ARTICLE

Recent Victimization Exposure and Suicidal Ideation in Adolescents

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Objective: To examine the independent and cumulative effects of past-year exposure to several different types of child victimization (peer victimization, witnessing family violence, community violence, sexual assault, and maltreatment) on suicidal ideation in a nationally representative sample of adolescents.

Design: The study used 2 waves of longitudinal data from the National Survey of Children's Exposure to Violence.

Setting: Conducted in 2008 and 2010 on the telephone with respondents from the contiguous United States.

Participants: National sample of 1186 youth aged 10 to 17 years in wave 1.

Main Exposures: Peer victimization, sexual assault, witnessing family violence, exposure to community violence, and maltreatment by a parent/caregiver.

Outcome Measure: Self-report suicidal ideation in the past month.

Results: Controlling for demographic characteristics, internalizing disorder diagnoses, and wave 1 suicidal ideation, findings showed independent effects of peer victimization, sexual assault, and maltreatment by a parent/caregiver on suicidal ideation at wave 2. The risk of suicidal ideation was 2.4 times greater among youth who experienced peer victimization in the past year, 3.4 times greater among those who were sexually assaulted, and 4.4 times greater among those exposed to maltreatment, relative to children who were not exposed to these types of victimization. Findings also showed substantial effects of polyvictimization (exposure to 7 or more individual types of victimization in the past year), with polyvictims almost 6 times more likely to report suicidal ideation.

Conclusion: Findings point to the importance of recent victimization in increasing risk of suicidal ideation in adolescents and suggest the need for victimization assessments among all youth who are believed to be at risk for suicidal ideation.

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YOUTH SUICIDE REMAINS A SUBstantial concern, representing the third leading cause of death for adolescents in the United States. From 1999 to 2006, 11% of all deaths among 12- to 19-year-olds were due to suicide, representing more than 16 000 deaths every year.[1] Suicidal ideation, thoughts of harming or killing oneself,[2] lies on a continuum of suicidal behavior and may be an important precursor to suicide attempts.[3-6] A national epidemiological survey of adolescents in the United States found that 19% of high school students had suicidal ideation in the past year.[7]

There is reason to suspect that childhood exposure to violence and victimization are important determinants of suicidal ideation. A number of studies have shown that sexual assault and child maltreatment, such as physical abuse, are significant predictors of suicidal ideation and attempts.[8-15] Recent media reports of adolescents driven to suicide following bullying at school also suggest the role of peer-perpetrated victimization on suicidal behavior. Although these reports are anecdotal, several empirical studies have also found significant effects of peer bullying on suicidal ideation.[16-18]

Most past studies considering the impact of child victimization on suicidal ideation focused on only 1 form of victimization, such as sexual abuse or school bullying. However, recent findings have demonstrated that victimized youth are often exposed to multiple forms of victimization, even within a 1-year period.[19] Focusing on only 1 or a few types of the large spectrum of victimizations that children experience is likely to underestimate the full strength of the relationship between victimization and suicidal ideation. At the same time, a narrow focus on specific types can lead to an overestimation of the impact of individual victimization experiences, since outcomes may be related to other victimiza-

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tion types or their co-occurrence rather than to the target event.

This suggests the need to assess victimization more comprehensively to address the independent effects of different types of victimization and the cumulative effects of exposure to multiple forms. Indeed, research has demonstrated the particularly damaging effects of "polyvictimization," ie, exposure to multiple forms of victimization, on child trauma symptoms.[20,21] This research is also consistent with suicidal ideation studies finding a "dose-response" relationship between the number of childhood adversities and suicidal behavior.[22-24]

A substantial relationship exists between mental health problems and suicidal ideation. Mood and anxiety disorders, in particular, are strong predictors of suicidal behavior.[11,22,25,26] Youth with these diagnoses are also at increased risk for subsequent victimization.[27,28] Thus, failure to account for youth mental disorder, especially internalizing disorders, is likely to inflate associations between victimization and suicidal ideation.

There are a number of methodological problems and limitations associated with much of the existing research in this area. For example, many studies are based on small selective samples, such as clinical samples with particular disorders or hospital inpatient samples, making it difficult to generalize findings to the general population of adolescents. Also, studies have often relied on retrospective reports using substantial lag times between childhood abuse exposure and adult suicidal ideation assessments. Such studies are open to problems with recall bias and make it difficult to speak to the causal processes involved. Most studies addressing this issue are also cross-sectional in design, further reducing the ability to establish temporal order of suicidal thoughts and victimization. Longitudinal studies that allow researchers to control for previous suicidal ideation to assess the effects of recent victimization on subsequent suicidal ideation would better assess the causal role of victimization on this outcome. Finally, as noted earlier, existing studies have typically focused on only 1 form of victimization and have often relied on limited 1-item measures.

