

# School Bullying, Low Self-Control, and Opportunity

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## Abstract

The theory of low self-control has been shown to be a valid predictor of a wide variety of criminal and deviant behaviors. However, a limited number of studies were conducted to understand the relationship between low self-control and bullying and the effects of opportunity factors (i.e., parental supervision, association with other bullies, negative school environment, and disciplinary measures used by teachers) on bullying in the context of low self-control theory. The present study, using a sample of nearly 300 youths, examined the effects of low self-control and opportunity factors on various types of bullying behaviors. Results indicated that youths with low self-control were likely to physically and psychologically bully, consistent with the theory's prediction. When opportunity measures were introduced, they were stronger explanations of bullying than low self-control, especially association with other bullies and youth who experienced disciplinary measures by their teacher. Negative school environment was a significant predictor of psychological bullying but not for physical bullying. Theoretical and policy implications are discussed.

## Keywords

school bullying, low self-control, opportunity

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## Introduction

Previous empirical studies indicate that school bullying is a common occurrence in today's school systems and affects students' academic achievement and ultimately, their future career paths into adulthood (see Due et al., 2005; Nansel et al., 2001; Strom, Thoresen, Wentzel-Larsen, & Dyb, 2013; Wang et al., 2009). Typically, bullying behaviors can be categorized into physical (i.e., destroying or taking property of another through force, assaults, or fights) and psychological/emotional aggression (i.e., face-to-face verbal taunting or inappropriate comments, threats, harassment, spreading rumors, or embarrassing someone using social media websites). Prevalence estimates range from 20% of students reported being physically bullied to 50% of students reported being verbally or socially harassed (Wang et al., 2009). More recently, Schneider, O'Donnell, Stueve, and Coulter (2012) found that 26% of more than 20,000 Massachusetts high school students were victimized by school bullying over a 12-month period.

Research has found that bullying has negative consequences for victims and perpetrators. On one hand, victims of school bullying are more likely to experience physical, psychological, and/or academic problems such as physical pain/illness, depression, suicidal thoughts/attempts, school dropout, and learning difficulties (Farrington, Lösel, Ttofi, & Theodorakis, 2012; Olweus, 1993; Rigby & Slee, 1999; Salmon, James, Cassidy, & Javaloyes, 2000; Schneider et al., 2012). On the other hand, bullies are more likely to commit criminal behaviors as young adults, even after controlling for other risk factors (Farrington et al., 2012; Ttofi, Farrington, & Losel, 2012).

Recently, research has examined the applicability of criminology theories such as general strain, low self-control, and differential association theories to explain the etiology of school bullying (Lee, 2011; Moon, Hwang, & McCluskey, 2011; Moon, Morash, & McCluskey, 2012; Patchin & Hinduja, 2011). These findings indicate that low self-control theory, as proposed by Gottfredson and Hirschi (1990), has potential for understanding the causes of school bullying as youths with low self-control, low empathy, and impulsivity are more likely to engage in school bullying than youths who do not exhibit these characteristics (Endresen & Olweus, 2001; Jolliffe & Farrington, 2011; Moon et al., 2011; Unnever & Cornell, 2003).

However, we believe that further research is necessary to examine whether low self-control theory can be applicable to understand the etiology of school bullying. First, a limited number of studies were conducted to understand the relationship between low self-control and bullying in the context of low self-control theory. Second, further research is necessary to more specifically determine the effects of opportunity as it relates to the relationship between

low self-control and bullying. Third, prior tests failed to measure various types of school bullying (physical and psychological) separately and examine the effect of low self-control on both physical and psychological bullying behaviors. The current study uses a sample of nearly 300 youths to examine whether low self-control is significantly related to physical, psychological, and general bullying behaviors. Also, four opportunity factors (parental supervision, association with other bullies, negative school environment, and disciplinary measures used by teachers) are measured to examine their effects on bullying behaviors.

