Relationship Between Peer Victimization and School Adjustment in Sixth-Grade Students: Investigating Mediation Effects

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Peer victimization is a common occurrence in school settings. This study investigated the relationship between peer victimization and school adjustment in a sample of 1,022 sixth-grade students. Measures used in this study include peer victimization, perceived peer nonsupport, school attachment, inattention problems, and academic achievement. Multivariate path analyses were conducted to test direct and mediation effects in the overall model and to explore gender differences. The results provided support for the hypothesized model indicating that the relationship between peer victimization and school attachment is mediated by perceived peer nonsupport, and that school attachment is related to inattentive school behaviors and poor academic achievement. Paths indicated invariance across models for gender. Prevention and intervention implications of these findings are discussed.

School violence in the United States has become a public concern in recent years, whereas schools were once considered to be safe environments for children to learn and socialize. Over the past 10 years, students and parents have begun to perceive schools to be dangerous areas where children can be easily victimized. In a national survey of sixth- through twelfth-grade students, Nolin, Davies, and Chandler (1995) found that 29% of the sixth-grade students and 34% of the seventh- and eighth-grade students reported concern about being victimized at school.

Over the past decade, the increase in firearm violence in schools has captured the attention of the electronic and print media. This increased coverage has raised the public’s anxiety regarding issues of school safety. It is true that these acts of school violence are extremely traumatic, but they are relatively rare in comparison to other types of aggression that occur in schools. Only 4% of elementary school students and 5% of junior high students reported being physically attacked during the school year, as compared to 10% and 12% who experienced being the victim of other forms of bullying behaviors (Nolin et al., 1995). Many children and youth reported experiences of being physically picked on, mocked, or threatened by other students at school (Nolin et al.). These types of victimization
incidents are many times considered to be harmless and to be a normal aspect of a child’s educational experiences. Recent research studies, however, have indicated that peer victimization has negative impacts on the psychological well-being of the victims and can hinder their learning process (Craig, 1998; Kochenderfer & Ladd, 1996a). The focus of this study is to investigate the relationship between peer victimization and school adjustment.

Peer victimization is a common occurrence in school settings (Nolin et al., 1995; Kaufman et al., 2001). Data from the 1999 national report by the Bureau of Justice Statistics and the National Center for Education Statistics indicated that 10% of the students in grades 6 and 7 reported being victims of bullying at school during the past 6 months (Kaufman et al., 2001). In a sample of youth in grades 6 through 10, Nansel and colleagues (2001) found that 29.9% of youth reported moderate or frequent involvement in bullying behaviors, either as perpetrators (bullies) (13.0%), victims (10.6%), or both (6.3%). Similar results were found when surveying middle school students in South Carolina (Melton et al., 1998). The South Carolina study found that approximately 23% of students reported being victims of bullying behaviors by other students several times over the past 3 months and more than 20% of the students reported that they had perpetrated a bullying act on other students several times over the past 3 months (Melton et al.).

International studies have also identified high levels of bullying behaviors in children and youth (Glover, Gough, Johnson, & Cartwright, 2000; Whitney & Smith, 1993). In a sample of middle school students in the United Kingdom, researchers found that 27% of the students reported that they have been bullied occasionally during the current school term and 10% reported that bullying occurs at least once a week or more (Whitney & Smith). A study with Australian school children found that approximately 10% of the students had experienced peer victimization (Rigby & Slee, 1991). In addition to the United Kingdom and Australian studies, other studies have found peer victimization is a significant problem in schools in Ireland, Norway, and Japan (Olweus, 1992; O’Moore, Kirkham, & Smith, 1997; Takahiro & Iwao, 2000).

Gender Differences

Results for studies investigating prevalence of peer victimization across gender have been mixed. Many of these studies have identified gender differences in levels of involvement and types of bullying behaviors (Nansel et al., 2001; Olweus, 1999, Whitney & Smith, 1993). Studies indicate that boys are more likely to be perpetrators of physical bullying compared to girls (Nansel et al.; Olweus; Whitney & Smith). Twenty-five percent of boys reported perpetrating bullying behaviors either occasionally or weekly as compared to 13% for girls (Nansel et al.). While some studies found that boys were more likely to be victims of bullying behaviors than girls (Nansel et al.; Olweus; Rigby, 1997), other studies reported that girls are more likely to be victims (Björkqvist, 1994; Crick & Bigbee, 1998; Glover et al., 2000; Melton et al., 1998; Rigby, 2002). Still other researchers found similar rates of peer victimization across genders (Whitney & Smith). These findings indicate that both male and female school children are both perpetrators and victims of bullying behaviors in school. Beyond these differences in levels of participation in bullying behaviors and aggressiveness between girls and boys, there is also a need to explore the differential impact of the victimization experience on boys and girls, which is a focus of this study. Understanding potential gender differences in this aspect will inform preventive intervention designs.
Psychological and Social Impact of Peer Victimization

