

Bullying, Depression, and Suicide Risk in a Pediatric Primary Care Sample

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Abstract. *Background:* Suicide is a serious public health concern for US youth. Research has established an association between bullying and suicide risk. However, several questions remain regarding this relationship. *Aims:* The present study examined (a) whether experiences of verbal, physical, and cyber bullying were uniquely associated with general suicide risk; (b) whether each specific form of bullying was related to suicide attempt; and (c) whether depression moderated the relationship between each type of bullying and suicide risk. *Method:* The sample included medical records of 5,429 youth screened in primary care when providers had mental health concerns. Patients were screened using the Behavioral Health Screen (BHS), which assessed a range of mental health problems and behaviors, including bullying, depression, and suicide. *Results:* All types of bullying were associated with suicide risk, but verbal bullying was uniquely associated with suicide attempt. Depression significantly moderated the relationship between each type of bullying and suicide risk. *Conclusion:* The study's limitations include the use of cross-sectional and self-data reports. When medical providers evaluate suicide risk, bullying should be considered as a possible precipitant, especially if the patient is depressed. Verbal bullying may be particularly important in understanding severity of suicide risk.

Keywords: bullying, depression, suicide risk, primary care, adolescents

Suicide is the third leading cause of death among US youth (Centers for Disease Control and Prevention [CDC], 2012), taking the lives of approximately 4,600 adolescents each year. Even more youth (16%) report seriously considering suicide, and 8% report a suicide attempt (CDC, 2012). Depression is the most commonly studied psychiatric risk factor for suicide (Brent et al., 1993; Hetrick, Parker, Robinson, Hall, & Vance, 2012). However, only 20–60% of suicidal youth report clinical levels of depression (D'Eramo, Prinstein, Freeman, Grapentine, & Spirito, 2004). Thus, testing other risk factors associated with suicide is warranted.

Attention has turned to bullying as a risk factor for suicide. Bullying is defined as deliberate peer aggression involving an imbalance of power and intent to cause harm (Nansel et al., 2001). One third of teens report involvement in bullying, and 10% of these youth report being victims (Nansel et al., 2001). Bullying is related to a range of mental health problems, including suicide (Copeland, Wolke, Angold, & Costello, 2013; Hinduja & Patchin, 2010; Klomek, Sourander, & Gould, 2011; Kowalski & Limber, 2013; Wang et al., 2012).

Most studies examining the relationship between bullying and suicide risk do not distinguish between types of bullying. However, some research has indicated that verbal harassment, physical aggression, and cyber bullying are related to increased suicide risk (Klomek, Marrocco,

Kleinman, Schonfeld, & Gould, 2008). The present study extends this research by testing unique associations between these types of bullying and suicide risk and attempt, and by exploring whether depression moderates the relationship between bullying and suicide risk. Better understanding the impact of different forms of bullying and their interaction with depression may help medical providers identify youth at highest risk for suicide.

Method

Primary care offices in rural and semi-urban Northeastern Pennsylvania were invited to participate in the study. We interviewed 15 practices and 10 agreed to participate. Practices ranged from sole practitioner offices to federally funded health centers. Practices participated in a suicide prevention project using the Behavioral Health Screen (BHS), a comprehensive, web-based assessment tool, to identify at-risk youth. Patients completed the screener on an electronic device in the waiting or exam room when providers had behavioral health concerns (i.e., indicated screening). Thus, our sample is not an epidemiological sample of all primary care patients. Providers did not record the total number of patients who were asked to complete the screener; however, in qualitative exit inter-

