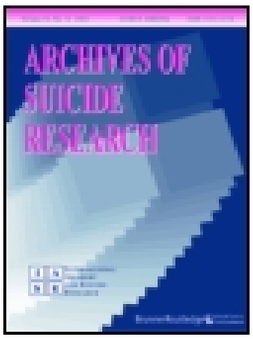

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Bullying, Cyberbullying, and Suicide

Sameer Hinduja and Justin W. Patchin

Empirical studies and some high-profile anecdotal cases have demonstrated a link between suicidal ideation and experiences with bullying victimization or offending. The current study examines the extent to which a nontraditional form of peer aggression—cyberbullying—is also related to suicidal ideation among adolescents. In 2007, a random sample of 1,963 middle-schoolers from one of the largest school districts in the United States completed a survey of Internet use and experiences. Youth who experienced traditional bullying or cyberbullying, as either an offender or a victim, had more suicidal thoughts and were more likely to attempt suicide than those who had not experienced such forms of peer aggression. Also, victimization was more strongly related to suicidal thoughts and behaviors than offending. The findings provide further evidence that adolescent peer aggression must be taken seriously both at school and at home, and suggest that a suicide prevention and intervention component is essential within comprehensive bullying response programs implemented in schools.

Keywords bullying, cyberbullying, Internet, suicide, suicidal ideation, youth

My friends don't want me around and I have invaded their privacy by Bebo and found out that they hate me but feel sorry for me and bitch about me. Everything I say to them goes around my school. They have taken over my Bebo account more than once and sent messages around saying that I had a sex change when I went on holidays. They are the only people in my class that I hang around with and I don't want to lose them but I have become depressed and suicidal and am afraid that if I'm pushed over the edge then it will be too late.

—Anonymous

Youth suicide continues to be a significant public health concern in the United States. The Centers for Disease Control and Prevention (2007) reported that suicide was the third leading cause of death among adolescents in 2004. Even though suicide rates have decreased 28.5% between 1990 and 2004 among young people, upward trends were identified in the 10- to 19-year-old age group in 2003–2004 (Centers for Disease Control and Prevention, 2007). In addition to those who successfully end their life, many other adolescents strongly think about and even attempt suicide. It is therefore essential that researchers work to identify the causes and correlates of these outcomes among this vulnerable population. While progress has been made in this area, there is still much we do not know about what induces a young person to contemplate or commit suicide.

One factor that has been linked to suicidal ideation is experience with bullying in and around school and the neighborhood

(Carney, 2000; High, 2007; Marr & Field, 2001). That is, youth who are bullied, or who bully others, are at an elevated risk for suicidal thoughts, attempts, and completed suicides (Baldry & Winkel, 2003; Mills, Guerin, Lynch, Daly et al., 2004; Rigby & Slee, 1999; van der Wal, de Wit, & Hirasing, 2003). The viability of these links has been strengthened through research showing how experience with peer harassment (most often as a victim but also as a perpetrator) contributes to depression, decreased self-worth, hopelessness, and loneliness—all of which are precursors to suicidal thoughts and behavior (Graham & Juvonen, 1998; Hawker & Boulton, 2000; Joiner & Rudd, 1996; Kaltiala-Heino, Rimpelä, Marttunen et al., 1999; Kaltiala-Heino, Rimpela, Rantanen et al., 2000; Langhinrichsen-Rohling & Lamis, 2008; Marr & Field, 2001; Roland, 2002). In addition, some researchers have hypothesized that many bullies *previously have been victims* and therefore suffer psychological and psychosomatic problems that usher in suicidal risks (van der Wal, deWit, & Hirasing, 2003).

In recent years, the nature of adolescent peer aggression has evolved due to the proliferation of information and communications technology. There have been several high-profile cases involving teenagers taking their own lives in part because of being harassed and mistreated over the Internet (Apollo, 2007; Halligan, 2006; Jones, 2008), a phenomenon recently termed *cyberbullicide*—suicide indirectly or directly influenced by experiences with online aggression (Hinduja & Patchin, 2009). While these incidents are isolated and do not represent the norm, their gravity demands deeper inquiry and understanding. The current study therefore seeks to expand what is known about the relationship between bullying and suicide by also considering and assessing the role of cyberbullying.

