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Traditional and Nontraditional Bullying Among Youth: A Test of General Strain Theory

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Abstract

Bullying at school is a common problem facing youth, school officials, and parents. A significant body of research has detailed the serious consequences associated with bullying victimization. Recently, however, a new permutation has arisen and arguably become even more problematic. *Cyberbullying*, as it has been termed, occurs when youth use technology as an instrument to harass their peers—via email, in chat rooms, on social networking Web sites, and with text messaging through their computer or cell phone. The current study seeks to shed light on the potential causes of both variants of adolescent aggression by employing the arguments of Agnew's (1992) general strain theory as a guiding framework. Results suggest that those who experience strain are more likely to participate in both traditional and nontraditional forms of bullying. Implications of these findings and suggestions for further research in this growing area of study are also discussed.

Keywords

bullying, cyberbullying, general strain theory, deviance, aggression, peers

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Introduction

School bullying has long been a concern among parents, educators, and students alike. Accordingly, many researchers have focused a significant amount of attention on this topic over the past three decades (Besag, 1989; Ericson, 2001; Limber & Nation, 1998; Olweus, 1978; Tattum, 1989). Though there has been much research on the prevalence of bullying among students (Boulton & Underwood, 1992; Finkelhor, Turner, Ormrod, & Hamby, 2005; Haynie et al., 2001; Seals & Young, 2003; Stephenson & Smith, 1989), fewer studies have attempted to identify the causes and correlates of bullying behaviors (Borg, 1998; Hawker & Boulton, 2000; Rigby, 2003; Roland, 2002). In addition, the nature of bullying has changed dramatically over the past several years. Whereas traditional bullying historically took place in or near the school, bullies in the 21st century have enlisted technology to inflict harm on their peers through what has been termed *cyberbullying*.

Cyberbullying has been defined as "willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices" (Hinduja & Patchin, 2009, p. 5). This definition includes many of the important constructs common in definitions of traditional bullying (e.g., intentionality, repetition, actions that cause harm) but highlights the changing nature of adolescent communication and interaction by acknowledging the technology most commonly used by teens. Without question, both forms of bullying are (and remain) significant social concerns that warrant attention, empirical examination, and response.

To that end, the current study uses a popular contemporary criminological theory—general strain theory (GST)—to contribute to what is known about the factors associated with both traditional and nontraditional (electronic) forms of bullying. GST argues that individuals who experience strain, and as a result of that strain feel angry or frustrated, are more at risk to engage in criminal or deviant behavior (Agnew, 1992). As such, the primary question examined here is "Are youth who experience strain more likely to engage in bullying?" To explore this question, a brief review of the bullying and emergent cyberbullying literature is first provided. This is followed by a succinct summary of GST and a discussion of the theorized relationship between strain and bullying. Next, methods and analyses are described and results presented. Finally, the implications of this study are discussed along with recommendations regarding areas for future research into the causes and consequences of interpersonal adolescent aggression.

What is Known About Bullying?

The term *bullying* is generally equated to the concept of harassment—a form of unprovoked aggression often directed repeatedly toward another individual or group of individuals (Manning, Heron, & Marshal, 1978). However, bullying tends to become more insidious as it continues over time and may be better equated to "violence" rather than "harassment." Although numerous definitions have been posited, Nansel et al. (2001) offer a comprehensive explanation of bullying as aggressive behavior or intentional "harm doing" by one person or a group, generally carried out repeatedly and over time, and which involves a power differential.

As noted above, there is a broad and substantial literature base concerning traditional bullying. For example, a nationally representative study of 15,686 students in the United States from Grades 6 through 10 identified that approximately 11% of respondents were victims of bullying each year, whereas 13% were bullies, and another 6% were both victims and bullies (Nansel et al., 2001). This is in line with estimates that approximately 30% of American youth are involved in bullying at any point in time (Haynie et al., 2001; Nansel et al., 2001). Overall, conservative estimates maintain that at least 5% of those in primary and secondary schools (aged 7-16) are victimized by bullies each day, but the percentage is likely to be much higher (Bjorkqvist, Ekman, & Lagerspetz, 1982; Lagerspetz, Bjorkvqvist, Bertz, & King, 1982; Olweus, 1978; Roland, 1980).