STUDY OBJECTIVES

The current research used 2 waves of longitudinal data to examine the effects of several forms of victimization on suicidal ideation in a nationally representative sample of adolescents aged 12 to 19 years. The objectives were to (1) determine whether there are significant differences in suicidal ideation across sociodemographic factors and exposure to 5 different aggregate types of victimization (peer victimization, sexual assault, maltreatment, witnessing family violence, and exposure to community violence) as well as exposure to multiple forms of victimization (ie, polyvictimization); (2) examine the independent effects of each category of victimization on suicidal ideation at wave 2, controlling for sociodemographic factors, internalizing disorder diagnoses, and wave 1 suicidal ideation; and (3) assess the effect of exposure to multiple forms of victimization within a 1-year period (ie, polyvictimization) on suicidal ideation at wave 2, using the same set of controls.

METHODS

PARTICIPANTS

These analyses use data from the National Survey of Children's Exposure to Violence, a 2-wave longitudinal study of a representative sample of US children and adolescents. The National Survey of Children's Exposure to Violence was designed to obtain incidence and prevalence estimates of a wide range of childhood victimizations. The wave 1 survey was conducted between January 2008 and May 2008 with a nationally representative sample of 4549 children aged 0 to 17 years living in the contiguous United States. The wave 2 survey was conducted approximately 2 years later between January 2010 and November 2010. Interviews with parents and youth were conducted over the telephone by the employees of an experienced survey research firm.

The primary foundation of the wave 1 design was a nationwide sampling frame of residential telephone numbers from which a sample of telephone households was drawn by random digit dialing. This nationally representative cross-section represented 67% of the 4549 completed interviews. To ensure that the study included a sizeable proportion of minorities and low-income respondents for more accurate subgroup analyses, we also oversampled African American, Hispanic, or low-income households. This "oversample" yielded 33% of the completed interviews. Sample weights were calculated for wave 1 to adjust for differential probability of selection due to (1) study design, (2) demographic variations in nonresponse, and (3) variations in within-household eligibility.

In wave 2, efforts were made to recontact wave 1 respondents and elicit their participation. A total of 2497 children who were aged 0 to 17 years at wave 1 took part in both waves (55% of the original sample). The remaining 45% of the original sample who did not participate consisted of respondents at wave 1 who did not wish to be contacted for wave 2 (5%), those whose telephone numbers were no longer active residential numbers (9%) or were no longer associated with the original household (8%), respondents who refused participation (9%), and failure to reach respondents at scheduled callbacks (13%). The current study focuses on the 1186 children who participated in both waves and who were aged 10 to 17 years in wave 1.

RESPONSE RATES AND NONRESPONSE ANALYSES AND WEIGHTING

The wave 1 cooperation rate for the random digit dialing cross-section portion of the survey was 71% and the response rate was 54%. The cooperation and response rates associated with the smaller oversample were somewhat lower at 63% and 43%, respectively. We compared parent reports of adolescents who completed the interview with parent reports for adolescent nonresponders for 10- to 17-year-old participants. Nonresponders were not systematically different from respondents on factors related to victimization risk (details of the nonresponse analyses can be obtained on request).

Fifty-seven percent of the subsample used in this study (respondents aged 10-17 years in wave 1) completed an interview in wave 2. To adjust for differential attrition by demographic factors, victimization, and trauma symptom levels, a new set of sample weights was calculated for wave 2 using both the wave 1 sample weights and propensity scores based on the likelihood of each wave 1 case returning for wave 2. This method of adjusting for nonresponse is outlined by Wun et al.[29]

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PROCEDURE

In wave 1, a short interview was conducted with an adult caregiver (usually a parent) in each household to obtain family demographic information. One child was randomly selected from all eligible children living in a household by selecting the child with the most recent birthday. If the selected child was 10 to 17 years old, the main telephone interview was conducted with the child, after obtaining consent from both the parent and the child. Prior to the interview, interviewers were required to establish that the respondent could not be heard by others. The interview was rescheduled if privacy could not be obtained or if the situation changed during the interview. The wave 2 study followed the same protocol. In both waves, respondents were paid $20 for their participation. The interviews, averaging around 45 minutes in both waves, were conducted in either English or Spanish. All study procedures were approved by the University of New Hampshire Institutional Review Board for the Protection of Human Subjects.