NATURE AND EXTENT OF BULLYING

A considerable body of research has been conducted on *traditional bullying*, defined 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 (Nansel, Overpeck, Pilla et al., 2001). Bullying can involve direct or indirect aggression (Ericson, 2001; Limber & Nation, 1998; Olweus, 1978; Tattum, 1989), with the former involving physical violence (hitting, kicking, taking items by force) and verbal violence (taunting, teasing, threatening) (Hawker & Boulton, 2000) and the latter typically consisting of more subtle, manipulative acts (such as extorting, ostracizing, or intimidating another person) (van der Wal, de Wit, & Hirasing, 2003). Another distinction has been made between overt aggression and relational aggression, with the former involving name calling, pushing, or hitting and the latter involving gossip, rumor-spreading, sabotage, and other subtle behaviors destructive to interpersonal relationships (Crick & Grotpeter, 1995; Prinstein, Boergers, & Vernberg, 2001; Wolke, Woods, Bloomfield et al., 2000).

Traditional bullying has been measured in a variety of ways and contexts, and it is helpful to focus on two key studies to illuminate its prevalence. First, the National Institute of Child Health and Human Development found that 17% of students reported being bullied, 19% reported bullying others, and 6% reported both being bullied and bullying others "sometimes" or "weekly" (Ericson, 2001). Second, the Bureau of Justice Statistics' Indicators of School Crime and Safety Report from 2007 indicated that 28% of youth between 12 and 18 years of age were bullied at school in the past 6 months, with about one-fifth of those stating that it happened at least once or twice a week (Dinkes, Cataldi, Lin-Kelly et al., 2007).

While traditional bullying has been studied at length in recent years, less is currently known about 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; Patchin & Hinduja, 2006). This definition is useful due to its simplicity and because it captures the most important elements, which include: "willful" (the behavior has to be intentional, not accidental); "repeated" (bullying reflects a pattern of behavior, not just one isolated incident); "harm" (the target must perceive that harm was inflicted); and "computers, cell phones, and other electronic devices" (this is what differentiates cyberbullying from traditional bullying). In general, cyberbullying involves sending harassing or threatening messages (via text message or e-mail), posting derogatory comments about someone on a Web site or social networking site (such as Facebook or MySpace), or physically threatening or intimidating someone in a variety of online settings (Burgess-Proctor, Patchin, & Hinduja, 2009; Kowalski & Limber, 2007; Lenhart, 2007; Li, 2007b; Patchin & Hinduja, 2006). Like traditional bullying, minor forms of cyberbullying include being ignored, disrespected, picked on, or otherwise hassled. The more debasing forms involve the spreading of rumors about someone, stalking, or physically threatening another person through some medium or method of electronic communications.

Since some types of cyberbullying are clearly more harmful than others, they can result in a continuum of effects for the target. Furthermore, consideration must be given to the seriousness of the incident within the context and among the circumstances that surround it. That is, receiving harassing emails by themselves may not be that significant of a problem. This type of cyberbullying coupled with other malicious behaviors online or offline, however, can create a very unfriendly and frustrating environment for the target. Among known accounts of cyberbullicide, Internet-based harm often coincided with other issues (such as offline mistreatment, emotional and psychological problems, academic difficulties, low self-esteem, clinical depression, a lack of a support structure, etc.) to culminate in a final tragic outcome (Hinduja & Patchin, 2009).

Scholars in recent years have been exploring the frequency and prevalence of cyberbullying through numerous research efforts. Collectively, these efforts have begun to shed light on this emerging problem. In one of the earliest studies, Ybarra & 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. Other scholars who have since studied the problem have returned comparable findings, generally determining that approximately 15–35% of students have been victims of cyberbullying while about 10–20% of students admit to cyberbullying others (Hinduja & Patchin, 2007, 2008, 2009; Kowalski, Limber, Scheck et al., 2005; Kowalski & Limber, 2007; Li, 2007a, 2007b; Patchin & Hinduja, 2006; Williams & Guerra, 2007).

