



The Preventing Relational Aggression in Schools Everyday (PRAISE) Program: Adaptations to Overcome Subgroup Differences in Program Benefits

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Abstract

The Preventing Relational Aggression in Schools Everyday (PRAISE) Program is a school-based program that has shown promise for reducing aggression. PRAISE, 20-session classroom-based universal prevention program, was designed to be appropriate and responsive to the needs of youth within the urban school context. A preliminary trial of PRAISE evinced positive effects for girls but was less effective for boys. Following the trial, the PRAISE program was adapted to enhance its impact for boys while maintaining its impact for girls. The current paper describes the changes and a new 3-school trial of the PRAISE program that examines its impact on subgroups. Results indicate that girls in PRAISE classrooms showed improvements in knowledge of social problem-solving strategies (SIP), reductions in hostile attributions (HAB), decreases in relational aggression, and suppression of overt aggression. Boys in PRAISE classrooms showed decreases in relational aggression and improvements in academic engagement, but no improvement in knowledge of SIP or HAB. Pooled analyses comparing boys' results from the initial trial and the current trial showed significant improvements in relational aggression and relational HAB with no differences in overt aggression, overt HAB, or SIP knowledge. Taken together, this iterative adaptation of PRAISE overcame many subgroup differences in program effects.

Children living in under-resourced urban communities face a number of challenges to their health and well-being. They are exposed to acute and chronic stressors, such as community violence, poverty, and limited access to quality education (Burke et al., 2011; Esposito, 1999). While many children are resilient despite these stressors, they are at greater risk for developing aggressive behaviors (Romero et al., 2015). Peer aggression and violence are more common in urban, under-resourced schools (Connell et al., 2015; Zhang et al., 2018), creating a school climate where students may feel unsafe and have more difficulty learning (Janosz et al., 2008; Milam et al., 2010). High levels of aggression are associated with numerous negative concurrent and long-term impacts for all youth, including those who are perpetrators, victims, and bystanders (e.g., Arseneault, 2018;

Lambe et al., 2017; Moore et al., 2017; Strøm et al., 2013; Ttofi et al., 2012; Wolke et al., 2013). Effective prevention programming to reduce aggressive behaviors among youth in urban under-resourced communities should improve these students' emotional well-being and academic engagement.

Aggressive behaviors take many forms, including overt (i.e., physical and verbal actions, such as hitting, pushing, verbal threats, name-calling) and relational (e.g., gossiping, excluding others), both of which contribute to a host of negative psychosocial and academic outcomes (Coyne & Ostrov, 2018; Crick, 1995). Relational aggression has emerged as particularly important to address given that it can quickly escalate into overt aggression and negatively influence the social and academic climate of schools, specifically in urban communities (e.g., Farrell et al., 2007; Waasdorp et al., 2013, 2019). A review of published school-based prevention programs found that there are 14 programs that either focus on relational aggression or measure program impacts on relational aggression (Leff et al., 2018); however, some of these programs are no longer publicly available or are no longer being implemented (Waasdorp et al., 2021). Of the programs that have shown promise, there is evidence that they may work better for White youth in suburban schools (see Waasdorp

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et al., 2021 for a review). Urban, under-resourced schools often have high needs for programming yet have implementation difficulties and reduced effectiveness of aggression prevention programs (Black & Washington, 2008; Domitrovich et al., 2008).

The Preventing Relational Aggression in Schools Everyday (PRAISE) Program fills an important niche, as a classroom-based, universal program for 3rd–5th grade students, aimed at reducing relational and overt aggression among culturally diverse students in under-resourced urban schools (Leff et al., 2010b). PRAISE was developed through a community-based participatory research (CBPR) method in which empirically grounded strategies were adapted based on extensive feedback from student and school key stakeholders (e.g., Arora et al., 2017; Nastasi et al., 2004). This method was used to ensure a strong scientific grounding combined with relatability and relevance for youth and teachers in urban under-resourced schools, thus leading to a stronger and more culturally sensitive program (e.g., Arora et al., 2017; Nastasi et al., 2004).

Original PRAISE Program

At the core of PRAISE are 20 classroom lessons delivered by program facilitators (trained graduate students) in collaboration with classroom teachers. These 40-min lessons teach students to understand different types of friendship problems (i.e., physical, verbal, social, and cyber), identify feelings, use calming-down strategies, interpret others' intentions accurately, and make carefully considered choices for responding to potential aggression. Similar to other aggression prevention programs (Ttofi & Farrington, 2011), PRAISE also has lessons designed to help students increase empathy for victimized peers, improve perspective-taking, and become empowered as positive bystanders. PRAISE makes use of multiple teaching modalities, including didactic instruction, role plays, cartoon activities, written reflections, and video illustrations that reflect the cultural diversity of the students for whom the program is designed (Leff et al., 2010b). Program facilitators provide classroom teachers with an orientation to the PRAISE concepts and teaching modalities prior to program start-up and hold brief weekly check-ins with teachers during program implementation to co-prepare for the PRAISE lessons.

PRAISE addresses reactive aggression by teaching students who may be provoked to recognize signs of physiological arousal and choose from a menu of strategies to calm themselves down before responding. Calming oneself down to better assess the situation helps students more carefully identify and enact an appropriate response in conflict situations. Finally, PRAISE addresses proactive aggression

by working to increase positive bystander behavior. Through role-plays and discussions, facilitators and teachers help students consider and practice different ways of taking action—whether verbally or non-verbally—to show they disapprove of mean or aggressive behavior. This component of the program is aimed at making the classroom climate less tolerant of aggression, which in turn will decrease proactive aggression. By teaching both individual and classroom-level strategies for reducing aggression, the program is comprehensive in scope and impact.

