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## Mental health service use among high school students exposed to interpersonal violence

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## Abstract

**BACKGROUND**—Violence-exposed youth rarely receive mental health services, even though exposure increases risk for academic and psychosocial problems. This study examines the association between violence exposure and mental health service contact. The four forms of violence exposure were peer, family, sexual, and witnessing.

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### Human Subjects Approval

The research protocol, including informed consent procedures, received approval from the Harvard School of Public Health, Office of Human Research Administration. Secondary data analysis was exempted from full review by the Boston University Charles River Campus Institutional Review Board.

**METHODS**—Data are from 1,534 Boston public high school students who participated in a 2008 self-report survey of violence exposure and its correlates. Multivariate logistic regressions estimated associations between each form of violence with service contact, then examined whether associations persisted when controlling for suicidality and self-injurious behaviors.

**RESULTS**—In unadjusted models, violence-exposed students more often reported service contact than their peers. However, in multivariate models, only exposure to family ( $OR=1.69$ ,  $CI=1.23-2.31$ ) and sexual violence ( $OR=2.34$ ,  $CI=1.29-4.20$ ) were associated with service contact. Associations attenuated when controlling for suicidality and self-injurious behaviors, indicating they were largely explained by self-harm. Sexual violence alone remained associated with mental health service contact in fully adjusted models, but only for girls ( $OR=3.32$ ,  $CI=1.30-8.45$ ), suggesting gender-specific pathways.

**CONCLUSIONS**—Associations between adolescent violence exposure and mental health service contact vary by form of exposure. Outreach to a broader set of exposed youth may reduce the impact of violence and its consequences for vulnerable students.

### Keywords

Mental health; Service Use; Suicide; Violence; Victimization; Adolescents

Consistent evidence indicates that youth exposed to violence are more likely than their non-exposed peers to develop mental disorders.<sup>1-4</sup> However, few studies have examined whether those exposed to violence are more or less likely to receive mental health services. To date, the small number of studies that have examined this association have found that students exposed to violence often do not receive mental health services.<sup>5,6</sup> Further, after controlling for background variables and psychological symptoms, violence victimization may even be associated with *decreased* odds of receiving mental health services.<sup>5</sup> This pattern is concerning and highlights a missed opportunity for prevention, given that mental health services can: reduce the psychological impact of violence, allow youth to be monitored for the onset of symptoms, and prevent the onset of subsequent comorbid disorders among those with existing psychological disorders.<sup>7,8</sup>

Prior studies have tested composite indices of violence exposure, that is reflecting either *any* violence exposure,<sup>5</sup> or *number* of violence exposures.<sup>6</sup> However, there is reason to expect that different forms of violence exposure may be differentially associated with mental health service use. First, several recent studies have documented that some forms of exposure to violence, particularly family violence, are more strongly associated with the onset and persistence of psychological disorders than others.<sup>9-11</sup> Second, different forms of violence exposure can vary in how observable they are to the adults who are likely to initiate mental health services. For example, peer aggression may be observable by adults at school, whereas family violence may be concealed. Third, adolescents are more likely to report some forms of violence than others to adults in helping roles.<sup>12</sup> Finally, some forms of violence – sexual violence in particular – are more likely to lead to mental health service referral than others, as they are more widely recognized as having a negative impact on psychological adjustment.<sup>13</sup> More clearly delineating the associations of different forms of

violence exposure and mental health service use could contribute to improved school-based outreach and service provision for vulnerable students.

Further, there are well-documented demographic differences related to both violence exposure and likelihood of mental health service contact. In particular, boys typically report higher rates of physical violence or witnessing violence, while girls more often report sexual violence.<sup>14, 15</sup> Prior studies have also documented that boys are more likely to receive mental health services than girls;<sup>16, 17</sup> although these associations vary by level of impairment and the type of disorder precipitating services.<sup>17, 18</sup> Gender has also been found to moderate the association between violence exposure and mental health outcomes, which in turn, may influence likelihood of mental health service receipt.<sup>14, 19</sup> However, prior studies have not specifically addressed the role of gender as a potential moderator in the relationship between violence exposure and mental health service use.