With regard to cyberbullying, a few high profile incidents recently reported in the media have resulted in increased scholarly attention directed toward identifying the nature and prevalence of cyberbullying. In one of the earliest studies, Ybarra and Mitchell (2004) found that 19% of a sample of regular Internet users between the ages of 10 and 17 had experienced cyberbullying either as a victim or offender. Among an online sample, Patchin and Hinduja (2006) identified that approximately 30% of respondents below the age of 18 reported being the victim of cyberbullying whereas 11% admitted to cyberbullying others. This victimization prevalence rate was slightly higher, though comparable (34.6%) in a more recent study of the same online population by these same researchers (Hinduja & Patchin, 2008). Finally, a study of middle school students found that 18% had been cyberbullied in recent months and another 11% admitted to cyberbullying others (Kowalski & Limber, 2007).

Although both forms of bullying are comparable with respect to their nature (i.e., both can involve name calling, rumors, and threats), there are some characteristics unique to cyberbullying that may make it a categorically

distinct form of adolescent aggression (Hinduja & Patchin, 2009). For example, cyberbullies are able to hide behind the anonymity of a computer screen or cell phone and can perpetrate their acts even when they are physically far away from their target. Traditional bullying, however, often occurs when the victim and offender are in the same physical space (although this is not always the case). Relatedly, cyberbullies may be disinhibited due to such physical distance and say things they normally would not say to a person face-to-face. Cyberbullying also tends to be more viral than traditional bullying. Even though rumors seemingly circulate very quickly around the school using traditional methods, they travel at lightning speed with the aid of technology. A cyberbully could send an email containing disparaging or hurtful remarks about a target to a wide audience with one single click of the computer mouse. In short, technology has allowed would-be bullies to distance themselves from their target and disseminate cruel content to wider audiences than ever before.

The obvious question is "Why would youth engage in such behaviors?" Whereas some research has found that traditional bullying is related to anger (Borg, 1998; Brezina, Piquero, & Mazerolle, 2001), depression (Ericson, 2001; Rigby, 2003; Roland, 2002), low empathy (Endresen & Olweus, 2001; Rigby & Slee, 1999), low family cohesion (Bowers, Smith, & Binney, 1992), low parental monitoring (Patterson, 2002; Steinberg & Silk, 2002), low self-esteem and emotional instability (Crick & Bigbee, 1998; Olweus, 1978; Salmivalli, Kaukiainen, Kaistaniemi, & Lagerspetz, 1999; Slee & Rigby, 1993), and delinquency (Loeber & Disheon, 1984; Magnusson, Statten, & Duner, 1983), no study has attempted to identify the causes and correlates of cyberbullying. In an effort to fill this void, the current study used GST, a contemporary criminological theory purported to lend insight into a wide variety of deviant behaviors.

General Strain Theory

Strain theory first emerged in the social sciences in the late 1930s when Merton (1938) argued that the gap between aspirations and expectations resulted in stress or frustration that ultimately encouraged people to engage in crime as a way to achieve their goals. He asserted that American culture encouraged wealth accumulation, but only certain people were able to attain that goal using legitimate methods. Those who could not were strained, and as a result turned to illegitimate avenues (criminal enterprises) to achieve the proverbial American Dream. Merton's version of strain narrowly focused on wealth accumulation as the goal to which everyone aspires. Since Merton's

initial analysis, however, several other theorists have introduced expanded outcome-based conceptualizations of stress or frustration. For example, the frustration-aggression hypothesis proffered by Yale University psychologists pioneered the line of thinking that aggression presupposes frustration (Dollard, Doob, Miller, Mowrer, & Sears, 1939) and that frustration can lead to both nonaggressive and aggressive responses (Miller, 1941).

In the early 1990s, Robert Agnew (1992) revisited strain theory and offered a more nuanced conceptualization. Whereas previous versions primarily considered economic sources of strain (i.e., lacking the necessary financial resources to achieve one's material goals), Agnew's GST identified three sources that were broader in scope: (a) failure to achieve positively valued goals; (b) loss of positive-valued stimuli; and (c) presentation of negative stimuli. Whereas Agnew's first source of strain closely resembles that of traditional strain theories, the latter two sources opened GST to a much wider spectrum of strain producing circumstances—such as the termination of a romantic relationship (loss of positive stimuli) or physical abuse (presentation of negative stimuli)—than previous incarnations of the theory.

