward designing and implementing effective school-based intervention efforts to reduce aggressive behavior, the majority of these efforts have focused on the general construct of aggression, examined classroom levels of RV, or have examined students' changing attitudes about RA. There is a paucity of research examining the effects of intervention efforts on reducing individual levels of RA.

The second gap in the literature concerns the age group targeted in current intervention research. Although we have begun to examine the effects of intervention efforts on adolescent students (e.g., Bauer, Lozano, & Rivara, 2007; Menesini, Codecasa, Benelli, & Cowie, 2003), the majority of studies thus far have included elementary school-age children (see Capella & Weinstein, 2006; Cavell & Hughes, 2000; Domitrovich, Cortes, & Greenberg, 2007; Frey, Nolen, Van Schoiack Edstrom, & Hirschstein, 2005). Although this population of children merits careful consideration (particularly

in the prevention arena), we cannot overlook the unique needs of early adolescents. Middle-school students are an important population to study given that empirical studies have documented an increase in RA (Scheithauer et al., 2006), and RV (Espelage & Asidao, 2001), as well as a significant increase in the approval of RA (Werner & Hill, 2010) during early adolescence. Moreover, past work has indicated that RA is perceived as particularly hurtful during the middle-school years (Galen & Underwood, 1997). These data underscore the need for effective interventions specifically designed to reduce RA among middle-school children.

The present study addresses the above limitations by investigating the effectiveness of a whole-school intervention designed to reduce RA. We examined the effectiveness of the Creating A Safe School (CASS; The Ophelia Project) intervention model on reducing middle-school students' involvement with RA. Based on past intervention work as well as developmental studies documenting the trajectory of RA, we hypothesized that students would report either similar or lower levels of RA and victimization at posttest compared to pretest. Because the CASS model directly targets RA, yet also teaches general social skills and prosocial behavior, we expected to see significant, but less pronounced intervention effects on student involvement in PA as well.

Our second goal was to examine one process that might be responsible for intervention effects on RA. The CASS model assumes that students' *normative beliefs about RA* play an important role in the development and maintenance of RA, an assumption that has growing empirical support. Several recent studies have demonstrated the relationship between the *approval* of RA and the actual use of relationally aggressive behavior among children (Murray-Close, Crick, & Galotti, 2006; Musher-Eizenman, et al., 2004), early adolescents (Werner & Hill, 2010; Werner & Nixon, 2005), and college students (Bailey & Ostrov, 2008; Goldstein, Chesir-Teran, & McFaul, 2008). Importantly, some evidence suggests that, when intervention programs target children's social information-processing patterns, including normative beliefs about aggression, aggressive behavior is impacted (Hudley & Graham, 1993; Slaby & Guerra, 1988). The CASS intervention model was specifically designed to reduce relationally aggressive behavior by challenging students' positive evaluations of RA. To our knowledge, this is the first study to examine the extent to which changes in students' beliefs about RA predict changes in reported RA. We hypothesized that intervention program effects would be predicted by changes in students' normative beliefs about RA.

Our final goal was to explore the differential impact of the CASS intervention on students who varied in initial levels of RA and RV. As demonstrated with other intervention and prevention studies, it is possible that the CASS intervention model is more effective with specific at-risk populations. For example, a recent review revealed that prevention efforts focusing on youth identified as at risk for aggression were more effective than were efforts targeting the general population (Limbos et al., 2007). Currently, there is a paucity of research examining how different subgroups of children respond to universal intervention efforts. This question is important to consider given that children who use high levels of RA are at increased risk for internalizing and externalizing problems (Crick et al., 2006; Herrenkohl, Catalano, Hemphill, & Toumbourou, 2009). Similarly, highly relationally victimized children are at risk for maladjustment, such as loneliness and suicidal ideation (Prinstein, Boergers, & Vernberg, 2001; Owens, Slee, & Shute, 2000). Based on past work, we expected that intervention effects would be more pronounced for children reporting higher levels of RA and/or RV during the pretest compared to their less aggressive/victimized peers.

## METHOD

### *Participants*

Participants included 405 sixth graders (52% female; mean [*M*] age = 11.4 years) from five middle schools (three public, two private) in three geographic areas across the United States. The

majority of the sample was White (92%), and the percentage of students receiving free or reduced price lunches ranged from 0% to 63% across the five schools. Schools were recruited as part of a larger effort initiated by The Ophelia Project designed to create safer environments for children. Because schools self-selected into the intervention, all participating schools represented “treatment” schools. Schools were invited at the outset to take part in an evaluation component to assess the program’s effectiveness on reducing students’ involvement with RA. All schools chose to participate in the evaluation, which was done in collaboration with university faculty. This investigation received institutional review board approval.