## **Low Self-Control Theory: Main Propositions and Empirical Findings**

According to Gottfredson and Hirschi (1990), low self-control is an embedded part of one's personality that takes shape over the early years of one's life. Low self-control was conceptualized as having six different and inter-related dimensions such as impulsivity, insensitivity, preference of physical activity, risk-taking tendency, short sightedness, and nonverbal orientation (Grasmick, Tittle, Bursik, & Arneklev, 1993). A person with low self-control has a tendency to prefer immediate gratification, have lower than average verbal abilities, and to be less apt to identify with others' needs and perspectives. Furthermore, someone with low self-control tends to prefer doing activities as opposed to studying about them, and tends to have problems concentrating for long periods of time. As deviant and criminal behaviors typically provide instant and easy gratification, Gottfredson and Hirschi (1990) state that individuals with low self-control are more likely to commit criminal behaviors without consideration of long-term consequences. Furthermore, they assert that low self-control is significantly related to imprudent behaviors such as drinking, smoking, and gambling because these activities, just like criminal behaviors, offer immediate satisfaction with little efforts. Gottfredson and Hirschi (1990) argued that low self-control, if present by age seven, persisted throughout all areas of an individual's life.

Regarding the effects of opportunity on deviant behavior, the theory simply indicates that individuals lacking self-control are more likely to engage in criminal behavior when opportunity is presented, without sufficiently clarifying the concept of opportunity and the relationship between low self-control and opportunity (see Seipel & Eifler, 2010). Consequently, researchers have offered different versions of the relationship between self-control and opportunity in subsequent empirical research (Hay & Forrest, 2008; Longshore, 1998; Longshore & Turner, 1998; Seipel & Eifler, 2010; Smith, 2004). For

example, previous studies utilized proxy measures of opportunity such as parental/adult supervision (LaGrange & Silverman, 1999) and deviant peer associations (Longshore & Turner, 1998) to denote the presence or absence of others. Other ways that the opportunity variable has been measured have included situations such as self-perceived opportunities (Grasmick et al., 1993; Longshore, 1998), number of evenings per week that an individual leaves home to go out (Burton, Cullen, Evans, Alarid, & Dunaway, 1998), high- and low-cost situations (Seipel & Eifler, 2010), and whether an individual is homeless (Baron, Forde, & Kay, 2007).

Numerous empirical studies were conducted to examine the theory's core propositions, especially focusing on the relationship between self-control and deviant and analogous criminal behaviors (Baron, 2003; Burton et al., 1998; Conner, Stein, & Longshore, 2009; Grasmick et al., 1993; LaGrange & Silverman, 1999; Longshore & Turner, 1998; Reisig & Pratt, 2011). For example, Pratt and Cullen (2000) conducted a meta-analysis of studies on the relationship between low self-control and criminal and analogous behaviors. They found that regardless of how low self-control was measured, it was significantly related to deviant and imprudent behaviors across different types of samples. Using a sample of 317 adolescent male offenders, Conner et al. (2009) examined the effects of volatile temper and risk taking—key dimensions of low self-control—on various types of criminal behaviors. As expected, young offenders with volatile tempers who engaged in risk taking were more likely to commit violent and property crime as well as use illegal drugs. More recently, Reisig and Pratt (2011) found that low self-control was significantly related to criminal as well as imprudent behaviors such as public profanity and flatulence, in their sample of 500 university students. Overall, these findings lend support to the presence of low self-control as a significant predictor of an individual's deviant and criminal behaviors.

Relatively limited studies (see Longshore, 1998; Longshore & Turner, 1998; Seipel & Eifler, 2010; Smith, 2004) examined the effect of opportunity on crime and its interaction effect with low self-control on deviant behaviors. Longshore and Turner (1998) examined the interaction effect of low self-control and opportunity, using gender and crime-involved friends as proxy variables for opportunity. The results indicated that the interaction effect between low self-control and opportunity on fraud was significant, whereas there was no significant interaction effect between them on crimes of force. Smith (2004) implemented an experiment to understand the effect of staged opportunity on academic dishonesty in a natural setting. The results show that college students with low self-control are more likely to cheat when the opportunity is presented to them, which is consistent with the theory's prediction. Seipel and Eifler (2010) measured opportunity by classifying various

actions into high-cost (such as drunk driving) and low-cost behaviors (such as receiving too much change). Low self-control had a statistically stronger effect on low-cost behaviors more so than on high-cost action, providing empirical support for low self-control theory.

