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## Bullying and Suicide Risk among Pediatric Emergency Department Patients

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### Abstract

**Objectives**—To describe the association between recent bullying victimization and risk of suicide among pediatric emergency department (ED) patients.

**Methods**—Patients presenting to one of three different urban pediatric EDs with either medical/surgical or psychiatric chief complaints completed structured interviews as part of a study to develop a suicide risk screening instrument, the Ask Suicide-Screening Questions (ASQ). Seventeen candidate items and the criterion reference Suicidal Ideation Questionnaire (SIQ) were administered to patients ages 10 to 21 years. Bullying victimization was assessed by a single candidate item (“In the past few weeks, have you been bullied or picked on so much that you felt like you couldn't stand it anymore?”).

**Results**—A total of 524 patients completed the interview (34.4% psychiatric chief complaints; 56.9% female; 50.4% white, non-Hispanic; mean age 15.2±2.6 years). Sixty patients (11.5%) reported recent bullying victimization, and of these, 33 (55.0%) screened positive for suicide risk on the ASQ or the previously validated SIQ. After controlling for demographic and clinical variables, including a history of depression and drug use, the odds of screening positive for suicide risk were significantly greater in patients who reported recent bullying victimization (adjusted

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**Previous Presentations:** Partial results from this study were presented as a platform presentation at the annual meeting of the Pediatric Academic Societies in Washington, DC on May 6<sup>th</sup>, 2013 and a portion was presented at the 2013 International Academy of Suicide Research in Montreal, Canada.

odds ratio=3.19, 95% CI=1.66-6.11). After stratification by chief complaint, this association persisted for medical/surgical patients but not for psychiatric patients.

**Conclusions**—Recent bullying victimization was associated with increased odds of screening positive for elevated suicide risk among pediatric emergency department patients presenting with medical/surgical complaints. Understanding this important correlate of suicide risk in pediatric emergency department patients may help inform ED-based suicide prevention interventions.

### Keywords

bullying; suicide risk; youth; emergency department

## INTRODUCTION

Youth who are victims of bullying, termed bullying victimization, may be at increased risk of suicide.<sup>1</sup> A recent review on the association of bullying and suicide reported increased odds of suicide risk among victims of bullying in both cross-sectional and longitudinal studies.<sup>2</sup> These studies examined diverse populations, including self-identified lesbian, gay, or bisexual children and adolescents;<sup>3,4</sup> juvenile offenders in custody;<sup>5</sup> and middle school and high school students.<sup>6,9</sup> Studies examining bullying victimization and suicide risk among youth seen in pediatric emergency departments (EDs) are lacking.

The pediatric ED has become a *de facto* setting to address concerns along the entire public health continuum.<sup>10,15</sup> In fact, for approximately 1.5 million children and adolescents, the ED is their only source of contact with the healthcare system.<sup>10</sup> In response to this demand on pediatric EDs to provide holistic care and/or linkage with mental health treatment, in 2009, the American Academy of Pediatrics (AAP) issued a policy statement identifying pediatricians, including those working within the ED setting, as critical stakeholders in the prevention of bullying victimization, noting the significant symptom morbidity (e.g., stomachaches, headaches) and school absenteeism linked with bullying.<sup>16,19</sup> Moreover, there is a high prevalence of bullying victimization among patients presenting to the ED.<sup>18</sup> While many of these presentations signal a psychiatric referral, bully victims often present with nonspecific symptomatology.<sup>18</sup> Thus, bullying victimization may be a relevant component of physical or mental illness.

EDs have also recently been targeted as a primary venue for identifying youth at risk for suicide. The AAP and Joint Commission (JC) both recommend screening all ED patients for suicide risk.<sup>20,21</sup> Understanding psychosocial correlates of suicide risk, such as bullying victimization, may help guide ED-based interventions and referrals. However, there have been no studies examining bullying victimization and risk of suicide in youth who present to pediatric EDs. The aim of this report is to describe the association between recent bullying victimization and risk of suicide within a large multisite sample of pediatric ED patients who presented with either medical/surgical or psychiatric chief complaints.

