

Original article

Adolescent Bullying Involvement and Perceived Family, Peer and School Relations: Commonalities and Differences Across Race/Ethnicity

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Abstract

Purpose: Although bullying is recognized as a serious problem in the United States, little is known about racial/ethnic differences in bullying risk. This study examined associations between bullying and family, peer, and school relations for white, black and Hispanic adolescents.

Methods: A nationally representative sample ($n = 11,033$) of adolescents in grades six to ten participated in the 2001 Health Behaviors in School-Aged Children survey, self-reporting bullying involvement and information on family, peer and school relations. Descriptive statistics and multinomial logistic regression analyses controlling for gender, age and affluence were stratified by race/ethnicity.

Results: Nine percent of respondents were victims of bullying, 9% were bullies, and 3% were bully-victims. Black adolescents reported a significantly lower prevalence of victimization than white and Hispanic students. Multivariate results indicated modest racial/ethnic variation in associations between bullying and family, peer, and school factors. Parental communication, social isolation, and classmate relationships were similarly related to bullying across racial/ethnic groups. Living with two biological parents was protective against bullying involvement for white students only. Furthermore, although school satisfaction and performance were negatively associated with bullying involvement for white and Hispanic students, school factors were largely unrelated to bullying among black students.

Conclusions: Although school attachment and performance were inconsistently related to bullying behavior across race/ethnicity, bullying behaviors are consistently related to peer relationships across black, white, and Hispanic adolescents. Negative associations between family communication and bullying behaviors for white, black, and Hispanic adolescents suggest the importance of addressing family interactions in future bullying prevention efforts. © 2007 Society for Adolescent Medicine. All rights reserved.

Keywords:

Bullying; Race/ethnicity; Prevention; HBSC; Family; School; Peers

Highly publicized incidents of school violence in the late 1990s drew national attention to the problem of bullying in schools in the United States. Researchers studying school-

associated violent deaths between 1994 and 1999 found that homicide perpetrators were much more likely than their victims to have been bullied at school [1]. The prevalence of bullying in the U.S. is high. In 1993, 56% of students in grades 8–12 reported bullying took place in their schools [2]. Another survey conducted in 1998 with students in grades 6–10 estimated nearly 30% were directly involved with bullying in the past semester as perpetrators, victims,

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or victim–perpetrators [3]. In addition to connections with other forms of youth violence, bullying has been associated with substance use, emotional disturbance, and physical health symptoms [3–5]. Given these consequences, preventing bullying in schools is a public health priority.

Although personality and physical characteristics are associated with bullying perpetration and victimization, other modifiable factors deserve attention [6]. Interpersonal and institutional settings within which adolescents have sustained social interactions also influence behavior and development [7]. Research has supported the influential role of three such settings in the development of bullying behaviors: family, peers, and schools.

Adolescents' family environment and interactions can affect bullying behavior through multiple mechanisms [8]. Family violence shapes bullying behavior through the modeling of aggressive behavior and the establishment of pro-aggression norms. For example, both exposure to inter-parental conflict and adolescent physical punishment have been positively associated with bullying perpetration [9,10]. Parental monitoring problems affect aggression through adolescents' unsupervised time and affiliation with deviant peers [11,12]. Bullies experience more lax or inconsistent parental monitoring than nonbullies, and victims experience more intrusive parental involvement than nonvictims [13–15]. Other features of family relationships, including low parental warmth, low family cohesion, low involvement with parents, and single parent family structure have also been positively associated with bullying involvement [16–19].

Peer relationships are the most studied social determinant of bullying involvement, with the concepts of peer rejection and deviant affiliations prominently featured. Victims have fewer friends and are rejected by classmates more than noninvolved peers, leaving them vulnerable to aggressive peers [20,21]. Bullies likewise are disliked amongst classmates but are less socially isolated than victims, primarily due to popularity amongst other aggressive and deviant adolescents [22]. Bully–victims have been found to be the most isolated and least well-liked [14,23].

Adolescents' relationship with school also affects bullying involvement. School bonding, defined as both affective attachment and academic commitment [24], is related to both bullying perpetration and victimization, with possible bi-directional influences. Both bullies and victims report lower school attachment than noninvolved peers [14]; however, although perpetrators are found to have low academic achievement [3], victimization appears related to both high and low academic achievement [25,26]. School-level policies and practices, such as hall monitoring by adults and enforcement of rules against peer intimidation, are often key components in bullying prevention interventions.