Although students rarely suffer severe physical injuries related to bullying incidents, these experiences significantly impact their psychological well-being and social development. Peer victimization at school has been found to be associated with various emotional and behavioral problems including depression, loneliness, anxiety, and low self-esteem (Hawker & Boulton, 2000). Victims may also experience adverse problems with school and social adjustment (Hawker & Boulton). Compared to nonvictimized peers, children who have experienced peer victimization report more difficulty in making friends, feeling less socially competent, and experiencing more peer rejection (Boulton & Smith, 1994; Nansel et al., 2001). In addition to adverse psychological effects, peer victimization can disrupt the educational and learning processes and hinder children from achieving their maximum learning potential (Juvonen, Nishina, & Graham, 2000). In a longitudinal study, Juvonen and colleagues (2000) found that self-perceived victimization was a significant predictor of GPA and absenteeism among middle school students. Additional studies also found that peer victimization was significantly correlated with attention problems, lower school attachment, and school avoidance behaviors (Ladd, Kochenderfer, & Coleman, 1997; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1998). Peer victimization among kindergarten children is related to loneliness in school and their expressed desire to avoid the school environment, while children's attitudes toward school significantly affect their academic achievement (Kochenderfer & Ladd, 1996b; Ladd, Buhs, & Seid, 2000; Marjoribanks, 1992). These experiences are considered to have a lasting impact on children's mental health and social development (Kochenderfer & Ladd).

Mediation Processes

Previous research has clearly indicated that peer victimization is highly correlated with school maladjustment such as lower school attachment, perceived peer rejection, loneliness in school, school avoidance, inattention problems, and lower academic performance (Hawker & Boulton, 2000; Kochenderfer & Ladd, 1996b; Ladd, Kochenderfer, & Coleman, 1997; Schwartz et al., 1998). However, relatively few of these studies have investigated the interrelationships and mediating processes among these variables. One exceptional effort is Barriga and colleagues' recent study, which found that although a variety of student problems were highly correlated with their academic achievement measures, each of these associations was mediated by attention problems (Barriga et al., 2002). In their study, the association between attention problems and academic achievement was largely due to the inattention component of the syndrome rather than the hyperactivity-impulsivity component (Barriga et al.).

Besides attention problems, the literature also reports that school attachment is a significant predictor of academic achievement (Maddox & Prinz, 2003). It is possible that peer victimization experiences also negatively impact both school attachment and academic achievement or that the impact of peer victimization experiences on academic achievement may be mediated by school attachment. This study will investigate mediation relationships among these variables in addition to direct effects.

Building on the existing literature, this study investigates two specific hypothesized relationships among the peer victimization and school adjustment variables. First, this study hypothesizes that peer victimization experiences decrease the victim's school liking and attachment. These lower levels of school attachment will be positively related to
school maladjustment (e.g., inattentive school behaviors, poor academic achievement). Secondly, this study hypothesizes that students' perception of peer support mediates the relationship between peer victimization and school attachment.

In a recent study, Storch, Phil, Nock, Masa-Warner, & Barlas (2003) found that peer victimization was significantly associated with loneliness and that prosocial behaviors from peers moderated this relationship. Victims of bullying behaviors have higher levels of perceived rejection by their peers than nonvictims and victims' attribution of the victimization profoundly affects their educational and social outcomes (Graham & Juvonen, 1998; Nanee et al., 2001). This study posits the need to go beyond the well-documented relationship between peer victimization and school maladjustment and to investigate the cognitive factors that mediate this association. This study suggests that it is not specifically the peer victimization, but rather the victim's interpretation of peer support or rejection that impacts the victim's school attachment. In other words, if the victim does not regard the peer victimization incident as rejection or he/she has other evidence suggesting peers' supportiveness (such as help from peers), the impact of the victimization experience may be minor.