## MATERIALS AND METHODS

### Sample and Setting

In a previously reported, prospective, cross-sectional, multisite study of a convenience sample of youth age 10-21 years, inclusive, interviews were conducted that developed the Ask Suicide-Screening Questions (ASQ), a suicide risk screening instrument.<sup>12</sup> Data were collected between September 10, 2008 and January 5, 2011 at three pediatric EDs associated with urban teaching hospitals: Children's National Medical Center in Washington, DC; Nationwide Children's Hospital in Columbus, OH; and Boston Children's Hospital in Boston, MA. Exclusion criteria were: 1) developmental disability, cognitive impairment, or communication disorder that interfered with the patient's ability to comprehend and communicate about the study; 2) triage level 1 (for medical/surgical patients), suggesting medical instability; 3) parent/guardian unavailable (for patients age 17 years and younger); and 4) patients and/or parents/guardians who were non-English speaking. Written informed consent was obtained from all patients age 18 years and older; for patients younger than 18 years, written assent was obtained from the patient, and written informed consent was obtained from the parent/guardian. The study was approved by National Institutes of Health Combined Neuroscience Institutional Review Board and the IRBs at the participating institutions. Further methodologies of this multisite study have been described.<sup>12</sup>

### Measures

Elevated risk of suicide was defined as a positive response to one or more of the four questions on the ASQ or as an age-specific positive score (i.e., above a cut-off score, described below) on the Suicidal Ideation Questionnaire (SIQ).

**ASQ**—As previously reported,<sup>12</sup> for the larger study that developed the ASQ, a list of 17 candidate items was assembled and asked of all participants. The 17 candidate items were identified from several sources, including published literature, interviews with youth suicide experts and senior clinicians, and the Risk of Suicide Questionnaire.<sup>22</sup> One of the 17 items screened for recent bullying victimization: “In the past few weeks, have you been bullied or picked on so much that you felt like you couldn’t stand it anymore?” If a participant responded “yes,” indicating the presence of recent bullying victimization, participants were further queried to describe if the bullying was physical, emotional, or both. This single item was not selected as part of the final 4-question model comprising the ASQ due to low agreement with the SIQ, as measured by the chance-corrected kappa statistic.<sup>12</sup> The final 4-item ASQ had a sensitivity of 96.9% (95% CI, 91.3-99.4), specificity of 87.6% (95% CI, 84.0-90.5), and negative predictive values of 99.7% (95% CI, 98.2-99.9) for medical/surgical patients and 96.9% (95% CI, 89.3-99.6) for psychiatric patients (see Table 1). An answer of “yes” to any of the four ASQ items indicates a positive screen for clinically significant suicide risk that warranted further evaluation.

**SIQ**—This measure served as the criterion reference for the development of the ASQ. The SIQ is a self-report measure of the severity of suicidal ideation in youth.<sup>23</sup> In the ASQ study, adolescents age 15 years or older completed the full 30-item version of the SIQ; youth age 14 years or younger completed the 15-item SIQ-Junior (SIQ-JR). In both versions,

participants were asked to rate the frequency with which a thought occurred in the past month on a 7-point scale (e.g., “I thought that killing myself would solve my problems;” 0 = “I never had this thought”; 6 = “Almost every day”). Consistent with prior use of the SIQ,<sup>23</sup> a cutoff score of 41 or greater (SIQ) or 31 or greater (SIQ-JR) was used to establish the severity level of suicidal ideation that warranted further psychiatric evaluation. Additionally, several items were considered critical items, meaning answers in the affirmative indicate clinically significant suicidal ideation, irrespective of total scores. On the SIQ, there are 8 critical items; the cut-off score indicating clinically significant suicidal ideation is 3. On the SIQ-JR, there are 6 critical items; the cut-off score is 2. Both versions of the SIQ have strong psychometric properties, including high reliability (SIQ  $r = 0.97$ ; SIQ-JR  $r = 0.94$ ) and validity.

