Adolescent Sexual Aggression: Risk and Protective Factors

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ABSTRACT. Objective. Little research addresses the correlates of sexual aggression in nonclinical populations of adolescents. The purpose of this study was to identify risk and protective factors associated with sexual violence among male and female adolescents.

Methods. We analyzed data on 71 594 students in the 9th and 12th grades responding to the 1992 Minnesota Student Survey, an anonymous, self-report survey examining an array of risk environments, health-compromising behaviors, and protective factors. The responses of students reporting a history of forcing someone into a sexual act were compared with those who reported that they had never forced someone into a sexual act. Separate analyses were conducted for males and females.

Results. A history of sexual violence perpetration was reported by 4.8% of male and 1.3% of female adolescents. Using a logistic regression model, sexual aggression was associated with experiencing intrafamilial or extrafamilial sexual abuse, witnessing family violence, frequent use of illegal drugs, anabolic steroid use, daily alcohol use, gang membership, high levels of suicide risk behavior, and excessive time spent “hanging out.” Emotional health and connectedness with friends and adults in the community were protective factors for male adolescents against sexually aggressive behavior, and academic achievement was a protective factor for female adolescents.

Conclusions. A history of forcing someone into a sexual act was associated with several risk and protective factors. Efforts to prevent adolescent sexual violence should target individuals at increased risk. Through their psychosocial assessment of young people, health care professionals can play a role in identifying, counseling, and making appropriate referrals for adolescents at risk for sexually aggressive behavior. Pediatrics 1997;100(6).

URL: http://www.pediatrics.org/cgi/content/full/100/6/e7; adolescence, sexual aggression, violence, risk factors, protective factors.

ABBREVIATIONS. OR, odds ratio; CI, confidence interval.

Adolescent sexual aggression, including rape and child molestation, is being recognized as a significant societal problem. An analysis of the National Youth Survey found an annual, self-reported prevalence rate of sexual assault perpetration of 3.2% among males between the ages of 11 and 17 years. In a large nonclinical population of college males, 25% self-reported engaging in sexually aggressive acts during adolescence. Several retrospective studies conclude that onset of sexual offending during adolescence is a pattern common to many adult perpetrators, and that offenses often increase from nonviolent to more aggressive with age. Although studies consistently show a significant amount of sex crime is committed by juveniles, the true incidence of adolescent sexual violence perpetration is difficult to establish. Current statistics are conflicting and based on different types of studies, including self-report surveys, victimization surveys, law enforcement data, and child welfare records.

Juvenile sexual aggression has been associated with a history of sexual or physical abuse during childhood, exposure to family violence, and alcohol use during adolescence. Most studies have focused on the childhood histories of adult sexual offenders or on adolescent sexual offenders who are incarcerated or in treatment programs. Furthermore, most studies do not include a nonoffender comparison group, precluding the evaluation of protective factors, or those mitigating against involvement in sexual violence. It is not known whether juvenile sexual aggression is associated with other factors, including family substance use problems, anabolic steroid use, or gang involvement. Similarly, there is little information about perpetration of sexual violence by adolescent females, either in terms of associated risk factors or actual incidence.

Self-report of sexual aggression has been recommended as the best approach for estimating rates of adolescent sexual perpetration. In this study, we compare a nonclinical population of male and female adolescents who report a history of forcing someone into a sexual act with adolescents who have never forced someone into a sexual act. The purpose of this study was twofold: 1) to examine the association between adolescent sexual violence and potential environmental risk factors and risk behaviors; and 2) to identify protective factors against perpetration of sexual violence by adolescents. The protective factors examined included measures of emotional status, connectedness to family and to the community, and academic performance.

METHODS

Data Source

Data were obtained from the 1992 Minnesota Student Survey, an anonymous, voluntary, self-administered questionnaire administered to about 131 000 public school students in grades 6, 9, and 12.
The questionnaire is a comprehensive assessment of health outcomes, risk behaviors, and resiliency factors among adolescents. The survey is designed at the fifth grade reading level, with a completion time of approximately 1 hour. Questionnaire development, content, and cleaning and editing procedures are described elsewhere.21,22

All but one of the 433 school districts in Minnesota participated in the survey, and fewer than 3% of surveys were excluded due to questionable validity. With near-total participation by school districts, and a school retention rate that is among the highest in the nation,20 the database provides a vehicle for population-based research into a wide range of issues related to health behaviors and risk and resiliency factors in the lives of youth.