The preliminary effectiveness of PRAISE was examined in a small randomized controlled trial across ten 3rd and 4th grade classrooms in one large urban elementary school. Students were randomized at the classroom level to an intervention (PRAISE) or control condition (standard school practice) ($N = 227$, 115 of these students were in intervention classrooms) (Leff et al., 2010b). Results indicated that the program was effective for girls who are relationally aggressive, as well as those who are not. Specifically, there were suppression effects in relational ($d = 1.38$) and overt aggression ($d = 3.13$) and increases in knowledge of social information processing and anger management ($d = .63$) for relationally aggressive girls in PRAISE classrooms as compared to relationally aggressive girls in control classrooms. There was also a suppression effect for relational aggression ($d = .60$) in non-relationally aggressive girls in PRAISE classrooms as compared to non-relationally aggressive girls in control classrooms. In contrast, the program was not associated with improvements for boys across most measures. Given these findings, we set out to adapt and improve the program so that it would favorably impact both boys and girls.

Adaptations to the PRAISE Program

Changes to Classroom Lesson Content

In order to enhance and expand the impact of the PRAISE program, especially for boys, we sought feedback from program participants and school stakeholders. We conducted interviews with students, teachers, lunch-recess supervisors, and administrators regarding the perceived meaningfulness, importance, and effectiveness of the PRAISE content and format for reducing aggression among both boys and girls. A CBPR approach was used to ensure the cultural relevance of the program to our target population. Based on stakeholder input, we added more pertinent examples of relational and verbal aggression that would have relevance to boys. These included aggression that occurs in chaotic lunchrooms, the dilemmas faced by bystanders of all-too-frequent hallway aggression, and conflicts that start as “play fighting,” (i.e., roughhousing) and sometimes escalate into more serious physical aggression (e.g., Richards, 2016). We also added an

assertiveness strategy (i.e., “say it strong”) to help students calmly but assertively let others know that they do not agree with their aggressive words or behavior. For some youth, and especially boys, this serves as a more viable alternative to fighting than strategies like “ignoring” or “walking away,” in a culture that values toughness and standing up for oneself (e.g., Belgrave & Brevard, 2015).

Additional changes resulted from an in-depth review of all examples and vignettes used in the program, including in role-plays, cartoons, and videos. Revisions were made so that there was an equal representation of boys and girls in the program content and supplemental teaching modalities. We also added broader coverage of “positive bystander strategies” (e.g., standing with the victim or telling the perpetrator to stop the aggression) across the lessons because bystanders have such a powerful role in the prevention or maintenance of aggressive behaviors (e.g., Salmivalli et al., 1996, 2011). This change ensures that less aggressive students have ample opportunity to engage with the program and apply PRAISE strategies, given that the bystander experience is almost universal and quite relevant for all students. Also, the prevention of bullying (i.e., repeated aggression that is carried out in the context of a power differential between the perpetrator and the victim) (e.g., Polanin et al., 2012) is a goal of PRAISE in addition to addressing aggression, which further supports the increased coverage of positive bystander behavior as a key bullying prevention strategy.

Addressing Multiple School Settings

Feedback from our school partners also reinforced what has been shown in studies of school-based bullying prevention programs, which is that whole-school, multi-component programs are the most successful for reducing aggressive behaviors (e.g., Ttofi & Farrington, 2011). To enhance its impact and reach, PRAISE was expanded beyond the facilitator-led classroom lessons to integrate staff in other school settings where aggression occurs (e.g., lunchroom, playground, and hallways) and provide students with staff-supported opportunities for practicing and generalizing PRAISE strategies across school settings where they are most needed. Two new procedures were added to PRAISE, including first, the addition of lunch-recess supervisor trainings. By teaching these staff members the same PRAISE strategies the students are learning, they are better able to notice, support, and reinforce students’ application of positive coping strategies during lunch and recess periods.

The second new procedure is a (series of) “connections meeting(s)” for 3rd, 4th, and 5th grade teachers and lunch-recess supervisors, which is important given that lunch-recess staff are often paraprofessionals with less official standing within the school (Leff et al., 2003, 2004). These cross-discipline meetings help create a shared vocabulary

inclusive of PRAISE strategies and dedicated time to communicate about student behavior, which can be hard to accomplish in under-resourced schools. An additional point of connection involves lunch-recess supervisors attending one or two PRAISE classroom lessons with teachers and students. Lunch-recess supervisors observe PRAISE instruction firsthand, and their presence helps elevate their status as trusted members of the PRAISE team who work with teachers to reduce aggression and bullying. Altogether, shared knowledge and collaboration help diverse school staff turn behavior management interactions with challenging students into teachable moments using PRAISE coping strategies.

Overview of the Current Study

The goal of this study was to examine the impact of the adapted PRAISE program on reducing aggression and enhancing problem-solving. This study also explored the impact of the program on academic engagement, given that reducing aggression and improving the school climate has been associated with improved academic outcomes in several other studies (e.g., Konishi et al., 2017; Lacey & Cornell, 2013; Low & Van Ryzin, 2014). Finally, we examined whether gender moderated effects for the adapted program as it did for the original program.

Method

Sample and Procedure

Three urban, under-resourced elementary schools were recruited to participate in a trial of the adapted PRAISE program. All aspects of the study were approved by both the authors’ institutional review board and the participating school district’s office of research and evaluation. The authors of this manuscript were involved in the design of the program but not in the delivery of the intervention (see limitations for additional discussion regarding research allegiance and blinding). In the three schools, all 3rd–5th grade teachers volunteered to participate and provided consent. For 3rd–5th grade students, PRAISE programmatic activities were approved at the district level as standard educational practice, so written parental consent was not required to receive the classroom lessons (i.e., every student in participating classrooms received the program). For students to complete measures, two consent methods were approved by the research review boards over the course of the study (see Fig. 1). Two of the schools required written parental consent and student assent, resulting in 205 out of 299 (69.6%) students completing measures. In the third school, administrators requested a waiver of parental permission with a

