

# Analyzing Predictors of Bullying Victimization With Routine Activity and Social Bond Perspectives

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Hatice Cecen-Celik, MS<sup>1</sup>  
and Shelley Keith, PhD<sup>2</sup>

## Abstract

Bullying victimization in school settings is a serious problem in many countries including the United States. It has been associated with serious incidents of school violence as well as detrimental physical, psychological, emotional, and social consequences for its victims. Given its consequences, it is crucial to understand who is more likely to be targeted for bullying victimization. This study examines whether a number of important factors such as gender, physical and interactionist school security measures, and involvement in extracurricular activities influence an individual's risk of bullying victimization from social bond and routine activity perspectives. The study employs the 2011 School Crime Supplement of the National Crime Victimization Survey to investigate the causes of bullying victimization.

## Keywords

bullying victimization, routine activity theory, social bond theory

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<sup>1</sup>University of Leicester, UK

<sup>2</sup>Mississippi State University, Starkville, USA

## Corresponding Author:

Shelley Keith, Department of Sociology, Mississippi State University, P.O. Box C, 207 Bowen Hall, Hardy Road, MS 39762, USA.

Email: skeith@soc.msstate.edu

## Introduction

Recently, researchers have become interested in explaining the causes and consequences of bullying (Felix, Furlong, & Austin, 2009). Olweus (2003) defines bullying as a specific form of aggression, which occurs intentionally and repeatedly, and involves an imbalance of power between a perpetrator and a victim. Bullying can be direct, which encompasses a relatively open attack at a person such as hitting, kicking, spitting, and taking someone's belongings, or can be indirect, including behaviors such as making fun of, spreading rumors about someone, and social exclusion (Carbone-Lopez, Esbensen, & Brick, 2010).

A number of negative emotional, psychological, and behavioral consequences result from bullying victimization. Those consequences can be immediate for victims such as experiencing higher levels of anxiety (Olweus, 1997; Richard, Schneider, & Mallet, 2012), lower self-esteem, poorer emotional and social adjustment (Olweus, 1997; Vanderbilt & Augustyn, 2010), and higher risks of depression and suicide ideation (Turner, Exum, Brame, & Holt, 2013; Vanderbilt & Augustyn, 2010). The consequences for victims compared with non-victims may also be long-lasting such as greater health problems, being in abusive relationships during adulthood, and poorer self-esteem later in life (Rigby, 2004).

The consequences of bullying may be especially important given that approximately one out of three youth is involved in bullying as either a victim, perpetrator, or both (Nansel et al., 2001; U.S. Department of Education, 2011). According to the School Crime Supplement (SCS) data, approximately 28% of students were bullied in 2009 and in 2011 (U.S. Department of Education, 2011, 2013).

Given the prevalence and detrimental consequences of bullying, it is important to understand the theoretical causes of who is more likely to be targeted for bullying victimization. In this study, routine activity and social bond theory are used to understand the causes of bullying victimization in school settings by focusing on a number of important factors such as gender, physical security, interactionist school security measures (closeness of relationships between students and adults in the school), and involvement in extracurricular activities. Although these are different theories with unique perspectives, each of them provides a significant lens to understand how these factors affect a student's likelihood of bullying victimization. For instance, according to routine activity theory, crime is more likely to occur when suitable targets come into contact with motivated offenders in the absence of capable guardians (Cohen & Felson, 1979). Suitable targets refer to someone or something that draws motivated offenders who intend

to commit crime, while a capable guardian is someone or some object who prevents offenders from committing crime. Routine activity theory is well suited to explain the causes of victimization in the school environment given that schools vary in the presence of suitable targets, motivated offenders, and capable guardians (Popp, 2012; Popp & Peguero, 2011). Based on the routine activity perspective, increasing the supply of guardians such as security guards and other forms of adult supervision should discourage bullies and reduce the risk of bullying victimization. For example, extracurricular activities with adult supervision should discourage bullies preventing bullying victimization at school. Given the plausibility of these arguments, it is surprising that very few studies have utilized this framework to explicitly examine bullying victimization (Popp, 2012). Thus, this study contributes to the literature through explaining bullying victimization through these mechanisms.

