Youth Violence and Connectedness in Adolescence: What Are the Implications for Later Sexually Transmitted Infections?

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Abstract

Purpose: To examine associations between (1) youth violence victimization and perpetration and later sexually transmitted infections (STI) and (2) parent–family and school connectedness and later STI, and to explore the moderating role of connectedness on the associations between youth violence victimization and perpetration and later STI.

Methods: We used data from Waves I and IV of the National Longitudinal Study of Adolescent Health, which provided a baseline weighted sample of 14,800 respondents. We used logistic regression to examine associations between youth violence and connectedness with self-reported ever STI diagnosis, including gonorrhea, chlamydia, syphilis, genital herpes, genital warts or human papillomavirus, or human immunodeficiency virus. If participants reported having an STI at Wave I they were excluded from the analysis.

Results: Controlling for biological sex, race/ethnicity, age, parent's highest education level, and parent's marital status, both youth violence victimization and perpetration were associated with an increased risk of later STI (adjusted odds ratio [AOR], 1.27, 95% confidence interval [CI], 1.07–1.52; and AOR, 1.21, 95% CI, 1.04–1.41, respectively). Parent–family and school connectedness in adolescence were associated with a decreased risk for later STI (AOR, .96, 95% CI, .95–.98; and AOR, .97, 95% CI, .95–.99, respectively); however, connectedness did not moderate the associations between nonsexual violence involvement and later STI.

Conclusions: These results indicate that youth violence victimization and perpetration may be risk factors for STI later in life. Conversely, parent–family and school connectedness in adolescence appear to protect against subsequent STI. The findings suggest that provider efforts to address youth violence and connectedness in adolescence can promote positive sexual health outcomes in adulthood.

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Keywords

The burden of sexually transmitted infections (STI) in the United States, including human immunodeficiency virus (HIV), remains a serious public health concern. The Centers for Disease Control and Prevention (CDC) estimates that there are 20 million new STI annually that cost the nation approximately $16 billion in lifetime health care costs [1,2]. Approximately half of these new infections are among young people aged 15–24 years [1].

Efforts to identify both risk and protective factors for STI constitute a major research area with direct relevance for prevention interventions. Theoretical models that incorporate both risk and protective factors for antisocial behavior among adolescents, such as the Problem Behavior Theory and Social Development Model [3,4], can inform research on factors related to STI. These theories describe how multiple health risk behaviors are associated with each other and are influenced by the same group of risk and protective factors. Risk and protective factors occur in multiple domains, ranging from individual to family to societal levels, and differ by developmental stage [3,4]. Because of this complexity, identification and association of risk and protective factors across multiple adverse health outcomes continue to test these theoretical models.

Violence victimization and perpetration are identified risk factors for HIV and other STI, and intersections between violence and sexual health are being increasingly examined [5–7]. Although some research has focused on teen dating violence [8,9], most studies that consider violence and sexual health among young people examine associations between child maltreatment, particularly sexual abuse, and later sexual risk behaviors, such as ever having had sex or early sexual debut [10–14]. Such associations, which link adverse life experiences to later health consequences, may apply to other types of violence in childhood or adolescence, including youth violence. Consideration of the association between youth violence and STI is particularly warranted given the prevalence of youth violence: The 2011 Youth Risk Behavior Survey found that nearly one third (32.8%) of respondents (grades 9 through 12) reported involvement in a physical fight in the prior 12 months [15].

On the other hand, connectedness, which refers to emotional attachment and commitment to social relationships, has been shown to protect against several adolescent sexual risk behaviors [16,17] and against youth violence victimization and perpetration [18,19]. Given this evidence, prevention strategies that increase young peoples' connections to family and school can help reduce multiple problem behaviors later in life [20]. In addition to directly promoting positive health outcomes, protective factors such as connectedness have been shown to affect the association between certain risk factors and health-related outcomes [21].

Despite theory and existing research that suggest youth violence and connectedness may be associated with STI, few analyses consider STI as the outcome of interest or examine these associations over time. Much of the literature examining associations between violence in childhood and adolescence and sexual health measures childhood sexual abuse

retrospectively among either young women or men who have sex with men. Given the type of violence considered, these studies generally explore violence victimization but not perpetration. We are unaware of any analyses that have examined both youth violence victimization and perpetration among both girls and boys on later STI.