Study Population and Measures

To determine risk factors for self report of sexual violence perpetration, we analyzed this survey using one question as the dependent variable: “Have you ever forced someone into a sexual act with you?” Because 6th grade students do not complete the section in the Minnesota Student Survey about sexual activity, only 9th and 12th grade students were included in the analyses. Of all respondents, 71,594 (93%) answered the question about forcing someone into a sexual act; 1674 male students and 490 female students admitted to forcing someone into a sexual act at some time.

Students reporting perpetration of sexual violence were compared with those who indicated that they had never forced someone into a sexual act. The independent variables examined fell into 9 categories: 1) demographic characteristics (school grade classified as 9th or 12th, ethnicity classified as white, black, Hispanic, American Indian, Asian American, or other/mixed race, and family structure defined as one- or two-parent families or other situations); 2) family substance use problems (family alcohol problems and family drug problems); 3) family violence (victim of physical abuse and witnessing physical abuse in the family); 4) sexual abuse (intrafamilial and extrafamilial); 5) substance use (alcohol use frequency, illegal substance use frequency, anabolic steroid use during the past year); 6) emotional status (self-esteem, emotional health, suicide risk); 7) caring and connectedness (feelings about family interactions, community connectedness); 8) academic performance (usual grades received); and 9) activities (gang involvement and hours per week spent “hanging out”). Of the 20 factors examined, 14 were measured by a single survey question and 6 by a scale. None of the questions used had more than 6.5% missing data, and all but four of the questions had less than 2.5% missing data.

To evaluate academic performance, students were asked to mark the two grades they receive most often. The two grades were averaged to create a grade point average where 4 is an A and 0 is failing. For the multivariate analyses, the grade point average was adjusted to range from 1 to 0 by dividing by 4, to compare those with the highest grades to those with the lowest grades.

Compared with the use of single-item indicators of behavioral outcomes, multi-item approaches to behavioral measures may better capture some of the complexity of behavioral constructs such as suicide risk behavior.25,26 The theoretically constructed composite measure of suicide risk behavior was comprised of responses to three items. To assess suicidal ideation, students were asked: “In the last month: I haven’t had any thoughts about killing myself; I have had thoughts about killing myself, but I would not carry them out; or I would like to kill myself.” Suicide attempts were assessed with the question: “Have you ever tried to kill yourself?” with response choices of “Yes, during the past year,” “Yes, more than a year ago,” and “No.” Self-inflicted injuries were assessed by the question: “During the past 12 months, have you ever hurt yourself on purpose (cuts, burns, bruises)?” Responses included “No,” “Once,” “A few times,” and “Often.” Based on responses to these items, students were grouped into 1 of 5 levels of suicide risk behavior.

Self-esteem was assessed using a 7-item scale that explored the respondent’s level of agreement with the following statements: “I usually feel good about myself,” “I am able to do things as well as most other people my age,” “On the whole, I’m satisfied with myself,” “I feel I do not have much to be proud of,” “Sometimes I think that I am no good,” “I feel that I can’t do anything right,” and “I feel that my life is not very useful.” Students responded to each item with one of four choices: “Disagree,” “Mostly disagree,” “Mostly agree,” “Agree.” This scale showed substantial internal consistency (Cronbach’s α = 0.88).

To measure emotional health, a scale was constructed from six questions assessing the individual’s emotional status during the past month: “How has your mood been?” “Have you felt you were under any stress or pressure?” “Have you felt sad?” “Have you felt so discouraged or hopeless that you wondered if anything was worthwhile?” “Did you feel nervous, worried, or upset?” and “How happy or satisfied have you been with your personal life?” Students chose from five possible answers ranging from no problem at all to constant or severe distress. This measure had a Cronbach’s α of 0.83.

Caring and connectedness was assessed using two scales. Family interaction was measured using a 5-item scale that asks students how much they feel school people, friends, church leaders, and police officers care about them. Students chose from five answers for each item in these scales: “Not at all,” “A little,” “Some,” “Quite a bit,” and “Very much.” Factor analysis defined family interactions and community connectedness as two separate scales with Cronbach’s α coefficients of 0.88 and 0.72, respectively.