In addition, social bond theory emphasizes how strong bonds with conventional society prevent individuals from committing crime (Hirschi, 1969). Although this theory is usually used to understand what causes crime, a large overlap exists in offenders and victims of crime, which indicates that the causes of offending and victimization may be similar (Higgins, Khey, Dawson-Edwards, & Marcum, 2012). This is a beneficial framework for understanding bullying victimization because stronger bonds with conventional others have been found to reduce criminal involvement and victimization (Catalano, Oesterle, Fleming, & Hawkins, 2004; Payne, Gottfredson, & Gottfredson, 2003) and being bullied has been found to reduce bonds (Popp & Peguero, 2012). Therefore, by extension, bonds with others should also reduce the likelihood of bullying victimization. Based on social bond theory, close and positive relationships between students and adults should strengthen students' attachments with school and reduce their involvement in bullying and victimization. Attending extracurricular activities in school should also protect students from being a victim of bullying because these activities occupy their time, and are important in building and providing social support and strengthening attachments with others in school. While the effect of bonds on bullying victimization have been examined among a Chinese sample (Chan & Chui, 2013), this study contributes to the literature through assessing how bonds affect youth based on a nationally representative sample in the United States.

Applying these frameworks, we utilize the 2011 SCS of the National Crime Victimization Survey (NCVS) to assess theoretical differences in gender, physical security and interactionist security measures, and involvement in extracurricular activities on the likelihood of bullying victimization. This research is important because while studies have identified factors related to bullying victimization (Carbone-Lopez et al., 2010; Nansel, Overpeck,

Haynie, Ruan, & Scheidt, 2003; Sawyer, Bradshaw, & O'Brennan, 2008; Turner et al., 2013; Wang, Iannotti, & Nansel, 2009), very few have applied theoretical frameworks to understand how these factors affect bullying (Chan & Chui, 2013; Cunningham, 2007; Higgins et al., 2012; Popp, 2012; Popp & Peguero, 2011). Through understanding why certain groups are more vulnerable to being a victim of bullying, effective policies can be created to prevent bullying in schools.

Below, we review the theoretical frameworks followed by a discussion of the factors related to bullying victimization, and then we apply these frameworks to explain the findings in the literature. Next, we describe our methods followed by a presentation of our results. We conclude with a discussion of our findings and implications for future research and policy aimed at preventing bullying victimization.

## **Theoretical Background**

### *Routine Activity Theory*

Cohen and Felson (1979) developed a routine activity approach to explain how increasing crime rates in the United States from 1947 to 1974 may be affected by changing social trends and people's routine activity patterns, such as increasing proportions of female college attendance, working women, single households, and traveling. Routine activities are defined as "any recurrent and prevalent activities, which provide for basic population and individual needs" (p. 593). Those activities that individuals involve in their daily routines may occur at home or away from home such as attending school, engaging in leisure activities, or working.

The three important elements which affect the opportunities for crime are motivated offenders, suitable targets, and the absence of capable guardians (Cohen & Felson, 1979; Felson, 2002). A motivated offender is someone who is intent to commit crime and is able to act on that intention (Cohen & Felson, 1979). A suitable target is anything or anyone that draws motivated offenders to commit crime, and a capable guardian is anyone or anything that prevents motivated offenders from committing crime (Cohen & Felson, 1979; Felson, 2002). Importantly, Felson (2002) argued that guardians include not only police officers or security guards but the most important guardians are ordinary citizens as well. Therefore, crime is more likely to occur when motivated offenders and suitable targets meet in the absence of capable guardians, but any of these three elements might be sufficient to affect criminal acts. Through the course of routine activities, people become available targets for motivated offenders (Cohen & Felson, 1979).

