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Attitudes about Violence and Involvement in Peer Violence among Youth: Findings from a High-Risk Community

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ABSTRACT *Peer violence perpetration and victimization are the most common types of violence among youth. This study determined the associations among violent attitudes toward peers, involvement in peer violence perpetration, and experience with peer violence victimization among boys and girls in a high-risk, urban community. Analyses were based on data from the 2004 Youth Violence Survey, which was administered to over 80% of public school students in grades 7, 9, 11, and 12 (N=4,131) in a disadvantaged, urban, school district in the USA. Logistic regression analyses were conducted to test the associations between attitudes in support of violence and involvement in violent behaviors. Results show that among youth, attitudes supporting boys hitting boys significantly increased the odds of peer violence perpetration after controlling for potential confounders (adjusted odds ratio [AOR], 1.35; 95% confidence interval [CI]=1.07, 1.72). However, stratified analyses for boys and girls show that attitudes supporting boys hitting boys increased the odds of peer violence perpetration for girls only after controlling for potential confounders (AOR, 1.49; 95% CI=1.05, 2.13). The findings demonstrate that there are important differences between boys and girls in terms of their associations with violent attitudes and involvement in actual violent behaviors. However, additional research is needed to determine how attitude modifications can be incorporated into youth violence prevention programs.*

KEYWORDS *Peer violence perpetration, Peer violence victimization, Urban, Adolescents*

INTRODUCTION

Youth violence is a significant public health problem that has received national attention.[1,2] Findings from the 2007 Youth Risk Behavior Survey, a nationally representative sample of US youth in grades 9–12, show that 35.5% of students (44.4% of boys and 26.5% of girls) engaged in a physical fight.[3] Moreover, the prevalence of peer violence is higher in urban, high-risk communities where greater level of poverty, unemployment, single-parent households, and serious crimes are observed.[4] According to a large and comprehensive epidemiological study on violence among urban youth, 32.8% of boys and 27.3% of girls were involved in physical peer violence perpetration, and 37.0% of boys and 29.5% of girls experienced physical peer violence victimization.[5] Findings from the same study show that peer violence perpetration and victimization are the two most common types of violence among youth and that peer violence perpetration and victimization are significantly associated.[6] The literature on the risk factors for peer

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violence is extensive and has identified a range of factors that increase the risk for involvement in violence and include factors such as deviant behaviors, involvement with deviant peers, lack of parental monitoring and support, child maltreatment, weak social and school bonds, low academic grades, and alcohol and drug use.[1,3,5–28]

Despite extensive literature on the risk and protective factors for peer violence, there is a dearth of literature that examines attitudes in support of violence and their associations with peer violence perpetration and peer violence victimization. This is an important omission because attitudes that support violence may be modified and targeted for prevention and intervention programs. This area of research has been more developed in terms of dating violence prevention, where attitudes supporting dating violence have been shown to influence involvement in dating violence.[29–31] Few studies have addressed attitudes supporting violence and their associations with peer violence. One study found that among youth in grades 7 through 9, aggressive attitudes were significantly associated with peer violence perpetration among youth.[32] Another study based predominately on African American, seventh-grade students found that holding attitudes in support of fighting were significantly linked to behavioral intentions to fight, which in turn was significantly linked to actual violent behavior.[33] However, since only a few studies have examined this issue, it is unclear for which populations and in what settings attitudes that support violence are linked with actual involvement in violent behaviors.

Moreover, there is very limited information regarding the potential differences in sex-specific attitudes towards violence and their associations with peer violence for boys and girls. Some sex differences in violent behaviors among youth have been previously noted, such that boys have higher prevalence of physical fighting than girls.[3,5] Furthermore, sex differences pertaining to reasons for participating in violent behaviors have also been previously studied.[34] With this perspective in mind, the current study investigates attitudes that support involvement in violence for boys and girls separately. This is an understudied area where more information is needed to better understand the link between violent attitudes and peer violence and note if sex-specific strategies and future research may be warranted.

The purpose of this study, loosely based on the theory of planned behavior,[35] is to determine the associations between sex-specific attitudes that support peer violence and involvement in same-sex physical peer violence perpetration and victimization among youth in a high-risk, urban community. According to the theory of planned behavior, individuals' actions are based on their intentions, which are influenced by their attitudes toward a behavior, as well as their norms and perceptions of control over a particular behavior.[35] Following this approach, the current study examined the associations between attitudes supporting peer violence and peer violence perpetration and victimization among boys and girls while controlling for demographic characteristics and potential confounders that have been identified in the literature as important predictors of violence (i.e., family composition, child maltreatment, inadequate parenting style, binge drinking, illicit drug use, weapon carrying, low self-efficacy, suicide attempt, low academic grades, and friends' involvement in peer violence perpetration). It is hypothesized that attitudes supporting peer violence are associated with youth's involvement in peer violence perpetration and experience with peer violence victimization and that these associations are significant for both boys and girls.