To evaluate illegal drug use, respondents were asked how often they used each of the following substances: marijuana, cocaine (powder)/crack (rock cocaine), sedatives/downers/barbiturates, tranquilizers, heroin/opium/other narcotic drugs, other people’s prescription drugs, methamphetamine/ice, and other amphetamines/speed (not counting drugstore or mail order diet pills/ stay awake pills). Respondents chose from one of six answers for each item, ranging from “Never” to “Daily.” The Cronbach’s α for the illegal drug use scale was 0.77.

All scales were developed using both male and female 9th and 12th grade students. Scale distributions were generally smooth, and normal or moderately skewed. The scales were adjusted to range from 0 to 1.

Statistical Analysis

All bivariate and multivariate analyses were conducted separately for males and females. First, bivariate relationships between sexual violence perpetration and potential risk factors were examined. Cross-tabulations were examined to determine whether there were threshold levels with respect to the probability of being a perpetrator of sexual violence. Continuous scale scores were the same for “perpetrators” and “nonperpetrators.” All variables were then entered simultaneously into a logistic regression to assess the effect of each factor on adolescent perpetration of sexual violence after controlling for the other factors. Odds ratios (ORs) and 95% confidence intervals (CIs) are reported for each factor. For the scales, the OR represents the odds of reporting sexual violence perpetration for those at the highest end of the scale compared with those at the lowest end of the scale.

RESULTS

In this statewide, school-based sample of adolescents, 4.8% of male youth and 1.3% of female youth reported forcing someone into a sexual act at some time. In the bivariate analyses, all of the characteristics examined were found to be significantly related to perpetration of sexual violence by male youth (Table 1), and all of the characteristics except for school-grade were significantly related to perpetration of sexual violence by female youth (Table 2). Male and female adolescents who had been sexually or physically abused, those who had witnessed abuse involving other family members, and those who reported alcohol or other drug problems among family members (ie, use that repeatedly caused family, health, job or legal problems) were significantly more likely to report perpetration of sexual violence.
Among males who used alcohol weekly or less, the proportion who had ever forced someone into a sexual act ranged from 2.5% of males who never use alcohol to 8.1% of males who reported weekly alcohol use. These students were combined in Table 1 (alcohol use frequency of weekly or less) and compared with daily alcohol users, 31% of whom reported a history of forcing someone into a sexual act. Similarly, alcohol use among females was associated with perpetration of sexual violence, with reports of having forced someone into a sexual act ranging from 0.6% of female students who never use alcohol to 2.8% of female students reporting weekly alcohol use, and increasing to 16.0% of daily alcohol users. Use of anabolic steroids without a prescription was also associated with a history of forcing someone into a sexual act.

Both current and former gang membership and excessive time spent “hanging out” (41 or more hours a week) were significantly related to perpetration of sexual violence among male and female youth. Mean scores on the self-esteem, emotional health, family interactions and community connectedness...
scales were significantly lower for “perpetrators” versus “nonperpetrators” for both males (Table 3) and females (Table 4), indicating lower self-esteem, more emotional distress, and greater alienation from family and others among the students who reported perpetration of sexual violence. Mean scores on the illegal drug use scale and suicide risk behavior composite were significantly greater for male and female “perpetrators” versus “nonperpetrators,” indicating more illegal drug use and greater suicide risk behavior among youth reporting sexual violence perpetration. Both male and female students who indicated that they had forced someone into a sexual act had significantly lower grades in school than students who had never forced someone into a sexual act.