As a frequent site of bullying episodes, schools are the target of most interventions. School-wide interventions, such as the Olweus Bullying Prevention Program (BPP),

have been recognized as the most effective strategies, affecting up to 50% reductions in bullying behaviors [16]. The BPP and other school-wide programs take a multi-pronged approach, incorporating administrative (e.g., formation of a bullying prevention coordinating committee, and increased supervision of bullying "hot spots"), classroom (e.g., establishment and enforcement of anti-bullying class rules, and regular bullying discussions), and individual (e.g., direct interventions with identified bullies and victims, and their parents) activities [16].

Despite the substantial impact demonstrated by these programs in selected settings, such results are inconsistent [27]. One recent BPP evaluation found decreases in bullying for white students only [28], suggesting this approach may not affect bullying among racial/ethnic minority students. Although some studies have explored racial/ethnic differences in bullying prevalence [3,29,30], no study to date has explored whether correlates of bullying behavior vary by race/ethnicity. The purpose of this study is to address this gap by examining the relevance of perceived family, peer and school relations to bullying behaviors for white, black and Hispanic adolescents using nationally representative data.

Methods

Study population

Health Behavior in School-Aged Children (HBSC) is a collaborative cross-national survey involving 36 countries in coordination with the World Health Organization [31]. In the U.S., a nationally-representative sample of children in grades 6–10 is surveyed once every four years. The Institutional Review Board at the National Institute of Child Health and Human Development approved the 2001 survey. Anonymous surveys were self-administered in classrooms. Parental consent procedures were determined by school district policy. Once parental consent was obtained, students provided their assent to participate.

A sample of public and private schools was derived from Quality Education Data's list of U.S. schools. The sample design is a stratified two-stage cluster of classes stratified by grade within geographic areas. The objective was to provide estimates of population percentages with a precision of 3% at the 95% confidence level for each grade. Black and Hispanic students were oversampled to provide better population estimates for these groups. An 81.8% participation rate was achieved, yielding an overall sample of 14,818 students. Respondents were excluded from the present analysis if race/ethnicity was not reported (n = 179), if race/ethnicity was other than non-Hispanic black, non-Hispanic white, or Hispanic (n = 1,303); if bullying items were missing (n = 1,158); or if predictor or control variables were missing (n = 1,145), yielding a final analytic sample of 11,033. The small number of students in other racial/

ethnic groups precluded separate examination of these groups.

Measures

Measures were obtained from standard self-completion questionnaires including questions about personal and social resources, health-related behavior, health outcomes, and demographic information. The present study is a secondary analysis of the HBSC data set; information regard-

ing original study design and rationale for survey content are detailed elsewhere [31].

Because of the complexity of the analysis, most independent variables were categorized as dichotomous or trichotomous indicators to facilitate model interpretation; details regarding survey items used, data reduction technique, and analytic variable specification are presented in Table 1. When possible, categorization was based on prior HBSC analyses [12,32]. When no analytic precedent was available,