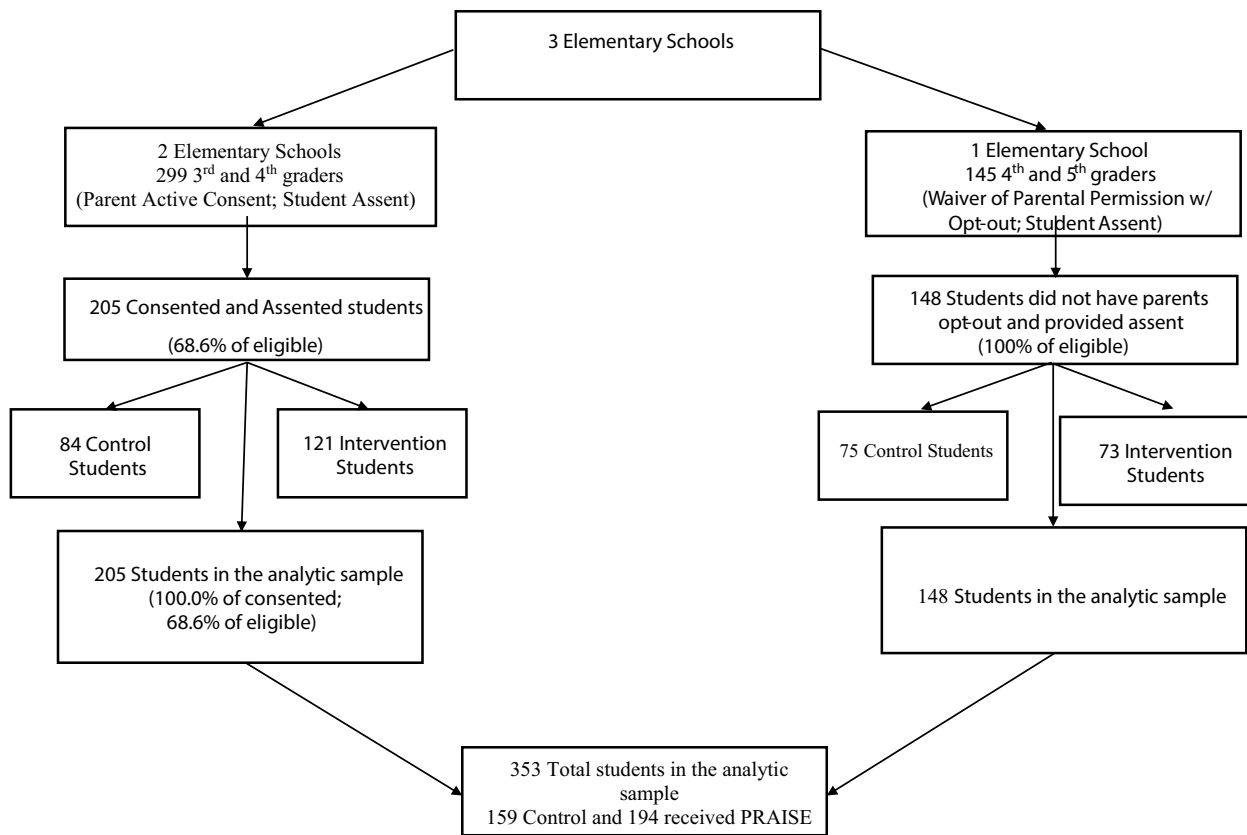


Fig. 1 Procedural arms, sample sizes, and consent and data completion rates

parental opt-out and verbal student assent, resulting in 148 students completing measures. No parents opted their children out of the measures in this school.

Randomization at the school or classroom level varied based on school administrator request. Specifically, in the two schools with written consent, the 3rd and 4th grades were randomized by classroom into intervention (PRAISE) or control (standard school practice) conditions. In the one school with the waiver of parental permission and parental opt-out procedure, the 4th and 5th grades were randomized by grade, such that all 4th grade classrooms were assigned to the intervention, and all 5th grade classrooms were assigned to the control condition. At the request of the school administrator, this allowed for consistent grade-level programming and an ability to compare program impact in one grade versus another. The recruitment and randomization flexibility our team demonstrated with the third school is consistent with a CBPR approach in which research is conducted in a manner that addresses schools' needs.

In total, there were 353 student participants in 15 classrooms across the three schools, with 159 in the control condition and 194 who received PRAISE. The sample was 53.7% female and 96.6% African American/Black. Regarding grade, 26.9% were in 3rd, 39.9% were in 4th,

and 33.1% were in 5th grade. PRAISE classroom lessons were implemented with adequate fidelity to treatment (80% of core content and 78% of core process was implemented fully) as rated by trained research team members who observed 20% of all lessons in each intervention classroom.

Measures

Aggression

The Relational Aggression and Physical Aggression subscales of the teacher-reported Children's Social Behavior Questionnaire (Crick, 1996) were used to assess children's levels of aggressive behavior. This measure has been used in numerous prior studies (e.g., Rosen & Underwood, 2010; Wang et al., 2011; Weyns et al., 2017) and demonstrates strong reliability, including with samples of urban minority youth (Crick, 1996; Leff et al., 2009, 2015, 2010a, b). Strong internal consistency was found in the current sample for the physical ($\alpha = .96$) and relational ($\alpha = .96$) aggression subscales.

Knowledge of Social Problem-Solving

The Knowledge of Anger Problem-Solving Measure (KAPS; Leff et al., 2010a) is a 15-item multiple choice self-report measure that assesses students' general knowledge of social problem-solving steps, following the Crick (1996) social information processing (SIP) model of aggression. Students choose one answer per item and receive one point for each correct response. Items are summed to derive a total score ranging from 1 through 15. This measure has been used in prior studies and shown strong ecological and convergent validity and good test-retest reliability within similar samples (Leff et al., 2010a).

Hostile Attribution

The Cartoon-Based Hostile Attributional Bias (HAB) measure (Leff et al., 2006, 2011), an adaptation of the Crick et al. HAB measure (Crick, 1995; Crick et al., 2002), was used to assess student's HAB in hypothetical ambiguous conflict situations. The measure presents traditional written vignettes accompanied by cartoon illustrations that are either relationally or physically provocative in nature (see Leff et al., 2010a, b for more details regarding measures). There are 5 relational vignettes and 5 physical vignettes; students are asked to select from two intentional and two unintentional options why they think something happened and, whether the provocateur was trying to be mean or not. A point is given for selections that are categorized as intentional. The HAB measure has shown strong psychometric properties in prior studies (e.g., Leff et al., 2015), high levels of acceptability among urban minority youth (Leff et al., 2006), and good reliability in the current sample (relational $\alpha = .78$ and physical $\alpha = .78$).

