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# Effects of Peer Victimization on Psychological and Academic Adjustment in Early Adolescence

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# Effects of Peer Victimization on Psychological and Academic Adjustment in Early Adolescence

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## Acknowledgement:

The current literature has consistently demonstrated negative outcomes for students experiencing peer victimization (e.g., Hawker & Boulton, 2000; Nakamoto & Schwartz, 2010). Psychological distress appears to be the most salient outcome that victims experience, both short-term and long-term (Cole, Maxwell, Dukewich, & Yosick, 2010; Davidson & Demaray, 2007; Rudolph, Troop-Gordon, Hessel, & Schmidt, 2011). A meta-analysis of psychological outcomes showed that higher levels of depression and anxiety, and lower levels of self-esteem were associated with peer victimization (Hawker & Boulton, 2000). In addition, victimization has been linked to lower academic outcomes, including lower grade point average (Wei & Williams, 2004), poorer performance on standardized tests (Kochenderfer & Ladd, 1996a; Thijs & Verkuyten, 2008; Woods & Wolke, 2004), poorer attitude to school (Kochenderfer & Ladd, 1996b), and attendance problems (Kochenderfer & Ladd, 1996a; 1996b).

More recently, research is focusing on mechanisms that explain the relation between peer victimization and various negative outcomes. There is evidence that victimization experiences can impact academic adjustment through their impact on psychological problems, such as depression, anxiety, or lower self-esteem (Hoglund, 2007; Juvonen et al., 2000; Lopez & DuBois, 2005; Nishina, Juvonen, & Witkow, 2005; Schwartz, Gorman, Nakamoto, & Toblin, 2005). This is consistent with schools' increasing awareness of social-emotional difficulties that students experience as a result of peer victimization. Related, schools are beginning to emphasize character education, establish social-emotional learning standards (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011), and implement positive behavior intervention and supports (PBIS; Frey, Lingo, & Nelson, 2011). PBIS is a multitiered system of teaching and rewarding adaptive classroom behaviors to address nonacademic skills. As research has shown that academic success requires more than just academic skills (DiPerna & Elliott, 2002), a greater understanding of the mediating role of social-emotional functioning in the relation between peer victimization and academic adjustment will be important to inform interventions in both domains.

Several studies have begun to elucidate the indirect effect of psychological distress on academic outcomes for students in early adolescence (Hoglund, 2007; Juvonen et al., 2000; Lopez & DuBois, 2005; Nishina et al., 2005). For example, Juvonen, Nishina, & Graham (2000) found that sixth- and seventh-grade students' perceptions of peer harassment affected their feelings of self-worth, depression, and loneliness a year later, which in turn predicted grade point average and

absenteeism. Similar mediation results were found in another study of an ethnically diverse sample of sixth-grade students ( Nishina et al., 2005). A third study of sixth- and seventh-grade students found that peer victimization was indirectly related to academic problems (i.e., grade point average and number of days absent from school) through negative self-evaluations ( Lopez & DuBois, 2005). Thus, both concurrent ( Juvonen et al., 2000; Lopez & DuBois, 2005) and longitudinal studies ( Juvonen et al., 2000; Nishina et al., 2005) demonstrate the need to consider social-emotional functioning of students when intervening to reduce peer victimization in our schools. However, it is notable that these studies focus on self-perceptions of victimization ( Juvonen et al., 2000; Nishina et al., 2005) or others' perceptions of being a victim using a sociometric measurement technique ( Lopez & DuBois, 2005) rather than frequency of actual victimization experiences.

In addition, less is known about the differential impact of the three main types of bullying and peer victimization ( Espelage & Swearer, 2003). Physical bullying refers to behaviors such as pushing, kicking, or hitting, and verbal bullying includes behaviors such as name-calling or gossiping, whereas relational bullying involves a negative impact on social status, such as exclusion or threats to end friendships. A recent study indicated that relational and verbal bullying occurs more frequently than physical bullying among adolescents (Wang, Iannotti, & Nansel, 2011). Further, some research suggests that different types of bullying are related to different social-emotional outcomes. For example, a recent meta-analysis focused on direct and indirect forms of peer aggression found that direct aggression (i.e., physical) has a stronger link to externalizing problems and social difficulties, whereas indirect aggression (i.e., verbal, relational) is more strongly related to internalizing problems and higher pro-social behavior ( Card, Stucky, Sawalani, & Little, 2008). However, information about how academic achievement is affected by different types of victimization experiences is limited. For example, another meta-analysis was unable to examine whether different types of victimization were differentially related to academic achievement because only four studies reported correlations between these two variables ( Nakamoto & Schwartz, 2010). They noted there was no clear pattern in results and that this research question should continue to be investigated.

One study that did investigate the impact of different types of victimization on academic achievement among middle-school students found that internalizing problems (i.e., depression and anxiety) partially mediated the association between both relational and physical victimization and concurrent academic engagement (i.e., teacher-reported effort, total number of absences, and student-reported engagement in school; Hoglund, 2007). However, this was true only for girls, not boys. In addition, although victimization affected grade point average for both boys and girls, these effects were not mediated by internalizing problems for either boys or girls. It is notable that this study investigated concurrent relationships; thus, it will be important to continue to investigate these questions in an independent sample with longitudinal data to tease apart the differential impact of verbal, physical, and relational forms of peer victimization on both academic outcomes and psychological distress over time.