METHODS

This study used data from the "Youth Violence Survey: Linkages among Different forms of Violence" to assess the associations between violent attitudes and violent

behaviors among boys and girls. The Youth Violence Survey was conducted in April, 2004 to assess prevalence of risk factors for violence among high-risk youth in grades 7 through 12. The survey was administered to all eligible students in grades 7, 9, 11, and 12 in a school district that operated 16 public schools in a high-risk community. Study description has been provided elsewhere.[4,5] In brief, the selected school district was racially and ethnically diverse. The high-risk community was indicated by ranking US cities with respect to community indicators of poverty, unemployment, single-parent households, and serious crimes. The study received institutional review board (IRB) approval from the Centers for Disease Control and Prevention (CDC) and ORC Macro International, and the secondary analyses of the current study received IRB approval from the Georgia State University.

Students were identified through class lists of required core subjects (e.g., English) in the selected grades or through their homerooms. Prior to data collection, signed, written, parental permission, and student assent for participation in the study were required for all students <18 years of age, and written consent was required for all students ≥18 years of age. Consent forms were provided in English, Spanish, and other major languages as requested by the schools. Return rate of parental consent forms was high (86%), and only a small number of parents and students refused participation in the study (approximately 1%). Students were ineligible for participation if they were enrolled in a special education class, required assistance of a translator, or had cognitive disabilities that would prevent adequate understanding of and response to the survey (n=151). Students who had dropped out of school, had been expelled, or were on long-term, out-of-school suspension were also ineligible for participation (n=202). After exclusions, 5,098 students were eligible for participation, of which 1,491 students were in seventh grade, 1,117 students were in ninth grade, and 1,523 students were in 11/12 grades (N=4,131; 51.8% girls), yielding a response rate of 81.0%. In terms of race/ethnicity, participants were 44.9% Hispanic, 27.8% African American, 22.5% white, and 4.8% other race/ethnicity. Due to high dropout rate of students in 11 and 12 grades, the two grade levels were combined to produce sufficient number of participants for analyses.

Measures

Independent Variables The main independent variable of the analyses was attitudes supporting peer violence,[36] an eight-item scale adapted from Foshee and colleagues.[29] Four items measured attitudes supporting boys hitting boys in peer violence context (e.g., "How strongly do you agree or disagree with 'boys sometimes deserve to be hit by other boys;'" Cronbach's alpha=0.81), and four items measured attitudes supporting girls hitting girls in peer violence context (e.g., "How strongly do you agree or disagree with 'it is okay for a girl to hit another girl if that girl did something to make her mad;'" Cronbach's alpha=0.83). Participants responded to each attitudinal statement on a Likert scale of 1 (strongly disagree) to 4 (strongly agree). Mean scale scores were computed and subsequently dichotomized due to a highly skewed distribution. The sub-scale indicating attitudes supporting boys hitting boys was dichotomized at 3.0 mean item score (at the top 25% of the distribution), and the sub-scale indicating attitudes supporting girls hitting girls was dichotomized at 3.25 mean item score (at the top 25% of the distribution).

Other independent variables pertained to student's family environment and high-risk behaviors and experiences. Family environment included questions

regarding family composition, child maltreatment, and inadequate parenting style. Family composition, with 11 options for family members, assessed adult members living in household. The scale was trichotomized to reflect living with one guardian, two guardians, or three or more guardians. Child maltreatment, a three-item scale, assessed exposure to domestic violence, physical violence victimization (e.g., having physical injuries caused by a parent or guardian), and sexual victimization all prior to age 10 (Cronbach's alpha = 0.46). The scale was dichotomized to reflect any child maltreatment versus no child maltreatment before age 10. Inadequate parenting style was determined using two measures—low parental monitoring and low parental support. Low parental monitoring, a four-item scale, assessed parents' guardians' awareness of participant's daily activities through administering and knowing where the participant was going, with whom, his or her returning time, and what activities he or she was doing (Cronbach's alpha = 0.69).[36] Low parental support, a five-item scale, assessed parents' guardians' support through saying something nice, giving a hug or pat on the back or kiss, giving a reward, giving a special privilege, and doing something special (Cronbach's alpha = 0.83).[36] Both parental monitoring and parental support scales were measured on a Likert scale of 1 (almost never) to 3 (almost always) and dichotomized to reflect bottom 25% of the distribution reporting low versus not low parental monitoring and low versus not low parental support in the past 30 days.