According to GST, strain does not directly cause crime. Rather, Agnew (1992) argued that experiencing strain first produces negative emotions such as anger and frustration and that crime is one adaptation or coping mechanism that strained individuals may use in response to those negative emotions. Therefore, not all youth who experience strain commit crime—only those who become angry or frustrated as a result of the strain (as those feelings create pressure for corrective action, potentially in the form of wrongdoing; Agnew, 2006a). In the relatively short amount of time that GST has been a mainstream theory, a solid body of evidence has accumulated for its support and relevance (see, for example, Agnew, 2006b; Agnew & White, 1992; Aseltine, Gore, & Gordon, 2000; Mazerolle, Burton, Cullen, Evans, & Payne, 2000; Paternoster & Mazerolle, 1994).

The Relationship Between Strain and Bullying

Although a few previous studies have examined bullying as a source of strain (Hinduja & Patchin, 2007; Wallace, Patchin, & May, 2005), no study has yet examined bullying as a potential outcome of strain. Nevertheless, there is good reason to explore this relationship. First, bullying makes sense as a response to strain when considered within the context of GST. According to Agnew (2000) experiencing strain "makes us feel bad; that is, it makes us feel angry, frustrated, depressed, anxious, and the like. These bad feelings create pressure for corrective action; we want to do something so that we will not

feel so bad" (p. 109). Clearly, bullying others—whether in person or online—is one such corrective action strained youth might adopt. Teasing, taunting, belittling, and otherwise tormenting others provides a bully with a sense of power and superiority (Olweus, 1978, 1993; Rigby & Slee, 1993), and so it is reasonable to hypothesize that strained youth who wish to ameliorate certain negative feelings might engage in this behavior to improve the way they feel about themselves. Particularly with respect to cyberbullying, technology may equip youth who otherwise would not be willing or able to respond with the perceived anonymity and tools to lash out with little concern for immediate retribution (Hinduja & Patchin, 2009).

Second, GST is purported to be one of a select few "general theories of crime" capable of explaining a wide variety of deviant behaviors (which would include bullying). Moreover, bullying itself has been linked to broader delinquent outcomes of the type more commonly studied by criminologists. For example, teens who bully others are four times more likely to appear in court on delinquency-related charges than their nonbullying counterparts (Rigby, 2003). Moreover, bullying is associated with other forms of antisocial behavior such as vandalism, shoplifting, truancy, dropping out of school, fighting, and drug use (Ericson, 2001; Loeber & Disheon, 1984; Magnusson et al., 1983; Olweus, 1999; Rigby, 2003; Tattum, 1989) as well as negative emotions which are sometimes resolved in deviant ways (Borg, 1998; Ericson, 2001; Rigby, 2003; Roland, 2002; Seals & Young, 2003). Further exploration of bullying appears necessary to gain more clarity about its causes and consequences. Accordingly, it is hypothesized that some youth may engage in bullying behaviors (both traditional and nontraditional) as a response to strainful life events and the negative emotions that they produce.

Current Study

Data and Sampling Strategy

The data for this study came from a survey distributed in the spring of 2007 to approximately 2,000 students in 30 middle schools (6th through 8th grades) in one of the largest school districts in the United States.[1] Students were selected to participate if they were enrolled in a district-wide peer conflict class that all students are required to take at some point in their middle school tenure. Created by a leading educational nonprofit organization, this class seeks to reduce violence among youth and teach problem-solving and conflict-resolution skills. It combines in-class instruction with strategies to manage personal aggressive reactions and often includes supplemental activities such as fact sheets and educational games.

To identify and reach participants, a sampling frame of peer conflict classes held in each middle school across the district was first obtained. As there were multiple ongoing classes at each grade level, a decision was made to administer the survey (described below) in one 6th-, 7th-, and 8th-grade class at each middle school in the district. Each student is randomly scheduled to take the class at some point during their middle school years, and so there was an equal chance for any student to be included within the class when the survey was administered. The sample obtained is therefore expected to represent the broader population of middle school students in the district. As illustrated in Table 1, the demographic characteristics of the sample closely matched that of the population from which it was selected.

A passive consent strategy was used in the current study. A form was sent home to parents by the school district one week prior to the survey administration describing the general purpose of the research project, its voluntary and anonymous nature, that there would be no repercussions for nonparticipation, that it is formally endorsed by the district, and that it is part of the efforts of a countywide Safe Schools Initiative. Parents were also informed that they could view the survey before their child participated and that it was important they contact their child's teacher via the form prior to survey administration if they did not want their child involved.