BULLYING AND SUICIDAL IDEATION

Much research has been conducted to ascertain the relationship between traditional bullying and suicidal ideation (see, e.g., Kaltiala-Heino, Rimpelä, Marttunen et al., 1999; Kim, Koh, & Leventhal, 2005; Klomek, Marracco, Kleinman et al., 2007; Mills, Guerin, Lynch et al., 2004; Roland, 2002). It is therefore useful to review some of the most important works to inform the current analysis and provide insight into how suicidal ideation also may be related to experiences with

cyberbullying. First, the *British Medical Journal* published a study in which 16,410 Finnish students between the ages of 14 and 16 completed a school health promotion study that concentrated on adolescent health, health behavior and school behavior (Kaltiala-Heino, Rimpelä, Marttunen et al., 1999). Results indicated that among boys who were frequently bullied (at least once per week), 4% had severe suicidal ideation (compared to 1% for boys who were not bullied). Among girls who were frequently bullied, 8% exhibited signs of severe suicidal ideation (compared to 1% for girls who were not bullied). Of those who bullied others at least once per week, 8% of boys and 8% of girls displayed severe suicidal ideation (Kaltiala-Heino, Rimpelä, Marttunen et al., 1999).

In research stemming from the Netherlands, surveys from 4,721 primary school boys and girls revealed that approximately 13% of boys directly bullied and 18% of boys indirectly bullied suffered from suicidal ideation (van der Wal, de Wit & Hirasing, 2003). Similar trends were identified in Roland's (2002) study of 1,838 Norwegian 8th graders; boys who were bullied suffered from suicidal ideation 2.5 times more than non-bullied boys, while bullied girls experienced those thoughts 4.2 times more than non-bullied girls. In addition, boys who bully others suffered from suicidal thoughts 3.8 times more than non-bullying boys, while girls who bully others suffered from suicidal thoughts 8 times more than non-bullying girls (Roland, 2002). Australian research by Rigby and Slee (1999) paralleled this finding, identifying correlations between suicidal ideation and boys who bullied (.33), boys who were bullied (.18), girls who bullied (.18), and girls who were bullied (.34). Analogous results were also found in an American-based study, where bullying offending and victimization were significantly related to severe suicidal ideation and suicide attempts, with higher exposures to the former leading to higher risk of the latter (Klomek, Marracco, Kleinman et al., 2007).

Finally, Klomek, Sourander, Kumpulainen et al. (2008) conducted the first longitudinal study of bullying behavior and suicidal ideation, and found that youth who frequently bullied others at age 8 were more likely to have thought about killing themselves at age 18 compared to non-bullies—but that this link disappears when controlling for depression. No relationship was found between bullying victimization and suicidal ideation. However, the scale they used was based on one question with four statements representing a continuum of suicide risk, instead of a more complex, multifaceted set of measures.

After considering the extant research on bullying and suicidal ideation, it can be said with confidence that a strong relationship exists (Baldry & Winkel, 2003; Kim, Koh, & Leventhal, 2005; Mills, Guerin, Lynch et al., 2004; Roland, 2002; Seals & Young, 2003). Traditional bullying offending and victimization have also been linked to loneliness, peer rejection, low-self esteem, poor mental health, and other psychological and physiological ailments among youthful populations (Crick & Bigbee, 1998; Forero, McLellan, Rissel et al., 1999; Hershberger & D'Augelli, 1995; Mills, Guerin, Lynch et al., 2004; Prinstein, Boergers, Spirito, Little et al., 2000; Prinstein, Boergers, & Vemberg, 2001; Rigby & Slee, 1993; Salmon, James, & Smith, 1998). While yet to be determined, it seems very possible that similar dysphoric outcomes can befall those involved in cyberbullying. There are five major reasons we would expect this: 1) the permanence of computer-based messages (as compared to verbal statements) as they are preserved in Web sites, Internet archives, search engine caches, log files, user software applications, and user devices; 2) the ease and freedom with which hurtful, embarrassing, or threatening statements can be made; 3) the comparative

difficulty of detecting the misbehavior, identifying the offending party, proving or verifying the wrongdoing, and imposing a meaningful sanction; 4) the fact that victimization extends beyond the school, playground, bus stop, or neighborhood due to the ubiquity of computers and cell phones and the "always-connected" lives that adolescents lead; and 5) the growing number of potential victims and offenders as youth increasingly embrace new communications technologies, devices, and mediums to interact with each other.