The current study sought to address shortcomings in the literature by examining associations between several forms of violence exposure and mental health service contact. Data come from a sample of students attending Boston public high schools. First, we examine the associations between each of four forms of violence exposure and mental health service contact. Second, we examine whether students reporting multiple forms of violence exposure more often report a mental health service contact. Third, we test whether these associations are explained by suicidality and self-injurious behaviors, two notable mental health consequences of violence exposure. Finally, to determine whether there are gender differences in associations of specific forms of violence exposure and mental health service contact, we conduct stratified analyses by gender.

## METHODS

### Participants

Data are from the 2008 Boston Youth Survey (BYS). The BYS is a survey of high school students (9<sup>th</sup>–12<sup>th</sup> graders) in the Boston Public Schools (BPS) administered by the Harvard Youth Violence Prevention Center.<sup>20</sup> The BPS student population is predominately minority and low-income; 42% are Latino, 35% are Black, 78% are eligible for free or reduced-price meals in school, and 53% are eligible for food stamps.<sup>21</sup>

The BYS 2008 assesses a range of topics, including demographics, health behaviors, and substance use. It particularly focuses on violence, in terms of victimization, perpetration, and witnessing. Thirty-two eligible public high schools within the BPS system were invited to participate in the BYS. Schools that were considered ineligible for participation were those serving: (1) adults, (2) students with significant disabilities, and (3) students transitioning back to school after incarceration or suspension. Twenty-two eligible schools participated, resulting in a school participation rate of 68%. Among schools considered eligible, there were no statistically significant differences between participating and nonparticipating schools in key school indicators, such as dropout rates, composition of students, standardized test scores.

Within participating schools, a list of unique humanities classrooms was generated. Classrooms were stratified by grade and selected randomly for survey administration. Every student within selected classrooms was invited to participate. Classroom selection continued until approximately 100–125 students per school were surveyed. At two schools with total enrollments close to 100, all classrooms were invited to participate.

## Procedure

The BYS was administered in paper-and-pencil format by trained research staff between January and April 2008. Prior to administration, passive consent was sought from parents. Specifically, parents were notified of the survey and not required to respond if they approved their child's participation. Informed assent was obtained from students. Of the 2,725 students enrolled in selected classrooms, 1,878 completed a survey (69%). Students who did not complete a survey either: (1) chose not to participate (N=99), (2) did not have parental consent (N=24), or (3) were absent on the day of administration (N=724). The Human Subjects Committee at the Harvard School of Public Health approved all data collection procedures. Secondary analysis of data was approved by the Human Subjects Committee at Boston University.

## Instruments

**Violence exposure**—The BYS included 16 questions assessing four forms of interpersonal violence exposure in the past year. All questions had a yes/no response set. The research team developed questions about peer and family violence based on items from the physical assault scale of the Revised Conflict Tactics Scales.<sup>22</sup> Peer violence was measured with four questions asking respondents about victimization by other adolescents. Respondents were specifically asked to think about their peers, and to exclude family members. Peer violence included having been: (1) punched, kicked, choked or beaten up, (2) attacked or threatened with a weapon other than a gun, (3) the target of a “gun display”, and (4) shot at or shot with a gun. Having been the target of a gun display indicated that someone showed the young person a gun for the purpose of scaring him or her, or to force him or her to do something.

Family violence was measured with six questions asking the respondent about being assaulted by a caregiver. Acts of violence included having been: (1) pushed, grabbed or shoved; (2) kicked, bitten, or punched; (3) hit with something that could hurt; (4) choked or burned; (5) attacked or threatened with a weapon, such as a knife or bat; or (6) physically attacked in some other way.

Items on sexual violence and witnessing violence were developed by the BYS research team. Sexual violence was assessed with a single question asking whether respondents had been forced to have sex. The instructions indicated that the perpetrator could have been anyone, and the assault could have occurred anywhere.

Witnessing violence was assessed with four questions asking whether students had observed someone else being assaulted in real life. It included having seen someone else being: (1)

attacked or threatened with a weapon other than a gun, (2) threatened with a gun, (3) shot at or shot, or (4) murdered.

A tetrachoric factor analysis (promax rotation) with these 16 items resulted in three factors with eigenvalues greater than one (unrotated eigenvalues = 7.10, 3.47, 1.44, 0.90) corresponding to three of the item groups described above: family violence, witnessing violence, peer violence. Results are available on request. Although the sexual violence item loaded with the family violence factor, we maintained it as an independent indicator because it had the lowest loading on this factor and is conceptually distinct. For each factor, we created a dichotomous variable indicating endorsement of any violence, that is: any peer violence, any family violence, any witnessing violence.

**Mental health contact**—Contact with a mental health provider was assessed with a single item that asked respondents: “In the past twelve months, did you visit a school counselor, therapist, or psychologist because you were feeling bad or were having some emotional problems?”. This question was intended to assess a broad range of mental health service contacts both in and out of school.

**Suicidality and self-injurious behaviors**—Two items asked if in the past year respondents: (1) seriously considered attempting suicide or (2) cut or otherwise injured themselves on purpose.

**Sociodemographics**—BYS respondents indicated their gender, grade level (9<sup>th</sup>–12<sup>th</sup>), and race/ethnicity. Race/ethnicity was coded as non-Latino White, non-Latino Black, Latino, Asian, and other.

## Data Analysis

Analyses were restricted to participants with complete information on demographics, exposure to violence, and mental health contact (N=1,534). We examined associations between violence, suicidality/self-injurious behaviors, and mental health contact by constructing a series of logistic regression models. In the first series of models, we examined the bivariate associations between each of the four forms of violence exposure separately and mental health contact, controlling for gender, grade, and race/ethnicity. In a second model, we examined the multivariate association of each of the four forms of violence simultaneously and mental health service contact, controlling for demographic variables. By entering all four forms of violence together in a single model, we were able to account for the co-occurrence of these forms of violence involvement and determine the unique contribution of each form of violence to mental health service contact. In a third model, we added dummy variables indicating *number* of forms of victimization, specifically: exactly one form, exactly two forms, exactly three forms, all four forms. This allowed us to determine whether the odds of mental health contact increased among students reporting exposure to multiple forms of violence. Fourth, we estimated a model that included the four forms of violence exposure, number of violence exposures, and suicidality/self-injurious behaviors as predictors of mental health service contact. We re-ran the final model, stratified by gender, to observe differences in associations between violence exposure and mental

health service contact for male and female students. Analyses were conducted using PROC GLIMMIX, SAS, version 9.2, a multi-level modeling procedure which accounted for the clustering of students in schools. We report adjusted odds ratios and 95% confidence intervals.

## RESULTS

### Violence Exposure

More than one-half (56.9%) of students reported at least one form of violence exposure in the past year. The most frequently reported form of violence was witnessing violence (45.5%), followed by peer violence (21.8%), family violence (17.1%), and sexual violence (3.4%). These forms of violence exposure were co-occurring, with only 33.1% of the total sample reporting exactly one form of exposure. By contrast, 17.5% reported two, 5.4% reported three, and 0.9% reported all four forms of violence exposure. Forms of violence exposure were positively and moderately correlated with one another ( $r = 0.25\text{--}0.46$ ) (Table 1).

### Mental Health Contact

Less than one-fourth (22.8%) of respondents had a past-year mental health service contact. There were no statistically significant differences in the prevalence of a mental health service contact by race/ethnicity or grade level. Females, those reporting suicidal ideation, and those who reported self-injurious behaviors were significantly more likely to have had a mental health service contact (Table 2). Youth who reported family violence, sexual violence, and witnessing violence were also significantly more likely than their non-exposed peers to have had a mental health service contact ( $\chi^2 = 3.92\text{--}19.65$ , all  $p < .05$ ). However, youth victims of peer violence were no more likely to report a mental health service contact (24.2%) than those reporting no peer violence (22.3%).

### Association between Violence Exposure and Mental Health Contact

In bivariate models, where each form of violence was considered separately, family violence, sexual violence, and witnessed violence were all significantly and positively associated with mental health contact. The strongest odds ratio was for sexual violence (OR = 2.84, 95% CI = 1.60–5.05), suggesting that youth exposed to sexual violence had 2.84 times the odds of having mental health contact when compared to youth who did not report sexual violence (Table 3). The magnitude of the odds ratios attenuated in a multivariate model in which all four forms of violence exposure were entered simultaneously. This indicates that associations were partially accounted for by co-occurring forms of violence. Only family violence (OR = 1.69, 95% CI = 1.23–2.31) and sexual violence (OR = 2.33, 95% CI = 1.29–4.20) remained statistically significant in this multivariate model.

When we tested the association of *number* of different forms of violence exposure and mental health service use, we found, that youth exposed to a greater number of different forms of violence were more likely to have a mental health contact (OR = 1.31 for exactly one form of violence exposure, OR = 2.55 for all four forms of violence exposure). However, when we examined each of the four forms of violence exposure simultaneously,

along with the number of different forms of violence exposure as predictors of service use, we found that the variables indicating number of forms were no longer statistically significant, while the individual forms of violence were statistically significant. This suggests that the effects of forms of violence are cumulative, that is additive on the logit scale of the model. Here, only family violence (OR = 1.80, 95% CI = 1.13–2.85) and sexual violence (OR = 3.01, 95% CI = 1.43–6.37) remained statistically significant in their association with mental health service contact.

Further, we examined the extent to which suicidal ideation/self-injurious behaviors contributed to explaining the association of form and number of violence exposures and mental health service contact. Both were significantly associated with mental health contact. The only form of violence that remained significantly associated with mental health contact after controlling for suicidal ideation and self-injurious behaviors was sexual violence (OR = 2.53, 95% CI = 1.14–5.63) (Table 3). The odds ratio for family violence attenuated, indicating that its significant association with mental health service use was largely mediated by suicidal ideation and self-injurious behaviors.

As females in this sample had significantly higher odds of mental health service contact than males (OR = 1.67, 95% CI = 1.27–2.19), we reran the final model stratified by gender (Table 4). For males, only self-injurious behavior was significantly associated with mental health contact (OR = 2.46, 95% CI = 1.06–5.72). For females, indicators of suicidal ideation and self-injurious behaviors were both significantly associated with mental health service contact (ORs = 2.56–2.82), as was sexual violence (OR = 3.32, 95% CI = 1.30–8.45).

## DISCUSSION

We set out to examine the association between four forms of violence exposure and mental health service contact among Boston public high school students participating in the BYS. We found that the majority of students in our sample reported exposure to violence. More than three-quarters reported at least one form of violence in the past year. These numbers are higher than those reported in national samples,<sup>15</sup> but are consistent with those reported by other studies of youth living in low-income urban areas,<sup>2,23</sup> reiterating the strong presence of violence in the lives of urban adolescents. As with prior studies, different forms of violence were interrelated: 41.8% of youth who reported exposure to any violence indicated having been exposed to more than one form.<sup>24–26</sup>

Approximately one-fifth of all students reported past-year contact with a mental health professional and the likelihood of having a mental health contact varied by mental health need and violence exposure. However, even among students reporting serious suicidal ideation, less than one-half had contact with a mental health provider. These findings are consistent with national data suggesting that large numbers of youth with a need for mental health services do not receive those services.<sup>16, 27, 28</sup> Youth reporting exposure to violence had similarly low rates of mental health service contact, ranging from 24.2% for victims of peer violence to only 44.2% for victims of sexual violence. This indicates that the needs of BYS participants exposed to violence are also inadequately met.<sup>5</sup>



Although family violence, sexual violence, and witnessing violence were significantly associated with service contact in bivariate analyses, these associations notably attenuated in multivariate analyses, a finding that reflects the degree to which multiple forms of violence co-occur.<sup>26</sup> Consistent with literature on the psychological outcomes of childhood adversities,<sup>4,10,29</sup> this finding suggests that studies focused on a single form of violence exposure – for example witnessing violence – but failing to account for multiple exposures may overestimate associations between specific forms of violence and mental health service contact. Prior research found that youth reporting a greater number of forms of violence were more likely to access mental health services.<sup>6</sup> Our finding suggests that the joint effect of multiple forms of youth violence exposure is better understood as a cumulative effect rather than as an effect of the number of forms of violence.

Mental health service contact was most powerfully associated with exposure to family and sexual violence. These forms of interpersonal violence have previously been identified as particularly powerful predictors of psychiatric disorders.<sup>9,10</sup> Hence, our finding suggests that BYS youth at greatest risk for the mental health consequences of violence are, appropriately, the most likely to be connected with services. These associations appeared to be at least partially mediated by suicidal ideation and self-injurious behaviors, two important mental health indicators. Sexual violence, alone, continued to be significantly associated with mental health service use in fully adjusted models, indicating that it has the strongest independent association with service contact. Literature from studies of child welfare similarly suggests that youth exposed to sexual violence are the most likely to be referred for evaluation and treatment, because of the seriousness with which these reports are considered.<sup>30</sup>

Interestingly, peer violence victimization was not associated with mental health service contact, even in bivariate analyses. Importantly, our measures of peer violence were quite severe, including serious physical assault and gun displays. The lack of association could be due to the fact that violence has become somewhat normalized in urban areas, or that students involved in peer violence are sometimes viewed as “troubling” rather than “troubled,” and are less likely to be referred for mental health services.<sup>31</sup> By contrast, the finding that victims of sexual assault receive services is encouraging. However, the high frequency of physical assault by peers remains concerning, given our observation that many of these youth receive no mental health services. These findings signal the need to ensure that victims of peer violence receive support. Finally, in stratified analyses by gender, associations of sexual violence and mental health service contact remained significant for females. However, for males, only self-injurious behavior was significantly associated with mental health service contact. This result, coupled with the finding that females in this sample were more likely to have a mental health contact than males, in general, suggests more direct pathways to enter services for females than males with violence exposure. Results may reflect differences in the perceptions of male versus female exposure to sexual violence, or that females more effectively elicited help-seeking mechanisms than males.



## Limitations

Findings should be interpreted in light of several study limitations. First, the BYS uses a sample of youth attending Boston public high schools. Findings may not be able to be generalized to students attending non-participating Boston public schools or schools in other populations. Second, mental health service contact was assessed using a broadly stated question about visiting a school counselor, therapist, or psychologist. Although this question was intended to assess a range of mental health service contacts, it is unclear whether, in the context of this school-based survey, students were primarily referencing contacts with school-based providers. Further, the BYS does not include information about the nature of contact with this provider, including who initiated contact, duration of treatment, or its quality and frequency. For example, although 23% of students reported having seen a provider, it is possible that a much smaller proportion of these youth received ongoing services. Third, because the assessment of mental health need included only suicidal ideation and self-injurious behavior we were unable to examine a broader range of emotional problems that may elicit mental health services. This limitation would lead us to over-estimate the direct association (unmediated by mental health status) between violence involvement and mental health contact, suggesting that such associations may be even smaller than those reported here. Fourth, the BYS did not ask students about their insurance or socio-economic status, factors known to be associated with mental health service access. Fifth, data are cross-sectional and do not establish a temporal association between exposure to violence and mental health contact. Finally, data are based solely on adolescent self-reports that may under- or over-report violence exposure and mental health service contact.