Table 1. Means, standard deviations, and intercorrelations among study variables

Variable	1	2	3	4	5	6	7	8	9	10	11	<i>M</i>	<i>SD</i>
Verbal bullying	–	.43**	.34**	.85**	.37**	.30**	.21**	–.10**	.01	–.02	.00	.30	.54
Physical bullying	–	–	.34**	.66**	.25**	.21**	.16**	–.05**	.08**	.00	.06**	.06	.28
Cyber bullying	–	–	–	.65**	.27**	.23**	.19**	–.02	.04**	–.09**	.01	.07	.28
Cumulative bullying	–	–	–	–	.39**	.32**	.23**	–.10**	.04**	–.04**	.01	.37	.69
Depression scale	–	–	–	–	–	.53**	.38**	.08**	.17**	–.20**	.11**	.92	1.10
Suicide risk scale	–	–	–	–	–	–	.81**	.04**	.09**	–.12**	.02	.42	1.00
Suicide attempt	–	–	–	–	–	–	–	.04**	.10**	–.10**	.04**	.07	.25
Age	–	–	–	–	–	–	–	–	–.10**	–.07**	–.13**	16.77	2.5
Minority	–	–	–	–	–	–	–	–	–	.00	.53**		
Gender	–	–	–	–	–	–	–	–	–	–	–.02		
Ethnicity	–	–	–	–	–	–	–	–	–	–	–		

Note. Ethnicity dummy coded 0 = non-Hispanic, 1 = Hispanic. Gender dummy coded 0 = female, 1 = male. Race dummy coded 0 = minority, 1 = White. ** $p < .01$.

Table 2. Linear regression models for bullying variables association with suicide risk scale

	β (<i>SE</i>)	<i>t</i>	ΔR^2
Verbal bullying	.16(.03)	5.58**	.011
Physical bullying	.15(.05)	2.91**	.002
Cyber bullying	.15(.05)	2.84**	.001
Cumulative bullying	.12(.01)	8.63**	.012

Note. Control variables were entered in the first step of the model (Step 1 $R^2 = .283$). The four bullying variables were added in subsequent steps. ** $p < .01$.

views they reported that very few patients who were asked to complete the screen refused. The sample consisted of 5,429 youth, ages 14–24 years ($M = 16.77$, $SD = 2.5$), and identified as 56.5% White, 56.5% female, and 24.7% Hispanic.

Measures

The BHS assessed 14 domains: demographics, medical, school, family, safety, substance use, sexuality, nutrition/eating, anxiety, depression, suicide, psychosis, trauma/abuse, and bullying. The BHS has been field tested and found to be feasible, acceptable, and psychometrically strong (Bevans, Diamond & Levy, 2012; Diamond et al., 2010; Diamond et al., 2012).

Bullying

The BHS presented questions about lifetime experience of three types of bullying: verbal (“How often do you feel kids tease you, make fun of you, or ignore you?”), physical (“How often do kids physically hurt you or threaten to hurt

you?”), and cyber (“How often are you cyber bullied – chat rooms, Facebook, instant messaging, text messages on your cell phone?”). Each item was rated on a frequency count: *never* (0), *sometimes* (1), or *often* (2). A cumulative bullying index measured how many types of bullying the participant experienced, ranging from none (0) to all three (3).

Depression

A mean of five items measured primary DSM depressive symptoms and related impairment ($\alpha = 0.82$). Participants responded whether they experienced each symptom – *never* (0), *sometimes* (1), or *often* (2) – over the past 2 weeks.

Suicide Risk and Attempt

To measure suicide risk, we used a mean of four items from the lifetime suicide scale ($\alpha = 0.78$; Bevans et al., 2012): (a) “Have you ever felt that life was not worth living?”; (b) “Have you ever thought about killing yourself?”; (c) “Did you ever plan to kill yourself?”; and (d) “Have you ever tried to kill yourself?” The second dependent measure was whether the adolescent reported a suicide attempt (0 = *no*, 1 = *yes*).

Data Analytic Plan

We explored descriptive statistics and bivariate correlations for all study variables. Linear regression analyses examined relationships between bullying (verbal, physical, and cyber) and level of suicide risk, while controlling for depression and demographics. We also tested interactions between each bullying variable and depression. Logistic regression tested whether each type of bullying was uniquely associated with a higher probability of having attempted suicide.