Routine activity theory provides an important framework for examining bullying victimization within a school setting because attending school is an important routine activity of juveniles where the presence of capable guardians and motivated offenders fluctuates throughout the day (Popp, 2012). A motivated offender is a bully who takes advantage of power differentials to harm others intentionally and repeatedly. Target suitability could depend on whether victims are viewed as weak in some way. For example, targets of bullies are commonly emotionally and physiologically weaker than other students (Olweus, 1997), are less likely to stand up for themselves, and have fewer friends (Jerals, 2011). Therefore, the perception that some students are weaker and have fewer friends to provide guardianship may make them suitable targets for motivated offenders. Furthermore, schools vary in the level of guardianship, and can include anyone or anything that prevents students from becoming victims of bullies such as the use of security cameras, security personnel, and others in the hallways (Burrow & Apel, 2008). In sum, routine activity theory is well suited to explain bullying victimization in schools.

### *Social Bond Theory*

Hirschi (1969) emphasized the importance of bonds individuals have to conventional society, and argues that when bonds to society are broken or weakened, deviant acts occur because the motivation to engage in deviance is constant. Specifically, the attachment, commitment, involvement, and belief bonds inhibit individuals from committing crime (Hirschi, 1969). Attachment, according to Hirschi, refers to individuals' sensitivity to the opinions of other people and institutions. He argues that parents' interactions with youth have a significant role in the formation of the attachment bond. Youth are less likely to engage in delinquent activities when they spend time with their parents because their parents directly supervise them (Hirschi, 1969). In addition, youth with greater attachment to parents refrain from crime because they care what they think and do not wish to disappoint them.

Similarly, a stronger attachment bond within schools may lower the risk of deviant acts because youth are concerned about the opinion of others such as teachers (Hirschi, 1969). For instance, Hirschi (1969) reported that youth who do care about what teachers think about them were less likely to engage in delinquent acts. In sum, the greater attachment level results in increased social control on individuals, which prevents them from engaging in delinquent acts.

Second, the commitment bond emphasizes the importance of investments in conventional society, such as getting an education, working, and saving

money for the future (Hirschi, 1969). Hirschi (1969) argued that individuals think about how much they have to lose when they break the law because they may endanger those investments that they have made for their future. Therefore, individuals with higher educational and career aspirations are more likely to obey the rules of society to protect these investments (Hirschi, 1969).

Third, Hirschi (1969) argued that a strong involvement bond reduces the time youth have available to engage in deviant acts. In addition, Hirschi emphasized the importance of the quality of activities and reported that youth who are involved in “working-class-adult” activities such as riding around, smoking, drinking, and dating are more likely to commit delinquent acts than youth who are involved in conventional activities such as homework (p. 196).

Finally, the belief bond refers to the existence of a shared common value system within society, although people vary in how much they feel they should abide by these rules (Hirschi 1969). Therefore, deviant behavior depends on how important such values are to individuals. For instance, Hirschi (1969) reported that youth who have a lack of respect for the police and the law were more likely to engage in deviant acts.

Strong support has been found for the importance of school bonds in reducing the likelihood of delinquency (Catalano et al., 2004; Payne et al., 2003; Welsh, 2001). Although Hirschi’s theory was created to explain delinquent acts and not bullying victimization, a strong overlap exists between bullying others and bullying victimization (Anderson et al., 2001; Higgins et al., 2012; Nansel et al., 2003), which indicates that the causes of bullying and victimization may be similar. In support of the importance of social bonds, Popp and Peguero (2012) found that being bullied at school reduces students’ attachment to school and belief in a school environment as not tolerating misbehavior. Chan and Chui (2013) found that social bonds influence bullying perpetration among a sample of Chinese youth. Furthermore, Higgins et al. (2012) argued that those with weaker bonds will differ in their lifestyle, which puts them at a greater risk of not only delinquency but being victims of bullying as well. In sum, social bonds may play an important role in explaining the causes of bullying victimization.