Academic Engagement

Teacher perceptions of students' academic engagement were measured using the Engagement subscale of the Academic Competence Evaluation Scales (DiPerna & Elliott, 1999) and items include, for example, "participates in class discussions," "volunteers to read aloud," and "asks questions when confused." All 8 items were averaged to create a composite score. Prior studies of this subscale demonstrated its strong psychometric properties (DiPerna et al., 2002; Elliott et al., 2004). In the current sample, the Engagement subscale demonstrated adequate internal consistency ($\alpha = .98$).

Analytical Plan

First, descriptive analyses on the variables of interest at baseline were conducted using T-tests to examine gender differences. Second, analyses of covariance (ANCOVA),

controlling for baseline performance, and consent process (i.e., whether the school used parent opt-out or active consent procedures) were used to compare post-intervention scores between treated and untreated children across all variables of interest. Third, gender differences in these effects were examined. Finally, in order to explore a direct comparison between the boys from the prior trial and the boys from this current trial, data from measures that were used in both trials (i.e., all but academic engagement) were pooled and analyzed using multiple regression to compare intervention effects for the boys. The following variables were included in the regression model: intervention status (0 = control, 1 = intervention), type of trial (0 = previous, 1 = present), and interaction between intervention status and type of trial, with baseline performance as a covariate.

Results

Descriptive Data

T-test results revealed significant gender differences in overt and relational HAB ($t_s = 3.42$ and 2.09 , $p_s < .05$), SIP knowledge ($t = 2.64$, $p < .01$), teacher-rated overt aggression ($t = -3.77$, $p < .001$), and academic engagement ($t = 4.85$, $p < .001$) at baseline. There was no significant difference by gender in teacher-rated relational aggression ($t = .08$, $p > .05$). Specifically, girls had higher baseline levels of overt and relational HAB, greater knowledge of SIP, and higher levels of academic engagement, yet a lower baseline level of teacher-rated overt aggression, and no significant difference from boys in terms of teacher-rated relational aggression.

Program Effects

HAB

As shown in Table 1, children who received the PRAISE program had significantly lower post-treatment overt and relational HAB as compared to control classrooms, after controlling for baseline levels ($d = .31$ and $.29$). Specifically, for the children who received the PRAISE program, overt and relational HAB scores decreased significantly from pre- to post-intervention, whereas those in the control classrooms showed either a smaller decrease (relational HAB) or an increase (overt HAB) from pre- to post-intervention.

Overt and Relational Aggression

Children within PRAISE classrooms had significantly lower post-treatment relational aggression scores as compared

Table 1 Pre- and post-intervention scores across primary study outcomes

Outcome variable	Pre-Intervention		Post-intervention		<i>F</i> (1, 325)	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
HAB-overt						
Intervention	2.21	1.53	1.80	1.52	8.10**	.31
Control	2.18	1.50	2.24	1.56		
HAB-relational						
Intervention	2.75	1.28	1.99	1.41	6.74*	.29
Control	2.67	1.29	2.33	1.45		
TCSB-overt						
Intervention	1.92	1.10	1.97	1.08	3.66 ^a	.21
Control	1.90	1.00	2.04	.96		
TCSB-relational						
Intervention	2.01	.99	1.94	1.03	14.46***	.41
Control	2.01	.96	2.19	.82		
SIP knowledge						
Intervention	6.03	2.69	6.78	3.25	5.17*	.24
Control	5.97	2.80	5.79	3.14		
Academic engagement						
Intervention	29.83	8.80	30.29	9.04	11.14**	.36
Control	30.06	8.58	28.28	9.00		

* $p < .05$; ** $p < .01$; *** $p < .001$ ^a $p = .05$

to control classrooms after controlling for baseline levels ($d = .41$). There was a marginally significant difference in overt aggression between the intervention group and the control group ($d = .21$).

Knowledge of SIP and Academic Engagement

Knowledge of SIP and academic engagement were significantly higher post-intervention for children who received PRAISE than for those in the control classrooms, after statistically controlling for baseline levels ($d = .24$ and $.36$). Specifically, for the children in the intervention classrooms, knowledge of SIP and academic engagement increased from baseline to post-intervention, whereas levels of these two constructs decreased over time for the children in the control classrooms.

Program Effects by Gender

There were significant gender differences in levels of overt and relational HAB, levels of overt and relational aggression, knowledge of SIP, and academic engagement for children in intervention vs. control classrooms post-intervention after controlling for baseline levels of these constructs (Table 2).

Hostile Attribution

Compared to girls in the control classrooms, girls in the intervention classrooms showed significantly lower levels of overt and relational HAB post-intervention ($M = 2.00$ and 2.07 for the intervention group and $M = 2.52$ and 2.35 for the control group, $d = .36$ and $.31$ for overt and relational HAB, respectively). Boys' relational HAB post-intervention was lower with marginal significance in the intervention classrooms than in the control classrooms ($M = 1.90$ and 2.31 for intervention and control, respectively, $d = .32$), while the group difference in overt HAB was not significant ($M = 1.60$ and 1.91 for intervention and control, respectively, $d = .25$).

Overt and Relational Aggression

For boys who received the PRAISE Program, relational aggression decreased from a mean of 1.86 ($SD = .89$) at baseline to a mean of 1.72 ($SD = .84$) post-intervention as compared to boys within control classrooms whose relational aggression did not change considerably from a mean of 2.25 ($SD = .104$) at baseline to a mean of 2.23 ($SD = .86$) post-intervention, after controlling for baseline relational aggression ($d = .52$). For girls who received the PRAISE Program, relational aggression declined from a mean of 2.14

