

Extending the School Grounds?—Bullying Experiences in Cyberspace

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ABSTRACT

BACKGROUND: Bullying is a national public health problem affecting millions of students. With the rapid increase in electronic or online communication, bullying is no longer limited to schools. The goal of the current investigation was to examine the overlap among targets of, and the similarities between, online and in-school bullying among Internet-using adolescents. Additionally, a number of common assumptions regarding online or cyberbullying were tested.

METHODS: An anonymous Web-based survey was conducted with one thousand four hundred fifty-four 12- to 17-year-old youth.

RESULTS: Within the past year, 72% of respondents reported at least 1 online incident of bullying, 85% of whom also experienced bullying in school. The most frequent forms of online and in-school bullying involved name-calling or insults, and the online incidents most typically took place through instant messaging. When controlling for Internet use, repeated school-based bullying experiences increased the likelihood of repeated cyberbullying more than the use of any particular electronic communication tool. About two thirds of cyberbullying victims reported knowing their perpetrators, and half of them knew the bully from school. Both in-school and online bullying experiences were independently associated with increased social anxiety. Ninety percent of the sample reported they do not tell an adult about cyberbullying, and only a minority of participants had used digital tools to prevent online incidents.

CONCLUSIONS: The findings have implications for (1) school policies about cyberbullying, (2) parent education about the risks associated with online communication, and (3) youth advice regarding strategies to prevent and deal with cyberbullying incidents.

Keywords: counseling; emotional health; violence; bullying.

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Bullying that entails emotional or physical intimidation is associated with a number of mental health problems and hence is considered a major public health concern facing youth.^{1,2} Approximately 70% of youth report having experienced bullying at some point during their school careers,³ and at any 1 time, about 20-25% of youth are identified as being directly involved in bullying at school.^{1,2} With the rapid growth of communication technology especially among adolescents,⁴ cyberspace has been implicated as a new risky environment for bullying.⁵ However, relatively little is known about where and how youth encounter bullying online, risk factors associated with repeated intimidating online experiences, and the possible overlap and connection between bullying encountered in school and online.⁶

Given the revolutionary increase in Internet use of 12- to 17-year-old youth within the past 5-6 years⁴ and the lack of adult supervision online, there are many reasons to be concerned that cyberspace provides a fertile ground for bullying. Public concerns have focused mainly on the risks associated with the technology enabling quick and anonymous spreading of messages to potentially large audiences. Accordingly, cyberbullying is broadly defined as the use of the Internet or other digital communication devices to insult or threaten someone. Cyberbullying is portrayed as a pervasive intimidation method that can happen to any youth using electronic communication tools, such as instant messaging (IM) or e-mail.⁷ The current prevalence estimates of youth experiencing at least 1 incident of cyberbullying range from 9%⁸ to 49%⁹ within a school year. This wide range of estimates depends in part on the sample characteristics and the types of technologies examined. Although the estimates of online bullying experiences are not as high as those of bullying incidents encountered at school (up to 70%³), the steep increase in reported incidents across the past 5 years documented in the latest Youth Internet Safety Survey (YISS-2¹⁰) is a reason for concern.

How do youth get bullied online? Does bullying in cyberspace take qualitatively different forms than bullying in school? On one hand, widespread forms of electronic communication, such as e-mail or IM, are well suited for direct verbal insults (eg, name-calling) that are most frequent at school.^{11,12} On the other hand, digital communication technology readily lends itself to particular forms of privacy violations, such as sharing or forwarding the contents of a private communication to others or stealing someone's password. For example, Ybarra et al¹⁰ found that approximately one third of the victims of cyberbullying were threatened or embarrassed because information was sent or posted about them to others. Thus, at least some cyberbullying tactics capitalize on the particular features of online communication technology.

Although some forms of cyberbullying experiences are likely to vary depending on the type of technology used, it is not clear whether particular communication tools are riskier than others. The most recent evidence suggests that any use of IM, blogging, and chat rooms elevates the odds of being cyberbullied.¹⁰ However, these data do not tell us whether youth experience cyberbullying mainly through these particular communications tools or whether their usage pattern merely reflects risky online behavior. Information about which communication tools are likely to be used for online harassment is critical to educate youth, parents, and schools about risks.