All factors were entered into the logistic regressions, run by gender (Table 5, Table 6). Many of the variables found to be significant in the bivariate analyses became nonsignificant after controlling for other factors in the multivariate analyses. Factors found to be associated with sexual violence perpetration among males after controlling for the other factors included grade, extrafamilial sexual abuse, intrafamilial sexual abuse, witnessing family violence, illegal drug use, anabolic steroid use, alcohol use, current and former gang membership, time spent “hanging out”, community connectedness, emotional health, and suicide risk behavior. Among females, extrafamilial sexual abuse, intrafamilial sexual abuse, illegal drug use, anabolic steroid use, current gang membership, time spent “hanging out”, academic performance, and suicide risk behavior were associated with sexual violence perpetration after controlling for the other factors. Male students in the 12th grade were significantly less likely to report sexually aggressive behavior than those in the 9th grade. For females, grade remained nonsignificant in the multivariate analysis. For race, white youth were the reference group. Among females, youth who reported that they did not know how to describe themselves with respect to race were significantly more likely to report perpetration of sexual violence than were white youth. After adjusting for the other factors, however, Asian-American, African-American, Hispanic, American Indian, and other or mixed race youth were no more likely than white youth to be perpetrators of sexual violence among males and females. Family structure also became nonsignificant in the multivariate analysis for both males and females.

Male youth with a history of intrafamilial or extrafamilial sexual abuse had more than twice the odds of perpetrating sexual violence than those without these abuse histories. Female youth reporting intrafamilial or extrafamilial sexual abuse were also significantly more likely to be perpetrators of sexual violence. Males, but not females, who had witnessed family violence were significantly more likely to report perpetration of sexual violence. When controlling for other variables, physical abuse, family alcohol problem, and family drug problem were not predictive of sexual violence perpetration among male or female students.

Adolescents reporting the highest use of illicit drugs were much more likely to report perpetration of sexual violence when compared with adolescents who did not use illicit drugs (OR, 7.84; CI, 4.33–14.20 for males; OR, 10.84; CI, 3.49–33.66, for females). Adolescents who reported use of anabolic steroids in the past year were also significantly more likely to be perpetrators of sexual violence (OR, 2.65; CI, 2.06–3.42, for males; OR, 6.90; CI, 3.93–12.09, for females). Daily alcohol users were significantly more likely than less frequent users of alcohol to report sexually aggressive behavior among males, but not among females.

Male and female youth who reported current gang membership and those who reported spending 41 or more hours a week “hanging out” were more likely to indicate a history of sexual violence perpetration. Former gang membership was also associated with a history of sexual violence perpetration among males, but not among females.

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### TABLE 3. Differences in Emotional and Behavioral Characteristics Between Male Youth Who Have and Have Not Reported Perpetration of Sexual Violence

| Characteristic | Mean Score | t | df | P
|----------------|------------|---|----|---
| Family interactions | 53.2 (1555) | 68.7 (32 044) | 19.76 1643 |
| Community connectedness | 43.0 (1560) | 55.1 (32 006) | 18.54 1676 |
| Self-esteem | 67.3 (1586) | 79.9 (32 350) | 18.40 1667 |
| Emotional health | 53.6 (1586) | 64.8 (32 342) | 19.96 1685 |
| Illegal drug use | 13.5 (1570) | 2.0 (32 191) | 21.21 1583 |
| Suicide risk | 27.0 (1384) | 8.3 (31 976) | 20.52 1425 |
| Usual grades received | 2.3 (1579) | 2.7 (32 266) | 16.46 1678 |

* The first six characteristics are scales that range from 0 to 1. “Usual grades received” is a grade point average which ranges from 4 (A) to 0 (failing) (see “Methods”). All scales are valued so a higher value represents healthier status except “Illegal drug use” and “Suicide risk,” where a lower value represents healthier status.

† All t tests are P < .001.

‡ The test for equality of variances indicated that equal variances could not be assumed for each factor.

§ Mean scores are not multiplied by 100.

### TABLE 4. Differences in Emotional and Behavioral Characteristics Between Female Youth Who Have and Have Not Reported Perpetration of Sexual Violence

| Characteristic | Mean Score | t†‡ df | P
|----------------|------------|--------|---
| “Perpetrator” |          |        |    |
| Yes | 50.1 (34 824) | 59.6 (34 909) | 16.07 1522 |
| No | 50.1 (34 824) | 59.6 (34 909) | 16.07 1522 |

* The first six characteristics are scales that range from 0 to 1. “Usual grades received” is a grade point average which ranges from 4 (A) to 0 (failing) (see “Methods”). All scales are valued so a higher value represents healthier status except “Illegal drug use” and “Suicide risk,” where a lower value represents healthier status.

† All t tests are P < .001.