All participants were administered a structured interview inquiring about demographic and clinical variables. Patients were coded as positive for a history of diagnosed depression if they answered in the affirmative to the following question: “Has a mental health professional or your pediatrician ever told you that you were depressed?” Patients were coded as positive for a history of drug use if they answered “yes” to either of the following questions: “Have you ever used marijuana?” or “Do you ever use any other hard drugs?”

### Statistical Analysis

All analyses were conducted using Stata version 11.0.<sup>24</sup> Descriptive demographic variables were tabulated with means and standard deviations or proportions. The chi-squared and Student's t-test were employed to analyze bivariable differences between patients who did and did not report recent bullying victimization. Multiple logistic regression was used to estimate the adjusted odds (adjOR) and 95% confidence interval (CI) of suicide risk associated with recent bullying victimization after controlling for age, gender, race/ethnicity, insurance type (as a proxy for socioeconomic status), history of diagnosed depression, and self-reported drug use. These demographic and clinical variables were included in the statistical models as covariates because they are robust risk factors for both bullying<sup>18</sup> and suicide<sup>25</sup> in youth.

## RESULTS

### Participants

Participant characteristics, including age, gender, race/ethnicity, insurance status, and psychiatric history are presented in Table 2. Overall, 524 patients (56.9% female; 50.4% white, 29.6% black; mean age  $15.2y \pm 2.6y$ ) who presented to the ED with either medical/surgical (344/524; 65.6%) or psychiatric (180/524; 34.4%) chief complaints were included in the analyses.

### Self-Reported Recent Bullying Victimization

Of the entire cohort of 524 participants, 60 (11.5%) patients reported a recent history of being bullied (Table 2). With regard to the type of bullying experienced (i.e., emotional vs. physical), 54 (91.5%) reported being emotionally bullied, 18 (30.5%) reported being physically bullied, and 13 (22.0%) reported experiencing both. Patients presenting with

medical/surgical complaints were significantly less likely to report bullying than patients with psychiatric chief complaints [22/344 vs. 38/180, (OR 0.26, 95% CI=0.15-0.45)].

Participants who reported recent bullying victimization were significantly younger than those who did not report recent bullying victimization [13.6±2.6 years vs. 15.4±2.5 years,  $p<.001$ ]. There were no significant differences in gender, race/ethnicity, insurance status, depression, and drug use among those who did and did not report recent bullying victimization.

### Suicide Risk

A positive screen on the SIQ (ages 15-21 years), the SIQ-JR (ages 10-14 years), or the ASQ (all participants, ages 10-21 years) was considered “at risk” for suicide. Of the 524 total participants, including both medical/surgical and psychiatric patients, 151 (28.8%) patients screened positive for elevated risk of suicide on the SIQ or ASQ. Patients presenting with medical/surgical complaints were significantly less likely to screen positive than patients with psychiatric chief complaints [34/344 vs. 117/180, (OR 0.06, 95% CI=0.04-0.09)].

### Relationship between Self-Reported Recent Bullying Victimization and Suicide Risk

Of the 60 participants who reported recent bullying victimization, 33 (55.0%) screened positive for suicide risk while 118/464 participants (25.4%) who did not report recent bullying victimization screened positive for suicide risk [OR 3.58 (95% CI = 2.07-6.21)]. In a multivariate model that controlled for variables that are independently associated with increased risk of suicide in youth, recent bullying victimization remained significantly associated with elevated risk of suicide [adjOR 3.19 (95% CI = 1.66-6.11)] (Table 3). After stratification by chief complaint (i.e., medical surgical vs. psychiatric), recent bullying victimization remained significantly associated with elevated risk of suicide among medical patients [adjOR 4.62 (95% CI = 1.25-17.05)]; however, the association was not significant among psychiatric patients [adjOR 1.88 (95% CI = 0.78-4.54)].