## **Factors Related to Bullying Victimization**

### ***Gender***

Most studies have found that male students are more likely to become victims of direct bullying whereas female students are more likely to be victims of indirect bullying (Bradshaw, Sawyer, & O’Brennan, 2009; Richard et al.,

2012; Wang et al., 2009) with limited exceptions (Peskin, Tortolero, & Markham, 2006). Despite the importance of gender as an explanatory variable, few studies have incorporated specific theoretical mechanisms to explain these gendered processes. The routine activities of males and females may explain differences in bullying victimization due to unique “gendered” experiences in socialization. Specifically, males are expected to be masculine which includes traits such as being strong, aggressive, dominant, and competitive (Padavic & Reskin, 2002). Therefore, for male students, bullying other male students might be a way to assert their masculinity and dominance (Ringrose & Renold, 2010). However, females are expected to act feminine, which includes traits such as passivity, frailty, and being virtuous (Padavic & Reskin, 2002). Because females are expected to be nice, supportive, and non-competitive, they are more likely to show their aggressiveness indirectly rather than physically (Ringrose & Renold, 2010). In addition, these gender norms imply that males should not bully females given stereotypes of their weaker nature (Ringrose & Renold, 2010). Therefore, males may not view females as suitable targets for direct bullying. Also, females may be less likely to see males or females as suitable targets for direct bullying because this behavior would be inconsistent with femininity and they are socialized to believe that males are dominant, powerful, and physically stronger than females (Ringrose & Renold, 2010).

In support of the influence of gender stereotypes on target suitability, Popp and Peguero (2011) found that females who violate stereotypes through participating in intramural sports were more likely to be targeted for school victimization than male students, and male students who violated stereotypical expectations through participating in school clubs were more likely to be viewed as vulnerable targets than female club participants. Furthermore, Lehman (2014) found that male students with high academic achievement were more likely to be bullied presumably because academic achievement is associated with femininity rather than masculinity. Academic achievement was not related to bullying victimization for female students (Lehman, 2014).

While gender is typically included as a control variable in tests of social bond theory, this theory is well suited to explain gender differences in bullying victimization. In support of the idea that bonds differ by gender, Jenkins (1997) found that female students were more committed and attached to school and have a greater belief in school rules than male students, and these bonds were related to less misbehavior at school. In addition, evidence suggests that strong attachment to parents and commitment to school protect females from delinquency compared with male students (Laundra, Kiger, & Bahr, 2002), and attachment to parents is positively and significantly related to academic achievement and inversely related to delinquency for females

compared with males (Huebner & Betts, 2002). These stronger bonds with parents and school may protect females from delinquency as well as bullying victimization (Higgins et al., 2012). This is because stronger bonds likely increase girls' involvement in activities such as doing homework and participation in organized conventional activities, thus reducing opportunities to engage in delinquency or be victimized.

While social bonds may protect female students from direct bullying, especially given that they are supervised more closely than males (Huebner & Betts, 2002), they are unlikely to protect females from indirect bullying. Indirect bullying can occur when the victim is not present, for example, when others gossip or exclude victims from social activities. It is also considered "natural" (Ringrose & Renold, 2010) or acceptable for girls to gossip, tease, and exclude others from social events (Bjorkqvist, Lagerspetz, & Kaukiainen, 1992).

In sum, compared with other demographic variables, gender is specifically important to explain theoretically because regardless of students' age and race/ethnicity, gender differences in bullying victimization especially by victimization type are pervasive. For instance, for females one of the most common victimization types is relational aggression, whereas for males, it is physical victimization (Felix et al., 2009).

