



Risk factors for involvement in cyber bullying: Victims, bullies and bully–victims[☆]

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ABSTRACT

Objectives: The purpose of the current study was to examine the frequency of cyber bullying among youth by distinguishing among the three categories of involvement in cyber bullying: victims, bullies, and bully–victims, to compare these to a fourth category of students who are not involved in the three categories of cyber bullying and to explore the factors that contribute to involvement in cyber bullying.

Method: This study utilized a large and diverse sample of 2186 middle and high school students, who completed self report questionnaires during class time. We performed a Multinomial Logistic Regression to examine the relationship between the cyber bullying categories and our independent variables (gender, age, technology use, parental involvement and safety).

Results: Over 30% of the students in this study identified as involved in cyber bullying, as victims or perpetrators, and one in four of the students (25.7%) reported having been involved in cyber bullying as both bully and victim during the previous three months. Students who were involved in cyber bullying were more likely than others to report perpetration of violence toward peers, to use computers for more hours a day, and to give their password to friends. Other risk factors, such as gender, age and safety, were found to be specific only for one category of cyber bullying.

Conclusion: The findings revealed that students are highly involved in cyber bullying. Several unique characteristics emerged regarding the frequency and risk factors of students' involvement in cyber bullying. In traditional bullying the category of bully–victims represents the smallest and most vulnerable group of children, whereas in the current study the bully–victims category emerged as common. In addition, females were more likely than males to be bully–victims, in contrast to research on traditional bullying, in which more males than females are typically involved as bully–victims. In addition, several risk factors were common among the three groups of children, including the amount of hours per day students use the computer, and giving passwords to a friend. These results point to the need for further examination and to focus on the risk factors for students' cyber bullying involvement in each of the three categories.

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1. Introduction

Evidence indicates that 98% of Canadian youth access the Internet and communication technologies on a daily basis (e.g., social networking sites, instant messages) (Cassidy, Jackson, & Brown, 2009; Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010). Similarly, 93% of American youth between the ages of 12 to 17 go online occasionally, and nearly two thirds (63%) go online daily (Lenhart, Purcell, Smith, & Zichuhr, 2010). Three of four American teenagers own a cell phone, with 88% of these individuals text messaging (Lenhart, Ling, Campbell, & Purcell, 2010).

The cyber world provides young people with unprecedented opportunities for communication with others both in and out of their

existing face-to-face social networks (Cassidy et al., 2009; Gross, 2004; Lenhart & Madden, 2007; Mishna et al., 2010) and with unparalleled opportunities for learning and self-exploration (Blais, Craig, Pepler, & Connolly, 2008; Brown, Jackson, & Cassidy, 2006). Despite the many benefits of cyber interactions such as social support, identity exploration, and cross-cultural interactions (Jackson et al., 2006; Valkenburg & Peter, 2007), there are risks for youth, in particular the risk of bullying involvement (Berson, Berson, & Ferron, 2002; Gasser, Maclay, & Palfrey, 2010), as youth spend more time online than ever before (Li, 2007; Shariff, 2009).

Students who are cyber bullied report feeling sad, anxious, afraid and unable to concentrate on school (Beran & Li, 2005; Juvonen & Gross, 2008) and may report social difficulties, drug and alcohol use, and eating disorders (Dehue, Bolman, & Vollink, 2008; Fosse & Holen, 2006; Ybarra & Mitchell, 2007). Victimized youth are more likely to skip school (Wolak, Mitchell, & Finkelhor, 2006; Ybarra, Diener-West, & Leaf, 2007), to have detentions or suspensions, or to take a weapon to school (Mitchell, Ybarra, & Finkelhor, 2007).

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Youth who cyber bully are likely to engage in rule-breaking and to have problems with aggression (Ybarra & Mitchell, 2007). A longitudinal study found that involvement in cyber bullying as perpetrator or as victim affects the wellbeing of youth, over and above traditional bullying. More specifically, perpetrating online bullying predicted a significant increase in substance use whereas online victimization predicted decreased quality of life related to sense of wellbeing and belonging (Blais, 2008).