## **Low Self-Control and School Bullying**

Empirical studies on the relationship between low self-control and school bullying have also found support (Chui & Chan, 2013; Endresen & Olweus, 2001; Haynie et al., 2001; Jolliffe & Farrington, 2011; Moon et al., 2011; Slee & Rigby, 1993; Unnever, 2005). Most of this research indicates a significant effect when low self-control was measured through the presence of impulsivity or a lack of empathy (Endresen & Olweus, 2001; Jolliffe & Farrington, 2011; Slee & Rigby, 1993). For example, several studies (Endresen & Olweus, 2001; Jolliffe & Farrington, 2011; Slee & Rigby, 1993) examined the effect of impulsivity or a lack of empathy for others—key aspects of low self-control—on bullying, and the results show that individuals with high impulsivity and/or lacking empathy for others are more likely to bully others. Unnever and Cornell (2003) examined a relationship among attention-deficit hyperactivity disorder (ADHD), low self-control, and school bullying, and the findings show that both ADHD and low self-control are significant causes of bullying. Similarly, Jolliffe and Farrington (2011), using a sample of 720 youths in England, found that low affective empathy was a significant predictor of male bullying, while high impulsivity was significantly related to various types of bullying for both males and females. Using longitudinal data with 655 Korean youths, Moon et al. (2011) examined the effect of low self-control, general strain, and differential association theories to explain the etiology of school bullying. The findings show that low self-control is significantly related to bullying among Korean adolescents, consistent with prior findings. However, its effect disappeared when tested directly against other criminological theories.

### **Current Study**

In summary, few of these prior studies on low self-control theory and bullying separated out more traditional physical bullying from psychological bullying, and none so far have examined the potential effect of opportunity on bullying. Given the limitations of previous studies, the present research attempts to examine the effect of low self-control theory and opportunity as an explanation of physical, psychological, and general bullying behaviors. We hypothesize that individuals with low self-control will be more likely to participate in physical, psychological, and general school bullying. Second,

the present study uses four different measures of opportunity—two of these measures are similar to previous studies (association with delinquent peers and level of parental supervision) and two measures relate directly to opportunities present at school (negative school environment and disciplinary measures used by teachers). We hypothesize that adolescents who are in a negative school environment and report being disciplined by teachers are more likely to engage in school bullying.

## Method

### Data

Data were collected from two middle schools in a large urban area in the southwest region of the United States. About 65% of the residents in this city are of Hispanic ethnicity. Both schools were located in an economically disadvantaged school district, where 98% of students attending both schools were of Hispanic ethnicity. Each school has around 700 students.

With the approval of the school administrators in each school, a letter explaining the purpose of the study was sent to parents or legal guardians of all sixth and seventh graders in each school in 2008. Out of 620 students in both schools, 360 parental consent forms were returned, granting permission for their child to voluntarily participate in a 30- to 40-min questionnaire. Students received two pens for their participation. Among 320 collected questionnaires, 24 were discarded because of too many missing items. Overall, 296 adolescents completed the survey; 158 and 138 students from each school. In the sample, 57% of the youth (168) were girls, while 43% (128) of them were boys. As expected, 94% of students in the sample were Hispanic, which was consistent with the distribution of race/ethnicity within the larger population in this district.

### Independent Variables

**Low self-control.** Low self-control was measured according to 24 attitudinal items developed by Grasmick et al. (1993), which has been used in prior studies (see Vera & Moon, 2013; Piquero & Bouffard, 2007). Each item contained a response on a 4-point Likert-type scale (*strongly disagree* to *strongly agree*). There is some debate among criminologists about whether self-control is more accurately measured through behavioral or attitudinal measures (see Baron et al., 2007; Holtfreter, Reisig, & Pratt, 2008). Empirical findings indicate that both measures have similar effects on deviant and analogous behaviors (see Pratt & Cullen, 2000; Tittle, Ward, & Grasmick, 2003).