It is also important for future work to examine possible gender differences in these relations. Some evidence suggests that boys are more likely to be involved in peer aggression and victimization than girls (e.g., Pelligrini & Long, 2002). However, this may be true more for physical victimization, as there is also some support that girls experience more relational victimization than do boys (Card et al., 2008). There is also some evidence of gender differences in effects of victimization. For example, a cross-sectional study of middle-school students found gender differences in the indirect effects of peer victimization (Hoglund, 2007). However, other studies suggest that effects of victimization are more consistent across gender (Card et al., 2008; Nishina et al., 2005). Future research on effects of victimization with a consideration of possible gender differences using longitudinal data can bring clarity to this literature and guide intervention efforts.

Thus, the goal of the current investigation was to explore the relation between frequency of peer victimization and psychological adjustment, and the role that both have on academic adjustment for boys and girls. This study investigated this question for three different types of bullying to gain a clearer understanding of how boys and girls may be differentially impacted by different types of peer victimization. To elucidate these issues, two broad research questions were posed for overall victimization as well as each of the three types of victimization (verbal, physical, and relational): “Does psychological adjustment mediate the association between the frequency of victimization experiences and academic adjustment in young adolescents?” and “Are there gender differences in the association between victimization with psychological and academic adjustment?” Based on previous longitudinal findings with overall victimization, it was predicted that (a) there will be an indirect effect of psychological adjustment on the association between peer victimization and academic adjustment; and (b) these findings will be similar for both boys and girls (Juvonen et al., 2000; Nishina et al., 2005). Indirect effects of the three types of bullying over time were addressed as empirical questions, as no other study has tested mediation of the different types of peer victimization experiences using longitudinal data.

## **Methods**

### **Procedures and Participants**

Data from a school-wide assessment in a large suburban middle school (seventh and eighth grade) were included in the current study. Data were collected twice (fall and spring), and a total of 801 students participated at Time 1, and 761 students participated at Time 2. Passive consent procedures were used by the school because it was a school-initiated assessment: In accordance with school district policy, parents were notified of the assessment and were given the option to withdraw their child from participating in the assessment. One parent asked that their child not participate in the assessment. Institutional Review Board approval to use these assessment data for research purposes were granted after the completion of the

assessment. The final sample consisted of 670 (boys:  $n = 333$ , 49.7%; girls:  $n = 337$ , 50.3%) students who had complete data all on variables in the current study. The sample was ethnically diverse, with 56% White ( $n = 374$ ), 19% Hispanic ( $n = 127$ ), 10% Asian American ( $n = 66$ ), 12% Biracial ( $n = 82$ ), 2% African American ( $n = 15$ ), and 1% other/missing ( $n = 4$ ). The diversity of the current sample was representative of the school and the school district.

## **Measures**

### **Multi-Construct Victim Survey**

The Multi-Construct Victim Survey (MCVS; Demaray, Davidson, Malecki, & Rueger, 2009) assesses the frequency of three different types of victimization experiences and is a revision of an instrument previously used and published in research on bullying (Demaray & Malecki, 2003). This prior measure was based on items from the Bully Survey (Swearer, 2001) and The National School Crime and Safety Survey—Revised Student Form 1 (Kingery, 2001). This revision was done with the intentional inclusion of items representing verbal, physical, and relational bullying. Students were then given a list of these 12 behaviors and asked how often they had been a target of the behavior on a 5-point Likert scale from 1 (never) to 5 (two or more times a week). Subscale scores for verbal, physical, and relational victimization were computed based on a principal axis factor analysis with oblimin rotation. A one-factor solution emerged when using the scree plot criterion, which supports the use of a total victimization score. In addition, there was support for the distinctions among the types of bullying behaviors when a three-factor solution was forced; however two verbal items (“Someone left mean messages on my cell/text message, over the Internet, or on instant messenger” and “Someone said mean things behind your back”) had high loadings on multiple factors. Thus, these items were removed from the Verbal subscale and the total scale score. The final Verbal, Physical, and Relational subscales contained two, four, and four items each, respectively, with scores ranging from 2 to 10 for Verbal and 4 to 20 for Physical and Relational subscales. A total score representing the frequency of all three types of victimization experiences was calculated using 10 items, with a possible range from 10 to 50. The internal consistency of these scale scores were good to very good ( $\alpha = .86$ ,  $.74$ , and  $.74$  for verbal, physical, and relational victimization, respectively, and  $.86$  for the total score).