Therefore based on the routine activity and social bond frameworks, we hypothesize the following:

**Hypothesis 1:** Males will be more likely to be a victim of direct bullying than females.

**Hypothesis 2:** Females will be more likely to be a victim of indirect bullying than males.

### *School Security Measures*

Based on routine activity theory, school security measures may serve to increase the supply of guardians while reducing the attractiveness of targets (Cohen & Felson, 1979). Strategies to reduce bullying can be classified into two main categories of security measures: physical and interactionist (Gregory et al., 2010; Richard et al., 2012; Time & Payne, 2008). Physical security measures focus on structural changes and include measures such as security cameras, security guards, and locker checks (Time & Payne, 2008). Some evidence supports the effectiveness of reducing bullying when adults, staff, or security guards supervise the hallways (Blosnich & Bossarte, 2011; Jeong, Kwak, Moon, & San Miguel, 2013). In contrast, some studies find that measures such as cameras, metal detectors, and security personnel were



ineffective in reducing victimization risks at school (Burrow & Apel, 2008; Popp, 2012; Schreck, Miller, & Gibson, 2003).

Based on routine activity theory, physical security measures such as capable guardians may play an important role in terms of preventing direct bullying victimization because students are aware that they are being watched. However, physical security measures might not be related to indirect bullying because security cameras, guards, or teachers are unlikely to see or be able to prevent a rumor from starting, for example. Therefore, we hypothesize the following:

**Hypothesis 3:** Physical security measures will be inversely related to direct bullying victimization.

**Hypothesis 4:** Physical security measures will be unrelated to indirect bullying victimization.

In contrast, interactionist security measures focus on increasing positive and open communication between students and school staff (Time & Payne, 2008). Olweus (2003) argued that teachers, school officials, and administrators must be involved with students to prevent bullying incidences. This involvement should lead to improvements in the emotional connection between teachers and students, the guardianship which they provide, and also encourage students to talk to them when they have a problem (Olweus, 1997).

In support of these ideas, research shows that bullying victimization is reduced when students have good communication with teachers (Cunningham, 2007; Richard et al., 2012; Popp, 2012). While usually framed in terms of increasing guardianship at school, the effectiveness of interactionist measures can also be attributed to social bond theory. For example, close relationships with teachers and social support are directly related to the attachment bond. Students with close relationships to teachers likely feel that they can report their bullying victimization compared with those who do not have these social supports. They will also likely avoid situations and places that increase their likelihood of being victimized because of these strong bonds (Higgins et al., 2012).

Interactionist security measures also foster an environment where students feel comfortable reporting rule violations (Time & Payne, 2008). When rules are perceived as fair, as being enforced, and understood, victimization at school is less likely (Catalano et al., 2004; Cunningham, 2007; Gregory et al., 2010). In addition, when students perceive that school rules are fair, the belief bond should increase. Also, when students do not believe that bullying is acceptable behavior, they may seek out measures to protect themselves from being bullied. According to Catalano et al. (2004), strong school bonds inhibit

behavior that is inconsistent with the values and rules of the school. They add that if school rules are negative, problem behaviors likely result, but if the rules are positive, positive behaviors likely result. Therefore, it is likely that students who are victims have more negative perceptions of school rules and are less strongly bonded to the school than non-bullied students.

In sum, while close supportive relationships with teachers and fair and enforced rules may increase guardianship, these factors should also strengthen the attachment and belief bond. Therefore, we hypothesize the following:

**Hypothesis 5:** Interactionist security measures will be inversely related to direct bullying victimization.

**Hypothesis 6:** Interactionist security measures will be inversely related to indirect bullying victimization.

### *Extracurricular Activity Involvement*

From a routine activity perspective, involvement in activities may provide students with capable guardians when adults supervise these activities, which thus reduces bullying victimization (Peguero, 2009; Popp & Peguero, 2011). However, involvement in activities may increase interactions with motivated offenders, and depending on the activity, provide very little guardianship (Popp, 2012). Also, the type of activity students are involved in and/or the gender of the participants may affect who is perceived as a more suitable target (Popp, 2012; Popp & Peguero, 2011). In support of these arguments, Popp (2012) found that involvement in classroom-related activities increased the likelihood that students were physically and socially bullied, while those who participated in sports or school clubs did not have an increased risk of victimization. Similarly, Peguero (2009) found that students involved in classroom-related activities and school clubs were more likely to be victims of crime at school which includes being bullied. In contrast, those involved in interscholastic sports were less likely to be targeted for violent crimes presumably because their perceived strength and higher status made them a less suitable target (Peguero, 2009). In sum, the effect of participation in extracurricular activities on bullying victimization should depend on the type of activity given variations in guardianship and target suitability.