Table 2 Examining program outcomes separately by gender

Outcome variable	Girls						Boys					
	Pre-Intervention		Post-Intervention		<i>F</i> (1, 174)	Cohen's <i>d</i>	Pre-Intervention		Post-Intervention		<i>F</i> (1, 146)	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
HAB-overt												
Intervention	2.42	1.54	2.00	1.50	5.41*	.36	1.94	1.51	1.60	1.52	2.01	.25
Control	2.48	1.39	2.52	1.52			1.83	1.55	1.91	1.55		
HAB-relational												
Intervention	2.91	1.24	2.07	1.47	3.94*	.31	2.57	1.32	1.90	1.34	3.35 ^a	.32
Control	2.78	1.35	2.35	1.49			2.55	1.23	2.31	1.42		
TCSB-overt												
Intervention	1.83	1.04	1.83	.99	6.82*	.41	2.03	1.16	2.15	1.15	.05	.04
Control	1.54	.79	1.82	.82			2.32	1.08	2.34	1.04		
TCSB-relational												
Intervention	2.14	1.05	2.11	1.15	7.05**	.42	1.86	.89	1.72	.84	8.87**	.52
Control	1.81	.84	2.16	.79			2.25	1.04	2.23	.86		
SIP knowledge												
Intervention	6.80	2.75	7.44	3.38	5.45*	.37	6.03	2.58	5.99	2.95	.90	.17
Control	6.33	2.84	6.10	3.44			5.55	2.71	5.43	2.72		
Academic engagement												
Intervention	31.59	8.53	31.43	9.09	2.62	.25	27.77	8.75	28.84	8.80	9.04**	.53
Control	32.57	7.99	30.70	8.36			26.93	8.33	25.18	8.89		

* $p < .05$; ** $p < .01$ ^a $p = .069$

($SD = 1.05$) at baseline to a mean of 2.11 ($SD = 1.15$) post-intervention, whereas relational aggression increased from a mean of 1.81 ($SD = .84$) to a mean of 2.16 ($SD = .79$) for the girls in the control classrooms ($d = .42$). In addition, for girls in the intervention classrooms, overt aggression did not change from a mean of 1.83 ($SD = 1.04$) at baseline to a mean of 1.83 ($SD = .99$) post-intervention. For girls in the control classrooms, overt aggression increased significantly from a mean of 1.54 ($SD = .79$) to a mean of 1.83 ($SD = .82$). These analyses demonstrate a suppression of overt aggression effect ($d = .41$).

Knowledge of Social Problem-Solving and Academic Engagement

After controlling for baseline SIP knowledge, girls who received the PRAISE program showed a significantly higher level of SIP knowledge post-intervention ($M = 7.44$) than girls in the control classrooms ($M = 6.10$; $d = .37$). In contrast, the difference in knowledge between intervention and control groups was not significant in boys ($M = 5.99$ and 5.43 for intervention and control, respectively, $d = .17$). For academic engagement post-intervention, boys who received PRAISE scored

significantly higher than boys in the control classrooms ($M = 28.84$ and 25.18 for intervention and control, respectively, $d = .53$), but the difference was not significant for girls ($M = 31.43$ and 30.70 for intervention and control, respectively, $d = .25$).

Comparison of Effects from the Prior Trial of PRAISE

Using the pooled data from boys in the present and previous trial of PRAISE across overlapping outcomes, results showed that there were significant interactions between intervention status and trial type in predicting relational aggression and relational HAB in boys; however, there were no differences between boys in the two trials on overt aggression, overt HAB, or SIP knowledge. Simple slope tests were conducted to examine the moderating role of trial type, with results indicating that the intervention effects on reducing relational aggression and relational HAB in boys were significantly stronger in the present, adapted version of PRAISE than in the original version of PRAISE (relational aggression, $\Delta B = .34$, $SE = .17$, $t = 1.98$, $p < .05$, and relational HAB, $\Delta B = .80$, $SE = .34$, $t = 2.38$, $p < .05$).

Discussion

In a previous trial, the PRAISE program showed aggression suppression effects for girls, yet the program did not have the desired impact on the aggressive behavior of boys (Leff et al., 2010a, b). As such, the goal of this study was to evaluate the impact of the PRAISE program following a number of adaptations designed to enhance its impact on relational and physical aggression for boys while maintaining its impact for girls. Through an iterative CBPR process involving feedback from program participants and school stakeholders, PRAISE was adapted to include content and illustrations that were more relatable for both boys and girls, including expanding “play fighting” scenarios and bystander strategies. We also extended PRAISE to school staff and settings beyond the classroom, by training lunch-recess supervisors in PRAISE and creating connection opportunities for teachers and lunch-recess staff. These changes and additions appear to have significantly bolstered program impact for both girls and boys.

Specifically, the new model of PRAISE was successful in enhancing students’ knowledge of social problem-solving strategies, reducing their tendency toward hostile attributions in social situations, and according to teacher ratings, decreasing relational aggression for both boys and girls. In addition, academic engagement for boys increased after participating in the PRAISE program. Moreover, results showed that this adapted version of PRAISE had a stronger impact on boys’ relational aggression and relational HAB as compared to the prior trial of PRAISE. Given that relational and overt aggression cause distress and disruption across school settings, impede learning, and negatively impact students’ overall sense of safety and well-being, it is noteworthy to see the impact of PRAISE across a range of important outcomes. These findings also underscore how programming to reduce aggression can have an impact on academic outcomes as well as social and psychological ones (e.g., Durlak et al., 2011; Taylor et al., 2017).

This study also highlighted interesting considerations related to gender. For example, changes in academic engagement occur alongside changes in relational aggression for boys. However, there were no apparent changes in academic engagement for girls yet changes in hostile attributions occurred alongside changes in both relational and overt aggressions. Thus, while we have demonstrated overall that PRAISE reduces relational aggression for both boys and for girls, future research needs to address the possibility that the mechanisms for change are different by gender and could better explore what additional supports are necessary to shift boys’ levels of overt aggression.

Several unique features of PRAISE may contribute to its effectiveness. Unlike many other aggression prevention

programs, PRAISE was developed and adapted through a CBPR process with input from students and teachers in the community for whom it is designed (Leff et al., 2010a, b). Care was taken to create materials (e.g., cartoon workbooks and videos) that depict racially diverse students and scenarios that are appealing and relatable for students in urban schools. Further, the strong focus on reactive aggression, recognition that rough and tumble play may escalate to physical aggression, and addition of strategies for navigating the fine line between being appropriately assertive versus possibly putting themselves in harm’s way all contributed to increased program impact for boys. These factors also make PRAISE especially relatable in schools with higher levels of physical aggression. Finally, given that aggressive behaviors are highest in lunchroom and recess settings (e.g., Fite et al., 2013; Migliaccio et al., 2017), it is vital that the para-professional supervisors in these settings receive better support and training in ways to reduce aggression (Leff et al., 2003, 2004). The lunch-recess supervisor training and increased connections between these staff and teachers are likely important aspects of the adapted PRAISE program, but this warrants closer examination than it was given in the current study. The results of the present study underscore that the CBPR process can be used to adapt a program to better impact different subgroups of participants.

Limitations and Future Directions

Although this small study did not fully align with CONSORT, the authors aimed to create as robust a trial as possible, including (but not limited to) providing sufficient information to allow replication, use of a biostatistician to conduct random assignment, and utilizing strong statistical methods for subgroup analyses. Notably, the study used different procedures in different schools, with one of the three schools having a different method for informed consent and randomization by grade instead of classroom. This is a clear reflection of real-world implementation challenges and the need for flexibility when partnering with schools for research. All analyses controlled for this deviation in procedure, however, a larger more rigorous school-level randomized controlled trial would be a logical next step to corroborate these findings. A larger trial would also help establish generalizability of the current findings, as this study included a small number of schools in one geographic location. Finally, a larger trial would provide the power necessary to examine mechanisms for change and possible gender differences in more depth, utilizing multi-level modeling procedures.

As noted, the authors of this manuscript were involved in the design of the program. Therefore, another important

next step would be for an outside research team to examine PRAISE's impact with less risk of bias. Further, the outcome assessors (self, teacher) were not blind to condition, which is another potential source of bias. Future studies of PRAISE would benefit from more objective data collection and a trial where assessors are blind to condition. Finally, effect sizes in this study were not as high as those in the previous study, which could reflect the use of a CBPR. While training lunch-recess supervisors allow the intervention to address contexts beyond the classroom, this procedure may attenuate intervention effects since these staffs are interacting with both intervention and control students. In summary, changes to the PRAISE program made through the CBPR process increased the reach of the program and increased buy-in from school staff, but these decisions may have reduced effect sizes and made results harder to interpret.

Conclusion

This study provides promising evidence that PRAISE is effective for reducing relational aggression and hostile attributions in provocative situations and improving other important constructs such as social information processing knowledge and academic engagement for both girls and boys. This is a clear extension of the prior PRAISE study and one that demonstrates the importance of using a CBPR process to adapt the program. These new findings on PRAISE's effectiveness highlight the value and readiness of PRAISE to be more broadly disseminated across schools in urban communities serving children from diverse backgrounds. Given that PRAISE is also designed to address bullying, another future direction could be examining the effect of the program on bullying through validated measures of bullying and bystander behaviors. Moreover, additional studies could directly measure the participation and training of lunch-recess staff, as this could be a key feature of the PRAISE program. Overall, the current study provides additional evidence of the effectiveness of PRAISE on a wide range of important social, behavioral, and academic outcomes for both boys and girls and paves the way for broader program dissemination and new research initiatives.

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Declarations

Ethics Approval The Institutional Review Board at the Children's Hospital of Philadelphia and the review board at the School District of Philadelphia approved these studies. The authors certify that the study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Consent to Participate Informed consent was obtained from students' parents in two of the participating schools. One school requested the use of a waiver of parental permission with a parental opt-out and verbal assent from children/students. All teachers in the schools volunteered for participation and provided consent.

Conflict of Interest The authors declare that they have no conflict of interest.

References

- Arora, P. G., Nastasi, B. K., & Leff, S. S. (2017). Rationale for the cultural construction of school mental health programming. *International Journal of School & Educational Psychology*, 5, 1–11. <https://doi.org/10.1080/21683603.2016.1276812>
- Arseneault, L. (2018). The persistent and pervasive impact of being bullied in childhood and adolescence: Implications for policy and practice. *Journal of Child Psychology and Psychiatry*, 59(4), 405–421. <https://doi.org/10.1111/jcpp.12841>
- Belgrave, F. Z., & Brevard, J. K. (2015). African American boys: Identity, culture, and development. *Springer*. <https://doi.org/10.1007/978-1-4939-1717-4>
- Black, S., & Washington, E. (2008). Evaluation of the Olweus bullying prevention program in nine urban schools: Effective practices and next steps. *ERS Spectrum*, 26, 7–19.
- Burke, N. J., Hellman, J. L., Scott, B. G., Weems, C. F., & Carrion, V. G. (2011). The impact of adverse childhood experiences on an urban pediatric population. *Child Abuse and Neglect*, 35, 408–413. <https://doi.org/10.1016/j.chiabu.2011.02.006>
- Connell, N. M., El Sayed, S., Gonzalez, J. M. R., & Schell-Busey, N. M. (2015). The intersection of perceptions and experiences of bullying by race and ethnicity among middle school students in the United States. *Deviant Behavior*, 36, 807–822. <https://doi.org/10.1080/01639625.2014.977159>
- Coyne, S. M., & Ostrov, J. M. (Eds.). (2018). *The development of relational aggression*. Oxford, England: Oxford University Press.
- Crick, N. R. (1995). Relational aggression: The role of intent attributions, feelings of distress, and provocation type. *Development and Psychopathology*, 7, 313–322. <https://doi.org/10.1017/s0954579400006520>
- Crick, N. R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development*, 67, 2317–2327. <https://doi.org/10.2307/1131625>
- Crick, N. R., Grotpeter, J. K., & Bigbee, M. A. (2002). Relationally and physically aggressive children's intent attributions and feelings of distress for relational and instrumental peer conflicts. *Child Development*, 73, 1134–1142. <https://doi.org/10.1111/1467-8624.00462>