High-risk behaviors and experiences included binge drinking, illicit drug use, weapon carrying, low self-efficacy to avoid violence, suicide attempts, low academic performance, and peer dating violence perpetration. Binge drinking assessed drinking versus not drinking five or more drinks in a row in the past 12 months.[37] Illicit drug use measured any versus no use of inhalants or illegal drugs such as marijuana, cocaine, or heroin in the past 12 months. Weapon carrying measured any versus no carrying of weapon such as a gun, knife, or club in the past 30 days.[38] Low self-efficacy to avoid violence, a seven-item scale, assessed participants' strategies for staying out of fights, talking through a disagreement, calming down when mad, ignoring someone who is making fun of them, walking away, apologizing, and seeking help from adults (e.g., "How confident are you that you would be able to stay out of fights by choosing other solutions;" Cronbach's alpha = 0.88).[36] The items were measured on a Likert scale of 1 (not at all confident) to 5 (very confident), and dichotomized at the bottom 25% of the distribution to reflect low self-efficacy versus not low self-efficacy. Attempted suicide was measured through a dichotomized response of having attempted suicide or no attempt suicide in the past 12 months.[38] Low academic performance, measured on a seven-item scale, was dichotomized as mostly having A's and B's during the past 12 months versus not having mostly A's and B's. Peer dating violence perpetration,[36] measured on a Likert scale of 1 (none of them) to 5 (all of them), was dichotomized as any peer involved in dating violence perpetration versus no peer involved in dating violence perpetration in the past 12 months.

Dependent Variables Two outcome measures were examined in this study—same-sex physical peer violence perpetration and same-sex physical peer violence victimization. The same-sex peer violence perpetration scale and same-sex peer violence victimization scale have been used in earlier research of peer violence.[5,26,39] In each scale, peer violence perpetration and peer violence victimization was measured using a ten-item scale, adapted from the dating violence measures of Foshee and colleagues,[40] which contained several items similar to the widely used Conflict Tactics Scale.[24,41,42] Peer violence perpetration was assessed through participants' responses to the following

activities in the past 12 months: damaged someone's property; said things to hurt someone's feelings; threatened to hit someone or throw something; insulted someone; put down someone's looks; hit or slapped someone; slammed or held someone against a wall; kicked, pushed, grabbed, or shoved someone; forced someone to have sex; threw something at someone; punched or hit someone with something; threatened or injured someone with a knife or gun; and hurt someone badly enough to need bandages or care from a doctor or nurse (Cronbach's alpha = 0.94). The response options included never, one to three times, four to nine times, and ten or more times. A dichotomous variable was created at the top 25% of the distribution due to the highly skewed distributions, reflecting any involvement in peer violence perpetration versus no involvement in peer violence perpetration. Distribution results show that 30.1% of participants engaged in peer violence perpetration in the past 12 months.

Same-sex peer violence victimization was assessed using the same items as the peer violence perpetration, with the context being changed (Cronbach's alpha = 0.91). Similar to the peer violence perpetration variable, a dichotomous variable was created for peer violence victimization at the top 25% of the distribution due to the highly skewed distributions, reflecting any experience in peer violence victimization versus no experience in peer violence victimization. Distribution results show that 34.1% of participants experienced peer violence victimization in the past 12 months.

Analyses

Analyses to test the hypotheses that attitudes supporting peer violence are associated with youth's involvement in peer violence perpetration and experience with peer violence victimization were conducted using SAS Version 9.1.[43] and SUDAAN. Logistic regression analyses using four models were conducted to determine associations among attitudes supporting peer violence, involvement in peer violence perpetration, and experience with peer violence victimization for all students, and separately for boys and girls to assess gender differences. Model 1 included attitudes supporting boys hitting boys and girls hitting girls; model 2 included attitude variables and demographic characteristics; model 3 included attitude variables, demographic characteristics, and family environment; and model 4 included attitude variables, demographic characteristics, family environment, and high-risk behaviors and experiences. For these analyses, 95% confidence intervals (CIs) that did not include one indicated statistical significance.

RESULTS

Peer Violence Perpetration

Attitudes about boys hitting boys were significantly associated with involvement in peer violence perpetration without any controls in model 1 (adjusted odds ratio (AOR), 1.53; CI = 1.27, 1.85), after controlling for demographics in model 2 (AOR, 1.52; CI = 1.26, 1.85), after controlling for demographics and family environment in model 3 (AOR, 1.45; CI = 1.19, 1.77), and after controlling for demographics, family environment, and high-risk behaviors and experiences in model 4 (AOR, 1.35; CI = 1.07, 1.72). Attitudes about girls hitting girls were also significant for peer violence perpetration in model 1 (AOR, 1.62; CI = 1.32, 1.98), model 2 (AOR, 1.55; CI = 1.26, 1.90), and model 3 (AOR, 1.49; CI = 1.21, 1.83), but not in model 4 which added high-risk behaviors and experiences. Other noteworthy risk and protective factors for peer violence perpetration were also noted in the models (Table 1).