MEASUREMENT

Victimization

Both waves of this survey used an enhanced version of the Juvenile Victimization Questionnaire.[19] The Juvenile Victimization Questionnaire includes questions, known as "screeners," about specific types of victimization. Individual screeners can be grouped into aggregate types representing general classes of victimization.

This study used 5 aggregate types of victimization that occurred within the past year at both waves: peer-perpetrated victimization, maltreatment, sexual assault, witnessing family violence, and exposure to community violence. The individual screeners used to construct each of these aggregates are shown in the eAppendix (http://www.archpediatrics.com). For each aggregate victimization type, children were coded as 1 if they responded yes to any past-year occurrence of 1 or more of the screeners used to construct the aggregate.

In addition to the 5 aggregate types, we used a measure of children's total burden of past-year victimization. A sum of 36 screeners contained in the survey was calculated for each child. Children whose total number of endorsed past-year screeners was 7 or more were designated as past-year "polyvictims." This variable was coded as 1 for polyvictims and 0 for non-polyvictims. Consistent with earlier research, this cutoff identifies roughly the top 10% of children in terms of multiple victimization levels.[20,30]

Suicidal Ideation

One item from the Trauma Symptoms Checklist for Children[31] was used to assess suicidal ideation. In both waves, respondents were asked, "In the last month, how often have you wanted to kill yourself? Would you say not at all, sometimes, often, or very often?" A binary suicidal ideation variable was created in which responses of "never" were coded as 0 and responses of "sometimes," "often," and "very often" were coded as 1.

Internalizing Disorder Diagnosis

In the parent portion of the survey of both waves, parents were asked if their child had ever been diagnosed with any of several disorders. Children whose parents reported that they had been diagnosed with either posttraumatic stress disorder, an anxiety disorder other than posttraumatic stress disorder, or depression were coded as 1 for having ever been diagnosed with an internalizing disorder.

Table 1. Percentage Reporting Past-Month Suicidal Ideation at Wave 2 by Demographic Characteristics and Past-Year Victimization[a]

	%
Total wave 2 sample	4.3
Sex[b]	
M	2.9
F	5.6
Race/ethnicity	
White, non-Hispanic	4.2
Black, non-Hispanic	4.8
Other, non-Hispanic	3.3
Hispanic, any race	4.4
Family structure[c]	
2 Parents (biological or adoptive)	3.1
Parent and stepparent/partner	10.8
Single parent	4.3
Other adult caregiver	2.0
Wave 1 age group	
10-13 y (12-15 y in Wave 2)	4.4
14-17 y (16-19 y in Wave 2)	4.3
Past-year victimizations	
Peer (nonsibling) victimization[c]	
Yes	8.1
No	2.9
Maltreatment[c]	
Yes	16.2
No	2.7
Sexual assault[d]	
Yes	22.9
No	3.7
Witness family violence[c]	
Yes	11.4
No	3.5
Exposed to community violence	
Yes	5.0
No	3.8
Polyvictim[c]	
Yes	15.6
No	3.3

[a] Unweighted n = 1186. Weighted n = 1130.
[b] χ^2: $P < .05$.
[c] χ^2: $P < .001$.
[d] χ^2: $P < .01$.

Demographics

Demographic information was obtained in the parent interview, including the child's sex, age (in years), and race/ethnicity (coded into 4 groups: white non-Hispanic, black non-Hispanic, other race non-Hispanic, and Hispanic any race). Family structure, defined by the composition of the household, was categorized into 4 groups: children living with (1) 2 biological or adoptive parents, (2) 1 biological parent plus partner (spouse or nonspouse), (3) single biological parent, and (4) other caregiver. Sex, age, and race were obtained from the wave 1 interview. Since family structure could have changed between the 2 waves of data, we used family structure reported at wave 2.