### **Behavior Assessment System for Children and Self-Report of Personality**

The Behavior Assessment System for Children, 2nd ed. (BASC-2; Reynolds & Kamphaus, 2004) is a rating scale that measures behavioral and emotional functioning of students ages 8–25 years. The current study used the Anxiety, Self-Esteem, Depression, and Attitude to School subscale scores from the Self-Report of Personality–Adolescent form. T-scores calculated with the BASC-2 scoring software were used in all analyses. Except for the Self-Esteem subscale, higher scores indicate more maladjustment. The internal consistency for the BASC-2 has been reported to

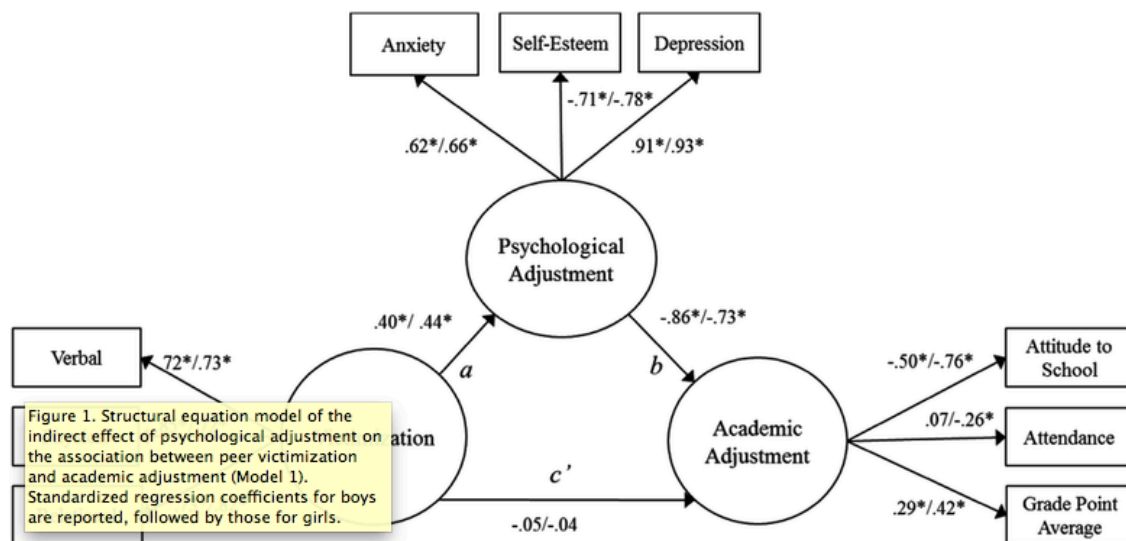
be very strong, with alphas for these four subscales ranging from .85 to .88 (Reynolds & Kamphaus, 2004).

## School Records

For each participant, quarter grades were calculated by averaging grades for the following academic courses: English, Reading, Math, Science, and Social Studies. The final grade point average, which was used in analyses, was computed by averaging the four quarter grades. Total number of days absent during the entire school year was used as a measure of attendance.

## Plan of Analysis

A multigroup structural equation modeling methodology was used to determine if the indirect effect of psychological adjustment on the association between each victimization and academic adjustment was moderated by gender. Indirect effects were tested using bootstrapping (Preacher & Hayes, 2008; Shrout & Bolger, 2002), which is viewed as a superior method for testing indirect effects compared to causal steps (i.e., Baron & Kenny, 1986) approach (Hayes, 2009). Figure 1 represents the mediation model for total victimization. Path a represents the effect of victimization on psychological adjustment (mediator), Path b represents the effect of the mediator on academic adjustment, and Path c' represents the direct effect of victimization on academic adjustment. The indirect effect of victimization on academic adjustment through psychological adjustment is the product of ab, whereas the total effect is the combined direct and indirect effects of victimization on academic adjustment ( $c = ab + c'$ ). There is evidence of mediation if there is a significant indirect effect of victimization on academic adjustment. Unlike the Baron and Kenny method, the significance of the other paths is not considered when evaluating the presence of an indirect effect.



**Figure 1.** Structural equation model of the indirect effect of psychological adjustment on the association between peer victimization and academic adjustment (Model 1). Standardized regression coefficients for boys are reported, followed by those for girls.

Separate models were tested with total victimization and the three types of victimization (verbal, physical, and relational) as independent variables. For Model 1, which tested the effects of total victimization, the subscale scores for verbal, physical, and relational victimization were used as manifest variables, whereas for Models 2–4, which tested the effects of the three types of victimization, the individual items were used as manifest variables. Model fit was evaluated based on five measures of fit:  $\chi^2$ , the comparative fit index (CFI), standardized root mean residual (SRMR), root mean square error of approximation (RMSEA), and parsimonious normed fit index (PNFI), based on recommendations by Hooper, Coughlan, and Mullen (2008). It is desirable to have a nonsignificant  $\chi^2$  value (Barrett, 2007); however, there are some cautions when interpreting model fit using the  $\chi^2$ . Thus, other fit indices should be considered as well. Models may be considered to have adequate fit with CFI values above .95 (Schermelleh-Engel, Moosbrugger, & Müller, 2003), SRMR values below .08 (Hu & Bentler, 1999), RMSEA values below .06 (Hu & Bentler, 1999), and PNFI values greater than .50 (Mulaik et al., 1989).

## Results

### Preliminary Analyses

Missing values at the item level were imputed with means of the scale scores before the score was computed if more than 80% of the items from each scale were completed, and cases with complete data on relevant scale scores were included in the analyses. A comparison of means on all study variables showed that there were no significant differences between students in the final sample and those not included in analyses, except for grade point average. Students with missing data had a grade point average that was approximately one half letter grade lower than those without missing data,  $F(1, 776) = 19.50, p < .001$ .

