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Suicidal Ideation and School Bullying Experiences After Controlling for Depression and Delinquency

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 A B S T R A C T

Purpose: This cross-sectional study examines differences in the frequency of suicidal ideation and suicidal behaviors across a group of verbal bullies, bully-victims, victims, physically aggressive bullies, and students not involved in bullying.

Methods: A large sample of middle school students (n = 661; fifth through eighth grades; ages 10–13 years of age) completed a pencil-and-paper survey that included the University of Illinois Bully, Fight, and Victim scales. Students also self-reported how often they had thought of killing themselves or deliberately hurting themselves in past 6 months, and provided information about delinquent behaviors and symptoms of depression and anxiety.

Results: We used cluster analysis to create bully-victim subtypes: uninvolved (n = 357), victims (n = 110), verbal bullies (n = 114), bully-victims (n = 29), and physically aggressive bullies (n = 42). Approximately 32%–38% of verbal bullies and victims, 60% of bully-victims, and 43% of physically aggressive bullies reported suicidal ideation, compared with 12% of uninvolved youth. Similarly, 24%–28% of verbal bullies and victims, 44% of bully-victims, and 35% of physically aggressive bullies reported deliberately trying to hurt or kill themselves, compared with 8% of uninvolved youth. Females in the bully-victim subtype reported particularly elevated suicidal ideation and behavior. After controlling for delinquency and depression, differences in suicidal thoughts and behaviors emerged only between uninvolved youth and the victim and bully-victim groups, but these differences were minimal.

Conclusions: Findings highlight that at a bivariate level, involvement in bullying in any capacity is linked to increased risk for suicidal ideation and behavior, and echoes previous literature documenting particularly strong mental health implications for bully-victims. Furthermore, this study points to the importance of considering delinquency and depression in conjunction with suicidal ideation and behaviors.

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Bullying is a significant public health problem associated with numerous short- and long-term psychological effects on youth. Of particular importance is the documented association

among bullying, peer victimization, and internalizing symptoms. Most notably, bullies, victims, and bully-victims (report being a victim and a bully perpetrator) involvement is related to depression [1–3] and, at the extreme end of the spectrum, suicidal thoughts and behaviors [2,4]. With adolescence already a period during which suicide represents a leading cause of death [5], it is critical to understand which factors contribute to increased risk for suicidal ideation and suicide attempts to ensure that these factors are addressed in prevention and intervention approaches.

Among children and adolescents, bullying is a common phenomenon, with students assuming roles such as bully, victim,

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bully-victim, and bystander [6]. Findings from a nationally representative sample indicated that among sixth to 10th graders, 13% had bullied others, 11% had been bullied, and 6% had both bullied others and been bullied [7]. These different roles have been linked to distinct patterns of adjustment. In the most comprehensive meta-analysis of the correlates of bully involvement among children and adolescents, Cook and colleagues [8] found overlapping and distinct individual correlates across 153 studies of bullies, victims, and bully-victims. Overall, bullies have elevated externalizing behaviors (e.g., defiant, disruptive behaviors), social competence and academic challenges, and negative attitudes and self-cognitions. Victims have elevated internalizing behaviors (e.g., depression, anxiety, withdrawal, avoidance), negative self-related cognitions, and lower social skills. In addition, compared with uninvolved youth, bully-victims have elevated comorbid internalizing and externalizing behaviors and negative attitudes about themselves. The extent to which bullying involvement is associated with suicidal ideation and attempts in particular has become a salient topic recently, garnering significant media attention and spurring researchers to conduct studies to better understand the link. Thus, this study examined how the type of involvement in bullying (bully, bully-victim, and victim) explains differences in suicidal ideation and behavior among a young sample of early adolescents.

Most extant research indicates that involvement in bullying in any capacity is associated with higher rates of suicidal ideation and behaviors, with cross-sectional studies finding increased odds ratios of 1.4–10.0 [9]. Most research on the links between bully/peer victimization and suicidal behaviors has been conducted outside the United States, but a 2009 paper examined the association between peer victimization and suicidal ideation and attempts across three nationally representative samples of United States adolescents [4]. Youth victimized by their peers were 2.4 times more likely to report suicidal ideation and 3.3 times more likely to report a suicide attempt than youth who reported not being bullied.

Although there is fairly consistent evidence that regardless of the type of bullying involvement there is increased risk for suicide for those involved in bullying, evidence about which bullying subtype is at greatest risk is more mixed. For instance, some studies have shown that the association between suicidal ideation and bullying is stronger for targets of bullying than perpetrators [10]. However, another study found that after controlling for depression, the association between bullying and suicidal ideation was strongest for bully perpetrators [1]. Similarly, whereas multiple studies have found that bully-victims report more suicidal ideation and behaviors than uninvolved youth, victims, or perpetrators [11], other studies do not support this pattern. For instance, Herba and colleagues [12] found no differences in levels of suicidal ideation between bully-victims and uninvolved youth.