TABLE 1 Associations between attitudes supporting peer violence and involvement in peer violence perpetration among youth after controlling for demographic characteristics, personal characteristics, family environment, and peer environment

	Any peer violence perpetration			
	AOR (95% CI)			
	Model 1	Model 2	Model 3	Model 4
Attitudes supporting boys hitting boys	1.53 (1.27, 1.85)	1.52 (1.26, 1.85)	1.45 (1.19, 1.77)	1.35 (1.07, 1.72)
Attitudes supporting girls hitting girls	1.62 (1.32, 1.98)	1.55 (1.26, 1.90)	1.49 (1.21, 1.83)	1.14 (0.89, 1.48)
Male	–	1.18 (1.02, 1.36)	1.23 (1.06, 1.43)	1.05 (0.86, 1.28)
Grade				
7	–	1.33 (1.12, 1.57)	1.47 (1.23, 1.76)	0.99 (0.78, 1.25)
9	–	1.60 (1.34, 1.91)	1.66 (1.38, 1.99)	1.48 (1.18, 1.86)
Race/ethnicity				
Hispanic	–	1.14 (0.94, 1.37)	1.00 (0.82, 1.21)	1.13 (0.89, 1.44)
African American	–	1.21 (0.99, 1.49)	1.14 (0.93, 1.41)	1.35 (1.03, 1.76)
Other	–	1.11 (0.78, 1.59)	0.96 (0.67, 1.38)	0.98 (0.61, 1.56)
Family composition				
1 guardian	–	–	1.01 (0.84, 1.21)	0.99 (0.79, 1.25)
Multiple guardians	–	–	1.15 (0.96, 1.38)	0.98 (0.78, 1.24)
Child maltreatment	–	–	1.90 (1.63, 2.21)	1.31 (1.08, 1.59)
Inadequate parenting style	–	–	1.32 (1.12, 1.56)	1.05 (0.84, 1.30)
Binge drinking	–	–	–	1.15 (0.91, 1.46)
Illicit drug use	–	–	–	1.15 (0.91, 1.45)
Weapon carrying	–	–	–	1.92 (1.49, 2.48)
Low self-efficacy	–	–	–	0.81 (0.73, 0.89)
Suicide attempt	–	–	–	1.00 (0.73, 1.36)
Low academic grades	–	–	–	0.86 (0.71, 1.04)
Friends' dating violence	–	–	–	1.91 (1.55, 2.37)
Peer violence victimization	–	–	–	8.80 (7.31, 10.58)

Reference categories are those with female, 11/12 grade, White race/ethnicity, lived with two guardians, did not experience child maltreatment, experienced average/high parenting style, did not binge drink, did not use illicit drugs, did not carry a weapon, had high self-efficacy, did not attempt suicide, had mostly A's and B's, did not have peers involved in dating violence perpetration, and did not experience peer violence victimization

AOR adjusted odds ratio

Stratified analyses for boys and girls found that attitudes about boys hitting boys were a significant risk factor for involvement in peer violence perpetration among girls across all four models, but that they were a significant risk factor for boys in models 1, 2, and 3 only. Attitudes about girls hitting girls were a significant risk factor for peer violence perpetration in models 1, 2, and 3 for both boys and girls. Other risk factors for boys' and girls' involvement in peer violence perpetration were identified (Table 2).

TABLE 2 Associations between attitudes supporting peer violence and involvement in peer violence perpetration among boys and girls after controlling for demographic characteristics, personal characteristics, family environment, and peer environment