- DiPerna, J. C., & Elliott, S. N. (1999). Development and validation of the academic competence evaluation scales. *Journal of Psychoeducational Assessment*, 17, 207–225. <https://doi.org/10.1177/073428299901700302>
- DiPerna, J. C., Volpe, R. J., & Elliott, S. N. (2002). A model of academic enablers and elementary reading/language arts achievement. *School Psychology Review*, 31, 298–312. <https://doi.org/10.1016/j.jsp.2005.09.002>
- Domitrovich, C. E., Bradshaw, C. P., Poduska, J. M., Hoagwood, K., Buckley, J. A., Olin, S., Romanelli, L. H., Leaf, P. J., Greenberg, M. T., & Jalongo, N. S. (2008). Maximizing the implementation quality of evidence-based preventive interventions in schools: A conceptual framework. *Advances in School Mental Health Promotion*, 1(3), 6–28. <https://doi.org/10.1080/1754730X.2008.9715730>
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82, 405–432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Elliott, S. N., DiPerna, J. C., Mroch, A. A., & Lang, S. C. (2004). Prevalence and patterns of academic enabling behaviors: An analysis of teachers' and students' ratings for a national sample of students. *Research Brief. School Psychology Review*, 33, 302–309. <https://doi.org/10.1080/02796015.2004.12086250>
- Esposito, C. (1999). Learning in urban blight: School climate and its effect on the school performance of urban, minority, low-income children. *School Psychology Review*, 28, 365–377. <https://doi.org/10.1080/02796015.1999.12085971>
- Farrell, A. D., Erwin, E. H., Allison, K. W., Meyer, A., Sullivan, T., Camou, S., Kliewer, W., & Esposito, L. (2007). Problematic situations in the lives of urban African American middle school students: A qualitative study. *Journal of Research on Adolescence*, 17, 413–454. <https://doi.org/10.1111/j.1532-7795.2007.00528.x>
- Fite, P. J., Williford, A., Cooley, J. L., DePaolis, K., Rubens, S. L., & Vernberg, E. M. (2013). Patterns of victimization locations in elementary school children: Effects of grade level and gender. *Child & Youth Care Forum*, 42, 585–597. <https://doi.org/10.1007/s10566-013-9219-9>
- Janosz, M., Archambault, I., Pagani, L. S., Pascal, S., Morin, A. J. S., & Bowen, F. (2008). Are there detrimental effects of witnessing school violence in early adolescence? *Journal of Adolescent Health*, 43(6), 600–608. <https://doi.org/10.1016/j.jadohealth.2008.04.011>
- Konishi, C., Miyazaki, Y., Hymel, S., & Waterhouse, T. (2017). Investigating associations between school climate and bullying in secondary schools: Multilevel contextual effects modeling. *School Psychology International*, 38, 240–263. <https://doi.org/10.1177/0143034316688730>
- Lacey, A., & Cornell, D. (2013). The impact of teasing and bullying on schoolwide academic performance. *Journal of Applied School Psychology*, 29, 262–283. <https://doi.org/10.1080/15377903.2013.806883>
- Lambe, L. J., Hudson, C. C., Craig, W. M., & Pepler, D. J. (2017). Does defending come with a cost? Examining the psychosocial correlates of defending behaviour among bystanders of bullying in a Canadian sample. *Child Abuse and Neglect*, 65, 112–123. <https://doi.org/10.1016/j.chiabu.2017.01.012>
- Leff, S. S., Cassano, M., MacEvoy, J. P., & Costigan, T. (2010a). Initial validation of a knowledge-based measure of social information processing and anger management. *Journal of Abnormal Child Psychology*, 38, 1007–1020. <https://doi.org/10.1007/s10802-010-9419-9>
- Leff, S. S., Costigan, T., & Power, T. J. (2004). Using participatory research to develop a playground-based prevention program. *Journal of School Psychology*, 42, 3–21. <https://doi.org/10.1016/j.jsp.2003.08.005>
- Leff, S. S., Crick, N. R., Angelucci, J., Haye, K., Jawad, A. F., Grossman, M., & Power, T. J. (2006). Social cognition in context: Validating a cartoon-based attributional measure for urban girls. *Child Development*, 77, 1351–1358. <https://doi.org/10.1111/j.1467-8624.2006.00939.x>
- Leff, S. S., Gullan, R. L., Paskewich, B. S., Abdul-Kabir, S., Jawad, A. F., Grossman, M., Munro, M. A., & Power, T. J. (2009). An initial evaluation of a culturally adapted social problem-solving and relational aggression prevention program for urban African-American relationally aggressive girls. *Journal of Prevention & Intervention in the Community*, 37, 260–274. <https://doi.org/10.1080/10852350903196274>
- Leff, S. S., Lefler, E., Khera, G., Paskewich, B., & Jawad, A. (2011). Preliminary examination of a cartoon-based hostile attributional bias measure for urban African American boys. *American Journal of Community Psychology*, 49, 1–15. <https://doi.org/10.1007/s10464-011-9461-y>
- Leff, S. S., Paskewich, B. S., Waasdorp, T. E., Waanders, C., Bevans, K. B., & Jawad, A. F. (2015). Friend-to-friend: A randomized trial for urban African American relationally aggressive girls. *Psychology of Violence*, 5, 433–443. <https://doi.org/10.1037/a0039724>
- Leff, S. S., Power, T. J., Costigan, T. E., & Manz, P. H. (2003). Assessing the climate of the playground and lunchroom: Implications for bullying prevention programming. *School Psychology Review*, 32, 418–430. <https://doi.org/10.1080/02796015.2003.12086209>
- Leff, S. S., Waasdorp, T. E., & Mehari, K. R. (2018). An updated review of existing relational aggression programs. In S. M. Coyne & J. M. Ostrov (Eds.), *The Development of Relational Aggression* (pp. 283–317). Oxford University Press. <https://doi.org/10.1093/oso/9780190491826.003.0018>
- Leff, S. S., Waasdorp, T. E., Paskewich, B., Gullan, R. L., Jawad, A. F., MacEvoy, J. P., Feinberg, B. E., & Power, T. J. (2010b). The preventing relational aggression in schools everyday program: A preliminary evaluation of acceptability and impact. *School Psychology Review*, 39, 569–587. <https://doi.org/10.1080/02796015.2010.12087742>
- Low, S., & Van Ryzin, M. (2014). The moderating effects of school climate on bullying prevention efforts. *School Psychology Quarterly*, 29, 306–319. <https://doi.org/10.1037/spq0000073>
- Migliaccio, T., Raskauskas, J., & Schmittlein, M. (2017). Mapping the landscapes of bullying. *Learning Environments Research*, 20, 365–382. <https://doi.org/10.1007/s10984-017-9229-x>
- Milam, A., Furr-Holden, C., & Leaf, P. (2010). Perceived school and neighborhood safety, neighborhood violence and academic achievement in urban school children. *The Urban Review*, 42, 458–467. <https://doi.org/10.1007/s11256-010-0165-7>
- Moore, S. E., Norman, R. E., Suetani, S., Thomas, H. J., Sly, P. D., & Scott, J. G. (2017). Consequences of bullying victimization in childhood and adolescence: A systematic review and meta-analysis. *World Journal of Psychiatry*, 7, 60–76. <https://doi.org/10.5498/wjp.v7.i1.60>
- Nastasi, B. K., Moore, R. B., & Varjas, K. M. (2004). School-based mental health services: Creating comprehensive and culturally specific programs. *American Psychological Association*. <https://doi.org/10.1037/10724-000>
- Polanin, J. R., Espelage, D. L., & Pigott, T. D. (2012). A meta-analysis of school-based bullying prevention programs' effects on bystander intervention behavior. *School Psychology Review*, 41, 47–65. <https://doi.org/10.1080/02796015.2012.12087375>
- Richards, C. (2016). Rough play, play fighting and surveillance: School playgrounds as sites of dissonance, controversy and fun. In A. Burn & C. Richards (Eds.), *Children's Games in the New Media Age* (pp. 99–122). Routledge. <https://doi.org/10.1177/073428299901700302>
- Romero, E., Richards, M. H., Harrison, P. R., Garbarino, J., & Mozley, M. (2015). The role of neighborhood in the development of aggression in urban African American youth: A multilevel analysis.