The result of a principal component factor analysis showed a unidimensional solution of the 24 items as only one component with the eigenvalue equal to 3.3. Therefore, 24 items were combined to construct a low self-control scale (Cronbach's  $\alpha = .90$ ), which was coded so that a high score indicated a lower self-control.

**Opportunity factors.** In the present study, four different opportunity measures were used as potential factors that, if present, may help explain bullying behavior. First, we argue that youths of middle school age strongly identify with their peers and engage in behaviors that are similar to their close friends to feel accepted. Reliance on peers for recognition and elevated social status is especially relevant for bullies. This argument has been theoretically and empirically supported by previous research (Caravita, Di Blasio, & Salmavalli, 2009; Salmivalli & Peets, 2009; Sijtsema, Veenstra, Lindenberg, & Salmivalli, 2009). Time spent with peers was used in a previous study of opportunity and low self-control (Hay & Forrest, 2008). In this study, we created an association with bullies index ( $\alpha = .88$ ), which consisted of five items that measured whether or not a respondent's close friends engaged in school bullying behaviors during the last 12 months. These items were as follows: called other students names, spoken ill of other students, taken or damaged other student's belongs, physically attacked other students, and threatened or taken another student's money with force. Response options for each behavior ranged from 0 (*none*) to 5 (*all of them*).

A second measure of opportunity is the level of parental supervision and monitoring, which has been used in previous research (Hay & Forrest, 2008). Previous research supports the idea that children who have parents who monitor and take an interest in them are less likely to get into trouble than youths who have parents who are not involved (Herrenkohl et al., 2000; Loeber & Stouthamer-Loeber, 1986; Wright & Cullen, 2001). This index ( $\alpha = .90$ ) was constructed by summing five items that measured the extent to which a respondent's parent(s) knew the youths' close friends, whereabouts, and/or involvement in deviant behaviors. These items were as follows: "My parents know where I am when I am away from home," "My parents know who I am with when I am away from home," "My parents usually know if I commit deviant behaviors," "My parents usually recognize when I am in trouble," and "My parents are familiar with all or most of my close friends." The index was coded so that a high score indicated a high level of parental supervision. The 4-point response option for each item ranged from 1 (*strongly disagree*) to 4 (*strongly agree*).

A third measure of opportunity to engage in bullying is negative school environment, which has been shown to be related to bullying and

other problem behaviors (Battistich & Horn, 1997). We argue that a school environment that is routinely disorderly and has a high level of disruption will likely have a higher tolerance for bullying behavior. The negative school environment index (Cronbach's  $\alpha = .84$ ) consists of four items, measuring respondents' perceived levels of school disorder and violence. These items ask students to indicate their agreement or disagreement with each statement related to their overall school environment over the last 12 months: "Students at my school frequently call each other names," "Students are moving around or make noise during the class," "Students frequently get into fights," and "There is much violence in my school." The response option ranged from 1 (*strongly disagree*) to 4 (*strongly agree*) and the index is coded so that a high score indicates a high level of disruption in the overall school climate.

The final index was one that examined actions a teacher had to take to punish or discipline the respondent over the last 12 months. Teachers' negative feedback can promote negative school climate, which creates contextual opportunity for school bullying. These five items (Cronbach's  $\alpha = .84$ ) were how many times in the last 12 months did your teacher "isolate you," "embarrass you," "negatively compare you to others," "ignore you," or "make negative comments about you?" The response options for each item ranged from 0 (*never*) to 4 (*10 or more times*), and it was coded so that a high score indicates a high level of negative interaction with teachers.