‡ The test for equality of variances indicated that equal variances could not be assumed for each factor.

§ Mean scores are not multiplied by 100.
Female students who received higher grades in school were significantly less likely to perpetrate sexual violence (OR, 0.42; CI, 0.24–0.74). Academic performance showed no significant associations for male students in the multivariate analysis.

Self-esteem and feelings about family interactions had no relationship with perpetration of sexual violence by male or female youth after controlling for other factors. Emotional health and connectedness with the community, however, had significant effects on the likelihood of perpetrating sexual violence among males, but not among females. Males who were emotionally healthy (OR, 0.43; CI, 0.28–0.66) and connected with friends and other people (OR 0.53; CI, 0.38–0.75) were much less likely to perpetrate sexual violence. Both male and female students with the highest suicide risk behavior were significantly more likely to perpetrate sexual violence.

**DISCUSSION**

We found that 4.8% of male and 1.3% of female adolescents in this large statewide sample of 9th and 12th grade students reported a history of forcing someone into a sexual act. Male youth who were in the 9th grade, had experienced sexual abuse, had witnessed family violence, and had high levels of suicide risk behavior were more likely to have perpetrated sexual violence. Male youth with daily alcohol use, frequent use of illegal drugs, anabolic steroid use, a history of gang membership, and those who spent more than 40 hours per week “hanging out” were also more likely to self-report sexual aggression. Male youth who were emotionally healthy and connected with friends and other people in their community were less likely to report a history of sexual aggression. Race, family structure, family substance use problems, experiencing physical abuse, feelings about family interactions, self-esteem, and academic performance had no relationship with perpetrating sexual violence among male adolescents after adjusting for other factors in the multivariate model. Female youth with a history of sexual abuse, frequent illegal drug use, anabolic steroid use, high levels of suicide risk behavior, and those who were gang members and spent more than 40 hours per week “hanging out” were more likely to have forced someone into a sexual act. Female youth with high academic performance were less likely to have perpetrated sexual violence. The other potential correlates of adolescent sexual aggression studied became nonsignificant in the multivariate analysis for female youth.

It should be noted that the data are based on self-reporting of sexual aggression and do not distin-

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**TABLE 5. Odds Ratios and Confidence Intervals for Perpetration of Sexual Violence Among Male Youth**

<table>
<thead>
<tr>
<th>Odds Ratio</th>
<th>95% Confidence Interval</th>
<th>Wald $\chi^2$</th>
<th>df</th>
<th>P</th>
</tr>
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<tbody>
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<td>Grade</td>
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<tr>
<td>12th vs 9th</td>
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<td>0.64–0.83</td>
<td>21.89</td>
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<td>Ethnicity*</td>
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<tr>
<td>Asian-American</td>
<td>1.02</td>
<td>0.67–1.54</td>
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<td>Black</td>
<td>1.10</td>
<td>0.71–1.71</td>
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<td>NS</td>
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<tr>
<td>Hispanic</td>
<td>1.44</td>
<td>0.87–2.37</td>
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<td>American Indian</td>
<td>1.30</td>
<td>0.79–2.14</td>
<td>1.10</td>
<td>NS</td>
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<tr>
<td>Other or mixed race</td>
<td>0.85</td>
<td>0.58–1.24</td>
<td>0.72</td>
<td>NS</td>
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<td>Unknown vs white</td>
<td>1.48</td>
<td>0.99–2.20</td>
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<td>Family structure*</td>
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<td>One parent</td>
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<td>0.81–1.13</td>
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<tr>
<td>Other situation vs two parent</td>
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<td>0.72–1.04</td>
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<td>Sexually abused by nonfamily adult</td>
<td>2.36</td>
<td>1.82–3.06</td>
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<td>Sexually abused by family adult</td>
<td>2.71</td>
<td>1.95–3.78</td>
<td>35.09</td>
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<td>Physically abused</td>
<td>1.07</td>
<td>0.87–1.32</td>
<td>0.42</td>
<td>NS</td>
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<td>Witnessed abuse</td>
<td>1.43</td>
<td>1.18–1.72</td>
<td>13.75</td>
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<td>Alcohol problem in family</td>
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<td>Drug problem in family</td>
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<tr>
<td>Illegal drug use frequency†</td>
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<td>Steroid use past year</td>
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<td>2.06–3.42</td>
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<td>Daily vs weekly or less</td>
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<td>1.57–2.80</td>
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<td>1.78–2.71</td>
<td>54.17</td>
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<td>Formerly vs never</td>
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<td>1.37–2.11</td>
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<td>Hours a week spent “hanging out”</td>
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<td>41 or more vs 40 or less</td>
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<td>1.06–1.13</td>
<td>29.44</td>
<td>&lt;.001</td>
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<tr>
<td>Usual grades received‡</td>
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<td>0.77</td>
<td>0.57–1.06</td>
<td>2.57</td>
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<td>Family interactions†</td>
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<td>0.86</td>
<td>0.63–1.18</td>
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<td>Community connectedness†</td>
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<td>0.53</td>
<td>0.38–0.75</td>
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<td>Self-esteem†</td>
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<tr>
<td>1.08</td>
<td>0.73–1.60</td>
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<td>0.28–0.66</td>
<td>14.53</td>
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<tr>
<td>Suicide risk†</td>
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<td>1.96</td>
<td>1.51–2.53</td>
<td>26.28</td>
<td>&lt;.001</td>
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</table>

