



Adolescent health brief

Cyber and Traditional Bullying: Differential Association With Depression

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A B S T R A C T

Purpose: The study compared levels of depression among bullies, victims, and bully-victims of traditional (physical, verbal, and relational) and cyber bullying that is a relatively new form of bullying. The study also examined the association between depression and frequency of involvement in each form of bullying.

Methods: A U.S. nationally representative sample of students in grades 6–10 (N = 7,313) completed the bullying and depression items in the Health Behavior in School-Aged Children 2005 Survey.

Results: Depression was associated with each of the four forms of bullying. Cyber victims reported higher depression than bullies or bully-victims, a result not observed in other forms of bullying. For physical, verbal, and relational bullies, the frequently-involved group of victims and bully victims reported a significantly higher level of depression than the corresponding occasionally involved group. For cyber bullying, differences were found only between the occasional and frequent victims.

Conclusion: Results indicated the importance of further study of cyber bullying because its association with depression was distinct from traditional forms of bullying.

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Bullying is a pervasive problem among children and adolescents, and may take various forms including physical (e.g. hitting), verbal (e.g. name-calling), relational (e.g. social isolation), or cyber which occurs in cyber space [1,2]. Previous studies have consistently shown that depression is associated with exposure to bullying [3]. Bully-victims, a group of individuals who are both bullies and victims, are a distinct group that is at the highest risk for psychosocial problems [4]. However, few studies have examined the association between depression and different forms of bullying [5]. In addition, because research on cyber bullying is still in its early stage, little is known about how the level of depression differs in cyber bullies, victims, and bully-victims. The following are the aims of the current study: (1) examining the association between depression and frequency of involve-

ment in physical, verbal, relational, and cyber forms of bullying and victimization; and (2) comparing levels of depression among bullies, victims, and bully-victims of each form.

Methods

Sample and procedure

A U.S. nationally-representative sample of adolescents in grade 6 through 10 was assessed in the 2005–2006 Health Behavior in School-aged Children study, using a three-stage stratified design [6]. Youth assent and parental consent were obtained as required by participating school districts. The study protocol was reviewed and approved by the Institutional Review Board of the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development.

Among the 7,508 adolescents who completed the anonymous paper survey, 195 (2.6%) were excluded because of missing information. The analytical sample (N = 7,313) consisted of 48.0% boys, 42.3% white Americans, 18.5% African Americans, and

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26.4% Hispanic Americans. The mean age of the sample was 14.2 years (SD = 1.42).

Measures

Socio-demographic variables

Measures included gender, grade, race/ethnicity (white, African American, Hispanic, and others), and family affluence [7].

Depression

The following six items were used to assess depressive feelings and behaviors in the previous 30 days [8]: (1) very sad; (2) grouchy, irritable, or in a bad mood; (3) hopeless about the future; (4) felt like not eating or eating more than usual; (5) slept a lot more or a lot less than usual; and (6) had difficulty concentrating on their school work. Responses were coded 1 to 5: never, seldom, sometimes, often, and always. This scale showed desirable reliability (Cronbach's alpha = .80).

Bullying/victimization

The revised Olweus bully/victim questionnaire [9] was used to measure physical (one item, e.g. hitting), verbal (three items, e.g. calling mean name), and relational bullying (two items, i.e. social isolation and spreading false rumors), with added items measuring cyber bullying (two items, i.e. using computers or using cell phones) [3]. For each item, two parallel questions were asked for frequency of bullying (bullying others) and victimization (being bullied) in the past couple of months at school. Following the recommendations of previous studies, the cutoff point was "two or three times a month" for frequent involvement and "only once or twice" for occasional involvement. Co-occurrence of bullying and victimization were examined, generating eight mutually exclusive groups: (1) noninvolved, (2) occasional bullies, (3) occasional victims, (4) occasional bully-victims, (5) frequent bullies, (6) frequent victims, (7) frequent bully-victims, and (8) mixed frequency (individuals reporting both bullying and victimization but with different frequency levels).

Statistical analysis

For each form of bullying, a regression analysis was conducted with depression as the outcome, the categorized mea-

sure of bullying and victimization as predictor, and socio-demographic variables as covariates. To test whether the association between depression and bullying differed by gender, a gender by bullying interaction term was also included. Two sets of contrasts were tested in each regression model, with one comparing frequency levels and the other comparing bullies, victims, and bully-victims (Figure 1). All analyses were conducted using STATA, version 9 [10] and an alpha of .05 as the significance level.

Results

Prevalence rates of bullying and victimization

The percentages of those never, occasionally, or frequently involved in bullying and victimization, as well as the percentages in the eight bullying/victimization groups are reported in Table 1. The prevalence of involvement in physical, verbal, relational, and cyber bullying was 21.2%, 53.7%, 51.6%, and 13.8%, respectively.

Results of regression analyses

In comparison with the noninvolved group, adolescents with any involvement in bullying or victimization reported higher levels of depression across all four forms of bullying. The interaction of gender and involvement in bullying was not significant. The R² of the four regression models were .115, .170, .189, and .107 for physical, verbal, relational, and cyber bullying, respectively.

Two sets of planned comparisons were conducted (Figure 1). For physical, verbal, and relational bullying, the frequently-involved group reported significantly higher level of depression than the corresponding occasionally-involved group. For cyber bullying, differences were found only between occasional and frequent victims. For verbal and relational bullying, victims and bully-victims reported higher level of depression than bullies (both occasional and frequent groups). For cyber bullying, frequent victims reported significantly higher level of depression than frequent bullies. In addition, the difference between frequent cyber victims and frequent cyber bully-victims approached significance (*p* < .10).