Cyber bullying often occurs in the context of social relationships (Hoff & Mitchell, 2008; Mishna, Saini, & Solomon, 2009; National Children's Home, 2002) which challenges the commonly held assumption that it is anonymous (Hinduja & Patchin, 2008, 2009; Kowalski & Limber, 2007; Shariff, 2009) and is consistent with understanding bullying as a relationship issue (Craig & Pepler, 2007). Previous research found that one quarter of cyber bullying occurs in the presence of witnesses (Mishna et al., 2010) corresponding with evidence that most traditional bullying occurs in the presence of peers who play key roles (Atlas & Pepler, 1998; Craig & Pepler, 2007). The possible number of online observers is unlimited (Kowalski & Limber, 2007).

Long considered a school-based problem (Craig & Pepler, 2008), electronic communication tools have extended bullying into the realm of the cyber world. There is not a universally accepted definition of cyber bullying however, or a strong theoretical model for how this phenomenon compares with traditional bullying. Both are necessary to establish (Vaillancourt et al., 2008; Vandebosch & Van Cleemput, 2008). Still, several definitions and elements have been used in order to study the phenomenon. Similar to traditional bullying, cyber bullying has been defined as "willful and repeated harm inflicted" (Hinduja & Patchin, 2009, p. 5) towards another. What makes cyber bullying distinct is the use of electronic communication technology as the means through which to threaten, harass embarrass, or socially exclude (Hinduja & Patchin, 2009; Patchin & Hinduja, 2006; Williams & Guerra, 2007). Cyber bullying can encompass the use of an electronic medium to sexually harass (Hinduja & Patchin, 2008; Shariff & Johnny, 2007), including distributing unsolicited text or photos of a sexual nature or requesting sexual acts either online or offline (Schrock & Boyd, 2008). What constitutes repetition in cyber bullying is complex. As it occurs in the public domain (Wendy Craig, personal communication, February 25, 2009), by its very nature cyber bullying involves repetition because material such as email, text, or pictures can be viewed far and wide, can be distributed not only by the perpetrator but by anyone who has access (Campbell, 2005; Slonje & Smith, 2008), and can be difficult or indeed impossible for the victimized child or youth to remove (Wolak, Mitchell, & Finkelhor, 2007). There is increasing research and academic literature devoted to this new form of bullying (Berson et al., 2002; Hinduja & Patchin, 2009; Lenhart & Madden, 2007; Wolak et al., 2006; Ybarra & Mitchell, 2004a, 2004b) including large surveys to determine normative data on the prevalence and character of cyber bullying.

The purpose of the current study was twofold: 1) to study the prevalence of cyber bullying among youth by distinguishing among the three categories of involvement in cyber bullying: victims, bullies, and bully-victims and to compare these to a fourth category of students who are not involved in cyber bullying; and 2) to examine factors that contribute to involvement in each of the cyber bullying categories in comparison to students that are not involved in cyber bullying.

Previous research examining cyber bullying has primarily focused on two categories of involvement, those who are victims and those who are perpetrators. These studies typically found prevalence rates of cyber bullying to range from approximately 10 to 35% (Hinduja & Patchin, 2008; Kowalski & Limber, 2007; Agatson, Kowalski, & Limber, 2007; Li, 2007; Patchin & Hinduja, 2006; Williams & Guerra, 2007), whereas others have found significantly higher rates (Juvonen & Gross, 2008; Mishna et al., 2010; Raskauskas & Stoltz, 2007).

Much of the previous research has attempted to identify risk factors for cyber bullying focusing on demographic and behavioral factors. Inconsistent findings have been reported regarding gender and age difference (Hinduja & Patchin, 2010; Smith et al., 2008). Examining the behavioral factors, research has shown that intensive use of Internet emerged as a risk factor for child cyber harassment (Wolak et al., 2007). Furthermore, the location of the computer in the home was found to be a predictive factor of cyber victimization. Children who use the Internet in private places at their home (e.g., bedroom) were at higher risk to be victimized than children who used computers in a public space in their home (Sengupta & Chaudhuri, 2011). Installing a monitoring system in the computer however, was not associated with level of cyber harassment or bullying (Sengupta & Chaudhuri, 2011). In addition, children who are involved in cyber bullying have been found to be less aware of the risks involved in particular uses of the Internet, such as sharing passwords with others or talking with individuals they did not know in their offline lives (Hinduja & Patchin, 2009; Sengupta & Chaudhuri, 2011).