## Dependent Variables

Prior studies defined school bullying as physical and psychological aggression toward other students (Bosworth, Espelage, & Simon, 1999; Espelage & Swearer, 2003; Kim, Koh, & Leventhal, 2004). To more fully measure both types of school bullying, we asked youths to self-report their own involvement in 15 bullying behaviors toward others over the previous year (Kim et al., 2004). First, the physical bullying index (Cronbach's  $\alpha = .87$ ) was created by summing eight items that are traditionally thought of in bullying behavior. Some of the items are "taken or damaged other students' belongings," "coerced other students to do homework or carry bags," "hit or pushed other students," "shoved or provoked other students," "threatened or took other students' money with force," and "physically attacked other students. The psychological bullying index (Cronbach's  $\alpha = .88$ ) was constructed to measure the verbal and emotional aspects of coercion and harassment, all of which are an important part of how bullies maintain control over their targets. This index was constructed by combining seven items and some of these items are "making fun of other student(s)," "leaving other student(s) out

**Table 1.** Descriptive Statistics of Independent and Dependent Variables ( $N = 296$ ).

Variables	<i>M</i>	<i>SD</i>	Minimum	Maximum
Low self-control	47.05	13.63	24	86
Negative school environment	4.40	10.48	4	16
Teachers' negative feedback	2.77	3.96	0	20
Association with bullies	2.78	4.02	0	20
Parental supervision	16.70	5.21	6	24
Psychological bullying	3.89	4.23	0	21
Physical bullying	1.83	3.41	0	18
General bullying	5.72	7.06	0	36

during recess,” “ignoring other student(s),” “calling other student(s) names,” and “speaking ill of other student(s).”

We combined both psychological and physical bullying indices to construct a general bullying index of 15 items (Cronbach's  $\alpha = .92$ ). The response options ranged from 0 (*never*) to 3 (*six times or more*), and each index of school bullying was coded so that a high score indicates a high involvement in psychological, physical, and general school bullying. The means and standard deviations of all independent and dependent variables are shown in Table 1.

### Control Variables

We used four sociodemographic factors as control variables: gender, family structure, parental income, and academic performance. Some of these variables were significantly related to school bullying and deviant behaviors in previous studies (see Moon et al., 2012). Gender was coded as male = “1” and female as “0.” Family structure was a dichotomous variable, coded as “1” for intact family (living with both biological parents) and “0” for families that have parents who are divorced or separated. Parental income was a continuous variable that measured parents' annual household income. Academic performance was measured by asking respondents to self-report their average grade during the previous year. A high score indicates lower academic grades.

### Findings

The zero-order correlations among low self-control, opportunity measures, and school bullying behaviors are presented in Table 2. Low self-control and three of the four opportunity measures (except parental supervision) are significantly and positively related to school bullying.

**Table 2.** Correlation Matrix Among Major Independent and Dependent Variables.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)	1							
(2)	.43*	1						
(3)	.27*	.22*	1					
(4)	.48*	.38*	.39*	1				
(5)	.04	.23*	-.16*	-.01	1			
(6)	.47*	.35*	.38*	.60*	-.09	1		
(7)	.38*	.19*	.43*	.59*	-.14	.71*	1	
(8)	.46*	.30*	.44*	.64*	-.12	.94*	.91*	1

Note. (1) Low self-control, (2) Negative school environment, (3) Teachers' negative feedback, (4) Association with bullies, (5) Parental supervision, (6) Psychological bullying, (7) Physical bullying, (8) General bullying.

\* $p < .05$ .

Adolescents with low self-control are more likely to engage in school bullying (0.47, 0.38, and 0.46), consistent with the theory's proposition. For opportunity measures, a negative school environment, negative teachers' behavior, and association with other bullies are positively related to psychological (0.35, 0.38, 0.60), physical (0.19, 0.43, 0.59), and general bullying (0.30, 0.44, 0.64) in the expected direction.

Table 3 presents the results of negative binomial regression analyses with two models for each type of bullying behavior. Negative binomial regression was the most appropriate statistical test given the small percentage of middle school students who reported participating in school bullying (see Long, 1997). For each type of bullying, the first model included low self-control and four control variables. In the second model, four opportunity measures were added to the baseline model to understand how low self-control variables behaved relative to bullying behaviors. Control variables were included in all models.