### *The CASS Model*

The CASS model (The Ophelia Project, 2002) is a universal, whole-school, mentor-delivered intervention that is designed to promote socioemotional competence and decrease RA using a systems approach. Consistent with best practices in bullying prevention (see Davis, 2007), the CASS intervention includes three major program components: raising awareness and increasing knowledge of RA, building empathy, and addressing/challenging existing normative beliefs about RA (e.g., beliefs endorsing or tolerating exclusion and rumor-spreading). Importantly, although RA is specifically addressed within this model, CASS is a universal intervention designed to promote social skills and reduce all forms of aggressive behavior. A central component of the CASS model is to explore the varying roles involved in the bullying process, highlighting the role of bystanders. Specifically, the CASS model challenges students to acknowledge and take responsibility for their part in reinforcing the aggressive behavior.

### *The Intervention*

*School Building Level.* Building on Olweus’s Bullying Prevention Program (1993), the CASS intervention model includes several core components to ensure a standard for implementation across schools. First, at the onset of the program, each school is assigned two CASS consultants, one lead consultant and one mentor consultant. Consultants are Ophelia Project staff or are trained and supervised by Ophelia Project staff. Each consultant receives a minimum of 16 hours of comprehensive training on RA and adolescent development before working independently with schools. After being trained, consultants work with their respective schools for a minimum of 10 hours per school year. Members from each school administration initially meet with the lead consultant to discuss a school-wide, systemic approach to creating a safe social environment. The lead consultant is responsible for overseeing the implementation of the CASS model, including the supervision of adult facilitators and high-school mentors.

Consistent with recent recommendations regarding the reduction of RA in the school setting (see Merrell, Buchanan, & Tran, 2006), the second component of the CASS model consists of an in-service training at the outset of the program. With the inception of this program, all teachers, administrators, and staff complete a 7-hour in-service training provided by The Ophelia Project. The goals of the in-service are to educate staff about RA, identify associated detrimental consequences, specify roles involved, as well as provide effective strategies to reduce RA.

*Classroom Level; Training of Facilitators and Mentors.* Adults in the school setting (e.g., counselors) as well as interested parents are invited to serve as facilitators to train high-school mentors. CASS mentor consultants train these adult facilitators to develop effective strategies for “kid(s) in the middle” (i.e., bystanders) to reduce RA behavior. To ensure implementation integrity of the CASS model, regular coaching is given to the facilitators by the consultant as needed throughout the intervention until mastery is demonstrated. Adult facilitators then train high-school students to become “mentors” to the middle-school students in the classroom setting. On average, there is

approximately one adult facilitator per six high-school mentors. High-school mentors are chosen via teacher referral or are selected through an application process. After obtaining parental consent, high-school mentors complete a 1-day training provided by adult facilitators. Like the adult facilitators, mentors also demonstrate mastery in the trained activities before engaging with the middle-school students. Adult facilitators supervise mentoring activities through ongoing meetings and regular contact. High-school mentors and facilitators meet prior to each middle-school classroom mentoring session to plan the agenda for each session. As recommended by the Centers for Disease Control and Prevention (2001), mentors use active learning strategies when teaching younger students about RA. Mentors generally meet once or twice a month with middle-school students in a classroom setting. It should be noted that, although adult facilitators are present in the middle-school classrooms, the key delivery sources of the mentoring program to the middle-school students are trained high-school mentors.

To standardize content, the CASS mentoring intervention program consists of 10–12 scripted student lessons with objectives and prepared activities. Role playing, story telling, and small group facilitation are all used as pedagogical methods to promote empathy and perspective taking, as well as to challenge students' existing beliefs about kinds of behaviors they are willing to tolerate (e.g., exclusion and rumor-spreading). These pedagogical techniques provide students with rich opportunities to practice specific skills related to reducing relationally aggressive behavior and empower bystanders to take a positive stand against aggression.