Similarly mixed findings exist with regard to whether the association between bullying and suicidal ideation varies by sex. Klomek and colleagues [13] found that bullying victimization at age 8 was associated with later suicide attempts and completed suicides after controlling for depression and conduct problems, but this was the case only for girls. The authors speculated that this sex difference might have emerged given that girls are more likely to experience relational victimization, whereas boys are more likely to experience physical victimization, and relational victimization might have a more long-lasting impact. On the other hand, other studies have found that boys might be at

greater risk. For instance, male bullies in particular showed higher than average levels of suicidal ideation in one study in a normative population from South Australia [10] and in a sample of Italian youth seeking psychological help, suicidal ideation was predicted by being bullied at school only for boys [14].

The present study adds to the literature through its examination of the association between bullying involvement and suicidal ideation and behavior in an ethnically diverse sample of young adolescents from the United States. These adolescents are in the fifth through eighth grades, a time when bullying peaks, yet few studies have examined such a young sample. In addition, this study seeks to clarify differences in suicidal ideation by bullying role (i.e., verbal bully, physically aggressive bully, victim, bully-victim, uninvolved), and considers the influence of sex on these associations. Based on previous studies highlighting the importance of considering covariates, this investigation also examines whether delinquency and depression affect the association between bullying involvement and suicidal ideation and behavior.

Method

Participants

Participants were middle school students in grades 5–8 from a rural Midwestern town. We sent parental permission forms to all parents of students registered at the middle school approximately 2 weeks before data collection and asked parents to sign and return the consent forms only if they did not want their child to participate in the study. The university institutional review board, school superintendent, and school principal approved this study. Of the 709 students registered at the school, 661 were granted permission by their parents to participate and were present on the day of data collection, which yielded a response rate of 93%. Of the 661 students in the study, 49.0% were boys ($n = 324$), 49.8% were girls ($n = 329$), and 1.2% ($n = 8$) did not report. The sample was relatively evenly distributed across the four grade levels, with 20.9% ($n = 138$) fifth graders, 27.1% ($n = 179$) sixth graders, 26.5% ($n = 175$) seventh graders, 24.8% ($n = 164$) eighth graders, and 5 individuals (8%) who did not indicate a grade level. Ages ranged from 10 to 13 years (median = 12.3 years). Racial composition of the sample was 58.1% Caucasian, 34.5% Hispanic, 3.3% biracial, .6% black, .6% Native American, and .5% Asian-American; 2.4% did not report. The community was a small Midwestern community with a large migrant population. According to information provided by the state board of education, 30.6% of students school-wide resided in “low-income” homes.

Procedure

Participants completed a survey that included demographic variables and scales assessing bullying, fighting, victimization, attributional style, coping style, negative affective reactions to a vignette depicting bullying, and general psychological adjustment. We administered surveys to groups ranging in size from 15 to 25 students during a 45-minute homeroom period. Students sat such that they were not close to one another. They were informed that the researchers were interested in knowing what they thought and felt about their school and peers. They received a pencil and highlighter for their participation and were asked to give written consent by signing their name on the survey coversheet. Students were informed they could stop at

any point and withdraw from participating without penalty. The researchers explained that student names would be converted to numbers as soon as the surveys were collected, and that no teachers or parents would ever have access to their answers. Students were thus assured of their anonymity and confidentiality. A trained survey administrator read the survey aloud while a second trained administrator monitored reading speed and students' progress. Students were allowed to ask questions if they had difficulty understanding any words. All students were provided with information about appropriate websites and hotlines to gain support or additional information about suicide immediately after the survey on a card that resembled a business card.

Measures

Demographic variables. We elicited self-reports of sex, grade, and race to determine demographic characteristics of the students.

Self-reported bullying, fighting, and victimization. We used the 18-item University of Illinois Aggression Scales [15] to assess the occurrence of bullying behavior, fighting, and victimization by peers. A principal axis factor analysis of the 18 items with a sample of 422 predominantly Caucasian middle school students supported a three-factor solution or three subscales [15].