In addition, most studies that examine connectedness and sexual health focus on sexual risk behaviors [16]. Few studies have used STI as the outcome. Addressing this gap can demonstrate that connectedness protects across the casual pathway from risk behaviors to the adverse health outcome. Such evidence linking connectedness to decreases in actual STI can strengthen messages to providers, parents, and adolescents that promoting positive connections to family and school is important. Finally, despite the recognition of potential interaction effects between protective and risk factors [21], no studies have examined how connectedness might affect the association between violence and later STI.

The National Longitudinal Study of Adolescent Health (Add Health) provides an opportunity to address these gaps using data on youth violence, connectedness and STI over 15 years among a nationally representative sample. Specifically, Add Health data were used to examine associations between (1) youth violence victimization and perpetration and later STI and (2) parent–family and school connectedness in adolescence and later STI. Examining these associations longitudinally is necessary to understand whether youth violence is a risk factor and whether connectedness is a protective factor for acquiring STI later in life. We also sought to understand whether connectedness affects the association between youth violence and STI. We predicted that the associations between youth violence and STI would be weaker among adolescents with greater versus lower levels of connectedness. Such an interaction effect would provide further evidence that efforts to enhance connectedness should be incorporated in adolescent STI/HIV prevention programs.

Methods

This study used data from the Add Health Study, which includes a nationally representative sample of 20,745 adolescents in grades 7 through 12, and used a multistage, stratified, cluster sampling design. The sampling frame involved the selection of a random sample of 80 high schools and 52 middle schools throughout the United States, stratified by region, urbanicity, school type (public, private, or parochial), racial or ethnic mix, and size. Four waves of in-home survey data were collected in 1995 (Wave I), 1996 (Wave II), 2000–2001 (Wave III), and 2007–2008 (Wave IV). The sampling design and data collection procedures of Add Health have been described extensively elsewhere [17,22]. CDC has IRB approval to conduct secondary analyses using Add Health data.

The current study used data from the Wave I in-home interview and parent questionnaire and the Wave IV in-home interview. Approximately 85% (about 18,000) of the interviewed adolescents had a parent, primarily a mother, who completed the parent questionnaire. The Wave IV in-home interviews consisted of 15,701 respondents ages 24–32 years. Using data from participants who completed data collection in both Waves I and IV provided a baseline weighted sample of 14,800 respondents.

Measures

Outcome variable.—The STI outcome measure was created using seven items from Wave IV that asked respondents whether they had ever been diagnosed with chlamydia, gonorrhea, syphilis, genital herpes, genital warts, human papillomavirus, or HIV, using a no/yes response format. We excluded participants (n = 465) who had been diagnosed with an STI at Wave I, to measure STI diagnosis subsequent to Wave I. The final STI measure was dichotomized so that a score of 0 represented no history of an STI and a score of 1 represented history of at least one STI. These STI were included because they are highly prevalent in the general United States adult population [1]. (See Appendix A, which can be found in the online edition of this article, for frequencies of STI included in the outcome measure.)

Independent variables.—All independent variables are composite measures based on adolescent self-report at Wave I. The items for each constructed variable are described in Table 1.

Youth violence victimization.: This measure was adapted from a previously described composite and was created using four items that asked about youth violence victimization in the past 12 months [17]. Scores for each item were summed and then dichotomized so a score of 0 represented no victimization, and a score of 1 represented victimization.

Youth violence perpetration.: This measure was created using eight items that asked about perpetration of youth violence based on a previously described composite [17]. Scores for each item were summed and then dichotomized so that a score of 0 represented no perpetration, and a score of 1 represented perpetration.

Parent–family connectedness.: This measure was constructed based on a previously described composite measure of 12 items: four that asked about respondents' family, four that asked about respondents' mothers, and four that asked about respondents' fathers [17]. All items used a 5-point Likert response format and four of the mother and father items were reverse coded. To minimize the number of missing cases because of the large number of respondents who did not have a father, mother and father items were recoded to create four mother *or* father measures. For those who responded to both the mother and father items, an average score was used. For those who did not respond to the father items (n = 6,282), the mother score was used (and for those few respondents who did not respond to the mother items, the father score was used). Respondents missing both mother and father items were coded as missing. Based on this, eight items were used for this measure. Scores for all items were summed to create a scale score ranging from 10 to 40.