* The reference for ethnicity is white; for family structure it is two parent; for gang membership it is never.
† The scales were adjusted to range from 0 to 1. The odds ratio represents the odds of reporting sexual violence perpetration for those at the highest end of the scale when compared with those at the lowest end of the scale.
‡ “Usual grades received” is a grade point average which was adjusted to range from 1 (A) to 0 (F). The odds ratio represents the odds of reporting sexual violence perpetration for those with an A average when compared with those who are failing.
guish between different types of sexual aggression, such as rape, child molestation, and verbal coercion. The school-based sample used in the study may not have included some of the most high-risk youth, those who are frequently absent or have dropped out of school. Due to the absence of any measure of familial socioeconomic status, we were also unable to control for or analyze socioeconomic characteristics in the current analysis.

Our findings are consistent with the results of other studies showing that a history of child sexual abuse is an important risk factor for subsequent perpetration of sexual violence. Several studies have demonstrated a high incidence of childhood sexual abuse in the histories of juvenile sexual offenders.9–14 Interestingly, juvenile child molesters report significantly higher rates of sexual abuse than juvenile rapists.10–12 Our analysis found that a history of intrafamilial or extrafamilial sexual abuse was associated with sexual aggression among both male and female adolescents. However, a history of child sexual abuse was a much stronger predictor of sexual violence perpetration for male youth than for female youth. Young male victims of sexual abuse often demonstrate acting-out behaviors, sexualization, and identification with the offender.13,23,24 In a culture that values male strength, virility, and control, disincentives for boys and young men to disclose sexual abuse and seek help are strong.

Both experiencing and witnessing physical violence within the home have also been associated with perpetration of sexual violence by male youth. Ryan et al.,9 in a study of more than 1600 juveniles in treatment programs for sexual offense, found 42% had been physically abused, 39% sexually abused, and 63% had witnessed family violence. In their study comparing several groups of juvenile offenders, Ford and Linney10 found that child molesters were more likely to have been sexually victimized, physically abused, and to have experienced family violence than rapists and violent nonsexual offenders. Bard et al12 reported that over half of both child molesters and rapists in their sample of “sexually dangerous persons” suffered physical abuse during childhood. Additionally, a report by Widom and Ames14 indicated that child victims of physical abuse, sexual abuse, or neglect were significantly more likely to commit a sexual offense than controls. They concluded that sexual abuse may not be uniquely criminogenic, but rather that sexual offending was likely associated with the chronic stress of traumatic early childhood experiences.

Our analysis found that male adolescents with a history of witnessing physical violence for those with an A average when compared with those who are failing.