Research Questions

Based on recent literature, this paper explores the relationship between peer victimization and school adjustment to assess the following questions: (a) To what extent are the effects of peer victimization mediated by the victims' perception of peer unsupportive behavior? (b) To what extent do the victims' perception of peer unsupportive behavior impact school attachment, which is expected to decrease the victims' academic achievement? (c) To what extent is the relationship between school attachment and academic achievement mediated by the inattention problems at school? and (d) To what extent are there differences across genders in peer victimization and school adjustment? Each of the research questions builds on empirical findings from previous studies and links various peer victimization and school adjustment measures together to develop a comprehensive model to explore mediating effects in understanding the relationship between peer victimization and school adjustment. The hypothesized model used to test these relationships is depicted in Figure 1.

METHOD

Sample and Design

Data used in this study were collected in the United States in 1996 as part of the Health Behavior in School-Aged Children Survey (HBSC) (World Health Organization, 1996). HBSC is a cross-national, large-scale international school-based survey that was initially administered in 1982 by the World Health Organization (WHO) to collect data on the health attitudes and behaviors of children and youths. The sampling design used a three-stage clustered method with school districts as the first level, schools as the second, and classrooms as the third. The total U.S. sample consisted of 9,938 children and youths in the 6th, 8th, and 10th grades. Each student completed a self-report questionnaire with various measures assessing eating habits, family structure, antisocial behavior, drug use, violence, school achievement, and other school-related behaviors and attitudes.
Figure 1. Hypothesized model.

Only the sixth-grade respondents were used in the analysis for this study. This study selected this age group for two reasons. First, in many school districts, sixth grade is considered a transitional period for youth from elementary to middle school. Many school districts physically isolate sixth-grade students from seventh- and eighth-grade students. This isolation provides the opportunity for sixth graders to be educated and socialize in a more contained school environment than other middle school students. The scheduling of courses and environment for socialization are also different. Secondly, previous research suggests a decline in the number of victims of peer victimization as youth get older (Kaufman et al., 2001; Smith, Madsen, & Moody, 1999). The developmental transition of sixth-grade students along with previous peer victimization research provides the rationale for determining that sixth-grade students are the most relevant sample for investigating the relationship between peer victimization and school adjustment. The analyses for this study were restricted to the sixth-grade students in the sample who reported at least one victimization experience during the past year (n = 1,253). Restricting the sample to sixth-grade students with at least one victimization experience reduced the skewness of the distribution and maintained a sample size for adequate power to conduct the statistical analyses.

To further support restricting the study to sixth-grade students, an analysis of variance (ANOVA) was conducted to assess differences in prevalence of peer victimization among the three grades. Significant differences were found across the three grades (F(2) = 60.76, p < .001). Sixth-grade students had the highest level of bullying and peer victimization. Post hoc comparisons using Bonferroni correction indicated that the difference between 6th- and 8th-grade students was in the predicted direction but not significant. Both 6th- and 8th-grade students were more likely to be victims of peer victimization than 10th grade students.

Of the 1,253 sixth-grade students reporting at least one incident of peer victimization in the past year, only 1,022 had complete data on all items to be used for the multivariate analyses. The sample is diverse in regard to race and ethnicity. Over 69% (n = 709) are Caucasian, 11% (n = 112) are African American, 7.4% (n = 76) are Asian American or Pacific Islanders, 6.2% (n = 63) are American Indians or Alaska Natives, and 6.1% (n = 62) did not provide race or ethnicity information. The sample is 48.7% (n = 498) male and 51.3% (n = 524) female.
Measures

**Peer Victimization.** Peer victimization was assessed using a single-item question to assess the student's level of peer victimization over the past 12 months. This item asked, “During the past 12 months, how many times have you been picked on, ganged up on, or bullied, ON SCHOOL PROPERTY?” This item was measured on an 8-item scale with responses ranging from zero times over 12 months (1) to several times a week (8) (World Health Organization, 1996).

**Perceived Peer Nonsupport.** A 2-item scale asking students' perceptions of their peers' behavior toward them assessed students' perception of nonsupport by their classmates using the mean score of the sum for the following items: (1) “Most of the students in my classes are kind and helpful,” and (2) “Most students accept me as I am.” Each item was measured on a 5-point scale with responses ranging from strongly agree (1) to strongly disagree (5) (World Health Organization, 1996).