METHOD

Participants

The data for the current study come 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. Youth were selected to participate in the study if they were enrolled in a district-wide peer conflict class that all middle school students are required to take at some point in their middle school tenure. There was a 96% completion rate from students who were not absent 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.[1] Table 1 reports the demographic characteristics of the sample and population from which it was selected. As expected with the random selection process, the sample matches the larger population fairly closely on these characteristics.

[1]More information about the sampling strategy and data can be found in Hinduja and Patchin (2009).

TABLE 1. **Sample Demographic Characteristics (N = 1963)**

	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	
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	0.3
Missing	0.2	0.1
Race		
White/Caucasian	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	

Measures

Respondents were asked a variety of questions pertaining to their school, friends, and family. Relevant to the purpose of the current study, they were asked about experiences with bullying and peer harassment, both online and offline, and thoughts about suicide. Specifically, the dependent variable utilized in this study

was *suicidal ideation*, and four items representing that construct were adapted from the American School Health Association's (1989) National Adolescent Student Health Survey. They included: [have you ever] 1) felt so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities; 2) seriously thought about attempting suicide; 3) made a specific plan about how you would attempt suicide; and 4) attempted suicide. Respondents indicated either "yes" or "no" to each of these questions, and so our resultant summary scale ranges from 0–4 (mean = 0.85; standard deviation = 1.11) with higher values representing more suicidal thoughts (Cronbach's $\alpha = .70$).

The current analysis utilizes four primary independent variables of interest. First, *traditional bullying victimization* represents the respondent's experience in the previous 30 days as a victim of 10 different forms of bullying. As noted in Table 2, the measure includes a variety of behaviors representing relatively minor and common forms of bullying (e.g., "people told lies about me;" "I was called mean names") to more serious and less common forms of bullying (e.g., "I was threatened or forced to do things I didn't want to do"). The response set for these questions was "never," "once or twice," "a few times," "many times," and "every day." As such, our 10-item summary scale ranges from 0 to 40 (mean = 3.20; standard deviation = 5.24) with higher values representing more experience as a victim of traditional bullying (Cronbach's $\alpha = .88$).

Second, *traditional bullying offending* represents the respondent's experience in the previous 30 days as an offender of 10 different forms of bullying. The varieties of these bullying behaviors—also ranging from mild to severe in their harm—are reported in Table 2 and included the same response set as the victimization questions. Again, our 10-item summary scale ranges from 0 to 40 (mean = 2.27; standard deviation = 4.38) with higher values representing more experience as a traditional bullying offender (Cronbach's $\alpha = .88$).

Third, *cyberbullying victimization* represents the respondent's experience in the previous 30 days as a victim of 9 different forms of online aggression (see Table 3). Like the traditional bullying victimization measure, our cyberbullying victimization measure includes a variety of behaviors ranging from relatively minor (e.g., "I received an upsetting email from someone I didn't know") to more serious (e.g., "something was posted online about me that I didn't want others to see").[2] As above, the five-choice response set ranged from "never" to "every day" and as a result the 9-item summary scale ranges from 0 to 36 (mean = 1.59; standard deviation = 3.05) with higher values representing more experience as a cyberbullying victim (Cronbach's $\alpha = .74$).