In addition, the school district circulated memos and other documents to inform principals and teachers as to the purpose and benefit of the research project. These educators received an informational packet with specific directions to be read to each class once questionnaires and answer sheets were distributed. The questionnaire asked about respondents' Internet behaviors and experiences while focusing on cyberbullying, traditional bullying, and a variety of other offline behaviors. There was a 96% completion rate from students who were not absent from school the day the survey was conducted; those who chose not to participate were asked to silently read, study, or work on their school materials. The final sample size totaled 1,963.

Measures

Dependent Variables

The general outcome of interest, bullying, was examined using two measures designed to represent different manifestations of current-day adolescent aggression. First, traditional bullying was a dichotomous variable (1 = *bully*; 0 = *not a bully*) representing whether a youth had engaged in bullying behaviors in the previous 30 days (see Table 2). The behaviors that encompass the bullying scale were adapted from Kaufman et al. (2000), and are typical of

Table 1. Sample Demographic Characteristics (N = 1,963)

	Sample (%)	Population (%)
Gender		
Female	50.1	48.0
Male	49.8	52.0
Missing	0.1	
Grade		
6th	34.7	33.9
7th	35.6	32.2
8th	29.2	33.9
Missing	0.5	0.0
Age (mean= 12.8)		
10	0.4	1.2
11	11.0	24.4
12	29.5	31.9
13	32.7	31.4
14	20.0	8.8
15	4.8	2.0
16	1.5	.3
Missing	0.2	0.1
Race		
White	40.6	41.0
Black/African American	23.4	28.0
Hispanic or Latin American	19.6	23.0
Multiracial	7.1	4.7
American Indian or Native	1.3	0.6
Other	3.5	2.5
Missing	0.4	0.0

those employed in previous studies (Besag, 1989; Olweus, 1978; Tattum, 1989). As noted in Table 2, the bullying measure includes a variety of behaviors representing relatively minor and common forms (e.g., "I called another student mean names") to more serious and less common forms (e.g., "I threatened or forced another student to do things he or she didn't want to"). As bullying represents a pattern of behavior and not just one isolated incident, responses were dichotomized as follows: youth who reported no involvement in bullying or just one incident were coded as "0" whereas those who responded that they had participated in bullying behaviors two or more times were coded as "1." The dichotomous measure had a mean of 0.34 and a standard deviation of 0.474 (Cronbach's α = .88). As reported in Table 2, 34.1% of respondents admitted to participating in bullying behaviors two or more times in the previous 30 days. This number is somewhat higher than those

Table 2. Descriptive Statistics (N = 1,963)

	M	*SD*	Range/ Percentage
Dependent variables			
Traditional Bullying Scale (α = .88)	0.34	0.474	0-1
I called another student mean names, made fun of or teased him or her in a hurtful way			27.7%
I have taken part in bullying another student or students at school			20.5%
I kept another student out of things on purpose, excluded him or her from my group of friends or completely ignored him or her			19.9%
I hit, kicked, pushed, or shoved another student around or locked another student indoors			15.3%
I spread false rumors about another student and tried to make others dislike him or her			10.8%
I bullied another student with mean names, comments, or gestures with a sexual meaning			9.9%
I bullied another student with mean names or comments about his or her race or color			8.6%
I took money or other things from another student or damaged another students belongings			7.9%
I threatened or forced another student to do things he or she didn't want to do			6.5%
I bullied another student in another way			11.7%
One or more of the above, two or more times			34.1%
Cyberbullying Scale (α = .76)	0.22	0.413	0-1
I posted something online about another person to make others laugh			22.8%
I sent someone a computer text message to make them angry or to make fun of them			13.5%
I have taken a picture of someone and posted it online without their permission			11.9%
I posted something on MySpace or similar site to make them angry or to make fun of them			11.2%
I sent someone an email to make them angry or to make fun of them			9.0%
One or more of the above, two or more times			21.5%

(continued)

Table 2. (continued)