Extracurricular activity involvement regardless of the type of activity should also affect bullying victimization from a social bond perspective. Involvement in activities may foster supportive relationships, increasing the strength of the attachment bond. For instance, Clark (2011) found that extracurricular activity involvement provides students with the opportunity to develop social skills and establish supportive and positive relationships,

which protect them from becoming a victim of violence at school. These findings are applicable to this study given that social support from others decreases the likelihood that students are bullied (Popp, 2012).

Not only does participation in extracurricular activities increase the attachment bond but when students are occupied in conventional activities, they do not have time to engage in bullying behaviors. For example, involvement in extracurricular activities provides protective factors from risky behavior and provides better academic achievement during high school (Eccles & Barber, 1999). Youth who are involved in school activities have higher grades, higher academic aspirations, and more positive attitudes toward school than other students who did not participate in those activities (Darling, Caldwell, & Smith, 2005). This should further occupy their time and reduce the opportunity they will be victimized. In sum, bullying victimization is likely reduced for students who are involved in extracurricular activities because they refrain from risky behaviors, have higher educational achievement, social support from others, and more social networks.

While predictions from social bond theory do not specify which types of conventional activities are important, based on routine activity theory, vulnerability to bullying victimization will depend on the type of activity. As mentioned above, those who are involved in sports are likely perceived as stronger and as having more status, while those involved in other activities may be perceived as more suitable, weaker targets. Therefore, we hypothesize the following:

**Hypothesis 7:** Involvement in sports-related extracurricular activities will decrease the likelihood of direct and indirect bullying victimization.

**Hypothesis 8:** Involvement in non-sports-related extracurricular activities will increase the likelihood of direct and indirect bullying victimization.

## Method

The NCVS is the main source of nationally representative victimization data in the United States and provides information not captured through arrest data (U.S. Department of Justice, Office of Justice Programs, Bureau of Justice, 2011). Individuals 12 years of age and older residing within households are interviewed every 6 months over a 3-year period based on a multi-stage cluster sample. Approximately every 2 years, the SCS is completed by youth in the household who are aged 12 to 18, fall between sixth and 12th grade, and attended school sometime during the previous 6 months.

The 2011 SCS of the NCVS data is used in this study. The primary purpose of the SCS is to obtain information on school-related victimization on a

national level. The SCS includes questions related to security measures employed in school, participation in after-school activities, perceptions of school rules and enforcement of these rules, the presence of drugs, alcohol, weapons, and gangs in school, hate-related incidents, bullying victimization, and attitudinal questions relating to fear of victimization at school (U.S. Department of Justice, Office of Justice Programs, Bureau of Justice, 2011).

The 2011 SCS was administered to 10,341 eligible NCVS respondents aged 12 through 18 within households between January through June of the year of data collection. Of those eligible, 63.3% or 6,547 completed the survey. Youth who were homeschooled ( $n = 237$ ) during any part of the year were excluded from analyses because it was unclear how many months they were at risk of being bullied at school.