The first, the Bullying scale, contains nine items specifying bullying behaviors including teasing, social exclusion, name calling, and rumor spreading (e.g., "I teased other students" and "I upset other students for the fun of it"). Students are asked how often in the past 30 days they did the following to other students at school: teased other students, upset other students for the fun of it, excluded others from their group of friends, helped harass other students, and threatened to hit or hurt another student. To capture the repeated nature of bullying, response options include 0 (never), 1 (one or two times), 2 (three or four times), 3 (five or six times), and 4 (seven or more times). Higher scores indicate higher self-reported verbal bullying. Factor loadings in the development sample for the nine items ranged from .52 through .75 and accounted for 31% of the variance. Espelage and Holt [15] found a Cronbach alpha coefficient of .87, and the Bullying scale was found to be moderately correlated ($r = .65$; 37% overlap) with the Youth Self-Report Aggression scale [16], which suggests convergent validity, but also that the scale does not measure pure aggression. Concurrent validity of this scale was established with significant correlations with peer nominations of bullying [17]. This scale converged with peer nomination data. More specifically, students who reported the highest level of bully perpetration on the scale received significantly more bully nominations from their peers than students who did not report high levels of bully perpetration. The Bullying scale was not significantly correlated with the Victimization Scale (described below; $r = .12$), which provides evidence of discriminant validity. For this sample, we obtained a Cronbach alpha coefficient of .84.

The second subscale, the Fighting scale, contains five items specifying physical fighting behavior (e.g., "I got in a physical fight" and "I fought students I could easily beat"). Students were asked how often they engaged in these behaviors in the past 30 days. Higher scores indicate more self-reported fighting behavior. To capture the repeated nature of fighting, response options include 0 (never), 1 (one or two times), 2 (three or four times), 3 (five or six times), and 4 (seven or more times). Factor loadings in the development sample for the Fighting scale ranged

from .50 through .82 for the five items and accounted for 12% of the variance. Espelage and Holt [15] found a Cronbach alpha coefficient of .83. The Fighting scale also had a low correlation with the Victimization scale ($r = .21$), which indicates discriminant validity, and was moderately correlated with the Bullying scale ($r = .58$; 34% overlap), evidence of convergent validity, but that also suggests that they are indeed distinct constructs. In the present study, the Cronbach alpha coefficient was .81.

The third subscale, the Victimization scale, contains four items assessing victimization by peers (e.g., "Other students called me names," and "I got hit and pushed by other students"). Higher scores indicate more self-reported victimization. To capture the repeated nature of victimization, response options include 0 (never), 1 (one or two times), 2 (three or four times), 3 (five or six times), and 4 (seven or more times). Factor loadings ranged from .55 through .92 for these four items, which accounted for 6% of the variance, and we obtained a Cronbach alpha coefficient of .88 [15]. In the present study, the Cronbach alpha coefficient was .80 for this scale.

Youth Self-report suicidal ideation. Two items from the Youth Self-report [16] assessed students' suicidal ideation and history of self-injury. We asked students how true each statement is or was in the past 6 months: (1) "I deliberately try to hurt or kill myself;" or (2) "I think about killing myself." We provided them with a 3-point scale: 0 ("not true"), 1 ("somewhat or sometimes true"), and 2 ("very true or often true"). These two items were moderately correlated ($r = .61$) and we combined them into one composite score and treated them as the dependent variable in all analyses.

Covariates: depression and delinquency. We used 13 items from the Youth Self-report [16] Anxiety and Depression scale to assess self-reported feelings of anxiety and depression (e.g., "I feel lonely," "I am nervous or tense"). The suicidal items were deleted for the purposes of these analyses. We assessed self-reported delinquency with the 10-item Youth Self-report [16] delinquency scale (e.g., lie or cheat, cut classes, use alcohol, run away, steal). Participants are presented with the items and asked to indicate the degree to which particular statements apply to them. Response options range from 0 ("not true") through 2 ("often true or very true"). We found a Cronbach alpha coefficient of .87 for the depression scale and a Cronbach alpha coefficient of .78 for the delinquency scale.

Results

Cluster analysis to identify bully-victim subtypes

We used *K*-means cluster analysis to create bully-victim subtypes to reflect the importance of considering that many students have been victimized and have engaged in aggressive and bullying behavior. Based on the extant literature [15], we examined both a four-factor and five-factor solution using participants' scores on the University of Illinois Aggression Scales as input variables. The five-factor solution was more interpretable and was consistent with the study hypotheses, which were based on groups that have emerged in the previous literature. The first group, uninvolved ($n = 366$; 56%), consisted of students scoring 1 standard deviation (SD) below the mean on each of the three scales, and included 62% girls. The second group, victims ($n = 110$; 17%), consisted of students scoring 1 SD above the mean on the Victimization scale but 1 SD below the mean on the Bullying

and Fighting scales, and included 43% girls. The third group, verbal bullies ($n = 114$; 17%), had scores >1 SD above the mean on the Bullying scale with no elevations on the Victimization or Fighting scale (42% girls). The fourth group, bully-victims ($n = 29$; 4%), were those with scores on the bullying and victimization scales 1 SD above the scale means (27% girls). The fifth group, physically aggressive bullies ($n = 42$; 6%), were students with scores 1 SD above the mean on the Fighting scale, moderate scores on the Bullying scale, and low mean scores on the Victimization scale, and included 17% girls.