Means and standard deviations of main study variables are presented by gender in Table 1. These results indicate that students' reports of victimization of all three types ranged from never to two or more times per week. On average, students reported experiencing verbal victimization more than once per month, and physical and relational victimization just under once per month. Comparison of mean values across gender indicates that boys reported significantly higher levels of verbal and physical victimization than girls, but the reverse was true for relational victimization. As would be expected in a general school population, descriptive analyses on outcomes indicated that, on average, the students reported psychological adjustment in the average range of functioning. However there was a wide range of scores, with 16% of the students reporting clinical levels of

maladjustment related to school attitude, 13% reporting clinical levels of anxiety, 13% reporting clinical levels of depression, and 18% reporting clinical levels of low self-esteem. In addition, 27% of the students received an average GPA of C- or lower for the year, and 25% of students reported missing school more than 12 days in the year. These results are comparable to the 16% of students reporting elevated levels of distress (i.e., greater than 1 standard deviation above the mean) in a national standardization sample for the assessment tool used in the current study.

Table 1  
Bivariate Correlations, Means, Standard Deviations, and Range of Main Study Variables and Gender Differences in Mean Scores

	Bivariate correlations										M (SD)		F (1, 628)	Range
	1	2	3	4	5	6	7	8	9	10	Boys (n = 333)	Girls (n = 338)		
1. Total Victim	—	.82**	.89**	.83**	<b>.17**<sup>a</sup></b>	-.16**	.17**	.06	.10	<b>-.12**<sup>a</sup></b>	1.83 (.78)	1.68 (.67)	5.88**	1–5
2. Verbal	.83**	—	.59**	.52**	<b>.13**<sup>b</sup></b>	-.14*	.12*	.04	.10	-.04	2.77 (1.37)	2.25 (1.25)	25.24**	1–5
3. Physical	.82**	.53**	—	.61**	.17**	-.13*	.16**	.08	.09	<b>-.12**<sup>c</sup></b>	1.70 (.89)	1.41 (.60)	22.25**	1–5
4. Relational	.88**	.59**	.58**	—	.17	-.13*	.16*	.04	<b>.05<sup>d</sup></b>	-.16**	1.48 (.70)	1.68 (.75)	11.48**	1–5
5. Anxiety	<b>.33**<sup>a</sup></b>	<b>.29**<sup>a,b</sup></b>	.26**	.29**	—	-.52**	.60**	.21**	-.02	-.08	46.22 (9.33)	50.81 (10.31)	34.42**	33–80
6. Self-Esteem	-.17**	-.22**	-.08	-.13**	-.47**	—	-.65**	-.26**	.02	.07	51.93 (8.88)	45.92 (11.70)	52.71**	16–61
7. Depression	.30**	.26**	.24**	.26**	.59**	-.66**	—	.35**	.02	-.22	48.35 (8.88)	50.46 (10.26)	7.60**	40–86
8. Attitude	.17**	.11**	.16**	.16**	.34**	-.36**	.45**	—	.04	-.23**	52.34 (9.90)	49.86 (9.92)	9.83**	35–76
9. Attendance	.25**	.14*	.17**	<b>.30**<sup>d</sup></b>	.20**	-.04	.14*	.18**	—	-.31**	7.93 (6.37)	8.94 (7.79)	3.14	0–66
10. GPA	<b>-.28**<sup>a</sup></b>	-.16**	<b>-.27**<sup>c</sup></b>	-.29**	-.23**	.13*	-.31**	-.39**	-.37**	—	2.37 (1.09)	2.74 (1.03)	18.22**	.10–4.14

Note. Correlations above the diagonal are for boys and those below the diagonal are for girls. Victimization scores are from Time 1 (fall of the school year), and outcomes are from T2 (spring of the same school year). Mean scores for victimization scales and subscales are average of individual items; Anxiety, Self-Esteem, Depression, and Attitude are T-scores. Attendance is days absent during the school year. GPA = final grade point average at the end of the school year.

a, b, c, d Correlations with superscripts and bolded are statistically different between boys and girls for Total, Verbal, Physical, and Relational victimization, respectively.

\*  $p < .05$ . \*\*  $p < .01$ .

Bivariate Correlations, Means, Standard Deviations, and Range of Main Study Variables and Gender Differences in Mean Scores

Comparisons across gender demonstrated that girls experienced significantly higher levels of anxiety and depression, and lower levels of self-esteem than boys. Academically, girls reported a more positive attitude to school and demonstrated a higher grade point average than boys. There was no gender difference in attendance for the school year.

Bivariate correlations among all study variables by gender are also reported in Table 1. For girls, the total victimization score and all three types of victimization were significantly related to all outcomes, except for the relation between physical victimization and self-esteem. For boys, the total score and all three types of victimization were related to all psychological outcomes and grade point average (except for verbal victimization and grades), but not attitude to school or attendance. When correlations for boys and girls were compared for statistically significant differences using Fisher's z transformation, results showed that correlations between victimization and anxiety, attendance, and grade point average were statistically stronger for girls than boys (see Table 1).