School connectedness.: This measure was also constructed based on a previously described composite measure assessing respondents' feeling about their school and teachers [17]. Five items with a 5-point Likert response format were reverse coded and summed with another item (with a 5-point response format) to create a scale score ranging from 6 to 30.

Control variables.—Age was included as a continuous variable based on the participant's birthday and the date the survey was administered. Biological sex was determined by the survey administrator. All participants who reported that they were of Hispanic or Latino origin were coded as Hispanic race/ethnicity. All other participants were coded African-American or black; other, which includes Native American and Asian American; or white, based on self-reported race. Parent's highest education level was measured by self-report and coded as less than high school, high school graduate or equivalent, or beyond high school (e.g., college, technical training, or graduate school). Parent's self-reported marital status was also included as an approximation of family structure; those who were married were coded as married, and all other responses (e.g., single, divorced, widowed) were coded as not married.

Analyses

All analyses were conducted using SAS-callable SUDAAN version 9.3 (RTI International, Research Triangle Park, NC) to account for the complex sampling design. Weighted data were used for all analyses. List-wise deletion was used for all analyses (with the analytic sample being about 20% less than the baseline sample for each model). Missing data analysis was conducted by comparing the characteristics of those excluded with those included in the analytic sample.

First, bivariate associations between sociodemographic characteristics at Wave I and self-reported STI at Wave IV were examined. We then conducted multivariate logistic regressions adjusting for biological sex, age, race/ethnicity, parent's highest education level, and parent's marital status to determine the association between both youth violence victimization and perpetration at Wave I and later STI (reported at Wave IV). Separately, we examined the association between parent–family and school connectedness at Wave I and later STI (reported at Wave IV).

Finally, staged logistic regression was used to test interactions between youth violence victimization and perpetration and each type of connectedness. The connectedness measures were centered to create the interaction terms with youth violence victimization and perpetration. Three steps were used for this interaction analysis: first, the control variables were entered, followed by the violence and connectedness predictors, and finally, the four interaction terms (youth violence victimization with parent–family and school connectedness and youth violence perpetration with parent–family and school connectedness) were included in one model. This approach allowed us to determine how the overall model fit and betas were affected by each group of variables or measures (controls, predictors, and interaction terms). We also conducted a sensitivity analysis by adding each interaction term successively to check whether it was appropriate to include all four interaction terms simultaneously.

Results

Descriptive analyses

Of the 14,800 respondents included in this analysis, the average participant age was 15.4 years at Wave I; most participants were female (53.0%) and white (54.2%) (Table 2). Most parents had an education beyond high school (54.1%) and were married (72.1%). Missing data analyses suggested that the analytic sample included a significantly higher percentage of white adolescents who had parents with a higher education and were married. Otherwise, there were no significant differences for adolescents in the analytic sample compared with adolescents in the baseline sample.

Overall, 19.9% of respondents reported having been diagnosed with an STI between Wave I and Wave IV. Female respondents had nearly three times the odds of later STI compared with males (adjusted odds ratio [AOR], 2.76; 95% confidence interval [CI], 2.44–3.12). Similarly, the odds of self-reported infection were more than twice as great for African-Americans than for whites (AOR, 2.50; 95% CI, 2.18–2.88). Participants whose parents were married had decreased odds of STI compared with those whose parents were not married (AOR, .68; 95% CI, .58–.79). Parent education was not associated with later STI.

Direct effects

The odds of self-reported STI were 27% higher for respondents who reported youth violence victimization compared with those who reported no victimization (AOR, 1.27; 95% CI, 1.07–1.52) (Table 3). Similarly, those reporting youth violence perpetration at Wave I also had increased odds of self-reported STI by Wave IV (AOR, 1.21; 95% CI, 1.04–1.41). On the other hand, the odds of STI by Wave IV were lower for respondents who reported higher levels of parent–family connectedness and school connectedness (AOR, .96, 95% CI, .95–.98; and AOR, .97, 95% CI, .95–.99, respectively).

Interaction effects

None of the interaction effects tested (youth violence victimization with parent–family and school connectedness; and youth violence perpetration with parent–family and school connectedness) were associated with STI (Table 4). However, parent–family connectedness remained protective against later STI (AOR, .94; 95% CI, .89–.99). This was the only predictor that still had a main effect with the interaction terms included. Youth violence victimization and youth violence perpetration did not remain associated with later STI. School connectedness also was no longer associated with STI.