	M	*SD*	Range/ Percentage
Independent variables			
Strain ($\alpha = .77$)	3.30	2.462	0-9
I received a bad grade on an exam in school or in a class			35.3%
I got into a bad disagreement with a family member			29.0%
I got into a bad disagreement with a friend			28.3%
I have been treated unfairly by someone			28.2%
I broke up with a boyfriend or girlfriend			28.1%
A close friend of mine died or spent time in the hospital			20.8%
I have had money problems			19.1%
I moved to a new school			13.6%
I was a victim of a crime			11.5%
Anger/frustration ($\alpha = .86$)	0.99	0.770	0-4
I lose my temper			59.9%
I let little things irritate me			55.7%
I stay mad at someone who hurts me			54.5%
I feel like yelling at a parent or teacher			51.9%
I feel like getting even with someone who has harmed me			49.9%
I feel like other people are always lucky and they get all of the breaks in life			46.4%
I feel like life has given me a raw deal (has been unfair)			46.1%
I am jealous of other people			40.4%
I feel like a powder keg ready to explode			33.9%
I feel like physically lashing out against a parent or teacher			25.4%
Control variables			
Gender	0.50	0.500	0-1
Male			50.2%
Female			49.8%
Race	0.41	0.491	0-1
White			40.6%
Non-White			59.1%
Age	12.81	1.124	10-16

Note: Percentages may not add to 100 due to rounding and missing data.

found in other studies, which tend to average between 15% and 25% (Ericson, 2001; Finkelhor et al., 2005; Seals & Young, 2003).

The second outcome measure of interest in this analysis was the dichotomous variable cyberbullying (1 = *cyberbully*; 0 = *not a cyberbully*). As with the measure of traditional bullying, a variety of cyberbullying behaviors were examined (see Table 2), and youth who reported no involvement or just one incident were coded as "0" whereas those who responded that they had participated in cyberbullying behaviors more than once were coded as "1." The dichotomous measure had a mean of 0.22 and a standard deviation of 0.413 (Cronbach's $\alpha = .76$). Here, more than 21% of youth admitted that they had participated in cyberbullying behaviors two or more times in the previous 30 days. This number is in line with those found in other cyberbullying studies which range between 15% and 25% (Hinduja & Patchin, 2008; Li, 2006, 2007; Patchin & Hinduja, 2006; Ybarra, Espelage, & Mitchell, 2007; Ybarra & Mitchell, 2004).[2]

Independent and Control Variables

Agnew's (2006b) GST is innovative because it suggests several different kinds of strain. As such, the current study used a very broad measure that includes a variety of experiences seemingly common among adolescents (e.g., breaking up with a significant other, receiving a bad grade, getting into a disagreement with a family member) but also less common sources of strain (e.g., moving to a new school or being the victim of a crime; see Table 2).[3] The strain measure was a 9-item variety scale (ranging from 0 to 9) with higher values representing increased levels of strain ($M = 3.3$; $SD = 2.46$; Cronbach's $\alpha = .77$). To note, respondents were asked whether they experienced strain in the previous 6 months—a longer time-frame than the outcome measures which looked at participation in bullying and cyberbullying during the previous 30 days.[4]

GST also maintains that negative affect is an important mediator in the relationship between strain and deviance. To be sure, not all strained individuals turn to criminal behavior as a coping strategy or adaptive response. The current study therefore included a 10-item anger/frustration scale, derived from Brezina (1996), as an indicator of negative affect (see Table 2). With this mean scale (ranging from 0 to 4), higher values represented higher levels of anger and/or frustration ($M = 0.99$; $SD = 0.77$; Cronbach's $\alpha = .86$).

In addition to the above variables, the analyses also included other demographic measures to control for any potentially spurious relationships. Male was a dichotomous item where 1 = *male* and 0 = *female*. As reported in Table 1,

the sample was evenly divided across gender. White was a dichotomous variable where 1 = *White* and 0 = *non-White*. Approximately 41% of respondents were White. Finally, Age was included as a continuous variable representing the respondents age in years ($M = 12.8$).

Analysis

Statistical analyses were conducted in two phases. First, ordinary least squares (OLS) regression was used to estimate the effect of strain on anger/frustration. GST argues that anger and frustration mediate the relationship between strain and deviance, and for this relationship to exist, strain must first be significantly related to anger/frustration. Next, logistic regression analysis was used to examine the effect of strain and anger/frustration on bullying. Logistic regression is appropriate when dichotomous outcome variables are used (Menard, 1995).[5] Overall, a series of step-wise logistic regression models were computed to estimate the effect of strain on both traditional and nontraditional forms of bullying, the effect of anger and frustration on both outcome variables, and the effect of strain while controlling for anger and frustration. If GST is correct, the effect of strain should diminish or be rendered insignificant when anger/frustration was included in the multivariate models.