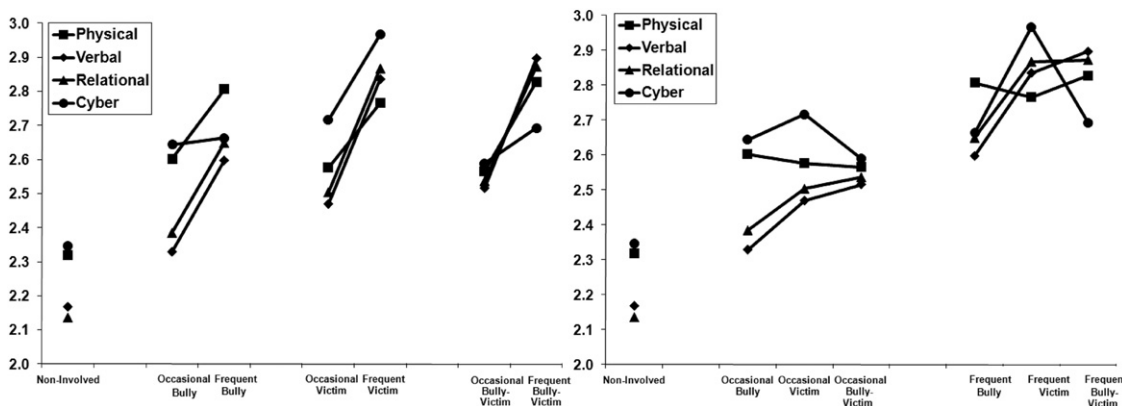


Figure 1. Adjusted means of depression: two sets of comparisons. Note: Means were adjusted for gender, grade, race/ethnicity, and family affluence. The first set compares occasionally involved and frequently involved within bullies, victims, and bully-victims (the graph on the left). The second set compares bullies, victims, and bully-victims within occasionally involved and frequently involved groups (the graph on the right). On the basis of the results of previous studies described in the introduction, the following hypotheses were directional: (1) the frequently involved report higher level of depression than the occasionally involved; and (2) victims and bully-victims report higher level of depression than bullies. The mixed group was not included in the mean contrasts because frequency levels of bullying and victimization in this group were inconsistent.

Table 1
Frequencies and percentages^a of bullying or/and victimization in physical, verbal, relational, and cyber forms
(n = 7,313)

Categories	Physical n (%)	Verbal n (%)	Relational n (%)	Cyber n (%)
Bullying				
Never	6,264 (86.5)	4,581 (62.5)	5,293 (72.4)	6,695 (91.5)
Occasional	608 (8.0)	1,758 (24.4)	1,317 (18.2)	298 (4.2)
Frequent	441 (5.5)	974 (13.2)	703 (9.1)	320 (4.3)
Victimization				
Never	6,286 (87.0)	4,521 (63.4)	4,177 (58.9)	6,574 (90.0)
Occasional	546 (7.3)	1,457 (20.0)	1,786 (24.4)	392 (5.6)
Frequent	481 (5.8)	1,335 (16.7)	1,350 (16.7)	347 (4.3)
Bullying/victimization				
Non-involved	5,675 (78.8)	3,321 (46.3)	3,434 (48.4)	6,299 (86.2)
Occasional bullies	360 (4.8)	827 (11.9)	493 (6.9)	147 (2.0)
Occasional victims	342 (4.6)	717 (9.5)	1,136 (15.1)	248 (3.5)
Occasional bully-victims	162 (2.1)	578 (8.1)	510 (7.3)	108 (1.6)
Frequent bullies	251 (3.4)	373 (5.2)	250 (3.6)	128 (1.9)
Frequent victims	247 (3.1)	543 (6.7)	723 (9.1)	148 (1.8)
Frequent bully-victims	148 (1.6)	439 (5.5)	313 (3.6)	156 (1.9)
Mixed ^b	128 (1.6)	515 (6.9)	454 (5.9)	79 (1.1)

Note. ^a The percentages were calculated by adjusting for the sample design, including stratification (by census region and grade level), clustering (by school districts), and weighting (African-American and Hispanic adolescents were oversampled).

^b The Mixed group included individuals reporting both bullying and victimization but with different frequency levels. The purpose of including this group was to obtain a valid percentage for each of the above groups.

Discussion

This study examined associations between depression and four forms of bullying: three traditional (physical, verbal, and relational) and the fourth a relatively new form (cyber). For traditional bullying, the associations between depression and frequency of involvement within bullies, victims, and bully-victims were consistent with previous studies [5]. In contrast, for cyber bullying these associations were not found for bullies or bully-victims. In addition, the comparisons of bullies, victims, and bully-victims showed different results across forms of bullying. Notably, cyber victims reported higher depression than bullies or bully-victims, which was not found in any other form of bullying. This may be explained by some distinct characteristics of cyber bullying [1]. For example, unlike traditional victims, cyber victims may experience an anonymous attacker who instantly disperses fabricated photos throughout a large social network; as such, cyber victims may be more likely to feel isolated, dehumanized, or helpless at the time of the attack [1]. Results indicate the importance of further study of cyber bullying because its association with depression is distinct from traditional forms of bullying.

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