Cyberbullying may appear especially frightening to parents because it involves communication technologies with which they are unfamiliar.⁴ Yet, cyberspace may not function as a separate risky environment but rather as an extension of the school grounds. For example, Li¹³ found that one third of the seventh graders were bullied both at school and online, whereas one quarter reported having experienced bullying only online (and more than half of the respondents reported having been bullied only at school). The possible connection between bullying experiences in school and online is consistent with data showing that when most schoolmates have Internet access at home, electronic communication is conducted largely within school-based peer networks.^{14,15}

Another main reason underlying concerns over cyberbullying pertains to its potentially harmful psychological effects. The connection between bullying experiences in school and emotional distress is well established.¹⁶ Even a single incident of bullying encountered at school is associated with elevated daily levels of anxiety.¹² Similarly, single episode of cyberbullying has been shown to be related to emotional distress.^{10,17} If cyberbullying is an extension of school-based bullying, then the question is whether online incidents are *independently* associated with distress. Online intimidation might be particularly distressing, inasmuch as youth are likely to confront cyberbullying incidents alone at home. Moreover, youth may be especially reluctant to tell adults about incidents confronted online if they are concerned about parents restricting their use of these increasingly popular forms of social contact. Hence, cyberbullying might be especially painful because it can go unnoticed for long periods of time.

The characterization of cyberbullying as offering victims "no escape"¹⁸ likely reflects the dearth of data available on how youth respond to or prevent further online harassment. Unlike school, cyberspace affords (potential) victims of cyberbullying an array of tools to prevent further incidents. For example, youth can avoid receiving messages from alleged bullies by blocking their screen names or restricting their buddy lists

to their closest friends. Li¹³ reports that a majority of youth appear to be familiar with these tactics that ought to reduce or stop persistent harassment. Yet, to date, we do not know whether youth indeed rely on these tactics. This is an especially intriguing question in light of evidence that victims of school-based bullying rarely resort to any active tactics to prevent further incidents^{19,20} and that inaction may be associated with increased risk.

The current study extends prior research on cyberbullying in several important ways. New details about the frequency and nature of online incidents as well as electronic tools implicated in cyberbullying are examined. Most notably, this investigation is designed to test whether cyberspace operates as a risky environment separate from the confines of the school. Because recruitment methods and sample characteristics likely affect rates of cyberbullying and the estimates of the proportion of youth being targeted both online and in school, the recruitment procedures and sample characteristics were carefully considered. To complement small school-based convenience samples¹³ and large nationally representative phone surveys requiring parent consent,²¹ our sample was recruited via a Web site. This recruitment tactic enabled us to obtain relatively heavy Internet users—for whom the risks of cyberbullying might be higher than for infrequent users. Also, it was vital to conduct the current investigation as an anonymous survey not requiring parental consent because concerns over parental restrictions about Internet use (eg, admitting visits to a Web site to become a participant in the study) may prevent youth most at risk from taking part in the study.

Although many of our analyses pertained to descriptions of single incident of bullying,¹² we also examined the risks associated with the plight of victims of repeated online intimidation. These analyses are consistent with Olweus'²² school-based definition of bullying as a persistent plight. We predicted that when controlling for the time spent online (ie, opportunity to get targeted), repeated school-based bullying experiences would increase the probability of becoming a target of repeated online bullying. Additionally, we tested whether the use—or relatively heavy use—of any specific electronic tool or communication method (eg, IM, chat rooms) might place youth at additional risk for repeated online victimization.²¹ In addition, we examined the validity of specific assumptions discussed earlier about (1) the distress associated with cyberbullying, (2) the anonymity of online harassment, and (3) the low frequency of reporting incidents to adults. Finally, we explored to what extent Internet-using youth rely on methods afforded by electronic communication technology (eg, switching screen names or blocking someone from a buddy list) to prevent further online intimidation.

METHOD

Participants were recruited through a popular teen Web site (<http://www.bolt.com>) from August through October 2005. Through a link on the site, youth were invited to respond to a survey designed “to find out about teens’ experiences communicating with one another on the Internet, in school, and using cell phones.” Participants were informed that we were “especially interested in things that happen online that are mean or rude.” To minimize self-selection bias (eg, sampling primarily bullied youth), we did not refer to “bullying” or “cyberbullying.” Upon completion of the survey, interested participants were entered into a raffle for either an iPod (with lower odds) or a \$30 gift certificate to Amazon.com (with higher odds). No parental consent was required because the recruitment took place via the Internet and because the survey was anonymous. We assumed that parental consent would have discouraged participation of individuals concerned about their parents’ monitoring their Internet use—the very group that might be most at risk for cyberbullying. Participants were informed that they could refuse to answer any question or withdraw from the study at any time, an act facilitated by the study’s online format, in which they could simply log off the study Web page at any point and immediately withdraw from the research without having to explain themselves or be identified in any way.