RESULTS

Table 1 presents sample percentages reporting suicidal ideation at wave 2 by demographic variations and victimization exposure. Although 4.3% of the total sample experienced suicidal ideation within the month preceding the

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Table 2. Logistic Regression of Wave 2 Suicidal Ideation on Wave 1 Suicidal Ideation, Demographics, Internalizing Disorder, and Past-Year Victimization at Wave 2[a]

	OR (95% CI)	
	Model 1	Model 2
Suicidal ideation wave 1	5.54[b] (2.33-11.19)	4.86[b] (2.07-9.92)
Age at wave 1	0.98 (0.84-1.15)	0.96 (0.831-1.10)
Female	1.72 (0.90-3.22)	2.27[c] (1.22-4.11)
Black, non-Hispanic	1.71 (0.68-4.02)	1.14 (0.47-2.64)
Other, non-Hispanic	1.03 (0.20-4.56)	0.83 (0.17-3.65)
Hispanic, any race	1.39 (0.62-2.97)	1.15 (0.53-2.42)
Parent with stepparent or partner	3.06[d] (1.52-5.88)	3.23[d] (1.68-5.94)
Single parent	1.00 (0.43-2.27)	1.17 (0.51-2.58)
Other adult caregiver	0.14 (0.01-1.80)	0.16 (0.01-1.97)
Ever diagnosed with internalizing disorder	4.05[d] (1.78-8.26)	4.19[b] (1.93-8.26)
Past-year victimization types, wave 2		
Peer victimization	2.35[c] (1.19-4.47)	
Maltreatment	4.35[b] (2.14-8.32)	
Sexual assault	3.35[c] (1.34-7.53)	
Witness family violence	1.02 (0.45-2.23)	
Exposure to community violence	0.83 (0.41-1.64)	
Past-year polyvictim at wave 2		5.81[b] (3.09-0.15)
Pseudo R^2	0.22	0.17

Abbreviation: OR, odds ratio.

[a] Weighted n = 1130. The ORs for dichotomous variables have been converted to approximate risk ratios to adjust for differences in outcome incidence.[32] Model 1 addresses the relative independent effects of the 5 aggregate past-year victimization types on wave 2 suicide ideation. Model 2 examines the effect of polyvictimization (exposure to 7 or more different types of victimization in the past year) on wave 2 suicide ideation. Both models control for suicide ideation at wave 1, demographic characteristics, and internalizing disorder diagnosis.

[b] $P < .001$.

[c] $P < .05$.

[d] $P < .01$.

interview, the percentage of female respondents reporting ideation was almost twice that of male respondents. Although there were no substantial differences between adolescents living with 2-parent families and those living with a single parent or other adults, almost 11% of respondents living in a stepfamily or with a parent and unmarried partner reported suicidal ideation—more than 3 times the percentage reported by those living with both biological or adoptive parents. There were no significant differences in suicidal ideation across race or between respondents who were aged 12 to 15 vs 16 to 19 years at wave 2.

There were substantial differences in suicidal ideation between adolescents who were exposed to specific categories of victimization in the preceding year relative to those who were not. More than 8% of respondents who were peer victimized and more than 11% of those youth who witnessed family violence reported suicidal ideation in the past month, while suicidal ideation among those without these types of exposures was 2.9% and 3.5%, respectively. The forms of victimization associated with the greatest percentage of youth reporting ideation included maltreatment (>16% of maltreated adolescents reported suicidal ideation in contrast to 2.7% of nonmaltreated youth) and sexual assault (23% of those sexually assaulted reported ideation vs 3.7% among nonassaulted adolescents). Youth who were polyvictimized, that is, who were exposed to 7 or more individual types of victimization, were also substantially more likely to report suicidal ideation, with almost 16% of these youth reporting suicidal ideation in the past month.

We then conducted multivariate logistic regression analyses to examine the effect of each past-year aggregated victimization type on suicidal ideation, controlling for demographic factors and the other forms of victimization. To increase our confidence that victimization exposure temporally preceded and contributed to suicidal ideation, we also controlled for suicidal ideation at wave 1 and whether the respondent had ever been diagnosed with an internalizing disorder. **Table 2** presents these analyses, where odds ratios have been converted to approximate relative risk ratios.[32]

As seen in model 1, sex and family structure continued to be related to suicidal ideation, with all other demographics and all 4 victimization aggregates controlled. Although witnessing family violence and exposure to community violence were not significantly associated with suicidal ideation, maltreatment, peer victimization, and sexual assault were independently related to wave 2 suicidal ideation. Peer-victimized youth had almost 2.4 times the risk of suicidal ideation, those sexually assaulted in the past year had about 3.4 times the risk, and those who were maltreated had almost 4.4 times the risk of suicidal ideation. As expected, having been diagnosed with an internalizing disorder and suicidal ideation at baseline were also substantially related to wave 2 suicidal ideation. Twenty-two percent of the variance (pseudo R^2) in wave 2 suicidal ideation was explained by the model.