The third core component of the CASS model includes the development of a school task force consisting of key stakeholders in the school community (e.g., administrators, teachers, and staff). The purpose of the task force is to coordinate the efforts of the school community to reduce students' RA behavior. With the support and guidance from consultants, the task force is responsible for reviewing school policies, developing a common language to address RA, and implementing effective strategies to enhance accountability among students and staff according to standards set forth in the CASS manual (for more information, see [www.opheliaproject.org](http://www.opheliaproject.org)). The task force also assists in creating an organized school campaign designed to increase awareness of RA. These campaigns are targeted to educate students and families about constructive ways for students to develop and maintain healthy relationships without manipulating and excluding others. Consistent with other prevention programs (e.g., Bauer et al., 2007), RA campaigns vary across schools and include elements such as posters, banners, daily announcements, bulletin boards, and information on the school Web site.

The fourth core component of the CASS program includes the implementation of a comprehensive needs assessment conducted by The Ophelia Project prior to the intervention. The purpose of this written student survey is twofold: to assess initial levels of aggression, victimization, and students' beliefs about aggression and to identify problematic locations where RA is likely to occur (e.g., cafeteria, recess, bathroom). Using the results of this needs assessment, trained consultants work with the task force to address issues specific to the school.

### Measures

*Aggression and Victimization.* Self-reports of aggression and victimization were obtained using items from a measure originally designed by McDonald, D'Amico, and O'Laughlin (2000) and revised by Werner and Nixon (2005). Participants indicated how often in the last 6 months they engaged in a series of behaviors, or were the target of different behaviors, on a 5-point scale (1 = never; 2 = rarely; 3 = monthly; 4 = weekly; 5 = at least once a day). Items made up four subscales: *relational aggression* (six items; e.g., spread rumors that were not true;  $\alpha = .82$ ), *physical aggression* (two items; e.g., started a fist fight or shoving match;  $\alpha = .81$ ), *relational victimization* (five items;

e.g., other kids left you out of something on purpose;  $\alpha = .89$ ), and *physical victimization* (two items; e.g., other kids threatened to beat you up;  $\alpha = .77$ ). Factor analysis with maximum likelihood extraction indicated that two-factor models (relational and physical aggression/victimization as separate constructs) fit the data significantly better than did one-factor models for aggression items [ $X^2$  diff (7) = 80.4,  $p < .001$ ] and victimization items [ $X^2$  diff (6) = 80.7,  $p < .001$ ]. Thus, we computed scores for relational and physical forms of aggression and victimization by averaging across the items making up each scale (scores could range from 1 to 5). Consistent with prior studies, RA and PA were modestly correlated,  $r = .41$ ,  $p < .001$ , as were RV and PV,  $r = .62$ ,  $p < .001$ . In addition, aggression and victimization scores were significantly associated (for relational forms,  $r = .38$ ,  $p < .001$ ; for physical forms,  $r = .36$ ,  $p < .001$ ).

*Classifying Groups of Aggressive and Victimized Students at Pretest.* To examine whether the CASS intervention had differential effects on students depending on their initial level of aggression or victimization, we classified students into three groups (i.e., non-aggressive/victimized, average, and high aggressive/victimized). Students were classified as *non-aggressive* if their average pretest score for RA was 1 (“never”). One hundred ten students met this criterion (60% female). Following procedures used in past work, students were considered *high aggressive* if their RA scores were equal to or greater than 1 standard deviation (*SD*) above the sample *M*. Sixty-seven students met this criterion (51% female). Remaining students were considered *average* ( $N = 227$ , 48% female). A 2 (sex)  $\times$  3 (group) chi-square test revealed no sex differences in group composition. Similarly, we found no differences in group composition as a function of school type (public vs. private),  $X^2(2) = 1.27$ ,  $p > .05$ .

A similar procedure was used to create groups of relationally victimized students. Forty-seven students were *non-victimized* (43% female), 295 students were *average* on RV (53% female), and 62 students were *high* on RV (52% female). Again, chi-square tests revealed no differences across groups in sex,  $X^2(2) = 1.85$ ,  $p > .05$ , or school type,  $X^2(2) = .63$ ,  $p > .05$ .

*Normative Beliefs about Aggression.* Students’ normative beliefs about relational and overt aggression were assessed using a version of Huesmann and Guerra’s (1997) Normative Beliefs about Aggression Scale adapted by Werner and Nixon (2005). The current study focused on 20 items that assessed beliefs about RA (10 items) and overt aggression (i.e., physical and direct verbal aggression; 10 items). Each item was rated on a 4-point scale ranging from 1 (“it’s really wrong”) to 4 (“it’s perfectly OK”), with higher scores reflecting greater endorsement of aggression. Within each scale, six items tapped retaliation beliefs (i.e., beliefs about the acceptability of aggression following a provocation) and four items tapped general beliefs (i.e., beliefs about the acceptability of aggression in general). Because of the high intercorrelations across items assessing retaliation beliefs and general beliefs, we created a summary score for each form of aggression. Factor analyses conducted in previous research have demonstrated that beliefs about relational and overt forms of aggression are correlated yet distinct constructs (Van Schoiack-Edstrom et al., 2002; Werner & Nixon, 2005). In the present study, both scales were highly reliable ( $\alpha = .81$  for relational norms and  $\alpha = .83$  for overt norms).