Table 1
Analytic variable construction

Analytic variable	Survey item(s) and original response options	Reduction/categorization approach	Analytic variable levels
Family structure	Household roster checklist	Dichotomize	Two biological parents Other
Parent school support	(a) My parents are willing to help me with my homework. (Strongly disagree to strongly agree, 1–5) (b) My parents are willing to come to school to talk to teachers. (Strongly disagree to strongly agree, 1–5)	Lower of two items (Gage et al., 2005)	High (strongly agree/agree) Moderate (neutral) Low (disagree/strongly disagree)
Parent communication	(a) How easy is it for you to talk to your mother about things that really bother you? (Very difficult to very easy, 1–4) (b) How easy is it for you to talk to your father about things that really bother you? (Very difficult to very easy, 1–4)	Higher of two items (Gage et al., 2005)	Easy (easy/very easy) Difficult (difficult/very difficult)
Social isolation	(a) Number of male friends (0, 1, 2, 3+) (b) Number of female friends (0, 1, 2, 3+) (c) Number of days/week after school with friends (0–5) (d) Number of evenings/week with friends (0–7) (e) Number of days/week talk on phone, text message, or email friends (0, 1–2, 3–4, 5–6, 7) (f) How easy is it for you to talk with your best friend? (Very easy to very difficult, 1–4) (g) How easy is it for you to talk with same sex friends? (Very easy to very difficult, 1–4) (h) How easy is it for you to talk with opposite sex friends? (Very easy to very difficult, 1–4)	Items recoded so highest value reflected <i>most</i> isolation; items standardized to 0–1 scale; mean of constituent items was calculated; categories were assigned based on mean value tertiles.	Low isolation (bottom tertile) Moderate isolation (middle tertile) High isolation (top tertile)
Days extracurricular	How many days each week are you involved in any kind of club or organization? (Every day, 5–6 days/week, 3–4 days/week, 1–2 days/week, less than once a week, not at all)	Trichotomize (Gage et al., 2005)	Most (5–6 days/every day) Some (1–2 days/3–4 days) Few (<once a week/not at all)
Classmate relationships	(a) When a student in my class is feeling down, someone else in the class tries to help. (Strongly disagree to strongly agree, 1–5) (b) The students in my classes enjoy being together. (Strongly disagree to strongly agree, 1–5) (c) Most of the students in my classes are kind and helpful. (Strongly disagree to strongly agree, 1–5) (d) Other students accept me as I am. (Strongly disagree to strongly agree, 1–5)	Mean of constituent items was calculated; categories were assigned based on mean value tertiles.	Good (top tertile) Average (middle tertile) Poor (bottom tertile)
Academic performance	In your opinion, what does your class teacher(s) think about your classroom performance compared to your classmates? (Very good, good, average, below average)	Trichotomize	Very good Good/average Below average
School satisfaction	How do you feel about school at present? (I like it a lot, I like it a bit, I don't like it very much, I don't like it at all)	Trichotomize (Broup & Holstein 2006)	High (like a lot) Moderate (a bit) Low (don't like very much/at all)
Feel safe at school	I feel safe at school. (Strongly disagree to strongly agree, 1–5)	Trichotomize	Yes (strongly agree/agree) Neutral (neutral) No (disagree/strongly disagree)

Likert scales were collapsed into positive (“strongly agree” and “agree”), neutral, and negative (“disagree” and “strongly disagree”) valence. Multiple-item indices were created by standardizing and averaging constituent items, then categorizing based on response distributions (i.e., tertiles). Categories hypothesized to predict lowest levels of risk for bullying involvement were chosen as the referent category for all independent variables.

Bullying involvement

Questions about bullying were introduced with a standard definition describing bullying as repeated aggressive or threatening behaviors between peers of unequal size or power, not including teasing done in a friendly or playful way [3]. Involvement in bullying was assessed by two items asking the frequency with which the respondent was bullied or bullied others in school in the past couple of months, with response options of “not at all,” “once or twice,” “two or three times a month,” “about once a week,” and “several times a week.” Respondents were categorized as “bully-victims” if they reported both bullying perpetration and victimization at least two to three times per month, as “victims” if only bullying victimization was reported at least two to three times per month, as “bullies” if only perpetration was reported at least two to three times per month, and as “noninvolved” if none of the preceding criteria were met [14]. The term “bullying-involved” will be used to describe membership in any of the first three groups.

Sociodemographic characteristics

Background variables included in this analysis were race/ethnicity (Hispanic/Latino, non-Hispanic black, and non-Hispanic white), gender, school level (middle school/high school), and affluence. The Family Affluence Scale (FAS) assessed the number of family cars, vacations in the past year, home computers, and whether the respondent had his or her own bedroom. Studies indicate the scale has good content validity and external reliability and may be a more reliable affluence indicator than parent education or occupation when asked of adolescents [33]. Scores ranged from 0 to 7, and were categorized so scores of 0–4 = low, 5–6 = moderate, and 7 = high [34].

Independent variables

Family factors included living arrangement, parental school involvement, and parental communication ease (family violence, parenting styles, and monitoring were not assessed in the 2001 HBSC survey). “Living arrangement” was assessed by asking who lived in the respondent’s primary home. Respondents reporting both mother and father were coded as living with both biological parents. Because preliminary χ^2 analyses indicated bullying involvement prevalence did not significantly differ among adolescents living with step-parents, single parents, or with other configurations, they were combined into “other” living arrangement.

Consistent with previous HBSC analyses [12], “parental school involvement” was assessed with two five-point Likert scale items asking if parents were willing to speak with teachers and help with homework. Because high parent involvement was considered protective, the response indicating the least involvement was used to identify at-risk students. Responses were recoded to high, moderate or low involvement [12].