Sample

The analysis sample consisted of one thousand four hundred fifty-four 12- to 17-year-olds (mean = 15.5, SD = 1.47), 75% of whom were female. Sixty-six percent of survey respondents were Caucasian, 12% African American (or African), 9% Mexican American or Latino, and 5% Asian, including Pacific Islanders. All 50 states were represented in the current sample. With the highest proportion from California and New York (102 and 100 respondents, respectively), 30 states contributed 10 or more respondents. Apart from the 4% of participants who were homeschooled, the majority of schools attended by participants were public (84%) and served communities in which, according to participants, most or all students had home access to the Internet (94%). Only 6% (n = 92) of participants who did not complete the survey finished prior to reaching any questions concerning bullying experiences. This group did not differ from the analysis sample on any demographic variables and was excluded from the final sample of 1454 participants.

Measures

Online Experience and Communication Tool Use. To be able to control for any possible differences based

on history of online experiences, we asked respondents to indicate on a 5-point scale how long they have used the Internet ("6 months" to "more than 3 years"). To obtain an estimate of daily Internet use consistent with previous surveys,²³ we also asked participants how long they spent online the day prior to completing the survey on a 6-point scale (response options ranged from "did not go online" to "more than four hours"). Using a 5-point scale ranging from "never" to "every day," participants indicated how often they use the following electronic communication tools: *e-mail*, *IM*, *chat rooms*, *blogs* (ie, online journals or opinion pages that are available for others to read), *personal profile Web sites* (eg, Myspace.com), *message boards* (ie, asynchronous text-based dialogue about specific topics), *cell phones* (through which text messages and pictures may be sent), and *Webcams* (devices that can record and broadcast both still pictures and video).

Bullying Experiences. Rather than use the term *bullying* (with its potentially narrow connotations), we referred to *mean things* defined as "anything that someone does that upsets or offends someone else," including name-calling, threats, sending embarrassing/private pictures, and sharing private information without permission. The types of experiences assessed were based on adolescent focus groups and research on bullying with middle and high school students.²⁴ Certain forms of in-school bullying, such as physical attacks, were not included in the survey because they are less common among adolescents than among younger children and do not correspond directly to online experiences. Specifically, youth reported how frequently they had experienced name-calling or insults, threats, spreading of embarrassing or private pictures, sharing of private communications (also known online as "copy-and-pasting," as in when the contents of a private IM conversation are copied and forwarded to multiple others), and password theft (eg, gaining access to one's e-mail or IM account without permission). By relying on a 5-point scale ranging from "never" to "more than 12 times," participants were asked separately about corresponding school-based (ie, "off-line") and online incidents, a total of 9 questions. In order to reduce response bias and confusion, questions concerning online experiences were separated as much as possible from those concerning in-school experiences. Additionally, respondents reported whether they encountered online mean things via e-mail, IM, cell phone text messaging, in a chat room, blog, personal profile site, and/or message boards; multiple responses were allowed.

Assumptions About Cyberbullying. To test the assumption that cyberbullying is especially detrimental to the psychological well-being of youth, we examined the association between experiences of online intimidation and social anxiety when taking into account school-based bullying experiences. Social anxiety was assessed with 6 items (eg, "I worry what

others think about me") from a scale ($\alpha = .84$) developed for use with adolescents.²⁵ To test the anonymity assumption, respondents rated their degree of certainty about the identity of the person who had bullied them online using a 5-point scale ranging from "not at all" to "totally sure." In addition, they rated whether they knew the person or people involved from school, off-line but not school (eg, from after-school activities, camps, neighborhood) and online only, or whether they did not know the perpetrator. Participants also indicated whether they "did something to get even" or "got back at them so they'd leave me alone" in response to being bullied and, if so, whether they had retaliated online, off-line (ie, in school or elsewhere in person), or both.⁹ Youth were also asked whether they usually told adults when they were bullied online and, if not, why not. Answer choices included concern over parental restrictions concerning Internet use as well as a belief in need to learn to deal with such incidents themselves.