## Main Analyses

### Total Victimization

Model 1 tested the indirect effect of psychological adjustment on the longitudinal association between total victimization and academic adjustment ( Figure 1



presents the standardized coefficients with the conceptual model; Table 2 contains the standardized and unstandardized coefficients, standard errors, and p values for the measurement and structural models). All path coefficients for both models were significant and in the expected direction, except for the paths between victimization and academic adjustment for both genders, which was not significant. Chi-square was significant,  $\chi^2(49) = 115.39$ ,  $p < .001$ , but because other fit indices indicated acceptable fit (CFI = .96, SRMR = .05, RMSEA = .05, 95% CI = .03, .06, PNFI = .64) the structural components of the model were interpreted.

Table 2  
*Standardized and Unstandardized Coefficients, with 95% Confidence Intervals, Standard Errors, and p Values for Model One*

Variable	Boys						Girls					
	B	Lower	Upper	SE	$\beta$	p	B	Lower	Upper	SE	$\beta$	p
Victimization												
Verbal	.97	.77	1.25	.08	.72	.001	.73	.60	.98	.06	.73	.001
Physical	1.49	1.22	1.83	.12	.85	.001	.69	.52	.86	.06	.72	.001
Relational	1.00	1.00	1.00		.73	.001	1.00	1.00	1.00		.82	
Psychological adjustment												
Anxiety	.70	.52	.91	.06	.62	.001	.77	.63	.93	.06	.66	.001
Self-esteem	-.78	-.92	-.64	.06	-.71	.001	-.97	-1.10	-.85	.06	-.78	.001
Depression	1.00	1.00	1.00		.91	.001	1.00	1.00	1.00		.93	
Academic adjustment												
Attitude to school	-16.11	-26.42	-10.62	3.01	-.50	.001	-17.18	-25.77	-12.78	2.62	-.76	.001
Attendance	-1.47	-4.28	2.14	1.25	-.07	.238	-4.73	-7.36	-2.28	1.15	-.26	.001
Grade point average	1.00	1.00	1.00		.29		1.00	1.00	1.00		.42	
Structural model												
Victimization → Psychological	1.71	1.27	2.19	.19	.40	.001	1.71	1.29	2.19	.19	.44	.001
Psychological → Academic	-.03	-.04	-.02	.01	-.86	.001	-.03	-.04	-.02	.01	-.73	.001
Victimization → Academic	-.01	-.04	.02	.01	-.05	.47	-.01	-.04	.02	.01	-.04	.47

*Standardized and Unstandardized Coefficients, with 95% Confidence Intervals, Standard Errors, and p Values for Model One*

Indirect effects were calculated and bootstrapping provided estimated p values for each of these effects (see Table 2). The indirect effect of psychological adjustment was significant for boys (  $B = -.05$ ,  $p < .01$ , 95% CI =  $-.08$ ,  $-.03$ ; and girls,  $B = -.05$ ,  $p < .01$ , 95% CI =  $-.07$ ,  $-.04$ ). To test for significant differences in the strength of the indirect effects for boys and girls, critical ratios were calculated. Critical ratios use a z test to test for differences between path coefficients, thus absolute values exceeding 1.96 indicate a significant difference in the path coefficients. The z test was not significant for any of the path coefficients; therefore, psychological adjustment significantly mediated the association between victimization and academic adjustment for both boys and girls.

## Types of Victimization

Models 2–4 were tested to determine if there was an indirect effect of psychological adjustment on the association between the individual types of victimization (i.e., verbal, physical, and relational) and academic adjustment. Indirect effects were calculated and bootstrapping provided estimated p values for each of these effects. For Model 2 (physical victimization), the indirect effect of psychological adjustment

was significant for boys (  $B = -.07$ ,  $p < .01$ , 95% CI =  $-.14, -.02$ ) and girls (  $B = -.26$ ,  $p < .01$ , 95% CI =  $-.40, -.14$ ). However, there was a significant gender difference for the path between physical victimization and psychological adjustment (  $z = 2.70$ ,  $p < .05$ ), indicating that the effect of physical victimization on psychological adjustment was significantly greater for girls than boys. The indirect effect of psychological adjustment was also significant for verbal (Model 3; boys:  $B = -.05$ ,  $p < .01$ , 95% CI =  $-.10, -.01$ ; girls:  $B = -.10$ ,  $p < .01$ , 95% CI =  $-.16, -.05$ ) and relational (Model 4; boys:  $B = -.14$ ,  $p < .01$ , 95% CI =  $-.31, -.03$ ; girls:  $B = -.26$ ,  $p < .01$ , 95% CI =  $-.42, -.13$ ) victimization with no gender differences in path coefficients or indirect effects.

## Discussion

The results of the current investigation demonstrated gender differences in the frequency of different types of victimization experiences, with boys reporting more frequent physical and verbal victimization than girls, and girls reporting more frequent relational victimization than boys. In addition, the study highlighted the significantly higher levels of anxiety and depression and lower self-esteem reported by girls compared to boys, as well as better attitude to school and higher grade point average than boys. No gender differences were found for attendance during the school year. Further, gender differences were found in the longitudinal relations between peer victimization and adjustment, with girls experiencing higher levels of anxiety and academic maladjustment in response to peer victimization. However, tests of mediation demonstrated no gender differences in indirect effects of peer victimization on academic adjustment through psychological adjustment.