Results

Within the sample, gender and grade level was distributed relatively evenly (see Table 1). Concerning age, respondents were between 10 and 16 years old with most aged 12 (29.5%), 13 (32.7%), or 14 (20%). With regard to race, 40.6% were White, 23.4% were Black, and 19.6% were Hispanic. As reported in Table 2, a meaningful number of adolescents reported participating in bullying behaviors—both traditional and nontraditional forms. The most frequently cited type of bullying reported was "I called another student mean names, made fun of or teased him or her in a hurtful way" (27.7%). In all, more than one third (34.1%) of students reported engaging in traditional bullying two or more times during the previous 30 days. Cyberbullying was also relatively common among these middle schoolers. More than 21% of respondents reported cyberbullying others two or more times during the previous 30 days, with "I posted something online about another person to make others laugh" being the most frequently reported form. These findings are consistent with previous research that demonstrates a meaningful proportion of middle school students are involved in various types of bullying (Nansel et al., 2001; Nofzinger, 2001; Schreck, Mitchel, & Gibson, 2003; Whitney & Smith, 1993).

Table 3. Ordinary Least Squares Regression Coefficients Representing the Effect of Strain on Anger/Frustration

	B (*SE*)	Beta	*t* value
Strain	.064 (.01)***	.205	7.332
Male	–.288 (.04)***	–.148	–5.369
White	.083 (.04)	.053	1.910
Age	.049 (.02)*	.070	2.477
Constant	.205 (.25)		0.418

*$p < .05$. ***$p < .001$, two-tailed.

Next, the relationship between strain and anger/frustration was examined. Table 3 shows that strain was positively and significantly related to anger. That is, the more strained a respondent was, the more anger and frustration he or she reported. Also noted was the finding that boys experienced significantly less anger/frustration than girls (also see Mirowsky & Ross, 1995) and older youth experienced more anger and frustration than younger youth (also see Wallace et al., 2005).

Finally, the relationship between strain and traditional and nontraditional forms of bullying was analyzed (see Table 4). As presented in Models 1 and 2, both strain and anger/frustration were significantly related to traditional bullying ($p < .001$), even after controlling for the effects of gender, race, and age. That is, youth who experienced strain or anger and frustration were more likely to bully others than those who had not experienced strain or anger/frustration. To note, though, the nature of this relationship did not change when both were concurrently included (see Model 3). As such, the mediating relationship purported by GST (and partially supported in Aseltine et al., 2000; Brezina, 1996; Broidy, 2001; Hoffmann & Su, 1997; Mazerolle, Piquero, & Capowich, 2003) was not present in these data (also see Hoffman & Miller, 1998; Mazerolle et al., 2000; Mazerolle & Piquero, 1998; Tittle, Broidy, & Gertz, 2008). Similar findings emerged with respect to cyberbullying (see Models 4 through 6). Youth who reported strain or anger/frustration were more likely to participate in cyberbullying, though anger/frustration did not appear to mediate this relationship either.

It is also noteworthy that in all models, age was positively related to bullying and cyberbullying. That is, older students were more likely to report participating in bullying and cyberbullying. It is important to remember, however, that as this sample was based on a middle school population, it is only accurate to say that bullying increases as students age through 6th, 7th, and 8th grade. Subsequent research should examine these relationships among older students to see the point at which these behaviors diminish. In

Table 4. Logistic Regression Coefficients Representing Effects of Strain and Anger/Frustration on Bullying

	DV = Traditional bullying						DV = Nontraditional (cyber) bullying					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	B (*SE*)	Exp (*B*)	*B* (*SE*)	Exp (*B*)	*B* (*SE*)	Exp (*B*)	*B* (*SE*)	Exp (*B*)	*B* (*SE*)	Exp (*B*)	*B* (*SE*)	Exp (*B*)
Strain	.16 (.03)***	1.18			.14 (.03)***	1.15	.12 (.03)***	1.13			.12 (.03)***	1.13
Anger/ frustration			.85 (.07)***	2.34	.71 (.09)***	2.03			.43 (.07)***	1.53	.29 (.09)***	1.33
Male	.01 (.12)	0.93	.13 (.11)	1.14	.18 (.13)	1.19	.03 (.14)	1.03	.01 (.12)	1.01	.06 (.14)	1.06
White	−.22 (.13)	0.80	−.36 (.11)***	0.70	−.29 (.13)*	0.75	−.32 (.15)*	0.73	−.32 (.12)*	0.73	−.37 (.15)*	0.69
Age	.17 (.06)**	1.18	.16 (.05)**	1.17	.13 (.06)*	1.14	.21 (.06)***	1.23	.24 (.05)***	1.28	.19 (.07)**	1.20
Constant	−3.29 (.74)***		−3.47 (.65)***		−3.51 (.78)***		−4.29 (.83)***		−4.71 (.71)***		−4.27 (.85)***	
Nagelkerke R^2	.07		.14		.15		.05		.06		.07	