**School Attachment.** A 3-item scale (α = .67) assessing students' attachment and attitudes to school was developed by using the mean score of the sum from the following items: (1) “How do you feel about school right now?” (2) “I feel I belong at this school,” and (3) “I feel safe at school.” The responses for the first item were measured by a 4-point scale with responses ranging from: like it a lot (1) to I don’t like it at all (4). The responses for items 2 and 3 were measured using a 5-point scale with responses ranging from: strongly agree (1) to strongly disagree (5) (World Health Organization, 1996). Items on this scale were reverse coded and summed for scale development and analyses.

**Inattentive School Behaviors.** This was measured by the mean score of the sum of a 7-item scale (α = .76) assessing students' inattentive behaviors at school. The items used to develop this scale include: (1) “I have difficulty paying attention or listening in school,” (2) “It is hard for me to learn new things,” (3) “I am easily distracted in school,” (4) “I often forget to do the things I’m supposed to do,” (5) “I make careless mistakes in school work,” (6) “I have trouble getting myself organized,” and (7) “I lose things I need for school work.” The response categories for these items were no (1) and yes (2) (World Health Organization, 1996).

**Academic Achievement.** This was measured by a single item asking, “Which grades do you get mostly?” The response categories range from: mostly A’s (1) to mostly D’s and F’s (7). This scale was reverse coded for analyses (World Health Organization, 1996).

Analysis Strategy

The analysis for this study was conducted in multiple stages. First, a preliminary univariate and bivariate analysis was conducted using SAS Version 8.0 (SAS Institute, Cary, NC) to obtain the means, standard deviations, and zero-order correlation coefficients. Second, the multivariate analysis was performed in two stages. Stage one: a multivariate path analysis was conducted specifying a series of paths using only the male subjects. This model was constructed to simultaneously test direct and mediation relationships between peer victimization, perceived peer nonsupport, school attachment, inattention problems, and academic achievement for males using LISREL 8.50 (Jöreskog & Sörbom, 2001). A maximum likelihood method was used to determine parameter estimation. Stage two: a multivariate path analysis was performed to investigate possible gender effects. A multisample procedure was used to estimate the model for males and females. Initially a fully constrained universal model was tested assuming no differences across gender regarding
parameter estimates or model fit. Then, some of the constraints were released to determine if a group-specific model was a better fit for the data.

RESULTS

Attrition Analyses

The attrition analyses were conducted in two stages. First, an analysis of variance (ANOVA) and chi-square analyses were conducted to investigate whether the sample \( n = 1,022 \) for the present study differed systematically from the full sixth-grade sample due to listwise deletion. Differences between attritors and nonattritors in demographic variables, peer victimization, perceived peer nonsupport, school attachment, inattention problems, and academic achievement were examined. There was no differential attrition by gender. The results indicated some overall differential attrition by race and ethnicity \( \chi^2(3) = 9.59, p < .022 \). Caucasian students were more likely to have missing data than African American and Asian American students. Attritors were more likely to have lower scores on school attachment \( F(1) = 4.34, p < .038 \) and lower grades \( F(1) = 24.15, p < .001 \). There was no evidence of differential attrition on peer victimization, perceived peer nonsupport, and inattention problems examined in this study. The external validity of results reported related to school attachment and academic achievement may be somewhat constrained by these results.

In the second attrition analysis, a series of ANOVA was performed on the research variables to compare the sixth-grade students who were used in the multivariate analysis with those sixth-grade students who were not victims of peer victimization at school during the past 12 months. Significant differences were found in perceived peer nonsupport, school attachment, and inattentive school behaviors across the two groups. Students who had been bullied perceived higher levels of peer nonsupport \( F(1) = 7.370, p < .001 \), had lower school attachment \( F(1) = 28.55, p < .001 \), and had higher inattentive school behaviors \( F(1) = 75.99, p < .001 \). No differences were found for academic achievement between bullied and nonbullied students. These results are consistent with the results from the multivariate analysis that indicated that peer victimization had only an indirect effect on students’ academic achievement. Results from this analysis were all in the predicted directions and support the use of students who had been bullied during the previous 12 months.