Reliance on Prevention Tactics. Finally, we probed about prevention tactics provided by the technology (ie, blocking someone, sending a warning, switching a screen name, restricting a buddy list to those whom they wish to hear from) that help youth avoid mean messages online.

All the above questions allowed respondents to indicate multiple responses. For example, participants might indicate that they had been bullied both by peers at school and by people whom they know only from online or that they had relied on more than 1 prevention tactic.

Data Analysis

Because 15- to 17-year-old girls were overrepresented in our sample, participants' Internet use and experience are analyzed by age and sex using chi-square tests. Rates of reported school-based and online bullying incidents and their overlap are also assessed by relying on chi-square statistics. To be able to examine risk factors for repeated cyberbullying, odds ratios are computed through logistic regression analyses. The associations between social anxiety and school-based as well as online bullying are, in turn, tested by relying on hierarchical regression analyses. All other data regarding the types of cyberbullying incidents, electronic communication tools involved, assumptions about cyberbullying, and the respondents' reliance on prevention strategies are summarized in percentages. Gender and age differences are noted only when they are statistically significant.

RESULTS

The Results section is divided into 4 main sections: electronic communication use and prevalence of

bullying, risks associated with repeated cyberbullying, assumptions about cyberbullying, and prevention tactics used.

Electronic Communication and Prevalence of Bullying

The vast majority of the respondents had used the Internet for more than 3 years and had gone online the day prior to completing the survey (Table 1). Compared to 12- to 14-year-olds, 15- to 17-year-old youth were significantly more likely to have more than 3 years' experience using the Internet, $\chi^2(91, 1454) = 27.4$, $p < .001$. E-mail and IM were the communication tools most frequently used by respondents. (Of the sample, 49% reported daily e-mail use and 58% reported daily IM.) More than half of the sample at least occasionally used profile sites, blogs, cell phone text messaging, chat rooms, and message boards (Table 1). Webcam use was least common within this sample of youth. Chi-square test by age and gender revealed that 15- to 17-year-olds and girls were significantly more frequent users of e-mail, profile sites, blogs, and cell phones than were 12- to 14-year-olds and boys ($\chi^2 = 7.5$ and 28.7, respectively).

To assess the reliability of reported incidents, prevalence estimates for online and in-school bullying were computed by relying on 2 methods. First, based on the single item assessing the number of incidents encountered within the past year, 72% of the youth reported having experienced at least 1 incident of bullying in cyberspace, and 77% of youth reported a minimum of 1 situation of bullying in school. A second estimation method entailed summing across the 5 different forms of bullying experiences. The resultant estimate for *online* bullying was identical to that obtained by the single frequency count (ie, 72%). The composite across the 4 types of in-school incidents yielded a 3% higher estimate (80%) than the single

item assessing the frequency of school-based bullying within the past year. When comparing the overlap among reports of online vs in-school bullying, a chi-square test indicated that 85% of youth who reported experiencing at least 1 incident of online bullying also reported experiencing at least 1 incident in school within the past year, $\chi^2(1, 1217) = 105.0$, $p < .001$. Hence, the probability of getting bullied online was substantially higher for those who were bullied in school.

Most youth reported that incidents occurred infrequently: 41% of respondents reported 1-3 incidents, and 13% reported 4-6 incidents in the past year. Almost one fifth of participants (19%), however, experienced 7 or more incidents of online bullying in the past year. A paired *t* test comparing the number of bullying incidents each participant reported in school and online in the past year revealed that respondents encountered school-based bullying with significantly greater frequency, mean school-based = 1.45, SD = 1.26 and mean online = 1.33, SD = 1.26 (on a 0-4 Likert-type scale indicating frequency in the past year), $t(1217) = 3.27$, $p < .002$. The frequency of online and in-school bullying experiences was significantly correlated, $r = .45$, $p < .001$.

The most prevalent forms of bullying online and in school involved name-calling or insults (Table 2). Password theft was the next most common cyberbullying tactic. Other than password violations, additional forms of online bullying were similar in type to those taking place at school. According to participants, even the unauthorized sharing of embarrassing or private pictures or other private information, which might be expected to be higher online, occurred at similar rates in school.