<table>
<thead>
<tr>
<th>Odds Ratio</th>
<th>95% Confidence Interval</th>
<th>Wald χ² df = 1</th>
<th>P</th>
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<tbody>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12th vs 9th</td>
<td>1.13 0.90–1.42</td>
<td>1.12</td>
<td>NS</td>
</tr>
<tr>
<td>Ethnicity*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian American</td>
<td>1.14 0.58–2.26</td>
<td>0.15</td>
<td>NS</td>
</tr>
<tr>
<td>Black</td>
<td>1.60 0.75–3.41</td>
<td>1.47</td>
<td>NS</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.40 0.10–1.65</td>
<td>1.60</td>
<td>NS</td>
</tr>
<tr>
<td>American Indian</td>
<td>1.29 0.60–2.79</td>
<td>0.43</td>
<td>NS</td>
</tr>
<tr>
<td>Other or mixed race</td>
<td>1.17 0.64–2.14</td>
<td>0.27</td>
<td>NS</td>
</tr>
<tr>
<td>Unknown vs white</td>
<td>2.30 1.13–4.65</td>
<td>5.33</td>
<td>.02</td>
</tr>
</tbody>
</table>

Family structure*  
- One parent | 0.92 0.69–1.23 | 0.34 | NS|
- Other situation vs two parent | 0.98 0.73–1.31 | 0.02 | NS|
- Sexually abused by nonfamily adult | 1.51 1.16–1.97 | 9.28 | .002|
- Sexually abused by family adult | 1.53 1.11–2.10 | 6.68 | .01|
- Physically abused | 1.10 0.82–1.48 | 0.42 | NS|
- Witnessed abuse | 1.30 0.98–1.72 | 3.34 | NS|
- Alcohol problem in family | 1.03 0.79–1.35 | 0.06 | NS|
- Drug problem in family | 1.14 0.83–1.57 | 0.64 | NS|
- Illegal drug use frequency† | 10.84 3.49–33.66 | 17.00 | <.001|
- Steroid use past year | 6.90 3.93–12.09 | 45.38 | <.001|
- Alcohol use frequency       
- Daily vs weekly or less | 1.50 0.78–2.87 | 1.48 | NS|

Gang membership*  
- Currently | 2.88 1.84–4.51 | 21.38 | <.001|
- Formerly vs never | 1.27 0.80–2.02 | 1.02 | NS|

Hours a week spent “hanging out”  
- 41 or more vs 40 or less | 1.08 1.02–1.15 | 6.62 | .01|

Usual grades received† | 0.42 0.24–0.74 | 9.19 | .002|

Family interactions†       
- Community connectedness† | 0.82 0.45–1.49 | 0.42 | NS|
- Self-esteem†       
- Emotional health† | 0.70 0.33–1.46 | 0.90 | NS|
- Suicide risk† | 1.99 1.28–3.08 | 9.37 | .002|

* The reference for ethnicity is white; for family structure it is two parent; for gang membership it is never.
† The scales were adjusted to range from 0 to 1. The odds ratio represents the odds of reporting sexual violence perpetration for those at the highest end of the scale when compared with those at the lowest end of the scale.
‡ “Usual grades received” is a grade point average which was adjusted to range from 1 (A) to 0 (F). The odds ratio represents the odds of reporting sexual violence perpetration for those with an A average when compared with those who are failing.
members were more likely to perpetrate sexual violence. However, after adjusting for other factors, there was no association between experiencing physical abuse and sexual violence perpetration. This suggests that the other variables associated with physical abuse victimization, such as sexual abuse victimization and witnessing family violence, may account for the bivariate association found between physical abuse and sexual violence perpetration among male adolescents. For female adolescents, neither experiencing nor witnessing physical violence in the home was associated with sexual aggression after controlling for other factors. Thus, child sexual abuse may play a more powerful role than physical abuse in determining juvenile sexual aggression.

Whether children are victims or witnesses of sexual or physical violence during childhood, the chaos and deprivation of such a home environment, as well as the modeling of violent behaviors that occurs, puts them at risk for later deviant behavior. Many factors may potentiate the association between child sexual or physical victimization and subsequent perpetration of sexual violence. These include an inhibited level of trust, lack of warmth and affection, the effects of harmful, nonempathetic relationships, social learning about the basis of human interaction through coercion, intrusion, and pain, and the seeming “contagiousness” and resistance to change of the sexual abuse experience. In addition, the victim may experience denial of a history of sexual abuse, and thus, about the harm of sexual abuse inflicted on another victim. The pattern of sexual abuse may continue if a child identifies closeness, acceptance, and affection with inappropriate sexual activity. This behavior is incorporated, and then may be perpetuated as sexually aggressive behavior.