“Parent communication ease” was assessed with two items querying ease of communication with mother and separately, with father, coded on a four-point Likert scale. Consistent with previous HBSC research [12], and because about 40% of respondents did not live with two biological parents, the item indicating the greatest ease of communication with any parent was used and recoded to “easy” versus “difficult” [12].

Peer factors included social isolation, classmate relations, and participation in extracurricular activities. “Social isolation” was assessed by eight items asking the number of male and female friends, ease of communication with best, same-gender, and opposite-gender friends, and frequency of weekly contact with friends. Factor analyses indicated all items loaded on a single factor at 0.35 level or higher; overall internal consistency was acceptable ($\alpha = 0.68$). Index categories, based on tertiles of the mean of constituent items, reflect respondents’ relative report of social isolation (high, moderate, or low).

“Classmate relations” was measured by four items assessing perceived classmate concern when the respondent feels down, enjoyment of classmate companionship, kindness and helpfulness of classmates, and classmate acceptance of the respondent. In factor analyses, all items loaded on a single factor at a 0.70 level or higher, with good internal consistency ($\alpha = 0.76$). Index categories, based on tertiles of the mean of constituent items, reflect respondents’ relative report of classmate relations (good, average, or poor).

“Extracurricular activity participation” was assessed with a single item inquiring about the number of days usually spent in such activities. Consistent with previous analyses [12], responses of less than weekly and never were categorized as “few,” 1–4 days weekly as “several,” and 5 or more days weekly as “most.”

School factors included perceived academic achievement, liking school and feeling safe at school. “Perceived academic achievement” was captured by a single item asking the student’s perception of the teacher’s appraisal of their performance relative to classmates. Responses were recoded as “above average,” “good/average,” or “below average.” “School satisfaction” was also assessed with a single item inquiring how much the respondent liked school; responses were recoded to be consistent with previous research [32] as “high,” “moderate,” or “low.” Finally, respondents were asked on a five-point scale if they “felt safe at school.” Responses of “strongly agree” and “agree” were coded as “safe,” “neutral” were coded as such,

and “disagree” and “strongly disagree” were coded as “unsafe.”

Analysis

All analyses were conducted using Stata (V9), with adjustments for survey design and weights applied to provide nationally-representative estimates. Descriptive statistics (frequencies and weighted proportions) yielded the distribution of demographic characteristics, bullying involvement, and family, peer, and school factors for black, white, and Hispanic adolescents. Multinomial logistic regression models stratified by race/ethnicity were used to determine factors associated with bullying involvement for each racial/ethnic group after adjustment for demographic variables. In multinomial logistic regression, an extension of binary logistic regression, relative risk ratios (RRRs) quantify associations between predictor variables and the probability of being in each of the outcome categories (victim, bully, bully–victim) relative to the referent category (noninvolved). Model stratification by race/ethnicity was deemed preferable to inclusion of race/ethnicity interaction terms, because the number of interaction terms (16 variables \times 2 indicators for race/ethnicity = 32 interaction terms) would have resulted in an over-specified model, and the results would be difficult to interpret.

Results

Descriptive results for bullying frequency and family, peer and school characteristics are presented in Table 2. In all, 9% of white, black, and Hispanic adolescents in grades 6–10 were victims of bullying at school; 9% were bullies; and 3% were bully–victims. Bullying perpetration and victimization prevalence differed significantly by race/ethnicity, with a lower prevalence of victimization reported by black adolescents than whites and Hispanic adolescents. Other racial/ethnic differences in family, peer and school factors were also apparent.

Multinomial logistic regression models controlling for gender, school level, and affluence supported modest racial/ethnic differences in the relationship between family, peer and school factors and bullying involvement. Different variable levels (i.e., high isolation, moderate isolation) were examined when the *p* for trend was $< .05$.

White students

For white students, perceived family, peer and school relations were all associated with bullying involvement, but in different ways for bullies, victims and bully–victims. Relative risk ratios and 95% confidence intervals (CIs) are presented in Table 3. Bullies (RRR = 0.73) and victims (RRR = 0.64) were less likely than their noninvolved peers to live with both biological parents, and more likely to report low parent involvement in school (respectively RRR = 1.65, RRR = 1.66); only bullies were more likely

to report difficulty in communicating with parents (RRR = 1.59). Bullies experienced less social isolation (RRR = 0.45), whereas victims experienced more (RRR = 1.42). Bullies, victims, and bully–victims all reported worse classmate relations, poorer academic performance, and less feelings of security at school than noninvolved counterparts.