### Dependent Variables

This study relies on a commonly used measure of bullying from the SCS in which students are directly asked if they have been bullied during the school year (Hutzell & Payne, 2012; Popp, 2012). The likelihood of a student's bullying victimization was measured by whether the student experienced any form of *direct* or *indirect bullying victimization*. For *direct bullying*, respondents indicated whether they have been threatened, have been pushed, shoved, tripped, or spit on, had their personal property destroyed, and were made to do things that they did not want to do. The *indirect bullying* variable includes responses to whether students had been made fun of, had rumors spread about them, or been excluded from activities by their peers. Because the prevalence of bullying was low, both direct and indirect bullying victimization were coded *yes* if the student experienced at least one of these bullying behaviors and were coded *no* if the student did not experience any of these bullying behaviors during the school year.

### Independent Variables

*Gender* is captured by the sex of the respondent, which was coded 0 for females and 1 for males.

The *physical security* measures indicate whether a student reported the school had security guards or assigned police officers, other school staff or other adults supervising the hallways, metal detectors, including wands, locked entrance, or exit doors during the day, a requirement that visitors sign in, locker checks, a requirement that students wear badges or picture identification, and one or more security cameras to monitor the school. These items capture the guardianship element of routine activity theory and closely match

other scales using the SCS (see Popp, 2012). Response options include yes (coded 1), no (coded 0), and don't know (coded 0). Don't know was coded 0 for two reasons: First, if the student was unaware of a security measure, then the effect would likely be similar to the security measure not being present. In addition, a large percentage of the sample due to listwise deletion would be lost if unknown was coded as missing (approximately 1,500 cases). *Physical security* measures range from 0 (*none of these security measures are present*) to 8 (*all of these measures are present*).

*Interactionist security* measures were captured through five items, including whether students reported they had an adult or friend who care about them, a friend they can talk to, and how much respondents believe school rules are known, fair, or strictly enforced. Each response category ranged from 1 (*strongly agree*) to 4 (*strongly disagree*). These items were reverse coded and summed, so that a higher number represents a student's greater attachment to school ( $\alpha = .68$ ). While an alpha reliability score of .68 is somewhat below the ideal level, principal components factor analysis verified the construction of this measure.

Involvement in activities was separated into two types, athletic teams and spirit groups in one group with performing arts, academic clubs, student government, performing arts, volunteer clubs, and other clubs included in the second group. Each of these variables was coded *yes* (1) if a student reported involvement in at least one of these activities and *no* (0) if they were not involved in any of these activities.

## Control Variables

Given that many studies have found significant correlations between race and/or ethnicity and bullying victimization, *race* was included as a control variable (Carbone-Lopez et al., 2010; Popp, 2012; Wang et al., 2009). Four dummy variables for race were created, including White, Black, Asian, and Other. Other included American Indian, Asian, Hawaiian, and anyone who reported being more than one race. Black was used as the reference category. In addition, *Hispanic origin* was coded 1, and non-Hispanic origin was coded 0.

Type of school was included as a control variable given that those attending public versus private schools tend to be affected more by bullying victimization (Nolin, Davies, & Chandler, 1996). The *school variable* was coded 1 for public and 0 for private. Household income was included as a control and ranged from 1 indicating income less than US\$5,000 to 11 indicating income more than US\$75,000. Age has been found to predict bullying victimization and is thus included as a control variable (Schumann, Craig, & Rosu, 2014; Solberg, Olweus, & Endresen, 2007). Age ranges from 12 to 18 years. Finally,

students indicated which month the current school year began. Students varied in how long they attended school before being interviewed, ranging anywhere from 4 months to 10 months before being interviewed. Therefore, a time at risk of being bullied variable was created which indicated the number of months the student attended school before being interviewed.

## **Analytic Strategy**

First, descriptive statistics are provided, including the key dependent and independent variables as well as the control variables. Next, logistic regression is used to analyze the effects of gender, security measures, extracurricular activity involvement, and the controls on bullying victimization. Logistic regression is chosen for analyses because most students reported that they had not experienced any form of bullying. Therefore, the bullying variables are dichotomized to indicate whether any of the types of bullying occur. Odds ratios are used for the interpretations of logistic regression analyses of direct and indirect bullying victimization.