As shown in Table 1, significant differences emerged across bully-victim subtypes on both suicidal ideation ($\chi^2 = 80.87$; $p < .001$) and suicidal behavior ($\chi^2 = 53.89$; $p < .001$). Approximately 32%–38% of verbal bullies and victims, 60% of bully-victims, and 43% of physically aggressive bullies reported suicidal ideation, compared with 12% of uninvolved youth. Approximately 24%–28% of verbal bullies and victims, 44% of bully-victims, and 35% of physically aggressive bullies reported deliberately trying to hurt or kill themselves, compared with 8% of uninvolved youth. Girls in the bully-victim subtype reported particularly elevated ideation and behavior.

To examine how suicidal behaviors varied by bully-cluster subtype and sex, we first calculated an analysis of variance with bully-cluster and sex as two independent variables and the suicidal behaviors composite scale as the dependent variable. Univariate analyses indicated that bully-victim subtypes differed on this composite scale ($F = 9.652$; $p < .001$; $\eta^2 = .16$) (Table 2). Post hoc comparisons indicated that uninvolved students reported significantly less suicidal behaviors than youth in other clusters; verbal bullies reported less ideation than victims, but victims did not differ from physically aggressive bullies and physically aggressive bullies and verbal bullies did not differ. However, differences emerged by gender and gender by cluster type. Girls reported greater suicidal behavior ($F = 26.70$; $p < .001$; $\eta^2 = .04$) (Table 2) than boys (Table 2). An interaction of bully-victim by sex was significant and examination of the means indicated that the eight girls in the bully-victim subtype reported the highest mean level of suicidal behaviors ($F = 5.29$; $p < .001$; $\eta^2 = .03$) (Table 2). This effect size was small.

Next, we calculated an analysis of covariance with bully-cluster and sex as two independent variables and the suicidal

Table 1

Percentages of responses to Youth Self-report suicidal ideation/behavior items, by bully-cluster subtypes

	I think about killing myself.			χ^2
	Not true	Somewhat true	Very true	
Uninvolved ($n = 366$)	88.2%	9.9%	2.0%	80.87
Victims ($n = 110$)	61.5%	23.9%	14.7%	
Bully-victims ($n = 29$)	40.0%	36.7%	23.3%	
Verbal bullies ($n = 114$)	68.1%	20.4%	11.5%	
Physically aggressive bullies ($n = 42$)	57.1%	23.8%	19.0%	
	I deliberately try to hurt or kill myself.			χ^2
	Not true	Somewhat true	Very true	
Uninvolved ($n = 366$)	91.3%	7.3%	1.4%	53.89
Victims ($n = 110$)	71.8%	20.9%	7.3%	
Bully-victims ($n = 29$)	56.7%	26.7%	16.7%	
Verbal bullies ($n = 114$)	77.2%	17.5%	5.3%	
Physically aggressive bullies ($n = 42$)	64.3%	23.8%	11.9%	

Table 2

Analysis of variance: cluster differences in suicidal behaviors by cluster and sex

	Suicidal behaviors			F	η^2
	Males	Females	Effect		
Uninvolved ($n = 366$)	.09 (.26)	.14 (.33)	Gender	26.70 ^a	.04
Victims ($n = 110$)	.38 (.59)	.52 (.60)	Cluster	29.65 ^a	.16
Bully-victims ($n = 29$)	.52 (.65)	1.25 (.65)	Gender and cluster	5.29 ^a	.03
Verbal bullies ($n = 114$)	.19 (.39)	.58 (.70)			
Physically aggressive bullies ($n = 42$)	.51 (.71)	.79 (.76)			

^a $p < .001$.