Instead of focusing on the independent effects of the 5 types of victimization, model 2 of Table 2 considers the effects of polyvictimization—exposure to at least 7 individual forms of victimization in the past year. Polyvictims were almost 6 times more likely to experience an onset of suicidal ideation at wave 2. All the controls that were significant in model 1 were also significant here, with odds ratios similar in magnitude. About 17% of the variance in suicidal ideation was explained by this model.

COMMENT

The current study advances research on predictors of adolescent suicidal ideation by (1) considering exposure to multiple types of victimization in the same study, (2) assessing more proximal victimization exposure than has been typical of past research, (3) controlling for internalizing disorder diagnoses and past suicidal ideation, and (4) using a nationally representative sample.

Findings indicated that, with the exception of community violence, suicidal ideation was significantly more common among adolescents who had experienced any form of victimization, including sexual assault, peer victimization, witnessing family violence, and maltreatment. Moreover, when considered in multivariate analyses, 3 of these categories of victimization showed

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significant effects on onset of suicidal ideation, independent of the other victimization types, demographic factors, and internalizing disorder diagnoses: peer victimization, sexual assault, and maltreatment.

Adolescents who experienced peer victimization within the past year were almost 2.5 times more likely to think about killing themselves than those who had not been victimized by peers. The importance of recent exposure to peer victimization, even when controlling for other forms of victimization, certainly lends credence to concerns about bullying among youth and its potential contribution to teen suicide. The findings also showed a substantial independent effect of sexual assault on suicide ideation, consistent with past research on the traumatic, stigmatizing, and shame-producing qualities of this form of victimization.[33-35] However, maltreatment by a caregiver was associated with greatest risk. Adolescents who had experienced physical abuse, emotional maltreatment, neglect, and/or custodial interference in the past year were almost 4.5 times more likely to experience the onset of suicidal ideation. Thus, in contrast to the assumption that maltreatment is primarily a problem of young children[36] and that parental influence declines in adolescence,[37-40] these findings point to the particular importance of interactions with parents and other caregivers on adolescent well-being.

Although seeking explanations for the particularly strong influence of maltreatment is beyond the scope of this research, it may be that abuse by caregivers—those on whom youth typically depend for safety, stability, and nurturance—may be especially likely to engage feelings of hopelessness. "Hopelessness," a system of cognitive schemas that emphasizes negative expectations for the future,[41,42] has been identified in a variety of studies as being associated with suicidal behavior.[43-47] Indeed, several studies have noted the connection between child maltreatment and the development of hopelessness in both children and adults.[45,48,49]

Polyvictimization emerged as the most powerful predictor of suicidal ideation. Exposure to many different forms of victimization likely reflects significant adversity across multiple contexts of adolescents' lives. For such youth, victimization represents more of a life condition than a set of events. Cross-context victimization may also damage adolescents' potential for resiliency by creating deficits in social and personal resources (such as social support and self-esteem) that would normally help to moderate the negative effects of victimization. Future research should attempt to better specify the mechanisms that make child polyvictimization a particularly strong predictor of suicidal ideation.

Another noteworthy finding was the substantial association between suicidal ideation and living in a household with a stepparent or unmarried parent partner. Although past research has documented greater victimization exposure in stepfamily households,[50] in the current study, victimization did not fully explain the association between family structure and suicidal ideation. The particularly strong association with stepfamily households is worrisome and warrants more attention in future research.

This study uncovered a smaller percentage of adolescents reporting suicidal ideation than has been found in other epidemiological surveys. The discrepancy likely reflects differences in the assessment period. We used a measure that asked youth about thoughts of suicide during the past month, while most other studies have used measures that ask about the past year or lifetime.[7,10,22] Advantages to our more proximal shorter-period assessment include clearer temporal ordering between recent victimization and suicidal ideation and less likelihood of recall bias. However, the lower numbers reporting ideation leave less statistical power to detect associations and do not allow for subgroup analyses.

CONCLUSIONS

These findings emphasize the need to include comprehensive victimization assessment in adolescent suicide prevention and intervention efforts, recognizing the particular significance of polyvictimization. Similarly, treatment responses to sexual assault, peer-perpetrated victimization, and child maltreatment must recognize the increased risk of suicidal behavior among victims. Although much research in this area has focused on neurological risks and psychopharmacologic interventions, these findings point to the importance of the environment and the value of victimization prevention in reducing suicidal behavior. A comprehensive approach to suicide prevention needs to address the safety of youth in their homes, schools, and neighborhoods.

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