Univariate and Bivariate Analyses

The means, standard deviations, level of skewness, and ranges of the measures for the sample are presented in Table 1. The correlation coefficients, means, and standard deviations for males and females are presented in Table 2. The coefficients for females are above the dashes and the coefficients for males are below. In comparing across gender, females reported higher levels of school attachment and academic achievement. The coefficients were similar for both males and females. The majority of the coefficients for both males and females were in the low to moderate range, in the expected direction, and significant with the .01 levels. The results from the univariate and bivariate analyses indicated that means, standard deviations, and correlation coefficients are well within the range that supports the multivariate path analyses.
TABLE 1. Peer Victimization and School Variables: Means, Standard Deviations, Skewness, and Range (Listwise N = 1022)

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer victimization</td>
<td>4.68</td>
<td>2.34</td>
<td>0.233</td>
<td>2-8</td>
</tr>
<tr>
<td>Perceived peer nonsupport</td>
<td>5.09</td>
<td>1.99</td>
<td>0.666</td>
<td>2-10</td>
</tr>
<tr>
<td>School attachment</td>
<td>10.11</td>
<td>2.59</td>
<td>0.696</td>
<td>3-14</td>
</tr>
<tr>
<td>Inattentive school behaviors</td>
<td>9.60</td>
<td>2.13</td>
<td>0.500</td>
<td>7-14</td>
</tr>
<tr>
<td>Academic achievement</td>
<td>5.30</td>
<td>1.55</td>
<td>-1.074</td>
<td>1-7</td>
</tr>
</tbody>
</table>

TABLE 2. Correlation Coefficients, Means, and Standard Deviations for Predictor and Outcomes Variables for Males and Females\(^a\) (N = 1,022)

<table>
<thead>
<tr>
<th>Variables</th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>V5</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1. Peer victimization</td>
<td></td>
<td>0.244**</td>
<td>0.163**</td>
<td>0.132**</td>
<td>-0.094*</td>
</tr>
<tr>
<td>V2. Perceived peer nonsupport</td>
<td>0.233**</td>
<td></td>
<td>-0.381**</td>
<td>0.132**</td>
<td>-0.070</td>
</tr>
<tr>
<td>V3. School attachment</td>
<td>-0.149**</td>
<td>-0.397**</td>
<td></td>
<td>-0.268**</td>
<td>0.195**</td>
</tr>
<tr>
<td>V4. Inattentive school behaviors</td>
<td>0.081</td>
<td>0.193**</td>
<td>-0.364**</td>
<td></td>
<td>-0.464**</td>
</tr>
<tr>
<td>V5. Academic achievement Males</td>
<td>-0.031</td>
<td>-0.136**</td>
<td>0.327**</td>
<td>-0.443**</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.92</td>
<td>5.24</td>
<td>9.87</td>
<td>9.74</td>
<td>5.14</td>
</tr>
<tr>
<td>SD</td>
<td>2.34</td>
<td>2.03</td>
<td>2.70</td>
<td>2.16</td>
<td>1.65</td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.46</td>
<td>4.96</td>
<td>10.33</td>
<td>9.46</td>
<td>5.44</td>
</tr>
<tr>
<td>SD</td>
<td>2.33</td>
<td>1.96</td>
<td>2.45</td>
<td>2.09</td>
<td>1.44</td>
</tr>
</tbody>
</table>

\(^a\)Correlation coefficients for males (n = 498) are below the diagonal (dashes) and correlation coefficients for females (n = 524) are above the diagonal (dashes).

*\(p < .05\), **\(p < .01\).

**Multivariate Path Analyses**

A path analysis was conducted to determine the causal effects among the variables of peer victimization, perceived peer nonsupport, school attachment, inattentive school behaviors, and academic achievement. The initial model, presented in Figure 1, was not consistent with the empirical data for males. More specifically, using the covariance matrix indicated a less than satisfying fit (\(\chi^2(6) = 23.67, p < .0006, \text{RMSEA} = .077, \text{GFI} = .98, \text{NFI} = .92, \text{NNFI} = .90\)). Tests of the missing paths in the initial model indicated that one additional path would significantly contribute to the model. The modification indices suggested the addition of a direct path from school attachment to academic achievement. Since this direct effect has been suggested in the literature (Schwartz et al., 1998) and was consistent with the intent of the study, a path linking school attachment and academic achievement was added to the model. Thus, a revised model was generated and is presented in Figure 2.

Computation of reproduced associations for the revised model indicated consistency with the empirical relationships. The addition of a direct path linking school attachment and academic achievement to the adjusted model significantly improved the fit (\(\chi^2(5) = 4.27,\))
Figure 2. Standardized path coefficients and residual variances of the revised model using the males.