*$p < .05$. **$p < .01$. ***$p < .001$, two-tailed.

addition, White students were less likely to report involvement in bullying and cyberbullying (*ns* in Model 1). Further inquiry is also necessary to disentangle any racial effects that exist among these behavioral outcomes.

Discussion

A significant proportion of youth engage in, or are affected by, bullying at school. In addition, the 21st century has enabled bullies to extend their reach beyond the schoolyard through cyberbullying. The current study explored one potential cause of both forms of interpersonal harm by using GST as a theoretical roadmap. This theory argues that individuals who experience strain and its resultant negative emotions are at risk to engage in deviant behavior. Like many previous studies, the current work found partial support for GST's explanatory relevance.

First, there was a clear direct relationship between strain and both types of bullying. Middle schoolers who reported strain were significantly more likely to have engaged in bullying and cyberbullying. Second, bullying seemed to be related to feelings of negative emotions. Respondents who revealed feeling angry and/or frustrated were more likely to have participated in bullying and cyberbullying. Third, contrary to GST, anger and frustration did not appear to mediate the relationship between strain and either form of bullying. Rather, this finding suggests that strain and anger/frustration have an influence on both types of bullying independent of each other. In short, results from the current work are consistent with much of the previous strain literature and highlight the robustness of the basic GST model in its theoretical applicability to both bullying and cyberbullying.

Implications

Results from the current study point to several recommendations for policy and practice in working with youth. To preempt youth from attempting to reconcile strainful circumstances and negative emotions in an unconstructive or deviant manner, findings suggest that schools provide health education programming and emotional self-management skills to reduce the likelihood of significant strain resulting from interpersonal strife and conflict (including those occurring online; De Wolfe & Saunders, 1995; Hampel, Meier, & Kummel, 2008; McCraty, Atkinson, Tomasino, Goelitz, & Mayrovitz, 1999). Through the use of classroom teaching modules or schoolwide assemblies, educators might cover personal safety and defense; the defusement of potentially explosive interactions; stress management; the types of hostile behavior

of which law enforcement should be made aware; and a clear reminder that absolutely no one deserves to be mistreated (Matheny, Aycock, & McCarthy, 1993; Miller, Telljohann, & Symons, 1996).

Second, students must feel comfortable to openly approach and speak to faculty and staff on their school campus—which requires the provision and maintenance of an empathic and nonthreatening environment. Students may need to vent, obtain solace and emotional support, and try to understand why their specific instance of victimization may have happened (de Anda et al., 2000; Frydenberg & Lewis, 1993; Kobus & Reyes, 2000). Such a climate should also promote a continued open line of communication between youth and adults within the school setting. Consequently, this should reduce the occurrence of, and negative outcomes stemming from, interpersonal conflicts that arise among adolescents (Anderson, 1998; Riley & McDaniel, 2000). Incipient research in this area has identified a relationship between a positive school climate and cyberbullying. That is, students who perceived their school climate to be more positive experienced less bullying and cyberbullying (Hinduja & Patchin, 2009). Further research is necessary to determine what characteristics of the school climate are effective at reducing the amount of interpersonal aggression that affects this age group.

Third, and as previously mentioned, strain produces "pressure for corrective action" and requires some kind of release (Thaxton & Agnew, 2004, p. 764). This release may be positive or negative. Indeed, research has shown that adolescents between ages 11 and 15 increasingly cope with strain in maladaptive ways, such as resignation, avoidance, and hostility (Compas, Orosan, & Grant, 1993; Hampel & Petermann, 2005). As such, educators and other youth-serving adults must make available positive outlets at school and elsewhere to provide youth with a way to disengage from what weighs them down. This might include physical or mental extracurricular activities that occupy students' time and help them find satisfaction and self-worth in exploring personal interests (Frydenberg & Lewis, 1993; Miller & McCormick, 1991). These activities may provide a much-needed break from self-consuming thoughts related to any stressful life events experienced.