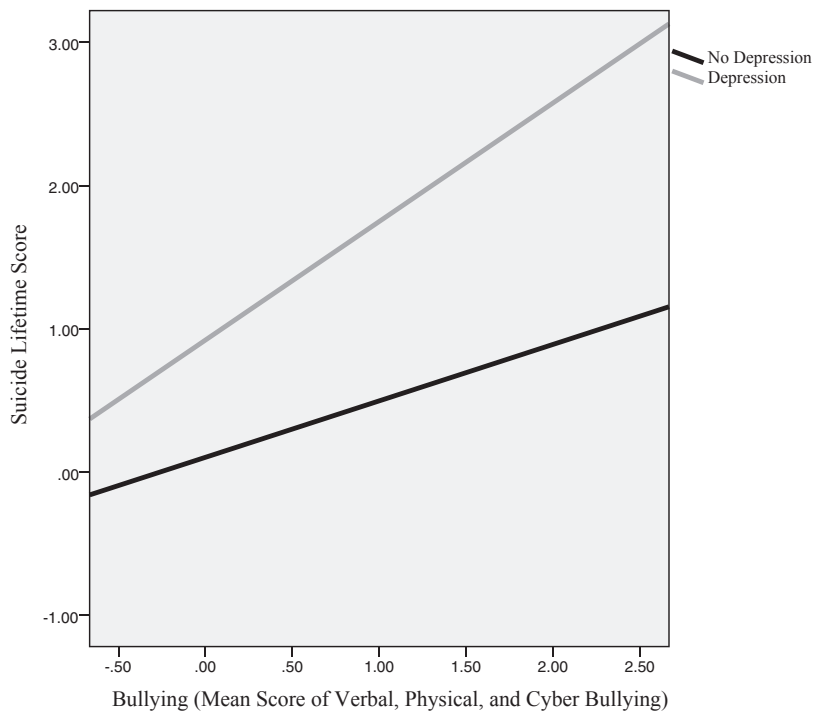


Figure 1. Depression moderates the relationship between bullying and suicide risk.

Note. For this graph, depression was dichotomized using clinical cutoff criteria validated in prior research (Diamond et al., 2010).

Table 3. Linear regression models for bullying, depression, and interaction terms association with suicide risk scale

	Verbal bullying			Physical bullying			Cyber bullying			Cumulative bullying		
	β (SE)	<i>t</i>	R^2	β (SE)	<i>t</i>	R^2	β (SE)	<i>t</i>	R^2	β (SE)	<i>t</i>	R^2
Bullying \times depression	5.73 (.75)	7.67	.30**	4.36 (1.44)	3.01	.29**	5.53 (1.45)	3.83	.29**	.09 (.01)	7.42	.30**

Note. Analyses control for demographic variables. Regression coefficient is unstandardized.

** $p < .01$.

Results

Means, standard deviations, and intercorrelations among study variables are presented in Table 1. Linear regressions indicated all types of bullying and cumulative bullying experience were significantly associated with higher levels of suicide risk when controlling for depression and demographics (see Table 2). All four interactions between each bullying variable and depression were significant (see Table 3). Figure 1 shows that bullying was more strongly linked to suicide severity for patients who reported more depressive symptoms. Results of the logistic regression showed a unique effect for verbal bullying (see Table 4). Patients with a history of verbal bullying were 1.5 times more likely to report a suicide attempt (95% CI = 1.16–1.84). Effects of physical, cyber, and cumulative bullying experience on suicide attempt were not significant. Table 5 indicates the rates of cumulative bullying experience.

Discussion

The goals of the present study were to test (a) whether different forms of bullying were uniquely associated with

suicide risk and attempt and (b) whether depression moderated the relationship between bullying and suicide risk. Consistent with prior research, our study found that verbal, physical, and cyber bullying were linked with suicide risk severity (i.e., the more bullying reported, the more suicidal symptoms endorsed). Bullied youth with more symptoms of depression reported even higher suicide risk.

Interestingly, verbal bullying was the only type associated with suicide attempt. Given that previous attempt is the biggest risk factor related to future attempt (Oquendo et al., 2004), this finding linked verbal bullying with the most at-risk youth. Verbal bullying was the most commonly reported type of victimization; one fourth of the sample reported being verbally bullied. Previous research suggests that relational bullying (e.g., teasing, mocking, and social exclusion) may be especially detrimental to adolescent adjustment (Helms et al., 2015). This form of bullying, usually delivered verbally, may impact adolescent self-esteem and social status more than other forms of bullying (e.g., physical bullying). Cyber bullying is often anonymous, and the impersonal nature of the Internet or lack of social interaction may buffer against the impact of this kind of taunting. Physical bullying can be painful and socially humiliating, but may have less severe psychological effects compared with relational forms of aggression. In-