Increasing frequency of reported alcohol use for both male and female youth, from no use to daily use, was associated with an increasing rate of sexual violence perpetration. However, heavy use of illegal drugs was a more powerful risk factor for adolescent sexual violence perpetration. Studies have shown high rates of alcohol use among identified perpetrators of sexual offenses. A possible explanation for this association is alcohol’s disinhibiting effect, which fosters sexual aggression. Only a few studies cite other substance use in the histories of sexual offenders.

Use of anabolic steroids was also a significant risk factor for sexual aggression among both male and female youth in this study. To our knowledge, this is the first study to examine the association of anabolic steroid use with juvenile sexual aggression. A recently published case report describes episodes of child sexual abuse by an adult male using anabolic steroids. Anabolic steroid use has been associated with physical aggression. Middleman et al demonstrated that frequent anabolic steroid use among adolescents was associated with other high-risk behaviors, including physical fighting, weapon-carrying, unsafe sexual practices, suicidal behaviors, driving after drinking alcohol, and not wearing seatbelts. The cause-and-effect relationships between anabolic steroid use and other high-risk behaviors have not been determined. Rape has been understood as an act using sex as a means of aggression rather than as an end in itself. Because aggressive behavior is one of the psychological effects of anabolic steroid use, steroids could predispose a user to aggressive acts, whether sexual or not.

Many researchers have found sexually aggressive youths to be poorly socialized and to have inadequate peer relationships. The current study found that gang membership and excessive time spent “hanging out” were significantly related to perpetration of sexual violence. For both males and females, current gang membership increased the odds of sexual aggression by more than two times. Several factors inherent in the culture of youth gangs provide possible explanations for the association. Clustering of other high-risk behaviors is well-known within gangs, including illegal drug use, alcohol use, and violent activity. Sexual violence could also be a learned or modeled behavior within a gang, in which boundaries, values, and norms are established, just as in a family.

We examined the protective effects of several factors, including self-esteem, emotional health, family interactions, community connectedness, and academic performance, on involvement in sexual aggression. After controlling for other variables, emotional health and connectedness with friends and adults in the community, including school, church, and police personnel, emerged as significant protective factors against sexually aggressive behavior among male adolescents. Female students with higher academic performance were less likely to report perpetration of sexual violence, even after adjusting for other factors. Previous studies of resilience in youth consistently identify a caring relationship with a competent adult as a critical protective factor for children and adolescents, especially for those young people living in dangerous or non-nurturing homes and neighborhoods. In a study of 7th through 12th grade students, Resnick et al found school and family connectedness to be the most salient protective factors against the quietly disturbed and acting out behaviors for both boys and girls. They underscored the dual role of schools to promote both academic performance and a sense of connectedness. Our findings also demonstrate these vital roles that schools can play, and indicate differences in the most important protective factors for males and females against sexual violence.

There are a number of clinical applications of the findings of this study to the prevention of adolescent sexual violence. First, providers of health care for children and adolescents can play an important role in identifying patients at risk for sexually aggressive behavior by taking an appropriate history. Pediatric practitioners should ask specifically about a history of sexual victimization, family violence, use of alcohol and illicit drugs, anabolic steroid use, suicidal behaviors, involvement in gangs, and outside activities. To facilitate effective referrals for adolescents at risk for sexually violent behavior, providers should be familiar with appropriate support services in the community, including mental health professionals,
drug and alcohol treatment programs, school programs, and culturally-sensitive social services. Second, health care professionals can play a pivotal role in the primary prevention of sexual violence by identifying and promoting protective factors in the lives of young people. Clinicians should assess their patients’ emotional health, academic achievement, and relationships with peers and adults, both within and outside the family. As care givers to patients and their families, physicians have an opportunity to provide ongoing support and follow-up for recommendations and referrals. Finally, clinicians can educate individuals in the community who work with youth about factors associated with adolescent sexual violence, including teachers, coaches, and social service professionals. Future research efforts to determine the causes of sexual violence should focus on risk and resilience in at-risk youth, particularly sexually abused males, so that effective interventions can be developed and implemented to interrupt the destructive cycle of sexual violence.

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