Across the entire sample of Internet users, the most likely communication tools implicated in cyberbullying involved IM (19%) and message boards (16%). Because the sample was rather selective in relying on

Table 1. Internet Experience and Electronic Communication Tool Use by Frequency (and Percentage)

		12- to 14-Year-Olds		15- to 17-Year-Olds	
	Total Sample (%)	Boys (%)	Girls (%)	Boys (%)	Girls (%)
Internet use					
More than 3 years of use	1203 (83)	126 (77)	277 (75)	175 (87)	625 (87)
Internet use the day before	1294 (89)	146 (90)	333 (91)	190 (95)	625 (87)
Electronic communication* tool use					
E-mail	1402 (97) [†]	145 (90)	353 (96)	189 (95)	715 (99)
IM	1357 (94)	147 (93)	344 (94)	188 (95)	678 (94)
Profile sites	925 (65)	67 (43)	232 (63)	120 (61)	506 (71)
Blogs	915 (64)	75 (48)	234 (64)	309 (56)	111 (56)
Cell phone (text messaging)	868 (60)	67 (42)	211 (58)	112 (56)	478 (67)
Chat rooms	840 (59)	89 (57)	221 (61)	121 (61)	409 (57)
Message boards	793 (55)	67 (43)	182 (50)	111 (56)	433 (61)
Webcam	348 (24)	34 (22)	85 (23)	55 (28)	174 (24)

*Respondents were asked to indicate how often they currently use each tool, from *never* to *every day*. All those who indicated greater frequency than *never* were defined as users.

[†]The percentage scores are adjusted to the number of no-responses varying ($n = 6-27$) across the electronic communication tools.

Table 2. Percentage of Youth Reporting 5 Forms of Bullying Online and in School (Upper Part); Online Incidents via 7 Electronic Communication Tools (Lower Part)

Form of Bullying	Online (%)	In School (%)
Insults	66	75
Threats	27	33
Sharing embarrassing pictures	18	18
Privacy violation ("cut-and-pasting")	25	21
Password theft	33	N/A
Communication Tool	Frequency (%)	
Message boards	199 (26)*	
IM	270 (20)	
E-mail	175 (13)	
Cell phone (text messaging)	55 (6)	
Chat rooms	50 (6)	
Blogs	47 (5)	
Profile sites	35 (4)	

*Frequencies and percentages are adjusted to reflect only users of each tool.
N/A, not applicable.

certain tools less frequently (eg, message boards, Webcam) than others (eg, e-mail, IM), we analyzed the likelihood of encountering incidents via specific tools. When adjusting for the use of a particular communication tool, cyberbullying experiences remained most common among those who use message boards (26%) and IM (20%) and were least frequently encountered among those who have profile sites (4%) (Table 2).

Risk Associated With Repeated Cyberbullying

We used logistic regression analyses to predict the risk of repeated experiences of cyberbullying. Based on previous research, we defined repeated experiences as 7 or more incidents in the past year.^{13,21} Using this criterion, the group of repeatedly cyberbullied consisted of 19% of the entire sample. In addition to testing the predictive effects of age, gender, and repeated school-based bullying experiences, we examined whether heavy Internet use (more than 3 hours the day prior to survey) and reliance of each of 7 communication tools predicted repeated cyberbullying.

Heavy Internet use indeed significantly increased the likelihood of repeated online intimidation (Table 3). When controlling for Internet use, repeated school-based bullying experiences (7 or more times during the past year) increased the likelihood of cyberbullying almost 7-fold. Moreover, the analyses indicated that those who used IM and Webcams were each about 1.5-2.8 times as likely to be repeatedly cyberbullied compared to nonusers of these communication tools.

To be able to further understand the risks of repeated cyberbullying involved with each electronic communication tool, we also computed separate logistic regressions among the users of each tool by comparing light and heavy users. Because the distributions of the amount of time spent across the tools

Table 3. Logistic Regression Analysis Predicting Repeated Cyberbullying (7 or More Times During the Past Year)*

Predictors	Odds Ratio (95% Confidence Interval)	p
Age group (12-14 vs 15-17)	1.04 (0.74-1.48)	n.s.
Gender	0.97 (0.66-1.44)	n.s.
Heavy Internet user [†]	1.45 (1.04-2.02)	.03
Repeatedly bullied at school [‡]	6.87 (4.90-9.62)	.001
E-mail user	6.13 (0.77-49.00)	n.s.
IM user	2.84 (1.08-7.49)	.03
Webcam user	1.50 (1.04-2.14)	.01
Blog user	1.05 (0.71-1.56)	n.s.
Profile site user	1.37 (0.92-2.04)	n.s.
Message board user	1.32 (0.91-1.92)	n.s.
Cell phone user	1.15 (0.82-1.62)	n.s.

*All predictors are categorical.

[†]Heavy Internet use was defined as 3 or more hours of use the previous day.

[‡]Repeated bullying at school was defined as reporting 7 or more incidents during the past year.
n.s., nonsignificant.

varied considerably, we identified light and heavy use in relative terms based on the respective distribution of time spent on each tool. These analyses replicated the effects of repeated school-based bullying and heavy Internet use. Consistent with the previous analyses comparing users and nonusers, Webcam users who reported using the tool at least once or twice a week were 1.75 times more likely to report repeated cyberbullying in the past year. In addition, these analyses revealed that among message board users, use of boards "most days of the week or more" significantly increased the likelihood of repeated cyberbullying (ORs = 1.67). Thus, the risk of repeated cyberbullying was significantly predicted not only by the use (vs nonuse) of IM and Webcams but also by relatively heavy (vs light) use of Webcams as well as message boards.

Assumptions About Cyberbullying

Distress. The above analyses suggest that online and off-line experiences of bullying largely overlap. The question is whether cyberbullying incidents are related to social anxiety over and above school-based bullying experiences. To examine this question, we conducted hierarchical regression analysis. When controlling for gender and age, the number of bullying incidents experienced in school and in cyberspace each independently increased reported levels of social anxiety (Table 4). In other words, online experiences of bullying are associated with elevated level of distress much like encounters of bullying encountered in school.

Anonymity. Contrary to common assumptions about the anonymity of cyberbullies, 73% of the respondents were "pretty sure" or "totally sure" of the identity of the perpetrator. About half of the participants (51%) reported experiencing online bullying by

Table 4. Hierarchical Regression Analysis Predicting Social Anxiety

Predictors	B	SE B	B	Total R ²
Step 1				.002
Age	.53	.31	.05	
Gender	.25	.35	.02	
Step 2				.018***
Frequency of in-school bullying incidents	.34	.13	.08**	
Frequency of online bullying incidents	.31	.13	.08*	

*p < .05; **p < .01; ***p < .001.

schoolmates, 43% by someone they knew from on-line only, and 20% by someone known off-line but not from school (recall that participants were free to indicate multiple responses to this question). Thus, the Internet does not seem to protect perpetrators' identity—or, at least, the victims of cyberbullying *think* they know who is harassing them. Moreover, perpetrators are likely to be peers from school or other off-line contexts.

Retaliation. Were victims of school-based bullying especially likely to retaliate online? Among the 48% of school-based victims who reported retaliating against their presumed aggressor(s), the most likely site for retaliation was school (60%), not cyberspace (12%); 28% of school-based victims reported retaliating both in school and online. Thus, these data do not support the assumption about youth taking advantage of the anonymity of cyberspace but provide further evidence for the integral connection between the on-line and school lives of youth.

Reporting to Adults. As presumed, most youth (90%) reported *not* telling adults about cyberbullying incidents. The most common reason for not telling an adult, cited at equal rates across age and gender, was that participants believe they “need to learn to deal with it” themselves (50%). In addition, almost one third of the sample (31%) reported that the reason they do not tell is because they are concerned that their parents might find out and restrict their Internet access. This concern was significantly more common among 12- to 14-year-old girls (46% of 12- to 14-year-old girls vs 27% of 12- to 14-year-old boys), $\chi^2(1, 282) = 8.57$, $p < .004$. Also, one third of 12- to 14-year-olds reported that they do not tell an adult out of fear that they could get into trouble with their parents. Thus, the fear of restrictions may deter youth, especially younger girls, from sharing their negative experiences with adults.

Prevention Tactics Used

Of the prevention strategies enabled by the technology used, blocking a particular screen name was the most common tactic used. Sixty-seven percent of the sample had blocked someone in the past. One third (33%) had restricted particular screen names from their buddy list. About one fourth of the sample had switched a screen name (26%) and had sent a

warning (25%) to someone to prevent cyberbullying. Because most of these tactics are particularly relevant to IM as one of the most prevalent forms of electronic communication, we also compared the rates of tactics used specifically among those who had encountered cyberbullying on IM. These analyses showed that 75% of those who encountered an IM incident had blocked a screen name, 45% had restricted their buddy list, 44% had switched their own screen name, and 34% had sent someone a warning. Thus, although youth who have encountered a cyberbullying incident on IM rely on these tactics more frequently than those who have not experienced such encounters, the tactics appear underutilized. For example, one quarter of youth who had experienced online intimidation on IM had never blocked a screen name.

DISCUSSION

There are many reasons to be concerned that cyberspace may provide a fertile ground for bullying beyond the confines of school grounds. The present findings provide novel information about where and how cyberbullying takes place; how online experiences are similar to, and connected with, incidents encountered in school; and who is most at risk for repeated cyberbullying. Most notably, our findings suggest that (1) among heavy users of the Internet, cyberbullying is a common experience; (2) the forms of online and in-school bullying are similar and the experiences overlap across the 2 contexts; (3) although some electronic communication methods and devices are associated with elevated risk of cyberbullying, they are merely tools, not causes of mean behavior; (4) independent of school-based bullying, cyberbullying is associated with increased distress, and (5) youth rarely tell adults about their experiences of online bullying and do not fully capitalize on the tools provided by communication technologies to prevent future incidents.

There is cause for concern about the pervasiveness of online intimidation in light of our prevalence estimates. Almost one fifth of 12- to 17-year-old Internet users reported repeated cyberbullying experiences during the past year. This figure is somewhat higher than estimates of more than occasional cyberbullying obtained in Canada and Britain.^{13,26} However, our finding of 72% of Internet users reporting at least 1 online bullying encounter within the past year is much higher than in other recent surveys in the United States.¹⁰ Several methodological differences between one of the most well-known surveys (YISS-2) and our study are likely to contribute to the discrepant findings. For example, the YISS-2 was conducted as a national telephone survey that included younger (10- to 12-year-old) youth and required parental consent,

whereas our sample consisted of self-selected, slightly older sample recruited by a popular Web site and requiring no parental consent. Also, the YISS-2 participants were classified as Internet users if they had used the Internet at least once during the past 6 months, whereas almost 90% of our sample used the Internet on a daily basis. Thus, when estimating the prevalence of cyberbullying, the sample recruitment and characteristics (eg, age), Internet use, and methods used to investigate online incidents may considerably affect the findings.

The 85% overlap between online and in-school bullying experiences and the 7-fold higher risk of online incidents among repeatedly targeted youth at school suggest that cyberspace is not a separate risky environment. Rather, cyberspace seems to be used as a forum that extends the school grounds. Although heavy use of the Internet and communication tools such as IM and Webcams are implicated as risk factors for cyberbullying, they pose less risk than do school-based experiences. Thus, it is critical to recognize that electronic communication devices are not the cause of problem behavior among youth, but they are literally *tools*: they can be used to interact with peers in both anti- and prosocial ways. For most youth, electronic communication entails prosocial behavior aimed at developing and sustaining friendship networks and romantic relationships.^{9,14,15} Mean behaviors may therefore be just as inevitable online as they are in other in social contexts.

Certain electronic communication tools increase the risk of cyberbullying experiences more than others. Among the most common communication tools, IM increased the risk of cyberbullying by about 3-fold. When considering the relative frequency of use of particular technologies (ie, heavy vs light or none), the Webcam, which allows sharing of pictures and video, was the riskiest tool among the 8 studied. Heavy use of message boards was also found to significantly increase the risk of repeated cyberbullying. It is possible that these particular communication technologies facilitate more derogatory communication or "flaming."²⁷ Alternatively, the risks involved in using certain technologies might be related to the peer communities more than any inherent aspect of a particular communication tool per se. When youth cannot connect online with their schoolmates, intimidation might be more likely to be carried out by unknown others on message boards.

In theory, electronic communication tools enable bullies to remain anonymous. The present findings, however, do not support the assumption that the potential shield of anonymity is dramatically changing the nature of bullying. The forms of bullying online and in school remain more similar than different. We also find no support for the assumption that school-based victims use cyberspace to retaliate

against their perpetrators. Quite the opposite: cyberbullied youth were more likely to retaliate in school than online. While about three quarters of youth reported knowing their perpetrators, approximately half of the cyberbullied suspected the perpetrators to be peers from school. These findings further underscore the continuity between adolescents' social worlds in school and online.

Our findings suggest that independent of school-based bullying, the frequency of cyberbullying experiences is related to increased distress. It is important to keep in mind, however, that the mere association between distress and cyberbullying cannot tell us if these bullying experiences are causing emotional distress or whether distressed youth spend more time online or use the riskier communication tools compared to their peers who are not distressed. To understand the emotional impact of cyberbullying, longitudinal studies with multiple data waves are needed.

Consistent with research on in-school bullying,¹¹ we found that participants in our study do not tell adults about their online experiences. Ninety percent of the current sample reported that they do not tell an adult when they have been cyberbullied. This estimate is disconcerting inasmuch as this form of bullying may be very difficult for adults to detect: they are not "there" to witness events themselves, and peers who observe such online incidents are unlikely to intervene or let anyone know because their knowledge about what happened at a particular Web site may implicate them in a questionable activity (eg, something from which their parents had restricted them). Fear of parental restrictions of Internet access concerned at least one third of the youth in the current sample. This finding may also partly explain why prevalence estimates obtained in studies that require parental consent (eg, Ybarra et al¹⁰) show lower rates of cyberbullying.

Unlike in school-based bullying, in the case of online intimidation, there is a range of preventative tools available to youth. Although more than half of the current sample of 12- to 17-year-old youth had used these tactics, one would expect these rates to be much higher, especially among youth who have encountered online intimidation. In future studies, it would be important to examine if there are specific reasons why youth do not rely on available electronic tactics to try to prevent bullying. For example, if embarrassing information is spread within a school about an individual, this person may want to at least know what is being said and shared about her/him.

Similar to any (Web-based) survey, the current study solely relied on self-reports. Although informative, self-reports are limited when no other data sources can be utilized. Hence, in subsequent research, complementary data from peers, teachers, or parents (eg, about school-based bullying, level of distress)

would be invaluable. Data from different sources could also be used for systematic methodological studies to establish reliability and validity of survey instruments. In the current study, we assessed the reliability of the prevalence estimates by comparing reports of the number of total incidents experienced within the past year to the reports of specific types of incidents encountered. Whereas the estimates obtained through these 2 methods were identical for online bullying, the 3% discrepancy found in school-based incidents likely reflects incidents involving more than 1 form of bullying (ie, insults, privacy violations¹²).

Our female-dominated, mostly European American, public school sample restricts the generalizability of the findings. For example, we cannot make inferences about online experiences of youth younger than 12 years. It is possible that parents monitor the computer-related behaviors of children more closely than those of adolescents and therefore online and in-school bullying experiences would overlap less among students in elementary grades than in middle and high school. Although the ethnic composition of our sample reflects the persistent gap between European Americans and other ethnic groups in home Internet access nationwide, additional data are needed on online experiences across a wider demographic spectrum of youth—and especially youth who are not electronically as connected with their schoolmates as the current sample.

Policy Implications

The belief that youth should deal with cyberbullying alone is one of the reasons likely to contribute to the reluctance of telling parents about cyberbullying incidents. No less than half of our sample endorsed the belief that they need not tell an adult about a cyberbullying experience because “I need to learn to deal with it myself.” This belief, combined with fears of parental restrictions on Internet use (especially among 12- to 14-year-old girls), may indeed ultimately increase the stress associated with cyberbullying. Until the generation gap in the use and understanding of communication technology narrows, it may be especially difficult for young people to turn to adults for help with cyberbullying.

Parents and youth would also benefit from increased knowledge about the positive functions of online communication among peers, which may help to allay fears that only harm can result from youth interacting online. Recent experimental research shows that compared to a solitary computer activity, IM with an unknown peer can alleviate the distress caused by social exclusion.²⁸ Moreover, based on the most recent tragic campus shooting in Virginia Tech, it appears that an online community of peers can also help healing the aftermath of a tragic event.²⁹ Parental restrictions on

Internet use should therefore be made with the awareness that although they may help protect youth from cyberbullying, they may also limit the ways that youth can rely on communication technology to better cope with distressing events.

Another issue concerns whether parents and other adults may both overestimate the risk of bullying online and downplay the risk of bullying in school. Moreover, parents as well as school personnel may fail to see the connection between bullying in school and in cyberspace. The links and similarities between school-based and online bullying documented in this study need to be recognized. There is no reason why cyberbullying should be “beyond” the school’s responsibility to address. Rather, it seems that schools need to enforce intolerance of any intimidation among students, regardless of whether it takes place on or beyond the school grounds.

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