	Peer violence perpetration AOR (95% CI)							
	Model 1		Model 2		Model 3		Model 4	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Attitudes supporting boys hitting boys	1.59 (1.21, 2.09)	1.40 (1.08, 1.82)	1.58 (1.20, 2.08)	1.46 (1.12, 1.91)	1.46 (1.10, 1.94)	1.41 (1.08, 1.86)	1.21 (0.87, 1.69)	1.49 (1.05, 2.13)
Attitudes supporting girls hitting girls	1.85 (1.38, 2.48)	1.44 (1.09, 1.90)	1.73 (1.29, 2.32)	1.40 (1.05, 1.85)	1.68 (1.24, 2.28)	1.33 (1.00, 1.78)	1.31 (0.92, 1.87)	1.01 (0.70, 1.46)
Grade—7	–	–	1.50 (1.17, 1.92)	1.17 (0.92, 1.48)	1.68 (1.29, 2.17)	1.30 (1.01, 1.66)	1.01 (0.71, 1.44)	0.98 (0.71, 1.36)
Grade—9	–	–	2.02 (1.56, 2.60)	1.27 (0.99, 1.63)	2.09 (1.61, 2.72)	1.32 (1.02, 1.71)	1.71 (1.24, 2.36)	1.32 (0.95, 1.83)
Race/ethnicity—Hispanic	–	–	1.25 (0.94, 1.65)	1.04 (0.81, 1.35)	1.12 (0.84, 1.49)	0.89 (0.68, 1.17)	1.11 (0.78, 1.57)	1.14 (0.81, 1.59)
Race/ethnicity—African American	–	–	1.37 (1.02, 1.85)	1.08 (0.82, 1.42)	1.34 (0.98, 1.82)	0.99 (0.74, 1.32)	1.44 (0.98, 2.12)	1.23 (0.84, 1.78)
Race/ethnicity—other	–	–	1.36 (0.83, 2.21)	0.94 (0.56, 1.56)	1.21 (0.72, 2.03)	0.78 (0.46, 1.31)	1.17 (0.60, 2.30)	0.79 (0.40, 1.55)
Family composition—1 guardian	–	–	–	–	1.09 (0.84, 1.42)	0.96 (0.74, 1.23)	1.10 (0.79, 1.54)	0.91 (0.67, 1.24)
Family composition—multiple guardians	–	–	–	–	1.26 (0.97, 1.64)	1.06 (0.82, 1.39)	1.00 (0.73, 1.37)	1.00 (0.71, 1.41)
Child maltreatment	–	–	–	–	1.98 (1.59, 2.47)	1.87 (1.51, 2.32)	1.35 (1.02, 1.79)	1.33 (1.01, 1.75)
Inadequate parenting style	–	–	–	–	1.25 (0.97, 1.60)	1.38 (1.10, 1.74)	0.97 (0.70, 1.35)	1.11 (0.83, 1.49)
Binge drinking	–	–	–	–	–	–	0.93 (0.66, 1.30)	1.35 (0.96, 1.91)
Illicit drug use	–	–	–	–	–	–	1.02 (0.73, 1.42)	1.32 (0.94, 1.86)
Weapon carrying	–	–	–	–	–	–	2.82 (1.78, 4.45)	1.61 (1.17, 2.21)
Low self-efficacy	–	–	–	–	–	–	0.81 (0.70, 0.93)	0.80 (0.69, 0.91)
Suicide attempt	–	–	–	–	–	–	1.11 (0.76, 1.62)	0.81 (0.46, 1.40)

TABLE 2 *(continued)*

	Peer violence perpetration AOR (95% CI)							
	Model 1		Model 2		Model 3		Model 4	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Low academic grades	–	–	–	–	–	–	0.79 (0.60, 1.04)	0.93 (0.71, 1.23)
Friends' dating violence	–	–	–	–	–	–	2.01 (1.52, 2.64)	1.82 (1.29, 2.57)
Peer violence victimization	–	–	–	–	–	–	8.03 (6.16, 10.46)	9.72 (7.46, 12.65)

Reference categories are those with female, 11/12 grade, White race/ethnicity, lived with two guardians, did not experience child maltreatment, experienced average/high parenting style, did not binge drink, did not use illicit drugs, did not carry a weapon, had high self-efficacy, did not attempt suicide, had mostly A's and B's, did not have peers involved in dating violence perpetration, and did not experience peer violence victimization

AOR adjusted odds ratio

Peer Violence Victimization

Attitudes about boys hitting boys were a significant risk factor for experience with peer violence victimization among all students in model 1 only, which lacked any controls (AOR, 1.23; CI=1.03, 1.48). Attitudes about girls hitting girls were significant in model 1 (AOR, 1.27; CI=1.04, 1.55) and model 2 (AOR, 1.27; CI=1.04, 1.56) only. Other significant risk and protective factors for experiencing peer violence victimization were also noted (Table 3).

Stratified analyses for boys and girls show that attitudes about boys hitting boys were a significant risk factor for experiencing peer violence victimization in models 1, 2, and 3 for boys only, and attitudes about girls hitting girls were a significant risk factor for peer violence victimization in model 2 only for girls. Other risk factors for boys' and girls' experiences with peer violence victimization were identified (Table 4).