Finally, *cyberbullying offending* represents the respondent's participation in the previous 30 days with 5 different forms of online aggression (see Table 3). Once again, the same response set was utilized so our 5-item summary scale ranges from 0 to 20 (mean = 1.18; standard deviation = 2.59) with higher values representing more

[2]Readers should note from the behaviors selected for our cyberbullying measure that we intended to capture a relatively broad measure of cyberbullying that might better be characterized as "online harassment." That said, given our restriction to repeated incidents, we feel it is appropriate to label these experiences as bullying. Moreover, some may question our decision to include relatively minor behaviors that may not necessarily be considered bullying (such as receiving upsetting emails or having something posted on MySpace that was upsetting). While we can think of examples of such experiences that would fall outside the realm of cyberbullying, we once again sought to explore these issues from a macro-level perspective. This issue is further confounded by the fact that cyberbullying researchers have not settled on an agreed-upon measure. Our results should be interpreted with these considerations in mind.

TABLE 2. **Descriptive Statistics—Traditional Bullying (Previous 30 Days)**

	Mean	Std. dev.	Range/percent
Traditional Bullying Offending (α = .88)	2.27	4.38	0–40
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/her from my group of friends or completely ignored him/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%
Traditional Bullying Victimization (α = .88)	3.20	5.24	0–40
Other students told lies or spread false rumors about me and tried to make others dislike me			29.3%
I was called mean names, was made fun of, or teased in a hurtful way			28.7%
Other students left me out of things on purpose, excluding me from their group of friends, or completely ignored me			25.5%
I was bullied at school			19.2%
I was bullied with mean names, comments, or gestures with a sexual meaning			19.2%
I was bullied with mean names or comments about my race or color			18.8%
I was hit, kicked, pushed, shoved around, or locked indoors			16.3%
I had money or other things taken away from me or damaged			15.1%
I was bullied in other ways at school			12.2%
I was threatened or forced to do things I didn't want to do			10.9%
One or more of the above, two or more times			44.3%

TABLE 3. **Descriptive Statistics—Cyberbullying (Previous 30 days)**

	Mean	Std. dev.	Range/percent
Cyberbullying Offending (α = .76)	1.18	2.59	0–20
Posted something online about another person to make others laugh			23.1%
Sent someone a computer text message to make them angry or to make fun of them			13.7%
Took a picture of someone and posted it online without their permission			12.1%
Posted something on MySpace or similar site to make them angry or to make fun of them			11.3%
Sent someone an email to make them angry or to make fun of them			9.1%
One or more of the above, two or more times			21.8%
Cyberbullying Victimization (α = .74)	1.59	3.05	0–30
Received an upsetting email from someone you know			18.3%
Received an instant message that made you upset			16.0%
Had something posted on your MySpace that made you upset			14.2%
Been made fun of in a chat room			10.0%
Received an upsetting email from someone you didn't know (not spam)			9.7%
Had something posted about you on another web page that made you upset			9.5%
Something has been posted about you online that you didn't want others to see			9.2%
Been picked on or bullied online			9.0%
Been afraid to go on the computer			5.7%
One or more of the above, two or more times			29.4%

participation in cyberbullying behaviors (Cronbach's α = .76).

In addition to these primary variables of interest, we also include age, gender, and race in our models to control for any effect these demographic characteristics may have on suicidal ideation. *Age* is a continuous variable ranging from 10–16 (mean = 12.8; standard deviation = 1.12); Gender was dichotomized into *male* respondents and female respondents (1 = male, 0 = female); and Race was dichotomized into *White* and *non-White* (1 = White; 0 = Black, Asian, Hispanic, multi-racial, or another race).

ANALYTIC STRATEGY

Statistical analyses were conducted using SPSS (version 15.0). Descriptive statistics were initially computed to obtain baseline data on suicidal thoughts and behaviors, as well as with bullying and cyberbullying experiences (see Tables 1–3). To further measure the nature and strength of the relationships among these variables, we estimated a series of ordinary least-squares regression models. These first isolated the effects of the control variables and then examined the effect of experience with various forms of bullying on the suicidal

ideation summary scale. Finally, we utilized logistic regression analysis to focus on one particular outcome variable: suicide attempts. That is, we sought to assess the extent to which experience with bullying and cyberbullying was associated with an increased likelihood of attempted suicide.