Models 1 and 2 predicted psychological bullying. Low self-control (0.02) was significantly and positively related to psychological bullying, even after controlling for opportunity measures. All opportunity measures were significant predictors of psychological bullying in the expected direction, which lends support to the second hypothesis. Negative school environment (0.02), negative teacher behavior (0.03), and association with bullies (0.01) were positively related to psychological bullying, while parental supervision ( $-0.03$ ) had a negative effect on psychological bullying.

Models 3 and 4 predicted physical bullying behaviors. Low self-control (0.06 and 0.03, respectively) was strongly and positively related, and three

**Table 3.** Negative Binomial Regression Models Predicting Various Bullying Behaviors (N = 296).

	Psychological Bullying			Physical Bullying			General Bullying		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6			
Low self-control	0.04* (0.01)	0.02* (0.01)	0.06* (0.01)	0.03* (0.01)	0.04* (0.01)	0.02* (0.01)			
Opportunity measures									
Negative school environment		0.05* (0.02)		-0.03 (0.04)		0.03 (0.02)			
Teachers' negative feedback		0.03* (0.01)		0.07* (0.03)		0.05* (0.02)			
Association with bullies		0.08* (0.02)		0.15* (0.02)		0.10* (0.02)			
Parental supervision		-0.03* (0.01)		-0.04* (0.02)		-0.03* (0.01)			
Control variables									
Gender (male = 1)	-0.05 (0.12)	0.06 (0.11)	-0.05 (0.23)	0.23 (0.21)	-0.06 (0.13)	0.10 (0.12)			
Family structure (intact family = 1)	0.03 (0.12)	0.06 (0.11)	-0.15 (0.23)	-0.07 (0.21)	-0.02 (0.14)	0.04 (0.12)			
Parental income	0.04 (0.03)	0.01 (0.03)	0.03 (0.06)	-0.06 (0.06)	0.04 (0.04)	-0.01 (0.03)			
Academic performance	-0.04 (0.04)	-0.03 (0.04)	-0.00 (0.07)	0.02 (0.07)	-0.03 (0.04)	-0.03 (0.04)			
Constant	-0.59* (0.28)	-0.18 (0.33)	-2.26* (0.53)	-0.86 (0.58)	-0.48 (0.31)	0.18 (0.35)			
Nagelkerke R <sup>2</sup>	.05	.09	.04	.09	.04	.08			

Note. Robust standard errors in parentheses.

\*p < .05.

out of four opportunity measures (all except negative school environment) had significant effects on physical bullying. Adolescents who received negative feedback from teachers (0.07) and associated with other peers who were bullies (0.15) were more likely to engage in physical bullying. Youths who had low parental supervision and monitoring ( $-0.04$ ) were also more likely to physically bully other students. Negative school environment, which was a significant predictor of psychological bullying, was not a significant predictor of physical bullying.

In Models 5 and 6, we investigated the effects of low self-control and opportunity measures on general school bullying. The findings were consistent with those in Models 3 and 4. Low self-control (0.04 and 0.02, respectively) exerted a strong effect on general bullying, after controlling for opportunity effects. Also, negative teachers' behavior (0.05) and association with bullies (0.10) were significantly and positively related, while parental supervision ( $-0.03$ ) was negatively related to general bullying. Interestingly, none of the control variables (gender, family structure, parental income, academic performance) had significant effects on bullying behaviors.

## Discussion and Conclusion

The present research empirically examined the applicability of low self-control theory, one of the most tested criminological theories over the last decade, to explain the etiology of adolescent bullying behaviors. The results were consistent with that predicted by Gottfredson and Hirschi's (1990) theory and presented support of the theory's generality to bullying. Below we discuss the key findings, limitations of the study and policy implications.