## DISCUSSION

In a large and diverse cohort of pediatric ED patients, recent bullying victimization was significantly associated with elevated risk of suicide. This association persisted after controlling for demographic and clinical risk factors commonly associated with elevated suicide risk in youth.

Our finding that 11.5% of the youth in our cohort reported recent bullying victimization is similar to findings from other studies.<sup>18</sup> Consistent with research demonstrating that youth with a mental illness are at increased risk of both suicide and bullying victimization,<sup>13,25</sup> significantly more patients presenting with psychiatric complaints than with medical/surgical complaints reported bullying victimization and screened positive for suicide risk. However, when stratified by chief complaint, recent bullying victimization was not significantly associated with suicide risk among psychiatric patients. This surprising finding may be a result of the modest sample size of psychiatric patients ( $n=180$ ), or perhaps for psychiatric patients, comorbid psychopathology (e.g., clinical depression) may account for greater variance in screening positive for suicide risk. This finding is not consistent with

previous bullying research in other settings.<sup>1,2</sup> It is possible that because the bullying item used in this study assesses *recent* bullying victimization, this may have missed capturing a chronic course of bullying in psychiatric patients, thus affecting our results; this is noted below in the limitations section. Interestingly, among medical/surgical patients, even after controlling for self-reported history of depression and drug use, a report of recent bullying victimization remained significantly associated with elevated odds of screening positive for suicide risk.

Of the 17 candidate items tested for inclusion in the final ASQ model, the item assessing recent bullying victimization was not included. The final 4 items selected assessed current and passive thoughts of suicide and past suicidal behavior (Table 1).<sup>12</sup> This suggests that asking pediatric ED patients questions using validated screening instruments that directly probe for suicidal thoughts and behaviors may be the best strategy to identify youth at risk for suicide.<sup>26,27</sup> Although the bullying item did not prove specific enough to be a valid screening question for suicide risk in a general ED population, this current analysis indicates that, among pediatric ED patients, recent bullying victimization may be an important risk factor for suicide.

The following limitations must be considered. First, the cross-sectional design restricts the ability to form causal inferences; although patients who report recent bullying victimization are more likely to screen positive for suicide risk, it does not necessarily mean that bullying causes suicidal thoughts or behaviors. While other longitudinal and population based studies examining the association between bullying and suicide risk exist, there are no studies examining this association among ED patients. Second, because these data were part of a larger instrument development study utilizing 17 candidate items, bullying victimization was measured using a single dichotomous item; this was an exploratory sub-analysis of a larger study, and we believe this item measured a participant's perception of feeling bullied, but this was not a validated item.

Future studies should assess bullying victimization using a more comprehensive, psychometrically sound, and nuanced approach.<sup>28</sup> Third, bullying was not defined for participants in this study, and perceptions of what constitutes bullying victimization may vary. Fourth, all information was gathered via self-report by a convenience sample of patients; collateral information from parents, clinicians, or educators can be important for assessing bullying and was not obtained for this dataset. Fifth, although previous research suggests that youth who are both a victim and perpetrator of bullying may be at greatest risk for suicide,<sup>1,2</sup> we did not assess if victims were also perpetrators of bullying. Important covariates of bullying and suicide risk, including alcohol use and anxiety, were unable to be assessed. Importantly, we also did not assess for lifetime bullying victimization, and instead assessed for recent bullying victimization; we believe this is more relevant for an ED setting, in which more acute and recent stressors are triaged. Given the limited scope of the bullying item used in this study, it is likely that the prevalence rates of bullying victimization in the ED reported in this study are underestimates. Finally, the participants were drawn from academic, urban pediatric EDs, and our findings may not generalize to other ED patient populations.