For each type of bullying victimization (direct and indirect), two models are presented. The first model includes only the key independent variables whereas the second model includes the independent variables as well as the controls. The data were weighted for regression analyses, so that they are representative of the school-aged population of the United States. Adjustments were also taken into account for the stratified cluster design. To compare model fit, the adjusted Wald test is used instead of the likelihood-ratio test because observations are non-independent and not selected at random (Lee & Forthofer, 2006).

## **Results**

**Table 1.** Descriptive Statistics.

Variables	<i>n</i>	%/M	<i>SD</i>	Minimum	Maximum
<b>Dependent variables</b>					
Direct bullying	5,685	12.68%		0	1
Threatened	5,695	5.11%		0	1
Pushed	5,693	7.97%		0	1
Coerced	5,691	3.29%		0	1
Destroyed property	5,688	2.76%		0	1
Indirect bullying	5,680	25.76%		0	1
Rumors	5,687	18.60%		0	1
Excluded	5,689	5.52%		0	1
Called names	5,696	17.85%		0	1
<b>Independent variables</b>					
Male	6,016	50.43%		0	1
Physical security	5,327	4.83	1.46	0	8
Interactionist security	5,641	16.30	2.00	9	20
Sports activities	5,722	43.31%		0	1
Non-sports activities	5,717	49.48%		0	1
<b>Control variables</b>					
White	6,016	79.44%		0	1
Black	6,016	12.42%		0	1
Asian	6,016	3.84%		0	1
Other	6,016	4.31%		0	1
Hispanic	6,013	22.43%		0	1
Public school	5,749	92.12%		0	1
Household income	4,770	8.49	2.93	1	11
Age	6,016	14.84	1.93	12	18
Time at risk	5,754	7.20	1.80	4	10

**Table 2.** Logistic Regression of Direct Bullying Victimization on Selected Predictors ( $N = 4,415$ ).

	Model 1			Model 2		
	<i>b</i>	<i>SE</i>	OR	<i>b</i>	<i>SE</i>	OR
Male	0.08	0.09	1.08	0.07	0.10	1.08
Physical security	0.01	0.03	1.01	0.05	0.03	1.05
Interactionist security	-0.21	0.03***	0.81	-0.21	0.03***	0.81
Sports activities	-0.08	0.10	0.92	-0.03	0.10	0.97
Non-sports activities	0.28	0.09**	1.32	0.29	0.10**	1.33
White				0.08	0.16	1.09
Asian				-0.87	0.35*	0.42
Other				0.03	0.27	1.03
Hispanic				-0.37	0.13**	0.69
Public school				0.22	0.20	1.24
Household income				-0.03	0.02	0.97
Age				-0.19	0.03***	0.83
Time at risk				0.01	0.03	1.01
Constant	1.23	0.45	3.41	3.82	0.65***	45.58

Note. Black is the reference category.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .



**Table 3.** Logistic Regression of Indirect Bullying Victimization on Selected Predictors ( $n = 4,412$ ).

	Model 1			Model 2		
	<i>b</i>	SE	OR	<i>b</i>	SE	OR
Male	-0.45	0.07***	0.64	-0.46	0.07***	0.63
Physical security	-0.02	0.03	0.98	0.00	0.03	1.00
Interactionist security	-0.14	0.02***	0.87	-0.14	0.02***	0.87
Sports activities	-0.02	0.08	0.98	0.00	0.08	1.00
Non-sports activities	0.46	0.07***	1.59	0.47	0.07***	1.60
White				0.25	0.14	1.28
Asian				-0.49	0.28	0.61
Other				0.04	0.21	1.04
Hispanic				-0.55	0.10***	0.58
Public school				0.25	0.14	1.29
Household income				-0.03	0.02	0.97
Age				-0.09	0.02***	0.91
Time at risk				0.05	0.02*	1.05
Constant	1.36	0.35***	3.91	2.22	0.54***	9.16

Note. Black is the reference category.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .