RESEARCH ARTICLE

Cyberbullying and Self-Esteem*

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ABSTRACT

BACKGROUND: This article examines the relationship between middle school students' experience with cyberbullying and their level of self-esteem. Previous research on traditional bullying among adolescents has found a relatively consistent link between victimization and lower self-esteem, while finding an inconsistent relationship between offending and lower self-esteem. It is therefore important to extend this body of research by determining how bullying augmented through the use of technology (such as computers and cell phones) is linked to differing levels of self-esteem.

METHODS: During March and April 2007, a random sample of 1963 middle school students (mean age 12.6) from 30 schools in one of the largest school districts in the United States completed a self-report survey of Internet use and cyberbullying experiences.

RESULTS: This work found that students who experienced cyberbullying, both as a victim and an offender, had significantly lower self-esteem than those who had little or no experience with cyberbullying.

CONCLUSIONS: A moderate and statistically significant relationship exists between low self-esteem and experiences with cyberbullying. As such, bullying prevention programs incorporated in school curricula should also include substantive instruction on cyberbullying. Moreover, educators need to intervene in cyberbullying incidents, as failure to do so may impact the ability of students to be successful at school.

Keywords: bullying; information technology; school psychology.

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Bullying and peer harassment have long been an issue of concern for educators. Studies demonstrate that a significant proportion of adolescents are affected by this problem.[1-3] For example, a study by the National Institute of Child Health and Human Development found that 17% of students in grades 6 through 10 report being bullied and 19% report bullying others "sometimes" or "weekly."[4] More recently, the 2007 Bureau of Justice Statistics' Indicators of School Crime and Safety Report reported that approximately 28% of students between 12 and 18 years of age were bullied at school during the past 6 months.[5] Of those, 25% experienced it once or twice a month, 11% once or twice a week, and 8% almost daily.[5]

Cyberbullying is a unique form of bullying that has gained a significant amount of attention in recent years. Although an embryonic body of literature concerning cyberbullying and online harassment has been established, most research has focused on identifying the prevalence of cyberbullying behaviors among adolescent populations.[6-11] No research to date has explored the relationship between cyberbullying and self-esteem, which seems a key construct to consider based on its relationship to traditional bullying, academic performance, criminal behavior, and a host of other factors associated with adolescent development.[12-14] In the text that follows, we briefly present what is known about cyberbullying and online harassment. Then, a short overview of self-esteem research is provided to highlight its significance to this work. Finally, methods, findings, and results of this study are discussed in a way that can inform school practice and policy.

Cyberbullying Among Adolescents

As technology evolves, so do many of the problems faced by those who have access to it. One example growing in scope and frequency is cyberbullying, defined as "willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices."[15,16] Although varying definitions have been posited by scholars,[17,6] we feel that this particular version is the most concise and comprehensive and captures the most important elements. First, cyberbullying is intentional, deliberate behavior carried out repeatedly over time. Second, the target of cyberbullying experiences real, nontrivial pain (psychologically, emotionally, or relationally). Third, what distinguishes cyberbullying from traditional bullying is that the former is carried out using various electronic devices. In short, cyberbullying involves using communication technology to harass, intimidate, threaten, or otherwise harm others. Common forms of cyberbullying include sending threatening text messages, posting libelous or malicious messages on social networking sites such as MySpace or Facebook, or uploading unflattering or humiliating pictures or videos to the Internet without permission.[15,7,16]

In practice, cyberbullying behaviors are often similar to psychological, relational, and indirect forms of traditional bullying (eg, rumor spreading, harassing, threatening, exclusion), although there are a number of characteristics that differentiate the 2 forms. First, cyberbullies can remain "virtually" anonymous through the use of temporary/throwaway e-mail and instant messaging accounts, anonymizers, and pseudonyms in social networking sites, chat rooms, and on message boards.[6] Despite this, research suggests that most victims know (or at least think they know) who is bullying them and that it is often someone from within their social circle.[15] Second, there are not any regulatory bodies or authorities policing conversations and interactions in cyberspace to ensure courtesy, thereby allowing inappropriate communication to continue unabated.[15] Relatedly, many youth use computers outside the purview of parents, teachers, or other adults and therefore participate online without much (if any) supervision or specific guidance.[17] Finally, it seems much easier to be cruel and malicious through a text message, e-mail, posted photo or video, or another form of digital harassment because of the physical distance separating the offender and the victim, and the fact that personal and social norms, rules, morals, and law are rendered less relevant when engaging in electronic communications.[8,18,19]

Estimates of the number of youth who experience cyberbullying vary widely (ranging from 10% to 40% or more), depending on the age of the group studied and how cyberbullying is formally defined.[17,6,8,20-22] In one of the earliest works, Ybarra and Mitchell[20] found that 19% of youth between the ages of 10 and 17 had experienced cyberbullying either as a victim or offender. In 2005, data were collected from 3767 middle school students from 6 schools and found that 11.1% had been cyberbullied in the last 2 months, 4.1% were cyberbullies and 6.8% were both a cyberbullying victim and offender.[6] More recently, data from 2007 pointed to almost 10% of middle school students indicating they had been cyberbullied in the last 30 days, with around 17% experiencing cyberbullying over their lifetime.[15] In this same study, 8% had cyberbullied others over the last 30 days, while 18% had done so over their lifetime.[15]

Adolescence and Self-Esteem

Adolescence is a time when identity development is particularly important.[23-26] During this period, the process of identity formation is largely dependent upon cues from the social environment (ie, societal stereotypes). Youth therefore tend to seek behaviors and situations that help them value themselves positively and to avoid those who make them feel bad about who

they are. Overall, this ties into a child's perceptions and acceptance of his or her changing self and plays a critical role in directing his or her personal and even professional growth trajectory.[27]

A significant body of evidence has accumulated which demonstrates that experience with bullying has a negative effect on adolescent development.[1,28-30] One such relationship that has garnered attention is the effect of bullying on self-esteem. Rosenberg defined self-esteem as "a favorable or unfavorable attitude toward the self."[31,3] Moreover, Leary and Downs[32] consider self-esteem to be an internal representation of social acceptance and rejection and a psychological gauge monitoring the degree to which a person is included versus excluded by others. These 2 conceptualizations underscore the fact that self-esteem is a perception—one's belief as to his or her personal value and affected by one's participation in the social world—where there are often interpersonal conflicts that lead to behavior such as bullying.

The literature regarding bullying and self-esteem consistently finds that victims of bullying tend to have lower self-esteem than nonvictims.[33-37] The precise reasons for this relationship are far less agreed upon and clear. It may be that the experience of being victimized decreases one's self-esteem, or that those who have low self-esteem are more likely to be targeted as victims.[35] Interestingly, the relationship between bullying offending and self-esteem is much less consistent. Studies have found evidence to suggest that bullies tend to have both higher[36,38] and lower[39-41] self-esteem than nonbullies. There is also research indicating no significant difference between the self-esteem of bullies and nonbullies.[42] Although the direction of the relationship between bullying and self-esteem is not fully clarified by the available literature, research has consistently found that the relationship to self-esteem, regardless of its direction, is weaker among bullies than it is among victims.[39,41,42]

Based on the literature reviewed above, we can be fairly confident that experiences with traditional bullying are associated with differential levels of self-esteem. Victims of bullying tend to have lower self-esteem than nonbullies, while the relationship with respect to the bullies themselves is more variable. We therefore hypothesize similar relationships when considering experiences with cyberbullying. The research question, then, is: Do those who have experienced or participated in cyberbullying report differing levels of self-esteem than those who have not?

METHOD

Subjects

The data for this study come from a survey distributed in spring 2007 to a random sample of 1963 students from 30 middle schools (sixth to eighth grades) in one of the largest school districts in the United States. Youth were selected to participate if they were enrolled in a district-wide peer conflict class that all middle schoolers are required to take at some point in their tenure—which provided an equal and random chance for any student to be enrolled in the class when the survey was administered. Each school offers the peer conflict class at each grade level and we targeted the 3 grades (sixth, seventh, and eighth) at each school. As such, 3 classrooms (1 for each grade) at each of the 30 schools were included in the sampling frame.

Because students are randomly assigned to take the peer conflict class, the sample obtained is expected to represent the broader population of middle school students in the district. When comparing the demographic breakdown of respondents to that of the overall district, the numbers were largely similar, although there were several demographic characteristics where our sample differed significantly from the population (Table 1). We employed a 1-sample t test to determine the extent to which the sample was representative of the larger population and found that the sample included significantly fewer eighth graders, 11-year-olds, 12-year-olds, and Black and Hispanic youth and significantly more seventh graders, 14- through 16-year-olds, and multiracial youth than the population as a whole. Despite these differences, the sample was deemed diverse

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

	Sample % (n)	Population %	t value*
Gender			
Female	50.1 (984)	48.0	1.89
Male	49.8 (978)	52.0	−1.91
Missing	0.1 (1)	0.0	
Grade			
Sixth	34.7 (682)	33.9	0.78
Seventh	35.6 (698)	32.2	3.11
Eighth	29.2 (573)	33.9	−4.59
Missing	0.5 (10)	0.0	
Age (mean = 12.8)			
10	0.4 (8)	1.2	−5.51
11	11.0 (216)	24.4	−18.96
12	29.5 (580)	31.9	−2.29
13	32.7 (641)	31.4	1.19
14	20.0 (392)	8.8	12.38
15	4.8 (94)	2.0	5.79
16	1.5 (29)	0.3	5.06
Missing	0.2 (3)	0.1	
Race			
White/Caucasian	40.6 (796)	41.0	−0.41
Black/African American	23.4 (460)	28.0	−4.78
Hispanic or Latin American	19.6 (385)	23.0	−3.78
Multiracial	7.1 (140)	4.7	4.19
American Indian or Native	1.3 (25)	0.6	2.66
Other	7.6 (150)	2.7	2.44
Missing	0.4 (7)	0.0	

*One-sample t test, 95% confidence interval.

1. On the whole, I am satisfied with myself.
2. At times, I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.

Cronbach's α = .768.

and largely representative, thereby permitting further analyses.

Instrument

As explained above, the goal of this research is to explore the extent to which cyberbullying is associated with low self-esteem. We utilized Rosenberg's (1965) validated measure of *self-esteem*,[43] which includes a variety of questions designed to estimate one's level of self-esteem. Table 2 reports the items used to construct our measure of self-esteem. The response set for each of these questions ranged from 1 to 4 (strongly disagree to strongly agree). Items 2, 5, 6, 8, and 9 were recoded, so the self-esteem measure was a 10-item mean score ranging from 1 to 4 (mean = 2.96; standard deviation = 0.55) with higher values representing higher self-esteem (Cronbach's α = .768).

The 2 primary independent variables in this study reflect the respondent's experience with cyberbullying—both as a victim and as an offender. First, *cyberbullying victimization* represents the respondent's experience in the previous 30 days with 9 different forms of online aggression (Table 3). Our cyberbullying victimization measure included a variety of behaviors ranging from relatively minor (receiving upsetting email from someone you do not know) to more serious (something posted online about you that you did not want others to see). The response set for these questions was never, once or twice, a few times, many times, or every day. As such, our 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 α = .736).

The second independent variable, *cyberbullying offending*, represents the respondent's participation in the previous 30 days with 5 different forms of online aggression (Table 4). Like the victimization measure, the response set for these questions was never, once or twice, a few times, many times, or every day. Therefore, our 5-item summary scale ranges from 0 to 20 (mean = 1.18; standard deviation = 2.59) with higher values representing more participation

Table 3. **Prevalence and Type of Cyberbullying Victimization (N = 1963)**

	% (n)
Received an upsetting e-mail from someone you know.	18.3 (359)
Received an instant message that made you upset.	16.0 (314)
Had something posted on your MySpace that made you upset.	14.2 (279)
Been made fun of in a chat room.	10.0 (196)
Received an upsetting e-mail from someone you did not know (not spam).	9.7 (190)
Had something posted about you on another Web page that made you upset.	9.5 (186)
Something has been posted about you online that you did not want others to see.	9.2 (181)
Been picked on or bullied online.	9.0 (177)
Been afraid to go on the computer.	5.7 (112)
At least one of the above, 2 or more times.	29.4 (577)

Note: Reflects experiences within the previous 30 days.

Table 4. **Prevalence and Type of Cyberbullying Offending (N = 1963)**

	% (n)
Posted something online about another person to make others laugh.	23.1 (453)
Sent someone a computer text message to make them angry or to make fun of them.	13.7 (269)
Took a picture of someone and posted it online without their permission.	12.1 (238)
Posted something on MySpace or similar site to make them angry or to make fun of them.	11.3 (222)
Sent someone an e-mail to make them angry or to make fun of them.	9.1 (179)
At least 1 of the above, 2 or more times.	21.8 (428)

Note: Reflects experiences within the previous 30 days.

in cyberbullying offending behaviors (Cronbach's α = .761).

The cyberbullying measures utilized were developed and refined over the course of 2 years to ensure that they were clearly worded, well defined, and capable of capturing the most relevant behaviors. In addition to the strong internal consistency reported in this sample, similar reliability coefficients were found in our pretest of 266 students from 2 middle schools (Cronbach's α = .74 and .87 for the victimization and offending scales, respectively). We also used factor analysis (principal components extraction with oblique rotation) to establish construct validity and found that all victimization items loaded on 1 factor (loadings ranged from .504 to .599; eigenvalue = 2.92), and all offending items also loaded on 1 factor (loadings ranged from .615 to .800; eigenvalue = 2.62). One might argue that certain behaviors that are not actually cyberbullying could fall within our specific operationalization of the phenomenon. For example, one might receive "an upsetting e-mail" from a former romantic partner which is not at all harassing in nature—although still

upsetting. Although we acknowledge that our measure is broad, we elected to include all of the individual measures to examine the experiences as generally as possible, especially because all 9 questions loaded on the same factor and demonstrated internal consistency.

In addition to these independent variables, we also include age, gender, and race in our models to control for any effect these demographic features may have on our dependent variable. These are necessary because previous research has demonstrated important differences in self-esteem by age, gender, and race. For example, Twenge and Campbell's meta-analysis[27] identified a positive relationship between age and self-esteem when the latter is measured by Rosenbaum's scale.[43] Moreover, a meta-analysis by Kling et al[44] found that males score minimally higher on measures of self-esteem than do females. Finally, Twenge and Crocker's meta-analysis[45] found that Blacks scored higher than Whites on self-esteem measures, who scored higher than Hispanics and Asians. In this study, *age* is a continuous variable ranging from 10 to 16 (mean = 12.8; standard deviation = 1.12); Gender was dichotomized into *male* respondents and female respondents (1 = male, 0 = female); race was dichotomized into *White* and non-White (1 = White; 0 = African American, Asian, Hispanic, or other race).

Procedure

The questionnaire was administered to students by teachers in their peer conflict classes. Passive consent was obtained from parents in the schools involved. Letters were sent home to parents explaining the nature and purpose of the project, and those parents who wished to have their child(ren) excluded were asked to indicate that preference on a form and return it to the school. There was a 96% completion rate from students who were not absent from school the day the survey was conducted. The 4% of the students who did not complete surveys included 96 who partially completed surveys and those who chose not to participate. Nonparticipants were asked to silently read, study, or work on other schoolwork.

Data Analysis

Statistical analyses were conducted using SPSS (version 15.0; SPSS Inc., Chicago, IL). We first computed descriptive statistics to better understand the nature of cyberbullying experienced and perpetrated by middle schoolers in this population. We then computed a series of ordinary least squares (OLS) regression models to estimate the relationship between cyberbullying victimization and offending and self-esteem while controlling for age, gender, and race. OLS regression is appropriate given the continuous nature of the dependent variable. We also performed a number of regression diagnostic analyses (reviewing correlation matrices and computing variance inflation factor and tolerance statistics) to rule out multicollinearity and other potential threats to the statistical models. In all models, statistical significance was determined using an alpha level of .05 (2-tailed tests).

RESULTS

Before presenting the results of the multivariate analysis, it is useful to consider the findings from the descriptive statistics. As noted in Table 3, the most common form of cyberbullying victimization reported was ''Received an upsetting e-mail from someone you know'' (18.3%). Also common was ''Received an instant message that made you upset'' (16%) or ''Had something posted on your MySpace that made you upset'' (14.2%). Less common, but still important, were a subsample of respondents (5.7%) who indicated that they felt afraid to go on the computer. It also bears mentioning that just under 30% of respondents reported that they had experienced one or more of the 9 types of cyberbullying 2 or more times in the previous 30 days. This is important insofar as cyberbullying represents *repeated* behavior, not just a singular incident. Based on these results, then, about 30% of our middle school sample has been the victim of some form of cyberbullying.

Similar findings were also noted when looking at cyberbullying offending. As presented in Table 4, the most commonly reported form of cyberbullying offending was posting something online about another person to make others laugh (23.1%). Fewer respondents admitted to sending computer text messages (13.7%) or e-mail (9.1%) to another person to make fun of them or to make them upset. Here again, about 22% of respondents admitted to participating in one or more of the 5 behaviors at least 2 or more times in the previous 30 days.

The primary question of interest in this study, however, was whether experience as a cyberbullying victim or offender is associated with differential levels of self-esteem. The OLS regression analysis reported in Table 5 reveals a statistically significant relationship between both cyberbullying victimization and offending and self-esteem. More specifically, cyberbullying victims and offenders both have significantly lower self-esteem than those who have not been cyberbullying victims or offenders. This persisted even while controlling for gender, race, and age, although our results suggest that males, non-Whites, and older middle schoolers tend to have lower levels of self-esteem than their peers. Based on the standardized regression coefficients and percent of variance explained in models 2 and 3, the relationship between cyberbullying victimization and self-esteem is stronger than that of cyberbullying offending and self-esteem.

Table 5. OLS Regression: The Effect of Cyberbullying Victimization and Offending on Self-Esteem (N = 1963)

	Model 1: Control Variables		Model 2: Cyberbullying Victimization		Model 3: Cyberbullying Offending	
	b (SE)	β	b (SE)	β	b (SE)	β
Constant	3.580 (0.186)		3.496 (0.182)		3.477 (0.185)	
Male	−0.082 (0.031)	−0.074**	−0.086 (0.030)	−0.078**	−0.082 (0.031)	−0.075**
White	0.089 (0.032)	0.080**	0.082 (0.031)	0.074**	0.081 (0.031)	0.072*
Age	−0.048 (0.014)	−0.095**	−0.036 (0.014)	−0.071*	−0.036 (0.014)	−0.072*
Cyberbullying Victimization			−0.041 (0.005)	−0.217***		
Cyberbullying Offending					−0.034 (0.006)	−0.160***
F (df)	10.078 (3)		23.228 (4)		15.802 (4)	
R^2 (adjusted R^2)	0.024 (0.022)		0.070 (0.067)		0.049 (0.046)	

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

DISCUSSION

Based on these analyses and consistent with expectations, cyberbullying was found to be correlated with lower self-esteem. Although previous research has pointed to the negative emotional and psychological effects of cyberbullying victimization,[15,20,21] this study is important insofar as it is the first to isolate low self-esteem as a potential outcome. Through its exclusive focus on the relationship between self-esteem and cyberbullying, this work provides additional evidence that electronic forms of adolescent aggression require the attention of educators and other youth-serving adults. Experience with cyberbullying, both as a victim and as an offender, was associated with significantly lower levels of self-esteem, even after controlling for demographic differences. As such, it is important for educators to make an effort to prevent and respond to all forms of bullying—whether it is manifested in fistfights on school campuses or through disparaging and threatening instant messages in cyberspace, because both directly or indirectly affect the climate of the school and the well-being of the youth involved.

These results are also significant because during the late 1970s and early 1980s, educators began to recognize that low self-esteem was one of the primary predictors of many adolescent problems that directly and indirectly affected school health by impacting the overall academic and behavioral performance of students.[27] Specifically, previous research has shown a weak to moderate correlation between self-esteem and academic achievement, absenteeism, poor health, criminal behavior, and other problematic consequences.[12,13,46]

Limitations

Despite the contributions of this work, some limitations must be acknowledged. First, the sampling techniques employed do not facilitate precise generalizations to the universe of public school students in the United States, as a probability sampling technique of the entire nation was not possible for this study. Future research should replicate this study in other districts or a more broadly representative sample. Another limitation is that the data were cross-sectional in nature. As a result, we are unable to ensure proper temporal ordering of the independent and dependent variables and therefore do not know with certainty whether experience with cyberbullying causes decreases in one's level of self-esteem, or if students with low self-esteem are more often targets of, or involved in, cyberbullying.

Finally, it is also important to point out the inherent limitations of asking adolescents to self-report their behaviors. For example, participation in cyberbullying may have been underreported because of the tendency of individuals to provide socially desirable answers.[47] Some scholars argue that data stemming from individuals' recollection about the past—''retrospective data''—is inherently unreliable because of the tendency for them to misrepresent or distort facts from a previous time period.[48-50] These limitations notwithstanding, this study was executed within the parameters of typical social scientific research standards.

IMPLICATIONS FOR SCHOOL HEALTH PROFESSIONALS

It is imperative that school health professionals identify and intervene in cyberbullying incidents. Results of this work point to at least 1 psychological problem (ie, lower self-esteem) associated with cyberbullying experiences, and previous research suggests that there are other co-occurring problematic behaviors or dysfunctions. School officials are sometimes reluctant to get involved in incidents that frequently originate or occur away from campus, but failure to do so could place students at risk for multiple developmental issues. Without question, district personnel have a clear and court-endorsed role in addressing online harassment by contacting parents and disciplining students when their off-campus behavior results in a substantial disruption of the learning environment at school.[15] School health professionals can also serve as advocates for those who are cyberbullied by teaching ways to deflect or shrug off minor forms (eg, blocking

harassing text messages, logging off when tempers start to flare, not responding to hurtful messages).

Additionally, school officials may be able to offset some of the negative effects of cyberbullying by working to develop high self-esteem in students. Many districts have begun to implement programming that seeks to bolster the self-worth of children, and Haney and Durlak's meta-analysis showed that these interventions can be effective.[51-53] Moreover, cyberbullying and low self-esteem among adolescents can be jointly addressed through the creation and use of peer support programs.[54-56] Peer support generally involves enlisting the help of youth themselves in addressing interpersonal problems among their peer group and training them in areas of empathy, conflict resolution, and nonviolent problem solving.[57] Overall and over time, this tends to promote a protective network where students are willing to help each other out[56,58-60]—which seems especially important in a tenuous developmental stage where peer perceptions often dictate self-worth to a large degree.[32,61-63]

Human Subjects Approval Statement

The institutional review board at Florida Atlantic University approved this research study on October 13, 2006.

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