DISCUSSION

This study examined sex-specific attitudes and their associations with same-sex physical peer violence perpetration and same-sex physical peer violence victimization among high-risk youth by adapting measures from the dating violence literature.[29] The current study shows that peer violence attitudes are significantly associated with involvement in peer violence perpetration and experience with peer violence victimization among youth, especially when other risk factors are not present in the model. This finding supports a previous study that documented an association between attitudes about fighting with actual involvement in fighting.[33] The current study also shows that attitudes in support of violence are significant for peer violence perpetration and peer violence victimization, which complements a previous study on high-risk youth that identified strong association between peer violence perpetration and peer violence victimization.[6] In addition, the current study notes that sex-specific attitudes are important for peer violence perpetration and victimization.

The results show that for all students, attitudes about boys hitting boys are a significant risk factor for peer violence perpetration after controlling for demographic characteristics, family environment, and high-risk behaviors and experiences, but they are important for peer violence victimization only in the bivariate analysis. With the introduction of family factors and high-risk behaviors and experiences, violent attitudes are no longer significant risk factors. Moreover, for all students, attitudes about girls hitting girls are a significant risk factor for peer violence perpetration after controlling for demographic characteristics and family environment, and a significant risk factor for peer violence victimization after controlling for demographics only. With the inclusion of high-risk behaviors and experiences, attitudes supporting girls hitting girls lose significance for involvement in peer violence perpetration, and they are also not significant for peer violence victimization after including family environment and high-risk behaviors and experiences. These results imply that violent attitudes have stronger influence on peer violence perpetration than peer violence victimization.

Stratified analyses show that attitudes about boys hitting boys are significant risk factors for boys' involvement in peer violence perpetration and experiences with peer violence victimization after controlling for demographics and family environment, and they are significant for girls' involvement in peer violence perpetration after controlling for demographics, family environment, and high-risk behaviors and

TABLE 3 Associations between attitudes supporting peer violence and experience with peer violence victimization among youth after controlling for demographic characteristics, personal characteristics, family environment, and peer environment

	Any peer violence victimization			
	AOR (95% CI)			
	Model 1	Model 2	Model 3	Model 4
Attitudes supporting boys hitting boys	1.23 (1.03, 1.48)	1.18 (0.98, 1.42)	1.14 (0.94, 1.38)	0.87 (0.69, 1.11)
Attitudes supporting girls hitting girls	1.27 (1.04, 1.55)	1.27 (1.04, 1.56)	1.20 (0.98, 1.48)	1.03 (0.79, 1.33)
Male	–	1.42 (1.23, 1.62)	1.55 (1.35, 1.79)	1.74 (1.44, 2.09)
Grade				
7	–	1.61 (1.37, 1.90)	1.75 (1.47, 2.07)	1.57 (1.26, 1.95)
9	–	1.32 (1.11, 1.57)	1.35 (1.13, 1.62)	1.04 (0.83, 1.29)
Race/ethnicity				
Hispanic	–	0.82 (0.69, 0.98)	0.73 (0.61, 0.88)	0.65 (0.52, 0.81)
African American	–	0.80 (0.66, 0.97)	0.74 (0.61, 0.91)	0.63 (0.50, 0.81)
Other	–	1.04 (0.74, 1.44)	0.91 (0.64, 1.28)	0.91 (0.60, 1.37)
Family composition				
1 guardian	–	–	0.94 (0.79, 1.11)	0.92 (0.75, 1.13)
Multiple guardians	–	–	1.16 (0.97, 1.39)	1.09 (0.88, 1.36)
Child maltreatment	–	–	2.03 (1.75, 2.35)	1.57 (1.31, 1.89)
Inadequate parenting style	–	–	1.13 (0.96, 1.34)	0.98 (0.79, 1.22)
Binge drinking	–	–	–	0.85 (0.67, 1.06)
Illicit drug use	–	–	–	1.29 (1.04, 1.61)
Weapon carrying	–	–	–	0.90 (0.70, 1.16)
Low self-efficacy	–	–	–	0.97 (0.88, 1.06)
Suicide attempt	–	–	–	1.86 (1.39, 2.50)
Low academic grades	–	–	–	1.01 (0.85, 1.21)
Friends' dating violence	–	–	–	1.28 (1.04, 1.59)
Peer violence perpetration	–	–	–	8.72 (7.25, 10.49)

Reference categories are those with female, 11/12 grade, White race/ethnicity, lived with two guardians, did not experience child maltreatment, experienced average/high parenting style, did not binge drink, did not use illicit drugs, did not carry a weapon, had high self-efficacy, did not attempt suicide, had mostly A's and B's, did not have peers involved in dating violence perpetration, and did not experience peer violence perpetration

AOR adjusted odds ratio

experiences. This suggests that attitudes against peer violence for boys are significant for violence perpetration and victimization for boys more than girls. Attitudes about girls hitting girls are significant for boys' and girls' involvement with peer violence perpetration only after controlling for demographics and family environment, and they are significant for peer violence victimization for girls only after controlling for demographics. These findings underscore that attitudes against girls' violence are more important for peer violence perpetration than victimization.