Discussion

The results of this study suggest that among this nationally representative sample in the United States, both youth violence victimization and perpetration in adolescence are risk factors for later STI. These findings are consistent with cross-sectional analyses showing an association between violence and STI [23,24], including those with young women [5,25]. The association between youth violence victimization and later STI risk is consistent with other longitudinal research on HIV and violence, including childhood sexual abuse

among women and men who have sex with men [14], rape among adolescent women [26], and female survivors of intimate partner violence (IPV) [27]. Furthermore, a longitudinal association between IPV perpetration and HIV risk behaviors among men has also been previously demonstrated [28], although not for adolescents. Our study extends the existing literature by demonstrating that youth violence victimization and perpetration broadly (i.e., not limited to intimate partner violence, dating violence, and childhood maltreatment) are associated with increased risk of subsequent STI for both women and men. Aligning with theory that supports a trajectory of risk from childhood [29], our findings highlight that adverse life events in adolescence, even when not sexual, may have consequences for sexual health later in life.

In contrast to the findings on youth violence, parent–family and school connectedness in adolescence appear to protect against subsequent STI, albeit modestly. These connectedness constructs have been shown previously to protect against later sexual risk taking [16]. To our knowledge, this is the first report of protective effects against later STI as the outcome using a prospective cohort. Although another longitudinal analysis using Add Health found no association between family connectedness and STI infection [30], a key methodological difference may explain this contradictory finding. Specifically, Ford et al [30] considered biologically measured chlamydia, gonorrhea and trichomoniasis at one time point (Wave III), whereas our analysis includes self-reported measures (at Wave IV) of chlamydia and gonorrhea as well as genital herpes, genital warts or human papillomavirus, or HIV at any time point subsequent to Wave I. Because of this, the study by Ford et al reported that only 6.2% of the respondents had an STI at Wave III, compared with the 19.9% we found at Wave IV.

Although parent–family and school connectedness were associated with lower odds of STI, connectedness did not moderate the association between youth violence and STI despite our prediction based on prior research. This previous review described a buffering effect of connectedness on youth violence perpetration, which is a risk behavior (not a health outcome) [21]. Therefore, connectedness may moderate the effect of youth violence on sexual risk behaviors, which are more proximal to risk factors than STI. In addition, connectedness may interact with specific types of violence that are not included in this analysis (e.g., childhood sexual abuse). Of note, parent–family connectedness was the only predictor that remained associated with STI in the interaction analysis. This finding supports previous research that parent–family connectedness has an important role in the prevention of adolescent STI, regardless of other risk factors [31].

Limitations of this study should be considered. First, STI is based on a self-reported diagnosis, which has been shown to result in underreporting owing to social desirability bias [32], and this diagnosis may have occurred any time after Wave I. In addition, the youth violence items used were measured at one time point (Wave I); victimization and perpetration of youth violence subsequent to Wave I yet before STI diagnosis were not captured in this analysis. Moreover, many items at Wave I ask about youth violence within the past year only. As a result, reported violence may be less than violence adolescents actually experience. Taken together, these limitations may have resulted in an underestimation of the observed effects.

A more concerning limitation is that we were also unable to control for other types of violence using Wave I, including childhood maltreatment (neglect or physical and sexual abuse), teen dating violence, or IPV in adolescence, which may confound the observed associations between youth violence and STI. Items about childhood maltreatment are measured only retrospectively in Wave III, and Add Health reports sexual abuse victimization only for female respondents and sexual abuse perpetration for male respondents at Wave IV. Other types of violence or even other key events that took place between Wave I and Wave IV, such as moving to a different neighborhood or parents' divorce, may account for the observed associations. Moreover, because only two waves of data were used for this analysis, we cannot know whether the findings represent causal linkages between violence and increased STI and connectedness and decreased STI. Because of the missing data, there is also the possibility of biased results using either list-wise deletion or multiple imputation.

Finally, our findings related to connectedness are modest, although they are bolstered by intervention research. The Seattle Social Development Project (SSDP), which focused on aspects of parent–child connectedness and school connectedness such as classroom management and instruction, children's social competence, and parent engagement in school, showed long-term reductions in sexual risk behavior, even in young adulthood [33], and in self-reported STI diagnosis [20,34]. Our findings align with this outcome of SSDP and contribute to the evidence that protective factors for young people, such as parent–family connectedness and school connectedness, promote later sexual health.