Table 4. Logistic regression for suicide attempt outcome

	<i>b</i>	<i>SE</i>	Wald	<i>e^b</i>	95% CI
Without controls					
Verbal bullying	.87	.10	71.20**	2.40	1.96 – 2.93
Physical bullying	.28	.17	2.71	1.32	.95 – 1.83
Cyber bullying	.73	.15	22.63**	2.07	1.54 – 2.80
Cumulative bullying	.24	.20	1.37	1.27	.85 – 1.89
With controls					
Verbal bullying	.38	.12	10.50**	1.46	1.16 – 1.84
Physical bullying	.05	.18	.07	1.05	.73 – 1.51
Cyber bullying	.33	.17	3.81	1.39	1.00 – 1.93
Cumulative bullying	.32	.21	2.37	1.38	.915 – 2.09
Depression	.99	.06	272.34**	2.68	2.39 – 3.02
Race (minority vs. majority)	.51	.15	10.91**	1.66	1.23 – 2.25
Gender (male vs. female)	–.33	.15	4.58*	.721	.53 – .97
Ethnicity (Hispanic vs. non-Hispanic)	–.11	.16	.45	.90	.65 – 1.23
Age	.04	.03	1.82	1.04	.98 – 1.09

Note. * $p < .05$. ** $p < .01$.

Table 5. Rates of cumulative bullying experience

Number of types of bullying reported	Total		Verbal		Physical		Cyber	
	<i>N</i>	% of total sample	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
0	3362	61.9	0	0	0	0	0	0
1	920	16.9	852	92.6	24	2.6	44	4.8
2	256	4.7	246	96.1	137	53.5	129	50.4
3	102	1.9	102	100	102	100	102	100

Note. Percentages do not include missing data.

sults, mockery, and social exclusion can have a more lasting negative impact on one's psychosocial and emotional well-being than other forms of bullying (Crick, Casas, & Nelson, 2002). Verbal bullying has been associated with internalizing problems (Sinclair et al., 2012), feelings of loneliness, and social inadequacy (Woods, Done, & Kalsi, 2009). Our study extends these findings, highlighting the severity of verbal bullying as it relates to suicide attempt.

Whereas prior studies have identified a relationship between bullying and depression, this study is the first to identify depression as a moderator of the relationship between bullying and suicide risk. Depression is linked to social and emotional problems that may relate to increased suicide risk in bullied youth. For example, depressed adolescents may have difficulty with emotion regulation and coping when bullied (Silk, Steinberg, & Morris, 2003). Depressed youth may also experience feelings of isolation and burdensomeness. These emotions compounded with low levels of peer support experienced by bullied youth may contribute to increased suicide risk. Identifying whether bullied youth experience symptoms of depression is valuable for assessing level of suicide risk.

Limitations and Future Directions

First, the study's cross-sectional design impairs our ability to infer causal relationships. In addition, this study relied on self-report measures. Incorporating multimethod approaches may increase the validity of the findings. This study used one item to measure the frequency of each type of bullying. Future research examining the content and impact of each type of bullying may be useful. In addition, this study examined only those who were victims of bullying. However, youth who bully others are also at increased risk for suicide and depression (Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2007). Future studies should examine the unique effects of being a bully, a victim, or both.

This study contributes to the growing body of literature examining the relationship between bullying and suicide by identifying the unique role of verbal bullying and the moderating role of depression. These findings indicate that assessment of suicide, depression, and bullying during primary care visits is warranted. Multidimensional screening tools like the BHS assessing risk for suicide

and other behavioral health problems, such as a history of bullying and depressive symptoms, can identify important areas requiring further evaluation and treatment. While screening tools in no way replace clinical interviews, they provide a starting point for determining when one may be necessary.

Acknowledgments

The Behavioral Health Screening tool is owned by the Children's Hospital of Philadelphia and licensed to Medical Decision Logic, Inc., a health science informatics and computer science engineering company who make the screening tool commercially available. One of the authors might one day receive a small royalty payment for their part in developing the tool. All other authors report no biomedical financial interests or potential conflicts of interest.

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Received July 6, 2015

Revision received October 8, 2015

Accepted October 8, 2015

Published online April 4, 2016

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