The current study demonstrated that experiences with peer victimization can have a negative effect on anxiety, self-esteem and depression, as well as school attitudes, attendance, and grades, and that the actual frequency of victimization experiences affects academic adjustment indirectly, through its direct effect on psychological adjustment for both boys and girls. These results replicate and extend previous longitudinal findings based on self-perceptions of victimization with early adolescents ( Juvonen et al., 2000; Nishina et al., 2005), which found that perceptions of victimization affected psychological adjustment which then affected academic achievement for both boys and girls. The current findings further add to the literature by demonstrating indirect effects of different types of victimization—verbal, physical, and relational—on academic functioning through psychological adjustment that were consistent across gender.

Understanding the process by which academic achievement is impacted by victimization is especially important because there is some evidence to suggest that even short-term victimization might have a negative impact on both social-emotional and academic outcomes ( Rueger et al., 2011), and that victimization continues to impact social-emotional functioning, even after victimization ceases ( Kochenderfer & Ladd, 1996a; Rueger et al., 2011). Thus, the findings from this study emphasize the importance of addressing social-emotional functioning as well as bullying in the schools, as both affect students' academic success. Results of the

current study suggest that psychological adjustment problems, such as heightened anxiety and depression, and lower self-esteem, explain the connection between victimization and academic adjustment problems. By elucidating this process further, educators and psychologists may be able to tailor school-wide and individual student interventions to prevent or reduce psychological and academic difficulties following victimization. The results from this study suggest that addressing psychological problems would be a point of intervention for ongoing victimization.

Schools are increasingly aware of the negative impact that peer victimization can have on students' social-emotional and academic health and are beginning to recognize that academic success requires more than just academic skills. Many researchers have studied the impact of nonacademic behaviors on academic achievement (e.g., DiPerna & Elliott, 2002) and have found these skills to be positively related to academic achievement. As part of the push to teach nonacademic skills, schools are beginning to establish social-emotional learning standards ( Durlak et al., 2011) and implement PBIS ( Frey, Lingo, & Nelson, 2011). The literature is clear that successful schools teach students not only how to read, write, and do arithmetic, but also how to interact with and be respectful of others ( Cohen, 2006). A meta-analysis found that, compared to control groups, schools that implemented social and emotional learning standards showed significantly better social skills, emotional skills, attitudes toward school, behavioral outcomes, as well as higher academic performance ( Durlak et al., 2011).

Related, schools have encountered difficulties implementing stand-alone bullying prevention programs ( Good, McIntosh, & Gietz, 2011), with some studies of stand-alone bullying prevention programs showing an increase in bullying behaviors ( Simonsen, Sugai, & Negron, 2008). It may be more effective to embed bullying prevention practices into a school-wide system of social, emotional, and behavior support ( Good et al., 2011). The comprehensive, multitier approach commonly used in PBIS may have great utility in the prevention of bullying and corresponding negative outcomes. The first tier of support may incorporate social-emotional learning standards and instruction, whereas the second and third tiers may involve identifying specific students who may benefit from individualized support to address psychological and/or academic difficulties. The results from the current study suggests that both boys and girls would benefit from such comprehensive programs, as psychological distress was a reaction common to all three types of victimization for both boys and girls, and this distress served as a mechanism by which students' academic functioning was hindered.

There are some noteworthy strengths to the current investigation that can be highlighted, as well as limitations that should be addressed in future research. First, this is the first study to address indirect effects of three types of victimization experiences on academic outcomes across a school year with a consideration for gender differences. Results suggest that, regardless of type of victimization and gender of victim, the negative effects of peer victimization on academic adjustment

are mediated by harmful effects on psychological adjustment. As such, the findings from this study add important new knowledge to our current understanding of potential mechanisms of peer victimization effects and support the need to address social-emotional functioning in schools as well as peer victimization problems, for both boys and girls. A second strength of the current study is the use of bootstrapping. Bootstrapping is the contemporary gold standard methodology in testing indirect effects and also has an additional advantage in that it is robust to violations of normality (Hayes, 2009). Mediation studies cited in this article have not used bootstrapping to test for indirect effects. Another strength is that the student body in the current school was diverse in several ways, including ethnicity/race and socioeconomic status. Related, there was no self-selection bias because this was a school-wide assessment. Sample diversity and lack of selection bias both increase generalizability of findings. As would be expected from a school-wide data collection, psychological adjustment scores fell within the average range, but there was a range of psychological functioning with 13–18% of the students reporting clinical levels of psychological distress. Thus, results from this study can be said to be representative of victimization patterns in a typical middle-school population.

However, because the study focused on a general middle-school population experiencing typical victimization patterns, the current study cannot speak to the impact of higher levels of peer victimization and higher levels of psychological distress. Thus, future research should confirm the mediating role of psychological adjustment in a sample of students who are more intensely victimized by their peers or in a clinical population. It would also add to the research to compare ethnic/racial differences in effects of peer victimization on academic adjustment, and the role that psychological adjustment may play. Another limitation of the study is the multi-item measure of victimization used in the current study. Although psychometrically sound, this measure did not incorporate aspects of intentionality or power differential, which are important to distinguish general peer victimization from bullying experiences (Olweus, 1993). It is possible that the negative influence of peer victimization might vary based on these measurement issues. An analysis of such potential differences would be an important next step in this line of research. Finally, the short-term longitudinal design with two timepoints in the current study allows only a limited test of indirect effects. Future research should aim to replicate these findings with at least three timepoints and a longer longitudinal timeframe.

Future studies should also investigate whether access to supportive people can help ameliorate the negative effects of victimization, and how the school environment can foster more open communication and supportive relationships. Research over the years has documented that social support can buffer people from the deleterious effects of negative life events (e.g., Cohen & Wills, 1985), and initial research indicates that social support could offer protection from experiences of victimization (Davidson & Demaray, 2007). If this is the case, students who experience or witness bullying can be encouraged to seek help, not only to find emotional support in times of distress, but to seek out information and feedback on

how to change behaviors that may fuel a negative cycle of behavior. Related, there is research to suggest that students who observe bullying but do not intervene also influence the occurrence of bullying, albeit indirectly (Salmivalli, 1999). Thus, both victims and bystanders need to know how to seek out the support they need to try to end a pattern of conflict and violence among students.

In conclusion, the results from the current study demonstrated significant gender differences in frequency of peer victimization experiences and effects of peer victimization on social-emotional and academic outcomes. However, there was consistency across gender in the mediational role that psychological adjustment plays in the relation between victimization and academic adjustment across a school year: Both boys and girls experienced the negative impact of peer victimization on academic achievement through its effect on psychological adjustment. This study supports the need to intervene in social-emotional domains to help students who experience peer victimization; results suggest that such interventions would ultimately benefit students' academic functioning.

## References

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182. doi: 10.1037/0022-3514.51.6.1173
- Barrett, P. (2007). Structural equation modeling: Adjudging model fit. *Personality and Individual Differences*, 42, 815–824. doi: 10.1016/j.paid.2006.09.018
- Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescents: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development*, 79, 1185–1229. doi: 10.1111/j.1467-8624.2008.01184.x
- Cohen, J. (2006). Social, emotional, ethical, and academic education: Creating a climates for learning, participation in democracy, and well-being. *Harvard Educational Review*, 76, 201–237.
- Cohen, S., & Wills, T. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310–357. doi: 10.1037/0033-2909.98.2.310
- Cole, D. A., Maxwell, M. A., Dukewich, T. L., & Yosick, R. (2010). Targeted peer victimization and the construction of positive and negative self-cognitions: Connections to depressive symptoms in children. *Journal of Clinical Child and Adolescent Psychology*, 39, 421–435. doi: 10.1080/15374411003691776

Davidson, L. M., & Demaray, M. K. ( 2007). Social support as a moderator between victimization and internalizing-externalizing distress from bullying. *School Psychology Review*, 36, 383– 405.

Demaray, M. K., Davidson, L. M., Malecki, C. K., & Rueger, S. Y. ( 2009, February). Advances in the assessment of bullying behaviors. Paper presented at the annual meeting of the National Association for School Psychologists, Boston, MA.

Demaray, M. K., & Malecki, C. K. ( 2003). Perceptions of the frequency and importance of social support by students classified as victims, bullies, and bully/victims in an urban middle school. *School Psychology Review*, 32, 471– 489.

DiPerna, J. C., & Elliott, S. N. ( 2002). Promoting academic enablers to improve student achievement: Introduction to a miniseries. *School Psychology Review*, 31, 293– 297.

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. doi: 10.1111/j.1467-8624.2010.01564.x

Espelage, D. L., & Swearer, S. M. ( 2003). Research on school bullying and victimization: What have we learned and where do we go from here? *School Psychology Review*, 32, 365– 383.

Frey, A. J., Lingo, A., & Nelson, C. M. ( 2011). Implementing positive behavior support in elementary schools. In M. R.Shinn & H. M.Walker ( Eds.), *Interventions for achievement and behavior problems in a three tier model, including RTI* (pp. 397– 434). Bethesda, MD: National Association of School Psychologists.

Good, C. P., McIntosh, K., & Gietz, C. ( 2011). Integrating bullying prevention into schoolwide positive behavior support. *Teaching Exceptional Children*, 44, 48– 56.

Hawker, D. S. J., & Boulton, M. J. ( 2000). Twenty years' research on peer victimization and psychosocial maladjustment: A meta-analytic review of cross-sectional studies. *Journal of Child Psychology and Psychiatry*, 41, 441– 455. doi: 10.1111/1469-7610.00629

Hayes, A. F. ( 2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408– 420. doi: 10.1080/03637750903310360

Hoglund, W. L. G. ( 2007). School functioning in early adolescence: Gender-linked responses to peer victimization. *Journal of Educational Psychology*, 99, 683– 699. doi: 10.1037/0022-0663.99.4.683

Hooper, D., Coughlan, J., & Mullen, M. R. (2008). Structural equation modelling: Guidelines for determining model fit. *The Electronic Journal of Business Research Methods*, 6, 53–60.

Hu, L., & Bentler, P. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 76–99). Thousand Oaks, CA: Sage.

Juvonen, J., Nishina, A., & Graham, S. (2000). Peer harassment, psychosocial adjustment, and school functioning in early adolescence. *Journal of Educational Psychology*, 92, 349–359. doi: 10.1037/0022-0663.92.2.349

Kingery, P. (2001). *The National School Crime and Safety Survey—Revised Student Form 1*. Washington, DC: The Hamilton-Fish Institute.