- American Journal of Community Psychology*, 56, 156–169. <https://doi.org/10.1007/s10464-015-9739-6>
- Rosen, L. H., & Underwood, M. K. (2010). Facial attractiveness as a moderator of the association between social and physical aggression and popularity in adolescents. *Journal of School Psychology*, 48(4), 313–333. <https://doi.org/10.1016/j.jsp.2010.03.001>
- Salmivalli, C., Lagerspetz, K., Bjorkqvist, K., Osterman, K., & Kaukianinen, A. (1996). Bullying as a group process: Participant roles and their relations to social status within the group. *Aggressive Behavior*, 22, 1–15. [https://doi.org/10.1002/\(SICI\)1098-2337\(1996\)22:1%3c1::AID-AB1%3e3.0.CO;2-T](https://doi.org/10.1002/(SICI)1098-2337(1996)22:1%3c1::AID-AB1%3e3.0.CO;2-T)
- Salmivalli, C., Voeten, M., & Poskiparta, E. (2011). Bystanders matter: Associations between reinforcing, defending, and the frequency of bullying behavior in classrooms. *Journal of Clinical Child and Adolescent Psychology*, 40, 668–676. <https://doi.org/10.1080/15374416.2011.597090>
- Strøm, I. F., Thoresen, S., Wentzel-Larsen, T., & Dyb, G. (2013). Violence, bullying and academic achievement: A study of 15-year-old adolescents and their school environment. *Child Abuse and Neglect*, 37, 243–251. <https://doi.org/10.1016/j.chiabu.2012.10.010>
- Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. *Child Development*, 88, 1156–1171. <https://doi.org/10.1111/cdev.12864>
- Ttofi, M. M., & Farrington, D. P. (2011). Effectiveness of school-based programs to reduce bullying: A systematic and meta-analytic review. *Journal of Experimental Criminology*, 7, 27–56. <https://doi.org/10.1007/s11292-010-9109-1>
- Ttofi, M. M., Farrington, D. P., & Lösel, F. (2012). School bullying as a predictor of violence later in life: A systematic review and meta-analysis of prospective longitudinal studies. *Aggression and Violent Behavior*, 17, 405–418. <https://doi.org/10.1016/j.avb.2012.05.002>
- Waasdorp, T. E., Baker, C. N., Paskewich, B. S., & Leff, S. S. (2013). The association between forms of aggression, leadership, and social status among urban youth. *Journal of Youth and Adolescence*, 42, 263–274. <https://doi.org/10.1007/s10964-012-9837-9>
- Waasdorp, T. E., Mehari, K. R., & Bradshaw, C. P. (2021). Anti-bullying programs in the U.S.A. and Canada. In P. K. Smith & J. O'Higgins (Eds.), *Bullying Handbook*. Wiley-Blackwell.
- Waasdorp, T. E., Monopoli, J., Johnson-Horowitz, Z., & Leff, S. S. (2019). Peer sympathy for bullied youth: Individual and classroom considerations. *School Psychology Review*, 48(3), 193–206. <https://doi.org/10.17105/SPR-2017-0153.V48-3>
- Wang, S.-Q., Zhang, W.-X., Chen, L., Li, H.-L., Li, C., & Zhou, L.-N. (2011). A multitrait-multimethod analysis of aggressive behaviors in middle childhood. *Acta Psychologica Sinica*, 43, 294–307. <https://doi.org/10.3724/SP.J.1041.2011.00294>
- Weyns, T., Verschuere, K., Leflot, G., Onghena, P., Wouters, S., & Colpin, H. (2017). The role of teacher behavior in children's relational aggression development: A five-wave longitudinal study. *Journal of School Psychology*, 64(Supplement C), 17–27. <https://doi.org/10.1016/j.jsp.2017.04.008>
- Wolke, D., Copeland, W. E., Angold, A., & Costello, E. J. (2013). Impact of bullying in childhood on adult health, wealth, crime, and social outcomes. *Psychological Science*, 24, 1958–1970. <https://doi.org/10.1177/0956797613481608>
- Zhang, A., Wang, K., Zhang, J., Kemp, J., Diliberti, M., & Oudekerk, B. A. (2018). Indicators of school crime and safety: 2017. NCES 2018–036/NCJ 251413. <https://nces.ed.gov/pubs2018/2018036.pdf>

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