In addition to supporting programmatic initiatives such as SSDP, our findings have important provider implications. It is important for health professionals, educators, and parents to know whether adolescents are involved in youth violence, as victims and/or perpetrators, so that they can be linked to secondary violence prevention interventions that incorporate STI risk reduction messages, including HIV prevention. This conclusion aligns with other recent publications that highlight providers' role in addressing violence among young people [35–37]. Because parent–family and school connectedness appear to protect against both violence involvement [18,19] and STI, providers can also ask adolescents about the quality of their family and school relationships. Health care professionals can work with educators to engage parents in schools by offering workshops to families and school staff on adolescent health and development, STI/HIV prevention, and violence prevention [38].

There is increasing recognition of the linkages between violence and sexual health. Our study adds an important dimension to this intersection by demonstrating an association between youth violence victimization and perpetration and later STI for both women and men. As evidence of the associations between violence and STI/HIV grows, efforts to address violence as a component of STI/HIV prevention are important. Although connectedness did not have a role in moderating the link between violence and STI, the findings indicate that parent–family and school connectedness in adolescence appear to be protective later in life. Provider and programmatic efforts to address both risk and protective factors in adolescence, such as youth violence and connectedness, respectively, can contribute to positive sexual health outcomes in adulthood.

Acknowledgments

Appendix A

Sexually transmitted infection items included in the sexually transmitted infection outcome measure

Sexually transmitted infection	Reporting diagnosis since Wave I, % (n)[a]
Chlamydia	10.5 (1,571)
Gonorrhea	3.4 (514)
Syphilis	.2 (35)
Genital herpes	2.8 (422)
Genital warts or human papillomavirus	8.1 (1,209)
Human immunodeficiency virus	.1 (21)

[a]Based on unweighted data.

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IMPLICATIONS AND CONTRIBUTION

Findings from this study support the need for programs and providers to address youth violence and promote family and school connectedness in adolescence as part of sexually transmitted infection prevention efforts. Our results suggest that such efforts can contribute to positive sexual health outcomes in adulthood.

Table 1

Violence and connectedness measures

Measure	Items		Number of items (Cronbach α)
Youth violence victimization	During the past 12 months:		4 (.61)
	•	Someone pulled a knife or gun on you	
	•	Someone shot you	
	•	Someone cut or stabbed you	
	•	You were jumped	
Youth violence perpetration	During the past 12 months:		8 (.81)
	•	You got into a physical fight	
	•	You pulled a knife or gun on someone	
	•	You shot or stabbed someone	
	How often did you:		
	•	Get into a serious physical fight?	
	•	Hurt someone badly enough to need bandages or care from a doctor or nurse?	
	•	Use or threaten to use a weapon to get something from someone?	
	•	Take part in a fight where a group of your friends was against another group (in the past 12 months)?	
	Have you ever used a weapon in a fight?		
Parent–family connectedness	How much do you feel:		8 (.87)
	•	Your parents care about you?	
	•	People in your family understand you?	
	•	You and your family have lots of fun together?	
	•	Your family pays a lot of attention to you?	
	How close do you feel to your mother/father[a]?		
	How much do you think your mother/father cares about you?		
	Most of the time, your mother/father is warm and loving toward you		
	Overall, you are satisfied with your relationship with your mother/father		
School connectedness	You feel close to people at your school		6 (.78)
	You feel like you are part of your school		
	You are happy to be at your school		
	The teachers at your school treat student fairly		
	You feel safe at your school		
	How much do you feel that your teachers care about you?		

[a]Mother includes mother, adoptive mother, stepmother, or foster mother; and father includes father, adoptive father, stepfather, or foster father.

Table 2

Sample characteristics and proportion self-reporting sexually transmitted infection