## Conclusions

Study findings suggest several important directions for future research. First, from a methodological perspective, future studies would benefit from more comprehensive measures of mental health service contact and violence involvement that assess the nature and quality of service use, as well as the duration and severity of violence exposure. Further, understanding the type and effectiveness of mental health services provided to violence exposed youth, and how these may differ from services provided to non-violence exposed youth, could provide essential information to inform best practices in service delivery. Second, we did not observe any racial/ethnic differences in mental health service contact, among this sample of students in schools primarily serving minority youth. Prior studies have documented racial/ethnic differences in mental health service use, but have not examined the association of disparities in service access with differential exposure to violence.<sup>16,28</sup> Understanding the role of violence exposure in determining whether minority youth access services can potentially inform research and practice to reduce racial/ethnic disparities in mental health service receipt.

Although our data do not speak directly to the mechanisms by which youth involved in violence do – or more often, do not – have a mental health service contact, we consider several possibilities. First, adults are often unaware of youth exposure to violence, which has implications for initiation of mental health services.<sup>12,32–34</sup> Second, in a high violence-exposure context, such as the schools participating in the BYS, violence involvement may be considered normative, decreasing the likelihood that students, parents, and school staff

would initiate mental health services connections for students. Third, youth may fear consequences, particularly for peer violence, where they may consider themselves vulnerable to disciplinary action.

Although schools are designed to allocate resources to students with the most severe mental health problems, from a public health and prevention perspective, identifying youth at risk for developing disorders and proactively providing services is an important priority. Repeated studies have demonstrated that students exposed to violence are at substantially increased risk for poor academic and psychological outcomes. In this context, we would hope that violence involvement would be associated with increased mental health service access, even independent of the mental health consequences of violence. As such, the current study contributes to a very small body of literature finding that students exposed to violence do not typically access mental health services.<sup>5,35</sup> Efforts to identify violence exposed youth may provide important alternate pathways to care that emphasize early intervention and provide support to students for whom existing mental disorders are compounded by violence exposure.

## IMPLICATIONS FOR SCHOOL HEALTH

The majority of US children who receive mental health services receive them in school or on the basis of a school referral. As a result, schools are critical to determining whether, and how quickly, youth access mental health services.<sup>28,36,37</sup> Schools can contribute to facilitating mental health service use for violence exposed youth through improved outreach to students and trainings for school staff. First, mental health staff can be trained in interventions, such as Cognitive Behavioral Intervention for Trauma in Schools, which are specifically aimed at relieving symptoms for trauma-exposed youth and provide a framework for trauma-informed interventions.<sup>38</sup> Second, training for teachers and school staff can emphasize understanding the negative psychological impact of exposure to violence and emphasize the potential benefits of mental health services. Finally, schools can engage in school-wide screenings to systematically track violence exposures and related mental health outcomes, providing data that can inform school-level preventative interventions and outreach efforts for students.<sup>39,40</sup>

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**Table 1**

Tetrachoric correlations of variables indicating mental health service contact, violence exposure, suicidality, and self-injurious behaviors (N=1,534)

	MH Service Contact	Peer Violence	Family Violence	Sexual Violence	Witnessing Violence	Suicidality	Self-Injurious Behaviors
MH Service Contact	1.00						
Peer Violence	0.04	1.00					
Family Violence	0.22	0.38	1.00				
Sexual Violence	0.27	0.31	0.41	1.00			
Witnessing Violence	0.09	0.46	0.30	0.25	1.00		
Suicidality	0.44	0.25	0.47	0.43	0.13	1.00	
Self-Injurious Behaviors	0.45	0.10	0.45	0.37	0.19	0.75	1.00

**Table 2**

Description of sample prevalences, and among those in each sample category, % who reported mental health contact in the last year (N=1,534)

	Prevalence	% with MH contact
Gender		
Male	44.9	16.7
Female	55.1	27.7
$\chi^2$		26.1 *
Race/Ethnicity		
White	9.5	21.4
Black	42.4	21.1
Latino	33.2	25.7
Asian	8.3	21.1
Other	6.7	22.6
$\chi^2$		4.0
Grade		
9 <sup>th</sup>	24.3	19.1
10 <sup>th</sup>	27.9	23.1
11 <sup>th</sup>	26.3	25.0
12 <sup>th</sup>	21.5	23.6
$\chi^2$		4.2
Suicidality		
Yes	11.8	49.2
No	88.2	19.2
$\chi^2$		81.5 *
Self-Injurious Behaviors		
Yes	8.2	54.0
No	91.8	20.0
$\chi^2$		76.1 *
Victim of Peer Violence		
Yes	21.8	24.2
No	78.2	22.3
$\chi^2$		0.5
Victim of Sexual Assault		
Yes	3.4	44.2
No	96.6	22.0
$\chi^2$		14.1 *
Victim of Family Violence		
Yes	17.1	33.2
No	82.9	20.6
$\chi^2_1$		19.7 *



	Prevalence	% with MH contact
Witnessed Violence		
Yes	45.5	25.1
No	54.5	20.8
$\chi^2$		3.9*
Number of Forms of Violence		
0	43.1	19.1
1	33.1	23.2
2	17.5	26.4
3	5.4	36.1
4	0.9	30.8
$\chi^2$		16.2*

\*  
p < .05 based on a two-tailed chi-square test of significance

Table 3

Bivariate and multivariate associations of violence exposure and suicidal ideation/self-injurious behaviors with mental health service contact (N=1,534)<sup>a</sup>

	Bivariate <sup>2</sup>		Multivariate <sup>3</sup> All Forms of Violence Exposure		Multivariate <sup>3</sup> Forms and Number of Violence Exposure		Multivariate <sup>3</sup> Forms and Number of Violence and Suicide/Self-Injury	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Gender								
Male			--	--	--	--	--	--
Female			1.89*	(1.45–2.47)	1.87*	(1.43–2.44)	1.67*	(1.27–2.19)
Race/Ethnicity								
White			--	--	--	--	--	--
Black			0.85	(0.54–1.35)	0.86	(0.54–1.36)	0.91	(0.57–1.47)
Latino			1.15	(0.73–1.83)	1.16	(0.73–1.85)	1.18	(0.73–1.91)
Asian			0.95	(0.52–1.74)	0.98	(0.53–1.78)	1.07	(0.57–1.98)
Other			0.81	(0.43–1.53)	0.82	(0.43–1.54)	0.76	(0.39–1.49)
Grade								
9 <sup>th</sup>			--	--	--	--	--	--
10 <sup>th</sup>			1.37	(0.96–1.96)	1.36	(0.95–1.94)	1.32	(0.91–1.90)
11 <sup>th</sup>			1.51*	(1.05–2.16)	1.50*	(1.05–2.15)	1.55*	(1.07–2.25)
12 <sup>th</sup>			1.47	(1.00–2.15)	1.47*	(1.00–2.14)	1.48*	(1.00–2.19)
Forms of violence exposure								
Peer Violence	1.30	(0.96–1.75)	1.05	(0.76–1.44)	1.12	(0.68–1.85)	1.14	(0.68–1.91)
Family Violence	1.87*	(1.38–2.52)	1.69*	(1.23–2.31)	1.80*	(1.13–2.85)	1.41	(0.87–2.30)
Sexual Violence	2.84*	(1.60–5.05)	2.33*	(1.29–4.20)	3.01*	(1.43–6.37)	2.53*	(1.14–5.63)
Witnessing Violence	1.31*	(1.02–1.69)	1.19	(0.91–1.54)	1.22	(0.89–1.68)	1.24	(0.90–1.71)
Number of violence exposures								
1 form	1.31	(0.98–1.76)	--	--	--	--	--	--
2 forms	1.64*	(1.16–2.32)	0.92		0.92	(0.51–1.66)	0.79	(0.43–1.45)
3 forms	2.69*	(1.62–4.48)	0.92		0.92	(0.34–2.50)	0.82	(0.29–2.30)
4 forms	2.55	(0.75–8.64)	0.34		0.34	(0.05–2.06)	0.23	(0.03–1.55)
Mental health consequences								