Kochenderfer, B. J., & Ladd, G. W. (1996a). Peer victimization: Cause or consequence of school maladjustment. *Child Development*, 67, 1305–1317. doi: 10.2307/1131701

Kochenderfer, B. J., & Ladd, G. W. (1996b). Peer victimization: Manifestations and relations to school adjustment in kindergarten. *Journal of School Psychology*, 34, 267–283. doi: 10.1016/0022-4405(96)00015-5

Lopez, C., & DuBois, D. L. (2005). Peer victimization and rejection: Investigation of an integrative model of effects on emotional, behavioral, and academic adjustment in early adolescence. *Journal of Clinical Child and Adolescent Psychology*, 34(1), 25–36. doi: 10.1207/s15374424jccp3401\_3

Mulaik, S. A., James, L. R., Van Alstine, J., Bennett, N., Lind, S., & Stilwell, C. D. (1989). Quantitative methods in psychology. *Psychological Bulletin*, 105, 430–445. doi: 10.1037/0033-2909.105.3.430

Nakamoto, J., & Schwartz, D. (2010). Is peer victimization associated with academic achievement? A meta-analytic review. *Social Development*, 19, 221–242. doi: 10.1111/j.1467-9507.2009.00539.x

Nishina, A., Juvonen, J., & Witkow, M. R. (2005). Sticks and stones may break my bones, but names will make me feel sick: The psychosocial, somatic, and scholastic consequences of peer harassment. *Journal of Clinical Child and Adolescent Psychology*, 34, 37–48. doi: 10.1207/s15374424jccp3401\_4

Olweus, D. (1993). *Bullying at school: What we know and what we can do*. Malden, MA: Blackwell Publishing.

Pellegrini, A. D., & Long, J. (2002). A longitudinal study of bullying, dominance, and victimization during the transition from primary to secondary school. *British*

Journal of Developmental Psychology, 20, 259– 280. doi: 10.1348/026151002166442

Preacher, K. J., & Hayes, A. F. ( 2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879– 891. doi: 10.3758/BRM.40.3.879

Reynolds, C. R., & Kamphaus, R. W. ( 2004). *The Behavioral Assessment System for Children-Second Edition*. Circle Pines, MN: American Guidance Service, Inc.

Rudolph, K. D., Troop-Gordon, W., Hessel, E. T., & Schmidt, J. D. ( 2011). A latent growth curve analysis of early and increasing peer victimization as predictors of mental health across elementary school. *Journal of Clinical Child and Adolescent Psychology*, 40, 111– 122. doi: 10.1080/15374416.2011.533413

Rueger, S. Y., Malecki, C. K., & Demaray, M. K. ( 2011). Stability of peer victimization in early adolescence: Effects of timing and duration. *Journal of School Psychology*, 49, 443– 464. doi: 10.1016/j.jsp.2011.04.005

Salmivalli, C. ( 1999). Participant role approach to school bullying: Implications for interventions. *Journal of Adolescence*, 22, 453– 459. doi: 10.1006/jado.1999.0239

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. ( 2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research*, 8, 23– 74.

Scholte, R. H. J., de Kemp, R. A. T., Haselager, G. J. M., & Engels, R. C. M. E. ( 2007). Longitudinal stability in bullying and victimisation in childhood and adolescence. *Journal of Abnormal Child Psychology*, 35, 217– 228. doi: 10.1007/s10802-006-9074-3

Schwartz, D., Gorman, A. H., & Nakamoto, J., & Toblin, R. L. ( 2005). Victimization in the peer group and children's academic functioning. *Journal of Educational Psychology*, 97, 425– 435. doi: 10.1037/0022-0663.97.3.425

Shrout, P. E., & Bolger, N. ( 2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7, 422– 445. doi: 10.1037/1082-989X.7.4.422

Simonsen, B., Sugai, G., & Negrón, M. ( 2008). Schoolwide positive behavior supports: Primary systems and practices. *Teaching Exceptional Children*, 40, 32– 40.

Swearer, S. M. ( 2001). *Bully Survey*. Lincoln: University of Nebraska–Lincoln.



Thijs, J., & Verkuyten, M. ( 2008). Peer victimization and academic achievement in a multiethnic sample: The role of perceived academic self-efficacy. *Journal of Educational Psychology*, 100, 754– 764. doi: 10.1037/a0013155

Wang, J., Iannotti, R. J., & Nansel, T. R. ( 2009). School bullying among adolescents in the United States: Physical, verbal, relational, and cyber. *Journal of Adolescent Health*, 45, 368– 375. doi: 10.1016/j.jadohealth.2009.03.021

Wei, H. S., & Williams, J. H. ( 2004). Relationship between peer victimization and school adjustment in sixth-grade students: Investigating mediation effects. *Violence and Victims*, 19, 557– 571. doi: 10.1891/vivi.19.5.557.63683

Woods, S., & Wolke, D. ( 2004). Direct and relational bullying among primary school children and academic achievement. *Journal of School Psychology*, 42, 135– 155. doi: 10.1016/j.jsp.2003.12.002