Black students

Fewer family, peer and school factors were related to bullying involvement for black than for white students, though some similar patterns emerged (Table 4). Bully–victims were the only bullying-involved group who reported significantly lower parent school involvement than noninvolved peers (RRR = 2.90), although both victims (RRR = 1.92) and bullies (RRR = 1.71) reported more difficult parent communication. Similar to their white counterparts, black bullies were less likely (RRR = 0.44) and victims more likely (RRR = 1.89) to be socially isolated; however only bullies (RRR = 1.84) and bully–victims (RRR = 2.61) reported significantly poorer classmate relations. School factors were largely unrelated to bullying behaviors for black students, with the exception of bullies’ lower school satisfaction (RRR = 2.33).

Hispanic students

Like black students, fewer family, peer and school factors differentiated bullying-involved from noninvolved youth for Hispanic compared with white students (Table 5). The only family factor related to bullying was parental communication: victims (RRR = 1.77) and bully–victims (RRR = 1.88) reported more difficulty communicating with parents. As with white and black adolescents, bullies were less isolated (RRR = 0.49) and victims were more isolated (RRR = 1.55); however, only victims (RRR = 2.67) and bullies (RRR = 2.04) reported worse classmate relations. Below average academic performance was associated with all three types of bullying involvement for Hispanic students, though dissatisfaction with school was associated only with bullying perpetration.

Discussion

A substantial proportion of white, black, and Hispanic adolescents (21%) reported involvement in bullying at school as a victim, perpetrator, or both in 2001. Although lower than the 1998 estimate (30%) reported by Nansel et al [3], exclusion of out-of-school bullying and the different time frame referent in the 2001 HBSC survey may account for this difference. Further, similar to reports by Nansel et al [3] but in contrast to the work of Seals and Young [30], racial/ethnic differences were observed in bullying prevalence: black students reported less victimization than white and Hispanic students. Dissimilarity with Seals and Young may be due to differences in populations studied; HBSC has a national rather than local sample, and included a broader

Table 2
Descriptives: Overall and by race/ethnicity^a

	Overall (n = 11,033)	White (n = 6,466)	Black (n = 2,262)	Hispanic (n = 2,305)	<i>p</i>
Demographics					
Gender (male)	46%	48%	41%	45%	.001
School level (middle)	61%	60%	61%	63%	.784
Affluence					
Low	27%	21%	41%	38%	<.001
Moderate	53%	55%	45%	49%	
High	21%	24%	13%	13%	
Bullying					
Prevalence					
Noninvolved	79%	79%	81%	78%	.001
Victim	9%	9%	6%	9%	
Bully	9%	9%	10%	11%	
Bully–victim	3%	3%	3%	3%	
Family					
Living arrangement					
Two biological parents	60%	66%	36%	59%	<.001
Other	40%	34%	64%	41%	
Parent school support					
High	68%	70%	67%	58%	<.001
Moderate	18%	18%	15%	20%	
Low	15%	12%	18%	22%	
Parent communication					
Easy	81%	81%	79%	78%	.006
Difficult	19%	19%	21%	22%	
Peer relations					
Social isolation					
High	32%	32%	30%	33%	.424
Medium	34%	34%	34%	34%	
Low	35%	35%	36%	33%	
Classmate relationships					
Good	34%	33%	36%	32%	.210
Average	40%	40%	37%	41%	
Poor	27%	27%	27%	27%	
Days extracurricular					
Most	33%	29%	37%	46%	<.001
Several	40%	42%	36%	34%	
Few	27%	29%	27%	20%	
School factors					
Academics					
Very good	26%	27%	26%	20%	<.001
Good/average	68%	67%	68%	74%	
Below average	6%	5%	5%	7%	
School satisfaction					
High	22%	21%	24%	22%	.332
Moderate	47%	47%	45%	49%	
Low	31%	32%	31%	29%	
Feel safe at school					
Yes	64%	69%	52%	57%	<.001
Neutral	21%	19%	24%	25%	
No	15%	12%	24%	18%	

^a Reported percentages are weighted.

age range and greater racial/ethnic diversity. The nationally representative sampling strategy and consistency across administrations of the HBSC surveys support the reliability of the present findings.