behaviors composite scale as the dependent variable, with self-reported depression and delinquency scale scores entered as covariates. Results indicated that bully-victim subtypes differed slightly on the composite suicidal behaviors scale ($F = 2.54$; $p < .001$; $\eta^2 = .02$) (Table 3). This main effect was significantly less than the effect size for cluster subtype when depression and delinquency were not entered as covariates. Post hoc comparisons of estimated marginal means of suicidal behaviors indicated that uninvolved students reported significantly less suicidal behaviors than youth in the victim and bully-victim clusters, but did not differ from verbally or physically aggressive bullies. This finding suggests that delinquency and depression partially explained differences in suicidal behaviors between uninvolved youth and bullies. Furthermore, bully-victims continued to report greater suicidal behaviors than verbally aggressive bullies. However, differences emerged by gender and gender by cluster type. Girls reported greater suicidal behavior ($F = 6.60$; $p < .05$; $\eta^2 = .01$) (Table 3) than boys, even after controlling for depression and delinquency, even though the effect was much lower than when covariates were not in the model (Table 3). An interaction of bully-victim subtype by sex was significant, but the effect was minimal ($F = 2.64$; $p < .05$; $\eta^2 = .02$) (Table 2).

Discussion

This study further clarifies associations between bullying involvement subtypes and suicidal thoughts and behaviors, with an emphasis on sex differences. Findings echo the broader literature on bullying involvement and psychological functioning, highlighting that bully-victims are indeed the highest risk group for a number of adverse outcomes [8,12]. Specifically, results indicated that 60% of bully-victims had thought about killing themselves in the past 6 months, and 43% of bully-victims reported that they had deliberately tried to hurt or kill

Table 3

Analysis of covariance: cluster differences in suicidal behaviors, by cluster and sex, controlling for depression and delinquency

	Suicidal behaviors				
	SS	MS	F	p	η^2
Covariate: Youth Self-report Depression	19.93	19.93	126.50	.00	.17
Covariate: Youth Self-report Delinquency	8.05	8.05	51.08	.00	.08
Cluster	1.60	.40	2.54	.04	.02
Gender	1.04	1.04	6.60	.01	.01
Cluster by gender	1.66	.42	2.64	.03	.02

SS = sum of squares; MS = mean of squares.

themselves within this same period. These percentages are in stark contrast to the roughly 10% of uninvolved youth who reported these same behaviors. In addition, girls classified as bully-victims were at greatest risk for suicidal ideation and behavior, which indicates that targeted prevention and interventions strategies should be sure to address this population. Importantly, once delinquency and depression were considered, uninvolved youth differed only from victims and bully-victims, which suggests that delinquency and depression partially explain the bivariate differences found between uninvolved youth and both verbal and physical bullies.

Unique to this study was its consideration of physically aggressive bullies, who have received limited attention in investigations focused on suicide. According to results, physically aggressive bullies also report substantial suicidal thoughts and behaviors. In particular, 43% of physically aggressive bullies had thought about killing themselves in the prior 6 months, and 36% noted that they had deliberately tried to hurt or kill themselves, which reflects rates close to those of bully-victims. This might be caused in part by the tendency for physically aggressive bullies to have high rates of comorbid symptoms such as impulsivity and anger [18], which might be contributing to driving the suicidal behaviors.

Future research should further clarify how particular manifestations of bullying (e.g., relational, cyber bullying) relate to suicidal ideation. Some research suggests that cyber bullying has relations to suicidal thoughts and behaviors similar to traditional in-person bullying [19]. Other studies have found stronger associations between indirect bullying victimization and suicidal ideation, but only at the bivariate level [20]. After applying statistical controls, however, there only remained a link between direct victimization and suicidal ideation.

With respect to prevention and intervention efforts, it is important to keep in mind the wide range of factors that might contribute to suicidal thoughts and behaviors among youth. Considering bullying experiences isolated from other experiences explains a relatively small amount of variation in suicidal ideation even when the association between these variables is significant [19]. Accordingly, suicide risk will be more accurately predicted when considering the entirety of risk and protective factors for a particular youth. For instance, Adelman [21] found that as risk factors increased from 0 to 5, suicidal behavior scores doubled, and as protective factors rose from 0 to 5, suicidal behaviors dropped by a third.

Nonetheless, understanding the basic association between bullying involvement and suicidal ideation and behaviors is a key step toward understanding two critical public health issues facing youth today. These results suggest that school personnel should assess depression and suicidal ideation and behaviors when students are involved in bullying situations, especially when students are targets or physically aggressive. Nevertheless, it is not enough for school personnel to be hypervigilant to depression among students involved in bullying situations. Parents, pediatricians, coaches, and community leaders need to ask about experiences with peers and to assess for symptoms of depression and ask directly about suicidal ideation. More

specifically, depression and suicide threat assessment should be standard practice for bully investigations at schools and pediatrician visits. Any indication of the presence of depression, suicidal ideation, or acting out behaviors should be noted; an intervention plan documented; and referral services sought; and continuity of care should be the priority. School personnel and pediatricians should communicate with individuals and agencies that provide support services by obtaining a release of information from parents and clinicians.

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