$p < .5116, \text{RMSEA} = 0.000, \text{GFI} = 1.00, \text{NFI} = .99, \text{NNFI} = 1.00)$. All path coefficients were significant at the .05 level. The results of this revised model indicated that perceived peer nonsupport mediates the relationship between peer victimization and school attachment. A significant positive relationship was found between peer victimization and perceived peer nonsupport (standardized coefficient = .23, $t = 5.34$). The relationship between perceived peer nonsupport and school attachment was negative and significant (standardized coefficient = -.40, $t = -9.63$). The relationship between school attachment and inattentive school behaviors was negative and significant (standardized coefficient = -.36, $t = -8.70$). Both school attachment (standardized coefficient = .19, $t = 4.57$) and inattentive school behaviors (standardized coefficient = -.37, $t = -8.82$) were significantly associated with academic achievement. The results identified a direct effect between school attachment and academic achievement. There was also a direct effect between inattentive school behaviors and academic achievement. Inattentive school behaviors mediated the relationship between school attachment and academic achievement. The primary determinants of academic achievement were school attachment (standardized coefficient = .19) and inattentive school behaviors (standardized coefficient = -.37), and the model explained 23% of the variance in academic achievement.

Gender Differences

Results from the multiple-group path analysis to determine if the relationships and parameters of the model were the same across genders indicated a reasonably good fit to the data although the chi-square was significant ($\chi^2_{(9)} = 32.01, p < .031$, RMSEA = .037, NFI = .95, NNFI = .98, CFI = .98). The modification indices suggested that releasing the constraint of equal regression error variances for academic achievement might improve
the fit of the model. After releasing this constraint, the model showed a decrease in the chi-square statistic and minor improvements of the fit indices ($\chi^2_{(18)} = 23.27, p < .18$, RMSEA = .024, NFI = .96, NNFI = .99, CFI = .99 [Figure 3]). The error variance of academic achievement for females (1.63) was smaller than for boys (2.12). Post hoc analysis by releasing other error variances and parameters did not provide additional improvement in the fit indices. The results support a universal model suggesting that the relationships between peer victimization, perceived peer nonsupport, school attachment, inattentive school behaviors, and academic achievement were similar across gender.

DISCUSSION

The primary focus of this study was to explore the relationships between peer victimization and school adjustment. There is a burgeoning international and domestic body of literature identifying and mapping risk factors for peer victimization. These studies present a comprehensive review of the risk factors associated with school bullying and peer victimization within the individual, family, and school domains (Astor, Benbenishty, Piter, & Meyer, 2004). This study builds on that literature by investigating peer victimization as a risk factor for negative academic outcomes and how various risk factors mediate the relationships related to negative academic outcomes. The findings indicated both direct and mediated effects among risk factors related to school adjustment.

The results provided support for the relationships in the proposed model (Figure 1) showing that the students’ perceived peer nonsupport mediates the relationship between peer victimization and school attachment. In addition, a path is added into the model as
suggested by the modification indices. In the revised model (Figure 2), low levels of school attachment in turn had a negative relationship with academic achievement, which was largely mediated by inattentive behaviors at school. This model linked several significant risk factors from the literature and illustrated the structure through which peer victimization may impact students' academic performance. The results also identified the importance of investigating the child's perception about the peer victimization experience. The nonsignificance of the direct correlation coefficient between peer victimization and academic achievement for males suggests that their interpretations and attributions about their victimization experience was the primary contributor to their school maladjustment.

The results also indicated that the model fit equally well for males as for females. This suggests that the magnitudes of the relationships among the variables are the same across gender. Previous studies have generally found differences in the prevalence of peer victimization and that females engage in bullying less frequently than males do and are less frequently victimized (Melton et al., 1998; Nansel et al., 2001; Whitney & Smith, 1993). When investigating types of aggression engaged in, Björkqvist (1994) found that females tend to use more indirect ways of aggression in comparison to males. These results provide additional information to the research that suggests that the influence of peer victimization follows a similar path for males as for females.