Limitations

Despite the merits of the current work, some limitations need to be acknowledged. First, the sampling techniques employed do not facilitate precise generalization to the universe of public school students in the United States, as a probability sampling technique of the entire nation was not used. It is

therefore important to replicate these findings in other districts or a more broadly representative sample.

Another limitation is that the data used were cross-sectional in nature. As a result, is impossible to ensure proper temporal ordering of the independent and dependent variables. GST argues that strain leads to negative emotions, which in turn lead to deviance. In the current study, all of the variables of interest were collected at the same time point. As noted above, respondents were asked whether they experienced strain during the previous 6 months—a longer timeframe than the outcome measures which looked at participation in bullying during the previous 30 days. In theory at least, the strain occurred prior to—or concurrent with—negative emotions and participation in bullying.

Finally, asking adolescents to self-report their behaviors can be problematic. Participation in bullying and cyberbullying may have been underreported because of the tendency of individuals to provide socially desirable answers (Brownfield & Sorenson, 1993). Relatedly, recall bias may also have occurred. Some scholars argue that data which stem from individuals' recollection about the past—"retrospective data"—are inherently unreliable because of the tendency for individuals to misrepresent or distort facts from a previous time period (Himmelweit, Biberian, & Stockdale, 1978; Horvath, 1982; Morgenstern & Barrett, 1974). Through careful wording and revision of the survey items, the current work sought to preempt the potency of most of these methodological issues.

Conclusion

The current study explored the extent to which the arguments of GST were able to explain traditional and nontraditional forms of bullying among a sample of middle school students from a large school district in the United States. Results were consistent with much of the previous literature concerning GST, with modest support for the direct effect of strain on deviance but no evidence of an intervening influence of negative affect. Results of this study also pointed to the need for further research regarding nontraditional forms of deviance frequently perpetrated and experienced by adolescents.

Interpersonal aggression remains a significant issue as youth navigate the difficult waters of their formative years. If strain or negative emotions independently exacerbate the problem among this population, these findings illuminate at least two specific areas that demand attention and focused response by individuals and organizations looking to identify contributing factors. As such, it is hoped that the current research can help shape policy and practice as youth-serving adults work to reduce the incidence, intensity, and impact of bullying—both offline and online.

Appendix

Correlation Matrix for All Measures Included in the Analysis

	White	Age	Strain	Anger/ frustration	Traditional bullying	Cyberbullying
Male	.002	.091***	−.048	−.138***	−.007	−.008
White		−.138***	−.063*	.022	−.093***	−.060**
Age			.154***	.048*	.094***	.115***
Strain				.215***	.200***	.144***
Anger/ frustration					.297***	.148***
Traditional bullying						.303***

*$p < .05$. **$p < .01$. ***$p < .001$, two-tailed.

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Notes

1. The survey was pretested among a group of 266 students at two randomly selected middle schools in the same district. Modifications were made to increase the clarity of each survey item and to ensure that they related to the constructs they were designed to measure.
2. Research has also shown that traditional bullying and cyberbullying are significantly correlated (Hinduja & Patchin, 2008), though the strength of the relationship ($r = .303$; see correlation matrix in the appendix) suggests that there may be differing mechanisms that correspond to different forms of bullying.
3. A meaningful body of literature has suggested a significant relationship between victimization and offending (Esbensen & Huizinga, 1991; Fagan, Piper, & Cheng, 1987; Jensen & Brownfield, 1986; Lauritsen, Laub, & Sampson, 1992; Loeber, Kalb, & Huizinga, 2001; Sampson & Lauritsen, 1990, 1993). As an astute reviewer pointed out, there is the possibility that including the victimization measure in the strain scale may bias the actual relationship between strain and

bullying/cyberbullying. A decision was made to keep the victimization measure in the strain scale for a number of reasons. Reliability and factor analyses suggested that it was a good indicator of strain, and analyses conducted with the victimization measure removed from the strain scale retrieved substantively identical findings. This is also an operationalization of strain commonly found in the extant literature.

4. Although the data were cross-sectional in nature, the fact that the strain measures focus on a period prior to (and including) the outcome variables allowed proper temporal ordering to be approximated. As the data were not collected over time, temporal ordering could not be determined as precisely as would have been desired. Future research should replicate this analysis using longitudinal data to see if the patterns observed remain.
5. We also computed the analyses using continuous dependent OLS regression, retrieving virtually identical results.

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