TABLE 4 Associations between attitudes supporting peer violence and experience with peer violence victimization among boys and girls after controlling for demographic characteristics, personal characteristics, family environment, and peer environment

	Peer violence victimization AOR (95% CI)							
	Model 1		Model 2		Model 3		Model 4	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Attitudes supporting boys hitting boys	1.45 (1.10, 1.90)	0.95 (0.74, 1.23)	1.46 (1.11, 1.92)	0.96 (0.74, 1.24)	1.36 (1.03, 1.80)	0.95 (0.73, 1.23)	0.99 (0.70, 1.40)	0.75 (0.54, 1.04)
Attitudes supporting girls hitting girls	1.28 (0.95, 1.72)	1.29 (0.98, 1.70)	1.22 (0.91, 1.65)	1.33 (1.01, 1.75)	1.17 (0.86, 1.58)	1.26 (0.95, 1.67)	0.93 (0.64, 1.34)	1.12 (0.78, 1.61)
Grade—7	–	–	1.75 (1.38, 2.20)	1.46 (1.16, 1.84)	1.98 (1.55, 2.53)	1.52 (1.20, 1.93)	1.76 (1.29, 2.41)	1.40 (1.04, 1.90)
Grade—9	–	–	1.55 (1.21, 2.00)	1.13 (0.89, 1.44)	1.61 (1.24, 2.09)	1.14 (0.89, 1.47)	1.12 (0.82, 1.54)	0.96 (0.70, 1.31)
Race/ethnicity—Hispanic	–	–	0.89 (0.69, 1.15)	0.76 (0.59, 0.96)	0.81 (0.62, 1.05)	0.67 (0.52, 0.86)	0.74 (0.54, 1.02)	0.59 (0.43, 0.80)
Race/ethnicity—African American	–	–	0.85 (0.64, 1.13)	0.75 (0.58, 0.97)	0.82 (0.61, 1.10)	0.68 (0.52, 0.90)	0.75 (0.52, 1.07)	0.57 (0.40, 0.80)
Race/ethnicity—other	–	–	1.06 (0.67, 1.69)	1.02 (0.63, 1.64)	0.94 (0.58, 1.53)	0.90 (0.55, 1.47)	0.94 (0.52, 1.70)	0.95 (0.53, 1.72)
Family composition—1 guardian	–	–	–	–	0.94 (0.73, 1.21)	0.94 (0.74, 1.20)	0.88 (0.65, 1.20)	0.96 (0.72, 1.29)
Family composition—multiple guardians	–	–	–	–	1.23 (0.96, 1.58)	1.08 (0.83, 1.39)	1.17 (0.87, 1.58)	1.00 (0.72, 1.38)
Child maltreatment	–	–	–	–	2.20 (1.78, 2.71)	1.88 (1.52, 2.31)	1.74 (1.34, 2.26)	1.42 (1.10, 1.85)
Inadequate parenting style	–	–	–	–	1.25 (0.97, 1.60)	1.05 (0.84, 1.32)	1.10 (0.80, 1.51)	0.90 (0.68, 1.20)
Binge drinking	–	–	–	–	–	–	1.05 (0.76, 1.45)	0.71 (0.52, 0.99)
Illicit drug use	–	–	–	–	–	–	1.23 (0.90, 1.67)	1.33 (0.96, 1.84)
Weapon carrying	–	–	–	–	–	–	0.97 (0.62, 1.51)	0.91 (0.66, 1.24)
Low self-efficacy	–	–	–	–	–	–	0.90 (0.79, 1.03)	1.01 (0.90, 1.15)
Suicide attempt	–	–	–	–	–	–	1.59 (1.11, 2.28)	2.28 (1.33, 3.91)
Low academic grades	–	–	–	–	–	–	0.97 (0.75, 1.25)	1.04 (0.81, 1.34)

TABLE 4 ***(continued)***

	Peer violence victimization AOR (95% CI)							
	Model 1		Model 2		Model 3		Model 4	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Friends' dating violence	–	–	–	–	–	–	1.36 (1.04, 1.78)	1.10 (0.78, 1.56)
Peer violence perpetration	–	–	–	–	–	–	8.01 (6.14, 10.44)	9.61 (7.38, 12.50)

Reference categories are those with female, 11/12 grade, White race/ethnicity, lived with two guardians, did not experience child maltreatment, experienced average/high parenting style, did not binge drink, did not use illicit drugs, did not carry a weapon, had high self-efficacy, did not attempt suicide, had mostly A's and B's, did not have peers involved in dating violence perpetration, and did not experience peer violence perpetration

AOR adjusted odds ratio

Previous studies that have examined gender differences in youth violence have also found noteworthy gender differences, which may suggest inherent or socially adapted cognitive differences as they relate to behaviors. One study highlighted context as an important difference between boys' and girls' involvement in peer violence. More specifically, the previous study noted that although both boys and girls engage in physical and verbal fights relating to romantic relationships, the motives or context for doing so differed markedly, e.g., boys engage in fighting as it relates to money and illicit drugs, whereas girls engage in fighting behaviors relating to gossip.[34] These previous findings taken together with the current findings indicate the need for sex-specific strategies to reduce peer violence among youth.