	Bivariate <sup>2</sup>		Multivariate <sup>3</sup> All Forms of Violence Exposure		Multivariate <sup>3</sup> Forms and Number of Violence Exposure		Multivariate <sup>3</sup> Forms and Number of Violence and Suicide/Self-Injury	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Suicidal ideation	3.89*	(2.79–5.41)					2.54*	(1.73–3.72)
Self-injurious behaviors	4.35*	(2.96–6.40)					2.50*	(1.61–3.89)

\* p<.05

<sup>1</sup> All models include controls for gender, grade, and race/ethnicity

<sup>2</sup> In bivariate models, each form of violence exposure is added to the model on its own. Forms of violence exposure and suicidal ideation/self-injurious behaviors are each entered individually, with the controls listed above. Number of violence exposures are entered as a “set” – meaning they were entered simultaneously into a model – with the controls listed above.

<sup>3</sup> In multivariate models, all predictors are added to the model simultaneously.

<sup>4</sup> Exactly 1 violence exposure is not included in multivariate models with forms of violence exposure, because this coefficient is perfectly explained by the coefficients of the four forms of violence exposure

**Table 4**

Multivariate associations of violence exposure and suicidal ideation/self-injurious behaviors with mental health service contact, stratified by gender<sup>a</sup>

	Males (N = 689)		Females (N = 845)	
	OR	95% CI	OR	95% CI
Race/Ethnicity				
White	--	--	--	--
Black	1.06	(0.53–2.11)	0.81	(0.42–1.58)
Latino	0.82	(0.40–1.69)	1.40	(0.72–2.73)
Asian	1.12	(0.44–2.88)	1.05	(0.46–2.42)
Other	0.80	(0.24–2.64)	0.76	(0.33–1.77)
Grade				
9 <sup>th</sup>	--	--	--	--
10 <sup>th</sup>	1.05	(0.57–1.93)	1.57	(0.97–2.55)
11 <sup>th</sup>	1.92*	(1.07–3.44)	1.38	(0.85–2.25)
12 <sup>th</sup>	1.37	(0.71–2.63)	1.63	(0.98–2.69)
Forms of violence exposure				
Peer Violence	0.92	(0.39–2.16)	1.25	(0.63–2.48)
Family Violence	1.73	(0.67–4.46)	1.20	(0.67–2.15)
Sexual Violence	0.54	(0.05–5.63)	3.32*	(1.30–8.45)
Witnessing Violence	1.56	(0.92–2.65)	1.10	(0.72–1.66)
Number of violence exposures				
1 form	--2	--	--2	--
2 forms	0.71	(0.25–2.02)	1.00	(0.46–2.17)
3 forms	0.87	(0.15–5.00)	0.76	(0.20–2.98)
4 forms	1.28	(0.04–44.90)	0.12	(0.01–2.49)
Mental health consequences				
Suicidal ideation	2.03	(0.99–4.17)	2.82*	(1.77–4.50)
Self-injurious behaviors	2.46*	(1.06–5.72)	2.56*	(1.51–4.36)

\* p<.05

<sup>1</sup> All predictors are added to the model simultaneously.

<sup>2</sup> Exactly 1 violence exposure is not included in multivariate models with forms of violence exposure, because this coefficient is perfectly explained by the coefficients of the four forms of violence exposure.