Given the results of this study, it is important to note some limitations. The peer victimization is a single item measure and only addresses an overt aspect of peer victimization. Other measures of aggression and peer victimization, such as subtle exclusion, that have also been found prevalent in bullying situations were not available (Crick & Bigbee, 1998; Crick & Grotzer, 1996). The potential effects of other types of aggression on students' self-perceptions, mental health, and academic achievement are not addressed in this study. It is also important to note that the reliability of these data is limited by the accuracy of the respondents' self-report. Assessing multiple types of bullying and using multiple methods for data collection in addition to self-reports would have strengthened the overall analysis. Causal inferences from these results should be interpreted with caution since the data are cross-sectional and correlational in nature. In fact, the relationships between the variables are likely to be bidirectional. For example, while a directional path was specified from peer victimization to perceived peer nonsupport, other studies have found that victims in bullying incidents tend to be rejected or have few friends among peers (Hodges & Perry, 1999; Salminen, Huttunen, & Lagerspetz, 1997). Children with attention deficit and hyperactivity disorder often experience peer peer relations and negative treatment by peers (Stormont, 2001). Multiple reciprocal relationships may be operating in the process, and these multiple relationships may result in chronic peer victimization for certain students. The time ordering of the data limits this study from exploring these important relationships. Additional longitudinal research is needed to disentangle reciprocal influences of multiple factors to investigate causal propositions regarding the relationships between peer victimization, perceived peer nonsupport, and children’s academic performance.

Despite these limitations, it is apparent from the results that the negative impact of peer victimization is mediated by perception of peer nonsupport. These findings can serve as a nucleus for the development of prevention and intervention programs. Previous studies have suggested that peers often laugh at the victims in bullying incidents or stand by without providing any physical assistance or emotional support (Craig & Pepler, 1995;
Salmivalli, Lagerspetz, Björqvist, Österman, & Kaukiainen, 1996). This type of activity magnifies the victims' attribution that they are not welcomed and accepted by the peer group. Interventions may reduce the negative consequences of peer victimization experience by supporting stronger peer relationships and promoting stronger sense of inclusion and peer acceptance at school. This approach is also desirable because studies have found that friendship is a significant protective factor for not being bullied initially (Hodges, Boivin, Vitaro, & Bukowski, 1999; Boulton, Trauman, Chau, Whitehand, & Amata, 1999). These results have practical implications for educators. Since students’ academic achievement can be affected indirectly by peer victimization, more preventive intervention programs should be implemented to prevent bullying incidents and provide students with a safe environment as a prerequisite for social skill development and educational achievement.

The implementation of preventive intervention programs that focus on victimization reduction, peer acceptance, and inclusiveness is one method for addressing bullying behaviors. Another important step is the development and implementation of interventions with a primary focus of ameliorating peer victimization using a community ecological-oriented perspective (Olweus, 1993). This perspective requires the mobilization of all constituents of the school community (e.g., students, teachers, parents, staff). This school-wide approach should target different levels within the school environment (e.g., school, individual classrooms, students, playground). The comprehensive nature of such an antibullying preventive intervention program should promote clarity and consistency of school rules, promote consistency of enforcement, increase awareness of the problem, promote ownership among school constituents, and target multiple levels (Olweus, Limber, & Mihalic, 1999).

Several promising antibullying interventions have been implemented in Norway, the United Kingdom, and Australia (Olweus, 1993; Rigby, 1996; Smith & Sharp, 1994). Results have been mixed from these empirically based interventions. One example of an evidence-based antibullying program with strong potential for replication across various countries and school districts is the Bullying Prevention Program (BPP) developed in Norway by Olweus and his colleagues (1999). BPP is a universal intervention for the reduction and prevention of bully/victim problems utilizing the community ecological-oriented perspective by addressing peer victimization at the school, classroom, and individual levels. BPP results showed reduction in bullying behaviors and peer victimization and overall improvements in school climate (Olweus, 1993; Olweus, Limber, & Mihalic, 1999).

Given that BPP has shown the most promise for reducing bullying behavior to date, few empirically based programs have been tested and replicated. The implementation of antibullying programs is just starting in the United States. In launching a national violence prevention initiative, the Center for the Study and Prevention of Violence (CSPV) at the University of Colorado has included BPP as one of the 11 model programs for reducing adolescent aggression. The work of CSPV will support BPP for large-scale implementations and replication in U.S. schools. Bullying and peer victimization has a long history in U.S. schools. The developing research literature will continue to address this youth problem behavior. The prevalence and epidemiological aspects are much further along than prevention and intervention programming. The article briefly discusses the most promising prevention intervention program for reducing bullying behaviors. More development and implementation, and testing of preventive intervention programs are needed in schools for positive outcomes and greater sustainability.
REFERENCES


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