## Conclusions

In a multisite sample of pediatric ED patients, children and adolescents presenting with medical/surgical complaints who reported bullying victimization were significantly more likely to screen positive for suicide risk. Once a child screens positive for suicide risk, clinicians should inquire about bullying victimization. Although not all youth who are bullied are at increased risk of suicide, knowledge of bullying victimization may help inform ED-based interventions and mental health referrals. Results suggest that pediatric ED patients who report recent bullying victimization should be screened for suicide risk.

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## Abbreviations

<b>AAP</b>	American Academy of Pediatrics
<b>adjOR</b>	adjusted odds ratio
<b>ASQ</b>	Ask Suicide-Screening Questions
<b>CI</b>	confidence interval
<b>ED</b>	emergency department
<b>JC</b>	Joint Commission
<b>SIQ</b>	Suicidal Ideation Questionnaire
<b>SIQ-JR</b>	Suicidal Ideation Questionnaire-Junior

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**Table 1**

Ask Suicide-Screening Questions (ASQ)<sup>12</sup>

- 
- 1) In the past few weeks, have you wished you were dead?
  - 2) In the past few weeks, have you felt that you or your family would be better off if you were dead?
  - 3) In the past week, have you been having thoughts about killing yourself?
  - 4) Have you ever tried to kill yourself?  
If yes, how? \_\_\_\_\_  
When? \_\_\_\_\_
- 

*Note.* A response of “yes” to any one of the four questions indicates a positive screen for elevated suicide risk.

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**Table 2**

Participant characteristics stratified by reported bullying victimization and by chief complaint