The findings provide support for the first hypothesis that low self-control is a significant predictor of various types of bullying behaviors. As self-control levels decreased, youths were more likely to physically and psychologically bully other students than students who had more self-control. Interestingly, the results indicated that the influence of self-control *weakened* when opportunity measures were introduced into the model, which is the opposite of that predicted by other researchers who examined more serious forms of crime (Hay & Forrest, 2008). In our study, the opportunity measures (especially association with bullies) were actually stronger explanations of bullying than low self-control. This same relationship that was found for opportunity and low self-control for crimes such as assault, theft, vandalism, and substance abuse may not hold for school bullying. A similar phenomenon occurred in another study that found that bullying victimization was more strongly correlated to bullying perpetration than most indicators of low self-control (Unnever & Cornell, 2003). These findings may suggest that future

researchers should consider opportunity factors when testing low self-control theory, as low self-control by itself may not be as strong a predictor for school bullying as it was for other forms of more serious crime.

The second hypothesis about the influences of opportunity factors on bullying received strong support. First, the school environment was a significant predictor of psychological bullying, but not for physical and general bullying. The nonsignificant finding for physical bullying in the current study, however, was unexpected. Previous research found that school climate is related to bullying and other problem behaviors (Battistich & Horn, 1997), as well as to academic achievement (Strom et al., 2013). It is possible that fights and physical attacks continue to occur away from school grounds, where the school climate does not matter. Second, the results indicate that negative student interaction with teachers has strong effects on all bullying behaviors, consistent with previous findings that bullying is related to the quality of the teacher–student relationship (Aspy et al., 2012; Battistich & Horn, 1997). Also, the study found that as parental monitoring and supervision of youths decreased, youth were reportedly more likely to become involved in bullying behavior than youths whose parents had knowledge of their child's whereabouts and with whom they were with. This inverse relationship between parental supervision/monitoring and bullying was in the expected direction and consistent with previous research (Herrenkohl et al., 2000; Loeber & Stouthamer-Loeber, 1986; Wright & Cullen, 2001). Parental supervision and monitoring is an indirect measure in other criminological theories, but the lack of supervision offers youths with low self-control the opportunity to engage in problem behaviors such as school bullying. Last, association with other bullies was the most influential opportunity measure influencing bullying behaviors; youths associating with bullies are more likely to bully other students. Bullying behavior relies on recognition and elevated social status afforded by the peer subculture, which is strong in middle school. Time spent with peers has been empirically supported by previous research as a predictor in bullying (Chui & Chan, 2013; Reijntjes et al., 2013). Association with other bullies is an indirect measure of differential association theory, which could be further explored for its significance as a valid explanation for school bullying (Moon et al., 2011).

The findings show that none of the control variables were significantly related to bullying behaviors, contrary to some of previous findings (see Moon et al., 2012 for the effect of gender on bullying). Lack of variation of parental income within the sample may be part of the reason for why parental income was not significant in any of the models.

It is important to note several methodological limitations. First, the data were cross-sectional, so it was difficult to disentangle potential reciprocal

effects that may have occurred between bullying and opportunity factors. A second limitation of the current project was that the sample was not nationally representative, which limits the generalizability of the findings. The study sample contained a disproportionately larger Hispanic population compared with the city demographics from where the data were collected. While few studies have examined bullying behavior within one ethnic group (the exception being Chui and Chan's, 2013, study of primary and secondary students of Chinese descent, from the city of Macau), the results of this study should be interpreted with these limitations in mind.

We believe that the current research provides empirical evidence that bullying can be prevented and reduced by *lessening opportunities* to bully. This involves involving the parents in the solution, changing the school culture, and educating teachers about recognizing and responding to bullying. Associating with other bullies is the most difficult factor to prevent, but bullying is only effective if it continues to be reinforced by one's peer group. Other students could be involved in the solution rather than contributing to the problem. For example, peer mediation programs train students to be support systems for bullying victims (Rice, 2013). Another idea is to involve all students in cooperative and prosocial activities that increase their self-esteem and social position. Leadership skills and self-esteem building workshops have been advocated and evaluated as a part of antibullying programs (Karna et al., 2011).

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