Characteristic [a]	Participants, n (%) [b]	Self-reported sexually transmitted infection, [c] n (%)	Unadjusted odds ratio [d] (95% confidence interval)
Biological sex			
Male	6,657 (47.0)	845 (12.3)	Referent
Female	7,505 (53.0)	2,096 (27.8)	2.76 (2.44–3.12)
Age			.95 (.90–.99)
Race/ethnicity			
White	7,675 (54.2)	1,288 (16.9)	Referent
African–American	2,940 (20.8)	1,015 (33.8)	2.50 (2.18–2.88)
Hispanic/Latino	2,252 (15.9)	425 (20.0)	1.23 (.98–1.54)
Other	1,287 (9.1)	211 (18.3)	1.10 (.75–1.62)
Parent's education [e]			
Less than high school completed	2,015 (16.6)	423 (20.9)	1.10 (.83–1.46)
High school graduate or equivalent	3,571 (29.3)	729 (20.7)	1.08 (.94–1.26)
More than high school	6,589 (54.1)	1,388 (19.4)	Referent
Parent's marital status [e]			
Married	8,826 (72.1)	1,662 (18.2)	.68 (.58–.79)
Not married [f]	3,409 (27.9)	887 (24.7)	Referent

[a] Reported at Wave I.

[b] Percentages may not total 100 based on rounding.

[c] Reported at Wave IV.

[d] Number of participants varies because of missing cases for the variables included in the bivariate analysis.

[e] Based on parent questionnaire.

[f] Parent is single, never married, widowed, divorced, or separated.

Table 3

Association between youth violence and connectedness at Wave I and self-reported sexually transmitted infection at Wave IV

Predictor [a]	Participants, n (%) [b]	Self-reported sexually transmitted infection, [c] n (%)	Adjusted odds ratio [d] (95% confidence interval)
Youth violence victimization [e]			
No victimization	11,343 (80.6)	2,342 (19.7)	Referent
Victimization	2,735 (19.4)	590 (21.0)	1.27 (1.07–1.52)
Youth violence perpetration [e]			
No perpetration	7,691 (54.8)	1,530 (19.0)	Referent
Perpetration	6,335 (45.2)	1,390 (20.9)	1.21 (1.04–1.41)
Parent–family connectedness [f]			.96 (.95–.98)
School connectedness [f]			.97 (.95–.99)

[a] Reported at Wave I.

[b] Percentages may not total 100 based on rounding.

[c] Reported at Wave IV.

[d] Adjusted for biological sex, age, race/ethnicity, parent's highest education level, and parent's marital status.

[e] n = 12,031.

[f] n = 11,731.

Table 4

Interactions between youth violence and connectedness at Wave I and self-reported sexually transmitted infection at Wave IV

Predictor[a]	Control variables[b] AOR (95% CI)	Main effects[c] AOR (95% CI)	Interaction effects[c] AOR (95% CI)
Biological sex			
Male	Referent	Referent	Referent
Female	2.87 (2.51–3.28)	2.92 (2.51–3.40)	2.93 (2.51–3.41)
Age	.96 (.92–1.01)	.95 (.90–.99)	.95 (.90–1.00)
Race/ethnicity			
White	Referent	Referent	Referent
African-American	2.46 (2.11–2.86)	2.52 (2.14–2.97)	2.53 (2.14–2.98)
Hispanic/Latino	1.39 (1.11–1.75)	1.40 (1.11–1.78)	1.41 (1.11–1.78)
Other	1.23 (.83–1.83)	1.12 (.78–1.62)	1.13 (.78–1.63)
Parent's education			
Less than high school completed	.91 (.69–1.18)	.82 (.63–1.08)	.82 (.63–1.08)
High school graduate or equivalent	1.03 (.88–1.20)	1.00 (.85–1.17)	1.00 (.85–1.17)
More than high school	Referent	Referent	Referent
Parent's marital status			
Married	.81 (.70–.93)	.85 (.73–.98)	.85 (.73–.98)
Not married	Referent	Referent	Referent
Youth violence victimization			
No victimization		Referent	Referent
Victimization		1.19 (.99–1.43)	1.17 (.97–1.41)
Youth violence perpetration			
No perpetration		Referent	Referent
Perpetration		1.11 (.94–1.29)	1.11 (.95–1.30)
Parent–family connectedness		.97 (.95–.98)	.94 (.89–.99)
School connectedness		.98 (.95–.998)	1.00 (.94–1.06)
Parent–family connectedness × violence victimization			1.01 (.97–1.05)
School connectedness × violence victimization			.98 (.93–1.02)
Parent–family connectedness × violence perpetration			1.01 (.98–1.04)
School connectedness × violence perpetration			1.00 (.97–1.04)

J Adolesc Health. Author manuscript; available in PMC 2022 May 05.

AOR = adjusted odds ratio; CI = confidence interval.

[a]Reported at Wave I.

[b]n = 12,142.

[c]n = 11,650.