In addition to identifying the associations between attitudes and peer violence perpetration and victimization, this study also identifies other risk and protective factors that are associated with peer violence among high-risk youth. The results of this study support previous studies that have identified younger boys at increased risk for peer violence.[3,5,6,27] Specifically, this study found that 9th graders were at increased risk for peer violence perpetration and 7th graders were at increased risk for peer violence victimization compared with 11th/12th graders. Based on these findings, prevention efforts need to be implemented at a younger age before the development of attitudes that support involvement in violence.

Other risk factors for peer violence perpetration and victimization after controlling for all potential confounders include child maltreatment and having peers who were involved in dating violence perpetration.[7,9,17,19] Although this study did not find poor parenting as a risk factor for peer violence, previous research on high-risk adolescents shows that parental involvement in youth's life improves youth's prosocial choices, which lead to decreased involvement in risky and violent behaviors.[21,44,45] Other factors identified as risk factors for violence perpetration in this study such as weapon carrying, illicit drug use, and suicide attempts have also been identified in other studies.[6,16,20] Whereas previous studies have identified low self-efficacy as a risk factor for peer violence,[8,13] this study found low self-efficacy to avoid violence as a protective factor for peer violence, which needs to be examined in more detail in future research.

The study contains limitations that should be considered when interpreting the findings. First, data were collected from students in a high-risk, urban community and may not generalize to youth in other communities or those who have dropped out of school. Second, measures were self-reported and may reflect biases, especially under-reporting of sensitive behaviors. However, an empirical review study noted that although adolescents' self-reports on behavior measures (e.g., alcohol and other drug use and violence) are affected by cognitive and situational factors, they do not threaten the validity of self-reports of behaviors.[46] Third, analyses are based on cross-sectional data; the temporal ordering between violent attitudes and violent behaviors cannot be established. Additional longitudinal research is needed to determine the prospective associations between attitudes and peer violence perpetration and victimization for boys and girls. Fourth, the current study did not investigate the relative importance of the severity of violence perpetration and victimization among boys and girls in terms of physical injury. Previous studies have found that boys are more likely than girls to inflict injuries in the context of violence perpetration.[5,47] Fifth, the context of the violent interaction was not regarded in this study. Previous studies have noted that boys engage in direct verbal and physical violence with boys while girls hold grudges and spread rumors about other girls (relational aggression), and peer violence occurs when there is an imbalance of power, especially among male adolescents.[48–50] Also, this study only considers

attitudes within same-sex physical peer relationships. Future research should investigate other forms of peer violence, such as psychological and relational aggression to better determine the development of these attitudes among boys and girls. Finally, the current study did not assess other potential confounders or mediators that may have been important when examining the associations between attitudes and peer violence, e.g., drinking frequency and age of drinking initiation, depression, socioeconomic status, and community risk factors.[9,25,29,51–57]

The results of this study have several implications. Attitudes that support violence have significant and specific roles in peer violence perpetration and victimization among high-risk youth. Given the research that has indicated that violence-related attitudes appear to exist prior to involvement in violent behavior,[29] attitude modification may help to lower rates of violence perpetration and victimization in this population. Because gender-based violence is experienced as part of social roles, it is an important issue in among high-risk, minority youth.[48] Accordingly, the findings from this study suggest that gender-specific interventions may be needed. Incorporating strategies to target gender-specific attitudes may help theory-based interventions to reduce risk factors, promote healthy development among adolescents, and prevent youth violence,[58] including prevention programs that target cognitive and emotional processes to reduce violence.[59]

An emphasis has been placed on intervention for youth violence prevention at an early age. Previous studies suggest that boys are more resistant to changing their attitudes and beliefs than girls,[60] and attitudes formation can only occur before behavior becomes habitual.[61] Therefore, theory-based prevention interventions should initiate early in youths' lives and continue into young adulthood with a comprehensive evaluation design.[28] Previous research stresses that reducing risk factors alone does not foster healthy youth development; the promotion of protective factors through family and school connectedness, community engagement, and positive peer support are also essential strategies for youths' healthy development.[62]

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