Bullying perpetration was associated with more family, peer and school factors than were victimization or bully-

victimization. Furthermore, interpersonal and school factors were related with bullying perpetration more consistently across racial/ethnic groups than with victimization or bully–victimization. A major contribution of the present study is the examination of bully–victims as a group distinct from victims and bullies, using a nationally representative sam-

Table 3
White students: Relative risk ratios and 95% confidence intervals for variables predicting bullying involvement vs. noninvolvement (n = 6,466)^a

	Victim vs. noninvolved	Bully vs. noninvolved	Bully–victim vs. noninvolved	p for trend ^b
Family				
Living arrangement				
Other	Referent	Referent	Referent	<.001
2 Biological parents	.73 (.59–.91)	.64 (.51–.80)	.89 (.58–1.38)	
School involvement				
High	Referent	Referent	Referent	.004
Moderate	1.25 (.99–1.59)	1.13 (.89–1.45)	.98 (.56–1.73)	
Low	1.65 (1.19–2.30)	1.66 (1.26–2.19)	1.24 (.70–2.18)	
Communication				
Easy	Referent	Referent	Referent	.002
Difficult	1.18 (.93–1.49)	1.59 (1.24–2.04)	1.06 (.69–1.63)	
Peer relations				
Social isolation				
Low	Referent	Referent	Referent	<.001
Moderate	1.04 (.82–1.32)	.75 (.61–.93)	1.02 (.61–1.68)	
High	1.42 (1.12–1.80)	.45 (.35–.58)	1.03 (.64–1.67)	
Classmate relations				
Good	Referent	Referent	Referent	<.001
Average	1.25 (.93–1.68)	1.10 (.81–1.50)	.70 (.35–1.39)	
Poor	2.96 (2.20–3.99)	1.71 (1.26–2.30)	2.48 (1.28–4.79)	
Days extracurricular				
Most	Referent	Referent	Referent	.627
Several	1.06 (.85–1.32)	.84 (.63–1.11)	.94 (.58–1.50)	
Few	.91 (.67–1.23)	.98 (.76–1.25)	.81 (.48–1.36)	
School factors				
Academics				
Good/average	Referent	Referent	Referent	<.001
Very good	1.27 (1.01–1.61)	.95 (.73–1.22)	.98 (.65–1.48)	
Below average	2.08 (1.34–3.23)	2.21 (1.54–3.16)	1.94 (1.21–3.12)	
School satisfaction				
High	Referent	Referent	Referent	.102
Moderate	.99 (.77–1.27)	1.06 (.77–1.47)	1.19 (.66–2.13)	
Low	1.01 (.75–1.37)	1.51 (1.07–2.12)	1.37 (.72–2.62)	
Feel safe at school				
Yes	Referent	Referent	Referent	<.001
Neutral	1.42 (1.08–1.86)	1.46 (1.17–1.83)	1.27 (.82–1.97)	
No	2.27 (1.69–3.06)	1.28 (.84–1.95)	3.66 (2.44–5.47)	

^a Model controlled for gender, school type, and family affluence and was significant at the p < .0001 level.

^b p Values reflect variable significance level; variable levels significant at p < .05 are in **boldface type**.

ple. Bully–victims did not differ from noninvolved peers on most factors examined. Given past findings of bully–victims' poorer psychosocial adjustment [14], further research is warranted on age-appropriate interpersonal and school factors. Marini et al found that adolescents engaging in indirect versus direct bully–victimization varied in their normative beliefs regarding antisocial behavior, parental monitoring, and internalizing problems [15]. Further research examining possible subtypes could be instructive.

Family, peer and school factors' relevance for bullying involvement varied moderately by race/ethnicity. Similar to previous research [35], family structure was related to bullying outcomes for white students only. In contrast, parental communication was associated with bullying for all three racial/ethnic groups, and parental school involvement was

associated with bullying involvement for white and black students. Although the indicators used in the present analysis are crude and do not capture all dimensions of family life influencing bullying behaviors, these findings lend support to other investigators' contentions that family processes may be an important intervention target in future bullying prevention efforts [8,36]. Screening for parent communication and involvement in school may be useful in identifying students at risk of bullying involvement. Furthermore, programs should consider including interventions to address family communication and involvement, as such factors have been known to impact the success of community- and school-based preventive interventions for other adolescent behaviors [17].