RESULTS

In our sample, 20% of respondents reported seriously thinking about attempting suicide (19.7% of females; 20.9% of males), while 19% reported attempting suicide (17.9% of females; 20.2% of males).[3] With regard to traditional bullying, prevalence rates for individual behaviors ranged from 6.5% to 27.7% for offending and from 10.9% to 29.3% for victimization. The most common form of bullying offending reported by respondents was: "I called another student mean names, made fun of or teased him or her in a hurtful way" (27.7%), while the most frequently cited form of bullying victimization was: "Other students told lies or spread false rumors about me and tried to make others dislike me" (29.3%). With regard to cyberbullying, prevalence rates for individual behaviors ranged from 9.1% to 23.1% for offending and from 5.7% to 18.3% for victimization. The most commonly reported form of cyberbullying offending was: "Posted something online about another person to make others laugh" (23.1%) while the most frequent form of victimization was: "Received an upsetting email from someone you know" (18.3%). It is worth noting that the mean scores for all of these bullying scales are relatively low, which indicates a negatively skewed distribution of the scale.

The primary purpose of the current study was to determine if experience with peer aggression (i.e., traditional bullying and cyberbullying) was correlated with suicidal thoughts and attempts. Before presenting those results, it is necessary to examine the effect of age, race, and gender on suicidal ideation. As noted in Table 4, race was the only control variable significantly associated with suicidal ideation. More specifically, White respondents scored significantly lower on our suicidal ideation scale than non-Whites.

With respect to bullying, all forms were significantly associated with increases in suicidal ideation among sample respondents. That is, youth who experienced traditional bullying or cyberbullying, as either an offender or a victim, scored higher on the suicidal ideation scale than those who had not experienced those two forms of peer aggression. Moreover, it appears that bullying and cyberbullying *victimization* was a stronger predictor of suicidal thoughts and behaviors than was bullying and cyberbullying *offending*. In general, however, results suggest that experience with bullying explains only a small amount of the variation in suicidal ideation (only about 6% in the victimization models and 3% in the offending models).

Finally, we sought to identify if bullying and cyberbullying experiences were related to an increased likelihood of an adolescent attempting suicide. For this final approach, we dichotomized our bullying and cyberbullying summary scales (those who scored 0 or 1 were coded as "0" while those who scored 2 or higher were coded as "1").[4] Results of this analysis were similar to the previous results with all forms of

[3]It should be noted that the prevalence of suicidal ideation found among our sample is comparable to other studies focusing on adolescent populations (Corcoran & Graham, 2002; Langhinrichsen-Rohling & Lamis, 2008; Morgan & Hawton, 2004).

[4]We chose to code both "never" and "once or twice" as "0" since bullying represents a repetitive pattern of behavior and not just one or two isolated incidents.

TABLE 4. **Ordinary Least Squares Regression: The Effect of Bullying Victimization and Offending on Suicidal Ideation (N = 1963)**

	Model 1		Model 2		Model 3		Model 4		Model 5	
	b (S.E.)	***β***	**b (S.E.)**	***β***	**b (S.E.)**	***β***	**b (S.E.)**	***β***	**b (S.E.)**	***β***
Constant	0.41 (0.32)		0.24 (0.31)		0.54 (0.32)		0.56 (0.31)		0.60 (0.32)	
Male	0.01 (0.05)	0.00	−0.00 (0.05)	0.00	0.01 (0.05)	0.00	0.02 (0.05)	0.01	0.01 (0.05)	0.00
White	−0.23 (0.05)	−0.10***	−0.24 (0.05)	−0.11***	−0.19 (0.05)	−0.09***	−0.22 (0.05)	−0.10***	−0.21 (0.05)	−0.09***
Age	0.04 (0.03)	0.04	0.04 (0.02)	0.04	0.02 (0.03)	0.02	0.03 (0.02)	0.02	0.02 (0.03)	0.019
Traditional Bullying Victimization			0.05 (0.00)	0.23***						
Traditional Bullying Offending					0.04 (0.01)	0.16***				
Cyberbullying Victimization							0.09 (0.01)	0.25***		
Cyberbullying Offending									0.07 (0.01)	0.17***
F (*df*)	7.45 (3)		30.27 (4)		16.47 (4)		33.51 (4)		17.46 (4)	
R^2 (adjusted R^2)	0.013 (0.011)		0.067 (0.065)		0.038 (0.035)		0.074 (0.071)		0.040 (0.037)	