### *Procedure*

Students were surveyed in the fall (i.e., September or October) of the academic year (pretest) before the program was implemented and again in the spring (i.e., May or June) at the end of the academic school year (posttest). Instructions were read aloud by the first author or a trained research assistant. Participants completed the surveys on their own in a classroom setting. Students were told that the researchers were interested in knowing what they think about how students treat each

other at school. Students were reminded that there were no “right” or “wrong” answers and that all responses were confidential. Classroom teachers remained in the room while research assistants walked around the classroom to assist with any questions/concerns during the survey administration.

RESULTS

*Preliminary Analyses*

We first explored differences in pretest levels of RA, RV, and normative beliefs about RA by student sex, school type (private vs. public), and socioeconomic status (SES; percentage of students receiving free or reduced price school lunches). A one-way analysis of variance (ANOVA) revealed a significant effect of sex for normative beliefs,  $F(1, 402) = 19.5, p < .001$ . Female students were less approving of RA ( $M = 18.9$ ) compared to male students ( $M = 21.1$ ). No other effects of sex were found. Significant effects of school type,  $F(1, 403) = 15.8, p < .001$ , and SES,  $F(1, 402) = 8.0, p < .001$ , were also found for normative beliefs about RA. Students in private schools ( $M = 17.7$ ) were less approving of RA compared to students in public schools ( $M = 20.4$ ), and students in schools serving a high percentage of disadvantaged families were less approving of RA ( $M = 19.9$ ) compared to students in schools serving a moderate number of low SES families ( $M = 20.4$ ). Because of these significant effects of school type and SES, we included these variables as covariates in the main analyses. In all but one case, however, the results were unchanged with the addition of these variables. For the sake of parsimony, the simplified models are presented below. Descriptive statistics for all study variables can be found in Table 1.

Table 1  
*Correlations and Descriptive Statistics for Study Variables at Pretest and Posttest (N = 404)*

Variables	1	2	3	4	5	6	7	8	9	10	11	12
Pretest												
1. RA	–											
2. PA	.41***	–										
3. RV	.38***	.20***	–									
4. PV	.21***	.36***	.62***	–								
5. RA Norms	.26***	.19***	.10*	.12*	–							
6. PA Norms	.34***	.38***	.08	.17*	.46***	–						
Posttest												
7. RA	.25***	.21***	.14**	.09	.17***	.14**	–					
8. PA	.16**	.31***	.07	.15**	.19***	.27***	.52***	–				
9. RV	.15***	.03	.29***	.17***	.07	.02	.29***	.16***	–			
10. PV	.11*	.19***	.18***	.31***	.13**	.14**	.26***	.38***	.55***	–		
11. RA Norms	.15**	.19***	–.01	.11*	.33***	.25***	.40***	.32***	.14**	.25***	–	
12. PA Norms	.21***	.27***	.09	.17***	.19***	.33***	.41***	.43***	.02	.21***	.60***	–
<i>M</i>	1.48	1.23	1.94	1.55	19.92	12.09	1.62	1.32	2.03	1.57	19.45	12.34
<i>SD</i>	0.49	0.56	0.86	0.88	5.13	3.26	0.59	0.60	0.84	0.84	5.29	4.12
Minimum	1.0	1.0	1.0	1.0	10.0	8.0	1.0	1.0	1.0	1.0	10.0	7.0
Maximum	3.67	5.0	5.0	5.0	38.0	32.0	4.33	5.0	5.0	5.0	40.0	36.0
$\alpha$	.82	.81	.89	.77	.81	.83	.86	.67	.86	.71	.84	.89

Note. Norms: normative beliefs.  
 \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 2  
*M and SD Values for Study Variables by RA Group Membership*