The relationships between social isolation, classmate relations and bullying perpetration in the present study were

Table 4
Black students: Relative risk ratios and 95% confidence intervals for variables predicting bullying involvement vs. noninvolvement (n = 2,262)^a

	Victim vs. noninvolved	Bully vs. noninvolved	Bully–victim vs. noninvolved	p for trend ^b
Family				
Living arrangement				
Other	Referent	Referent	Referent	.441
2 Biological parents	.73 (.48–1.10)	1.04 (.72–1.50)	.97 (.50–1.92)	
School involvement				
High	Referent	Referent	Referent	.001
Moderate	.85 (.44–1.65)	1.54 (.95–2.49)	.81 (.30–2.14)	
Low	1.54 (.99–2.40)	1.40 (.91–2.16)	2.90 (1.63–5.16)	
Communication				
Easy	Referent	Referent	Referent	.002
Difficult	1.92 (1.29–2.86)	1.71 (1.12–2.62)	.82 (.40–1.70)	
Peer relations				
Social isolation				
Low	Referent	Referent	Referent	.002
Moderate	1.86 (1.10–3.13)	.70 (.46–1.05)	.99 (.54–1.80)	
High	1.89 (1.12–3.20)	.44 (.27–.70)	1.01 (.51–2.02)	
Classmate relations				
Good	Referent	Referent	Referent	.012
Average	1.02 (.57–1.85)	1.25 (.72–2.15)	1.01 (.43–2.33)	
Poor	1.42 (.79–2.57)	1.84 (1.05–3.23)	2.61 (1.21–5.62)	
Days extracurricular				
Most	Referent	Referent	Referent	.867
Several	1.14 (.72–1.81)	.81 (.52–1.28)	.92 (.51–1.68)	
Few	.99 (.64–1.53)	.86 (.52–1.44)	.69 (.32–1.46)	
School factors				
Academics				
Good/average	Referent	Referent	Referent	.100
Very good	1.20 (.72–2.00)	.76 (.47–1.21)	.74 (.36–1.51)	
Below average	1.59 (.60–4.19)	2.24 (1.15–4.34)	2.61 (.85–8.03)	
School satisfaction				
High	Referent	Referent	Referent	.003
Moderate	.80 (.48–1.32)	1.12 (.69–1.83)	1.52 (.63–3.66)	
Low	1.02 (.65–1.61)	2.33 (1.45–3.75)	2.42 (.90–6.50)	
Feel safe at school				
Yes	Referent	Referent	Referent	.463
Neutral	1.12 (.60–2.09)	.87 (.58–1.31)	1.29 (.70–2.42)	
No	1.58 (.94–2.67)	.75 (.47–1.20)	1.20 (.57–2.52)	

^a The model controlled for gender, school type, and family affluence and was significant at the $p < .0001$ level.

^b *p* Values reflect overall variable significance level; variable levels significant at $p < .05$ are in **boldface type**.

similar to findings of studies with less diverse samples; for victims and bully–victims more racial/ethnic variations were apparent. In particular, it appears bullies' concurrent social integration and poor classmate relations, as well as victims' social isolation, are similar across race/ethnicity. However, the finding that black victims, unlike white and Hispanic victims, did not experience poorer classmate relations than noninvolved youth may signal different peer dynamics around victimization. Thus, peer-targeted bullying prevention strategies may need to be tailored for black students. Consistent associations between peer relations and bullying perpetration across racial/ethnic groups and across studies suggest negative peer relationships are central to the problem of bullying. However, family and school factors were related to bullying involvement even after accounting

for peer relationships. Given these findings, and previous research indicating the lack of effectiveness of approaches focused solely on peer interactions [37], targeting peer interactions while not addressing other contributors to bullying may be insufficient.

School factors were associated with bullying and victimization across groups, although more so for white and Hispanic than black students. The present study extends past research [38] by finding dimensions of school bonding appear differentially relevant to bullying by race/ethnicity. Below average school performance was related to all three types of bullying involvement for white and Hispanic students; school satisfaction was relevant for black and Hispanic students only. In addition, feeling unsafe at school was positively associated with victimization, but only for

Table 5
Hispanic students: Relative risk ratios and 95% confidence intervals for variables predicting bullying involvement vs. non-involvement (n = 2,305)^a