***$p < .001$ (two-tailed).

TABLE 5. **Logistic Regression: The Effect of Traditional Bullying Victimization and Offending on Suicide Attempts (N = 1963)**

	Model 1		Model 2		Model 3		Model 4	
	b (S.E.)	Exp(B)	b (S.E.)	Exp(B)	b (S.E.)	Exp(B)	b (S.E.)	Exp(B)
Constant	−2.58 (0.83)	0.79**	−2.37 (0.84)	0.09**	−2.37 (0.83)	0.09**	−2.29 (0.83)	0.10**
Male	0.17 (0.15)	1.18	0.16 (0.14)	1.17	0.17 (0.14)	1.19	0.14 (0.14)	1.15
White	−0.19 (−0.19)	0.83	−0.13 (0.15)	0.88	−0.20 (0.15)	0.82	−0.16 (0.15)	0.85
Age	0.07 (0.07)	1.07	0.05 (0.06)	1.05	0.05 (0.06)	1.06	0.06 (0.06)	1.06
Traditional Bullying Victimization	0.52 (0.14)	1.68***						
Traditional Bullying Offending			0.73 (0.14)	2.08***				
Cyberbullying Victimization					0.66 (0.15)	1.94***		
Cyberbullying Offending							0.40 (0.16)	1.49*
Nagelkerke R^2	0.022		0.036		0.029		0.013	

*$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed).

peer aggression being associated with a significant increase in the likelihood that the respondent attempted suicide (see Table 5). For example, traditional bullying victims were 1.7 times more likely and traditional bullying offenders were 2.1 times more likely to have attempted suicide than those who were not traditional victims or offenders. Similarly, cyberbullying victims were 1.9 times more likely and cyberbullying offenders were 1.5 times more likely to have attempted suicide than those who were not cyberbullying victims or offenders.

DISCUSSION AND IMPLICATIONS

Results indicated that experience with traditional bullying and cyberbullying is associated with an increase in suicidal ideation among our sample, and that both seem to be related to the outcome measure in similar ways. That is, the standardized coefficients were similar and the pattern of victimization and offending remained consistent across type of victimization. In addition, logistic regression analyses revealed that bullying and cyberbullying victims and offenders were almost twice as likely to have reported that they attempted suicide as youth who were not victims or bullies (odds ratios ranged from 1.5 to 2.1).

With respect to demographic characteristics, the only factor that was significantly related to suicidal ideation was race. In our sample, White respondents scored significantly lower on our suicidal ideation scale than non-Whites.[5] This result

[5]While a thorough analysis of the race/suicide relationship is beyond the scope of the current study, when breaking our sample down by several different racial categories we found that White youth reported the lowest suicidal ideation scores (.71), followed by Hispanic (.90), Asian (.94), Black (.96), multiracial (.96), and Native American (1.05) youth.

persisted across all forms of bullying—offline and online victimization and offending. This is noteworthy because while there are inconsistent findings reported in the literature with respect to race and suicidal ideation (Joe, Baser, Breeden et al., 2006; Kessler, Berglund, Borges et al., 2005; Kung, Hoyert, Xu, et al., 2008), most estimates suggest that Whites commit suicide at a higher rate than non-Whites (see e.g., Bingham, Bennion, Openshaw et al., 1994). However, those findings are representative of all ages rather than only youth. When considering those between the ages of 11 and 14 (the age range of 93.2% of our sample), it has been reported that Whites have a lower crude rate of suicides per 100,000 youth than non-Whites (1.26 compared to 1.36, respectively) (CDC, 2006). This largely mirrors results from our analysis, as White middle-schoolers had significantly lower levels of suicidal ideation than non-Whites. Future research must attempt to shed further light on the race/suicide relationship among youth in their early teens, as it seems inconsistent with findings from research based on adult samples.

With regard to clinical implications, the small but significant variation found in suicidal thoughts and actions based on bullying and cyberbullying suggests that all forms of adolescent peer aggression must be taken seriously both at school and at home. As such, psychologists, counselors, and parents must continually monitor their online and offline behaviors to reinforce the good and regulate the bad. Moreover, the findings suggest that a suicide prevention and intervention component is essential within comprehensive bullying response programs implemented in schools. Without question, the topic is sensitive and its presentation should be age-appropriate, as students in all grade levels must understand the serious consequences associated with peer aggression. While suicide is an extreme response, proper discussion of its stark reality can vividly portray the extent of harm that these forms of harassment can exact.

To be sure, educators must be careful not to plant ideas in the minds of youth related to suicide being a viable option to their interpersonal problems. As evidenced by the increasing number of self-inflicted deaths among youth, though, it is essential to boldly (but delicately) broach the topic to dissuade this form of harm and to remind youth that help is available. Parents should likewise discuss the link between offline and online peer harassment and suicidal thoughts, and ought to consider utilizing stories in the news to underscore the seriousness of the matter. It may not be a comfortable conversation, but it seems quite necessary given the frequency with which youth are harassed and the manner in which they sometimes suffer.

It should also be acknowledged that many of the teenagers who committed suicide after experiencing bullying or cyberbullying had other emotional and social issues going on in their lives. For example, one cyberbullicide victim attended special education classes in elementary school and struggled socially and academically (Flowers, 2006). Another suffered from low self-esteem and depression and was on medication when she took her life (Zetter, 2008). As mentioned earlier, it is unlikely that experience with cyberbullying *by itself* leads to youth suicide. Rather, it tends to exacerbate instability and hopelessness in the minds of adolescents already struggling with stressful life circumstances (Hinduja & Patchin, 2009). Future research should identify and specifically assess the contributive nature of these stress-inducing experiences.

Subsequent studies should also seek to ascertain the role of conditioning variables that moderate the relationship between bullying (or cyberbullying) and suicidal risk. That is, it would be useful to identify the factors that differentiate those youth who

contemplate suicide after experiencing bullying and those who do not. For example, social support (Rigby & Slee, 1999), internal locus of control (Topol & Reznikoff, 1982), and self-esteem (Dori & Overholser, 1999) are some variables which may serve as buffers against self-harm even in the midst of difficult peer conflict. In addition, depression should also be included in future models, as it previously has been found to mediate the relationship between bullying experiences and suicidal ideation (Klomek, Sourander, Kumpulainen et al., 2008).

Limitations

As with any other social science endeavor, the current study suffers from some methodological limitations. The primary shortcoming stems from the cross-sectional nature of the data. Since the data were not collected over time, it is impossible to conclude that experience with bullying *causes* one to have suicidal thoughts. While identifying correlations is an important first step, future studies must address this weakness by collecting information about bullying and suicidal ideation from adolescents at multiple time points to ensure proper temporal ordering. Furthermore, it would be useful to replicate this study among a nationally representative sample to provide more generalizable findings, and to use samples from other countries to assess cross-cultural differences.

The analyses also suffer from the common drawbacks associated with self-report studies. 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 also may have occurred. Some scholars argue that data which stem from individuals' recollection about the past—"retrospective data"—is 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, we sought to preempt the relevance of most of these methodological issues and feel fairly confident that they do not compromise the intentions and implications of the research.

Despite the aforementioned limitations, we believe the current work serves a foundational purpose by promoting continued consideration of both traditional bullying and cyberbullying as salient factors that impact suicidal risks among adolescents today. We also hope that it encourages youth-serving adults to take a serious look at the nature and nuances of online harassment among this population. Due to the growing relevance and seriousness of the problem at hand, those on the proverbial front lines must proactively work to equip themselves with the knowledge and strategies to preempt grave harm.

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