	Entire Cohort				Medical/Surgical Complaints				Psychiatric Complaints			
	All (n=524)	Bullying (n=60)	No bullying (n=464)	Group Differences	Medical / Surgical Complaints (n=344)	Bullying (n=22)	No bullying (n=322)	Group Differences	Psychiatric Complaints (n=180)	Bullying (n=38)	No bullying (n=142)	Group Differences
Age	15.2 (2.6)	13.6 (2.6)	15.4 (2.5)	t(522) = 5.20, p<0.001	15.7 (2.6)	14.4 (3.4)	15.7 (2.6)	t(342) = 2.38, p<0.05	14.4 (2.3)	13.3 (2.0)	14.8 (2.3)	t(178) = 3.82, p<0.001
Gender												
Female	298 (56.9)	34 (56.7)	264 (56.9)	$\chi^2 = 0.00, p = 0.973$	193 (56.1)	10 (45.5)	183 (56.8)	$\chi^2 = 1.08, p = 0.298$	105 (58.3)	24 (63.2)	81 (57.0)	$\chi^2 = 0.46, p = 0.497$
Race/Ethnicity												
White	264 (50.4)	30 (50.0)	234 (50.4)	$\chi^2 = 5.08, p = 0.534$	162 (47.1)	9 (40.9)	153 (47.5)	$\chi^2 = 4.71, p = 0.581$	102 (56.7)	21 (55.3)	81 (57.0)	$\chi^2 = 5.88, p = 0.318$
Black	155 (29.6)	21 (35.0)	134 (28.9)		103 (29.9)	9 (40.9)	94 (29.2)		52 (28.9)	12 (31.6)	40 (28.2)	
Hispanic	47 (9.0)	4 (6.7)	43 (9.3)		36 (10.5)	1 (4.5)	35 (10.9)		11 (6.1)	3 (7.9)	8 (5.6)	
Asian	12 (2.3)	0 (0)	12 (2.6)		9 (2.6)	0 (0)	9 (2.8)		3 (1.7)	0 (0)	3 (2.1)	
Other/unknown	46 (8.8)	5 (8.3)	41 (8.8)		34 (9.9)	3 (13.6)	31 (9.6)		12 (6.7)	2 (5.3)	10 (7.0)	
Insurance												
Private	279 (53.2)	29 (48.3)	250 (53.9)	$\chi^2 = 2.31, p = 0.510$	179 (52.0)	10 (45.5)	169 (52.5)	$\chi^2 = 1.27, p = 0.737$	100 (55.6)	19 (50.0)	81 (57.0)	$\chi^2 = 4.05, p = 0.256$
Public	196 (37.4)	27 (45.0)	169 (36.4)		132 (38.4)	10 (45.5)	122 (37.9)		64 (35.6)	17 (44.7)	47 (33.1)	
Public & private	16 (3.1)	2 (3.3)	14 (3.0)		9 (2.6)	0 (0)	9 (2.8)		7 (3.9)	2 (5.3)	5 (3.5)	
None	33 (6.3)	2 (3.3)	31 (6.7)		24 (7.0)	2 (9.0)	22 (6.8)		9 (5.0)	0 (0)	9 (6.3)	
Psychiatric history												
Depression	139 (26.5)	22 (36.7)	117 (25.2)	$\chi^2 = 3.57, p = 0.059$	52 (15.1)	3 (13.6)	49 (15.2)	$\chi^2 = 0.04, p = 0.841$	87 (48.3)	19 (50.0)	68 (47.9)	$\chi^2 = 0.05, p = 0.817$
Substance use	106 (20.2)	10 (16.7)	96 (20.7)	$\chi^2 = 0.53, p = 0.465$	54 (15.7)	6 (27.3)	48 (14.9)	$\chi^2 = 2.38, p = 0.123$	52 (28.9)	4 (10.5)	48 (33.8)	$\chi^2 = 7.91, p = 0.005$
Site												
CNMC	156 (29.8)	20 (33.3)	136 (29.3)	$\chi^2 = 2.73, p = 0.256$	106 (30.8)	6 (27.3)	100 (31.1)	$\chi^2 = 4.33, p = 0.114$	50 (27.8)	14 (36.8)	36 (25.4)	$\chi^2 = 2.88, p = 0.237$
BCH	199 (38.0)	17 (28.3)	182 (39.2)		117 (34.0)	4 (18.2)	113 (35.1)		82 (45.6)	13 (34.2)	69 (48.6)	
NCH	169 (32.2)	23 (38.3)	146 (31.5)		121 (35.2)	12 (54.6)	109 (33.9)		48 (26.7)	11 (29.0)	37 (26.1)	

Note: Values are n(%); age is calculated as a mean, so parentheses for the age row contain standard deviations (SDs). CNMC = Children's National Medical Center; BCH = Boston Children's Hospital; NCH = Nationwide Children's Hospital.

**Table 3**

Multivariate model of bullying victimization as a predictor of screening positive for elevated suicide risk for entire cohort and stratified by chief complaint.

	Entire Cohort (N=524)			
	Entire Cohort (n=524)	Bullying (n=60)	No bullying (n=464)	Adjusted OR (95% CIs)
Suicide Risk SIQ+ or ASQ+	151 (28.8)	33 (55.0)	118 (25.4)	3.19 (1.66-6.11) *

  

	Medical/Surgical Complaints (n=344)			
	Medical/Surgical Complaints (n=344)	Bullying (n=22)	No bullying (n=322)	Adjusted OR (95% CIs)
Suicide Risk SIQ+ or ASQ+	34 (9.9)	5 (22.7)	29 (9.0)	4.62 (1.25-17.05) *

  

	Psychiatric Complaints (n=180)			
	Psychiatric Complaints (n=180)	Bullying (n=38)	No bullying (n=142)	Adjusted OR (95% CIs)
Suicide Risk SIQ+ or ASQ+	117 (65.0)	28 (73.7)	89 (62.7)	1.88 (0.78-4.54) *

Note. Values are n(%) unless otherwise noted.

\* Age, gender (male), race (white), insurance (public), depression, and substance use were entered into the logistic regression models as covariates.