	Victim vs. noninvolved	Bully vs. noninvolved	Bully–victim vs. noninvolved	p for trend ^b
Family				
Living arrangement				
Other	Referent	Referent	Referent	.407
2 Biological parents	.77 (.55–1.08)	.86 (.59–1.24)	1.06 (.60–1.87)	
School involvement				
High	Referent	Referent	Referent	.930
Moderate	.86 (.59–1.25)	.95 (.55–1.63)	.93 (.41–2.13)	
Low	1.03 (.60–1.75)	.95 (.65–1.39)	1.35 (.65–2.78)	
Communication				
Easy	Referent	Referent	Referent	.007
Difficult	1.77 (1.23–2.55)	1.06 (.73–1.53)	1.88 (1.00–3.53)	
Peer relations				
Social isolation				
Low	Referent	Referent	Referent	.003
Moderate	1.11 (.69–1.80)	.96 (.66–1.37)	.73 (.35–1.56)	
High	1.55 (1.01–2.37)	.49 (.33–.73)	.75 (.31–1.85)	
Classmate relations				
Good	Referent	Referent	Referent	.001
Average	1.62 (.91–2.86)	1.42 (.95–2.11)	1.37 (.55–3.40)	
Poor	2.67 (1.46–4.88)	2.04 (1.28–3.24)	1.86 (.66–5.24)	
Days extracurricular				
Most	Referent	Referent	Referent	.286
Several	.93 (.57–1.51)	.73 (.49–1.07)	.69 (.28–1.69)	
Few	.64 (.39–1.05)	.74 (.49–1.12)	.86 (.40–1.86)	
School factors				
Academics				
Good/average	Referent	Referent	Referent	.008
Very good	1.25 (.78–1.99)	.84 (.54–1.31)	1.06 (.47–2.38)	
Below average	1.98 (1.01–3.88)	2.20 (1.31–3.68)	2.46 (1.13–5.39)	
School satisfaction				
High	Referent	Referent	Referent	.010
Moderate	.83 (.52–1.33)	1.64 (1.03–2.61)	.74 (.35–1.54)	
Low	.71 (.46–1.11)	2.67 (1.52–4.69)	.92 (.31–2.71)	
Feel safe at school				
Yes	Referent	Referent	Referent	.100
Neutral	1.26 (.80–1.98)	1.05 (.69–1.60)	1.28 (.60–2.73)	
No	1.84 (1.18–2.87)	1.62 (.97–2.68)	1.98 (.88–4.47)	

^a The model controlled for gender, school type, and family affluence and was significant at the $p < .0001$ level.

^b p for Trend values reflect overall variable significance level; variable levels significant at $p < .05$ are in **boldface type**.

white students. For the most part, school factors did not differentiate bully–victims from noninvolved peers among black and Hispanic students. These findings further underline the need for research on the circumstances of nonwhite students' victimization, especially those who are bully–victims.

The present study has the strengths of a nationally representative sample with sufficient representation from multiple racial/ethnic groups. However, its limitations must also be considered. First, the data are cross-sectional, and thus causal inferences regarding relational factors and bullying involvement cannot be made. Longitudinal designs should be used to address this shortcoming. Second, because of the complexity of models used (multinomial results across three

strata of race/ethnicity), only main effects were examined. Future research should examine synergistic and antagonistic relationships between social-relational factors, and variations in associations by gender and age. Third, although the HBSC data set provides the only national source of bullying data for the U.S., the measurement of interpersonal and school factors is limited. Programs may benefit from studies that include more nuanced measures of context, especially family dynamics (e.g., parental monitoring, discipline, norms for aggression, sibling relationships, etc.). Finally, further investigation of the roles and relations of the “non-involved” group is needed. This group may include at least three distinct subgroups: victim-defenders, bully-assistants, and reinforcers [20]. An understanding of their roles, and

their relational characteristics, is needed for a more complete understanding of bullying dynamics.

The etiology and contextual determinants of multiple adolescent problem behaviors have been found to vary by race/ethnicity [39,40]. An assumption of one-size-fits-all in prevention programs can impede their effectiveness. Adolescent problem behaviors should be seen as socially learned adaptations to a multi-level ecological context. Current bullying prevention programs, with their emphasis on peer contexts within the school, address risk factors for bullying that are common across racial/ethnic groups. However, most programs neglect other potentially important contexts (especially familial). Failure to address these contexts ignores important sources of adolescents' learning and norms that perpetuate maladaptive behavior. Improving the effectiveness of bullying prevention programs will require attention to these neglected domains and tailoring of interventions to the population served.

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