	Pretest						Posttest					
	Non		Average		High		Non		Average		High	
RA	1.00	(.00)	1.47	(.23)	2.33	(.42)	1.42	(.44)	1.67	(.61)	1.80	(.59)
PA	1.04	(.13)	1.22	(.51)	1.58	(.91)	1.25	(.58)	1.32	(.60)	1.46	(.65)
RV	1.59	(.76)	1.94	(.76)	2.51	(1.04)	1.89	(.82)	2.05	(.83)	2.18	(.90)
PV	1.38	(.87)	1.52	(.79)	1.79	(1.08)	1.54	(.81)	1.57	(.84)	1.66	(.90)
RA Norms	18.70	(5.07)	19.93	(4.81)	20.69	(5.07)	19.34	(4.62)	19.42	(5.28)	19.68	(5.95)
PA Norms	11.80	(1.73)	12.01	(3.16)	12.63	(4.46)	11.94	(3.03)	12.21	(4.00)	12.35	(5.56)

### Changes in RA

To examine the effects of the CASS intervention on students' self-reports of RA, we conducted a repeated-measures ANOVA. Between-subjects factors included participant sex and RA group (non-aggressive, average, high). Within-subjects factors included time of measurement (pre- and posttest) and aggression type (relational and physical). Including aggression type as a factor allowed us to evaluate whether the intervention had nonspecific or unique effects on students' aggression. Because we were interested in changes in aggression from pre- to posttest, only significant effects involving the factor of time are reported here. Group *M* and *SD* values can be found in Table 2.

The analysis yielded a significant multivariate effect of Time  $\times$  RA group, however, this interaction was qualified by a three-way interaction of Time  $\times$  RA group  $\times$  Aggression type,  $F(2, 396) = 17.36, p < .001$ . To explore this interaction further, a series of follow-up repeated-measures analyses were computed separately by RA group with two within-subjects factors: time and aggression type. Of particular interest was the interaction of Time  $\times$  Aggression type for each group. Results showed that this interaction was significant for the non-aggressive group,  $F(1, 107) = 14.94, p < .001$ ; the average group,  $F(1, 226) = 4.90, p < .05$ ; and for the high aggression group,  $F(1, 66) = 14.48, p < .001$ .

To evaluate whether pre- to posttest changes were significant for RA and PA, a repeated-measures analysis was computed for each group separately for RA and PA. The main effect of time was significant for all three groups for physical as well as RA with one exception: Reports of PA among students in the high RA group did not change significantly from pre- to posttest,  $F(1, 66) = 1.14, p > .05$ . Examination of *M* values showed that students in the non-aggressive and average groups reported *increasing* levels of RA from pre- to posttest, whereas students in the high RA group reported *decreases* in RA over time. Refer to Table 2 for group *M* values.

To further examine whether the intervention had nonspecific or unique effects on the form of aggression for the high aggression group, effect sizes were calculated and compared for changes in RA and PA using Cohen's standards (Cohen, 1988). Results indicated a moderate effect size for RA (Cohen's  $d = .99$ ), compared to a small effect size for PA (Cohen's  $d = .15$ ). Thus, as hypothesized, the positive effects of CASS on students who used high levels of RA at pretest were specific to RA. In contrast, students who were either non-aggressive or average on RA during the pretest showed small but significant increases in RA and PA across the intervention period.

The initial repeated-measures analysis also revealed a significant multivariate interaction of Time  $\times$  Aggression type by sex,  $F(1, 396) = 4.01, p < .05$ . To probe this interaction further, we computed a follow-up analysis with time and aggression type as within-subjects variables separately for males and females. These analyses yielded significant main effects of time for males,

Table 3  
*M and SD Values for Study Variables by RV Group Membership*

	Pretest						Posttest					
	Non		Average		High		Non		Average		High	
RA	1.15	(.38)	1.48	(.46)	1.75	(.55)	1.51	(.52)	1.61	(.56)	1.75	(.73)
PA	1.11	(.34)	1.21	(.53)	1.42	(.76)	1.36	(.75)	1.30	(.56)	1.39	(.67)
RV	1.00	(.00)	1.74	(.42)	3.58	(.67)	1.70	(.71)	2.01	(.77)	2.36	(1.10)
PV	1.09	(.22)	1.40	(.65)	2.63	(1.27)	1.53	(.77)	1.52	(.79)	1.85	(1.05)
RA Norms	10.70	(5.94)	19.93	(4.96)	20.69	(5.18)	19.34	(5.12)	19.42	(5.14)	19.68	(6.17)
PA Norms	11.80	(3.67)	12.01	(3.15)	12.63	(3.41)	11.94	(3.56)	12.21	(3.87)	13.29	(5.42)

$F(1, 193) = 2.68, p < .05$ , and females,  $F(1, 207) = .02, p < .05$ . The interactions of time and aggression type, however, were nonsignificant. Examination of *M* values showed that although males reported higher levels of aggression than females did, both males and females reported slight increases in aggression between pretest and posttest.

#### *Changes in RV*

Changes in RV were assessed using a repeated-measures ANOVA similar to the previous analysis. Between-subjects factors included participant sex and RV group (non-victimized, average, high). Within-subjects factors included time of measurement (pre- and posttest) and victimization type (relational and physical). Group *M* and *SD* values are found in Table 3.

The analysis yielded a significant multivariate effect of Time  $\times$  RV group, however, this interaction was qualified by a three-way interaction of Time  $\times$  RV group  $\times$  Aggression type,  $F(2, 397) = 10.11, p < .001$ . To explore this interaction further, a series of follow-up repeated-measures analyses were computed separately by RV group with two within-subjects factors: time and victimization type. Results showed that the interaction of time and victimization type was significant for the non-victimized group,  $F(1, 46) = 4.74, p < .05$ ; the average group,  $F(1, 293) = 8.24, p < .01$ ; and for the high victimized group,  $F(1, 61) = 6.16, p < .05$ . Moreover, when the analysis was conducted separately for RV and PV scores, the effect of time was significant for all three groups and for both forms of victimization. Examination of *M* values showed that students in the non-victimized and average groups reported increasing levels of RV and PV from pre- to posttest, whereas students in the high RV group reported decreases in both forms of victimization over time.

Effect sizes were calculated for changes in RV compared to changes in PV to examine whether the CASS intervention had nonspecific or unique effects on the form of students' victimization. Using Cohen's standards (Cohen, 1988), results indicated a moderate effect size for RV ( $d = 1.03$ ) and a small effect size for PV ( $d = .67$ ). Table 3 displays group *M* values and the interactions of Time  $\times$  Victimization group for RV and PV scores.

#### *Changes in Normative Beliefs about RA*

To examine changes in students' normative beliefs about RA, a repeated-measures ANOVA was computed. Between-subjects factors included participant sex and RA group (non-aggressive, average, high). Within-subjects factors included time of measurement (pre- and posttest) and aggression type (relational and physical norms).

A significant interaction of time and aggression type was found,  $F(1, 394) = 5.53, p < .001$ . Examination of *M* values suggested that students became less approving of RA between pre- and

posttest ( $M_s = 19.9$  and  $19.4$ , respectively), whereas students became more approving of PA ( $M_s = 12.3$  and  $12.6$ , respectively). Follow-up tests conducted on RA and PA norms separately, however, revealed no significant effects of time. In addition, when we controlled for school type and SES in the model, the Time  $\times$  Aggression type effect became nonsignificant.

#### *Do Changes in Normative Beliefs Account for Changes in Aggression from Pre- to Posttest?*

Our final set of analyses was designed to test the hypothesis that changes in RA can be accounted for, in part, by changes in beliefs about the acceptability of RA, the intervening process targeted in the CASS intervention. Hierarchical multiple regression was used to test this hypothesis. The dependent variable was RA scores at posttest. The following variables were entered at the first step of the model: participant sex, school type, SES, RA group, and RA at pretest. We also included pre- and posttest scores for PA at this step so that we could evaluate the unique effects of changes in normative beliefs about RA on changes in RA. At the second step we included scores representing change in relational norms. This variable was computed by subtracting pretest scores from posttest scores; thus, a *negative change score* represents decreases in approval of RA.

The first model was significant,  $F(9, 397) = 23.42, p < .001$ . Significant univariate predictors of RA at posttest included: RA pretest scores ( $\beta = .19, p < .05$ ), PA scores at posttest ( $\beta = .46, p < .001$ ), and change in normative beliefs about PA ( $\beta = .20, p < .001$ ). Together, the variables entered at Step 1 accounted for 35% of the variance in the dependent variable. Importantly, the addition of relational norms change scores at Step 2 explained a significant amount of additional variance,  $F\Delta(1, 387) = 4.49, p < .05$ , and the overall model remained significant,  $F(7, 397) = 21.72, p < .001$ . Examination of the  $\beta$  weight for the relational norms change variable ( $\beta = .10, p < .05$ ) showed that students who became less approving of RA across the intervention period reported decreases in relationally aggressive behavior from pre- to posttest.

## DISCUSSION

The central goal of this study was to investigate the effectiveness of a universal, school-wide intervention program specifically designed to reduce involvement in RA. Contrary to hypotheses, students who received the CASS intervention reported *higher* levels of RA and RV at posttest as compared to pretest; however, these effects were moderated by baseline levels of aggression and victimization. Students who initially reported high levels of involvement in RA decreased their use of RA with peers, whereas all other students reported small, but significant increases in RA. It should be noted that posttest RA scores for the non-aggressive and average group were still relatively low (i.e., aggressive behavior occurring less than “rarely”).

A similar pattern emerged when examining pre- and posttest levels of RV as a function of RV group. Those students who reported initially high levels of RV demonstrated significant decreases in reported experiences with RV at posttest, whereas students in the two other groups reported small but significant increases in self-reported RV. Although the posttest scores in the high victimization group occurred more than “rarely,” these scores were still below the threshold of what Olweus considers “regular” involvement with aggressive behavior (see Olweus, 1993, 1997). Program effects were similar for males and females.

Together, these results provide initial evidence of the effectiveness of the CASS intervention model for those early adolescents self-identified as highly relationally aggressive or relationally victimized during the pretest. These two groups represent potential at-risk populations for concurrent and future social and psychological difficulties and thus warrant further study.

Why did the CASS intervention appear to influence only those students who were initially high on RA and victimization? The lack of a control group and a randomized design prevents us from

drawing firm conclusions, however, at least two explanations are possible. One explanation for this pattern of results could be regression toward the mean. Students in the non-aggressive/victimized groups reported *no* involvement with RA during the pretest, thus increasing the likelihood that they would report less extreme scores (i.e., higher scores) on the posttest. In support of this explanation, posttest scores in the non-aggressive group approached the mean of the sample. This argument is somewhat less feasible in the average aggression group, whose pretest scores by definition were at or around the sample average.

Another possibility is that increased awareness training for RA weakened the intervention effects for the non-aggressive and average groups of students. Students in these groups may have, for the first time, realized that social exclusion and rumor-spreading actually “count” as aggressive acts, resulting in greater salience of these behaviors during the posttest and consequent increased reports of RA and victimization. In contrast, given their history with using RA, students in the high-aggression group were already cognizant of these types of behaviors, and as such, did not demonstrate an initial increase of RA and victimization as a result of increased awareness. This line of thinking is consistent with the response-shift bias, which is measurement bias introduced by using different measurement standards during the pretest and posttest (Hill & Betz, 2005). Howard and colleagues found that when using a traditional pretest–posttest design, training effects actually demonstrated negative returns from the pretest to the posttest. Objective observers noted the opposite trend, however—that is, increased positive training effects over time (Bray & Howard, 1980; Howard & Dailey, 1979; Howard, Dailey, & Gulanic, 1979). This discrepancy in findings was explained by participants’ proclivity to change their rating standard (i.e., standard of measurement) as a result of exposure to the intervention, thus biasing their change scores. Additional studies are needed to examine this potential measurement bias as well as to investigate other methodological approaches besides using the traditional self-report, pretest–posttest design when assessing program effects.

Despite these limitations, our findings support the use of a mentor-delivered school-wide intervention program to reduce relationally aggressive behavior among high-risk early adolescents. This high-aggression group is an important group to study given that children who are more involved with RA are increasingly at risk for future maladjustment (Crick et al., 2006; Herrenkohl et al., 2009). One can argue that this group of children is particularly in need of effective intervention programs designed to promote the positive social-cognitive skills needed to disrupt the developmental trajectories leading to at-risk behavior (Prinstein & La Greca, 2004). School psychologists are in a unique position within the school infrastructure (e.g., they typically do not administer student sanctions) and subsequently are in a prime position to effectively work with *both* the victims and perpetrators to reduce the prevalence and effects of aggressive behavior. Individual counseling sessions, support groups, and classroom-based prevention/intervention efforts may all be effective tools used to reduce this form of aggressive behavior. Future studies are needed to examine the developmental trajectories of RA as a function of aggression group status (e.g., non-aggressive, average, or high-aggressive) to increase our understanding of how specific intervention efforts affect unique groups of children.

One strength of the current study was the inclusion of assessments of PA and PV. Thus, we were able to evaluate whether CASS had specific effects on RA or if the effects generalized to PA. The results suggest that the CASS intervention was particularly effective at reducing highly aggressive students’ use of RA. Two findings are noteworthy. First, students in the high RA group reported significant decreases in RA and RV, but not in PA or PV (although changes were in the predicted direction). Second, program effect sizes were significantly larger for changes in RA and RV than for PA and PV. Importantly, the effect sizes for changes in RA and RV for the high aggression group compare favorably to the effect sizes documented in Olweus’s school-based Anti-Bullying

Prevention Program (see Olweus, 1997). In sum, these data suggest specific effects of the CASS intervention on reducing students' RA and victimization.

Consistent with our hypotheses, changes in self-reported RA were accounted for, in part, by changes in students' normative beliefs about the acceptability of RA. Importantly, this was true for all students, regardless of initial levels of RA. It is not surprising that a key component of the CASS intervention model was focused on challenging students' existing beliefs around the acceptability of relationally aggressive behaviors. Our results are consistent with those of past researchers who have found cognitive mechanisms to be important change agents in modifying aggressive behaviors (Hudley & Graham, 1993; Slaby & Guerra, 1988; Van Schoiack-Edstrom et al., 2002; Werner and Nixon, 2005). Future intervention work guided by social information-processing theories is needed to further elucidate the unique role of normative beliefs in reducing relationally aggressive behavior. To date, this is the first known intervention study to evaluate possible underlying mechanisms responsible for changes in RA. Additional longitudinal work is also needed to explore the temporal nature of these effects over time to better inform the development of intervention and prevention efforts.

Other strengths of this study included a multidimensional assessment of aggression, a whole-school intervention approach delivered by high-school mentors, and a pretest-posttest design. Certain limitations of this study must be kept in mind, however. First, because of the lack of a control group, it was not possible to rule out maturation effects. Furthermore, because the times of measurement were not separated by 12 months (i.e., the pretest data were collected in September or October, and the posttest data was collected in May or June), we were unable to use adjacent cohorts as a crude baseline measurement of RA to control for maturation. Although it will be important for future studies to use a control group, available evidence suggests that the findings here are probably not explained by maturation. Studies of normative populations have shown that levels of RA increase during adolescence (Bjorkqvist et al., 1992; Scheithauer et al., 2006; Werner & Hill, 2009); thus, we would expect that any reductions in RA would be due to intervention effects and not merely maturation. Consistent with this logic, results from recent intervention studies revealed increases in bullying behavior in the control group, whereas no changes were reported in the intervention group (Menesini et al., 2003). A similar trend was found for victimization rates (Bauer et al., 2007). In the same way, past work has shown that middle-school students' endorsement of RA increased over time without any intervention (Werner & Hill, 2010) and remained unchanged for intervention students in their first year of middle school (Van Schoiack-Edstrom et al., 2002). Taken together, these findings provide support for our interpretation of results as reflecting intervention effects (and not maturation effects) on students who were initially high on RA and victimization. Future work is needed, however, to investigate the effects of the CASS intervention model with a control group to better understand how maturation effects interact with intervention efforts.

Another limitation of this study concerns the fact that the degree of intervention implementation on intervention effectiveness was not assessed. It is possible that the intervention effects were confounded with the degree of intervention implementation across schools (see Salmivalli, Kaukiainen, & Voeten, 2005; Stevens, Van Oost, & De Bourdeaudhuij, 2001). Moreover, it is also possible that some intervention components were more effective than others. For example, given the salient role of the peer group during adolescence, it is possible that the involvement of high-school mentors was more effective in reducing and changing attitudes toward RA than was the school's task force or in-service training. More investigation is needed to elucidate the specific components of the CASS intervention model that are needed to maximize intervention effectiveness on reducing RA. Finally, our study was limited to a homogenous, sixth-grade sample at five schools over one academic school year. Additional research is needed to examine the effect of the CASS model on students of varying developmental age periods and ethnicities in multiple schools across longer developmental time periods.

### Conclusion

The present study extends past work by examining the effectiveness of the CASS intervention model on early adolescents' involvement with RA. Consistent with our hypotheses, these data suggest that the CASS intervention model holds promise for reducing relationally aggressive behavior among middle-school children who are already aggressive. Students who were non-aggressive or engaged in average levels of aggression at the onset of the study reported increases in RA, although these effects were small and may have been due to measurement bias. Importantly, CASS intervention effects were specific to changes in RA compared to PA, as evidenced by the larger effect sizes. Moreover, the consideration of changes in students' normative beliefs about RA is regarded as a potential underlying key mechanism for predicting changes in RA over time. Future research that implements randomized control designs across developmental age periods is a critical next step to advance the study of intervention effectiveness on reducing relationally aggressive behavior.

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