An additional risk factor that has been discussed in previous research refers to a child or youth's involvement in school violence and bullying. Ybarra and Mitchell (2004a) found that students who were physically victimized at school were more likely to be perpetrators of Internet harassment. These findings were not supported by Raskauskas and Stoltz (2007), who found that traditional victims were not more likely to bully electronically, but rather to also be victimized by electronic means. They found that youth who were considered traditional bullies were more likely to be bullied and to bully through cyber means.

To the best of our knowledge previous studies have distinguished youth who are victims from those who are perpetrators of cyber bullying, but have not focused on youth who are both victims and perpetrators of cyber bullying as a distinct group. Children who both bully and are victimized in traditional bullying are the most severely rejected by peers and have particularly serious adjustment problems (Pellegrini, 1998; Perry, Kusel, & Perry, 1988). They have also been found to be easily angered and provoked (Olweus, 1978; Schwartz, Dodge, Pettit, & Bates, 1997) and to be more victimized by school staff (Khouri-Kassabri, 2009). Consequently this group might also be targeted more for maltreatment by peers (Dodge, 1991). Thus, relying on these finding the purpose of the current study was to examine risk factors for cyber bullying involvement among students who are in the bully-victim category, in addition to those students who are bullies and who are victims.

2. Method

This study employed an exploratory, cross-sectional survey design to examine cyber bullying among students in grades 6, 7, 10 and 11, attending schools in a large Canadian city. These grades were chosen to reflect middle/junior and high school students, respectively, as the participating school boards believed that sampling from grades five to twelve would prove too unwieldy for participating schools. The study received approval from the University of Toronto Research Ethics Board and the External Research Review Committee of one of the School Boards, which is one of the largest School Boards in Canada. The other School Board, which is significantly smaller, did not require further ethics approval.

2.1. Sample

To ensure an inclusive representation of this student population, the survey used a stratified, clustered random sampling design in which the school was the sampling unit. The sample was stratified by geographical region and Board of Education. The study included two School Boards. Ten middle/junior high schools and eighteen high schools were

sampled in the larger School Board, and three middle/junior high schools and two high schools were sampled in the smaller Board. Therefore, 28 schools were selected from a possible 273 in the larger Board, and 5 schools were selected from a possible 28 in the other Board. Due to its far greater size, sampling drawn from the larger School Board was stratified by geographical region/quadrant; northeast, northwest, southeast and southwest. Schools were selected at random from the list of schools in each region.

Thirty-three schools (20 secondary and 13 elementary/middle) participated in the study. All students in the targeted grades of the selected schools were invited to participate with the condition that they receive written parental consent. The response rate was 35% for grades 6 and 7 and 17% for grades 10 and 11. No data were collected from non-participating students. It is difficult to conclude whether differences exist between students who participated and those who did not. The demographic distribution in the final sample however, resembles the population, both in terms of gender distribution (54.7% girls in the sample vs. 47.3% girls in the population) and in terms of those whose primary language was not English (44.5% in the sample vs. 52.1% in the population). The number of students who completed the survey was 2186, out of a population of 24,896.

2.2. Procedure

The survey questions were informed by several sources including information gathered in focus groups that had been conducted by the research team with students in the targeted grades. An extensive literature review, a critical review of previous surveys obtained from researchers, and expert consultation held with practitioners, academics, and school administrators also informed questionnaire development. An identical questionnaire was administered to all students, with the exception of the wording and terminology of two questions related to online sexual content and online contact of a sexual nature. The wording for grades six and seven differed slightly from the wording for grades ten and eleven, to ensure age-appropriate language.

The questionnaire was pilot tested for clarity, format and length with 25 grade 6 and 7 students and 35 grade 10 and 11 students. The pencil and paper questionnaire was administered to students by research assistants during class hours, and took approximately 30 min to complete. Participants were provided with a pen from the university as a gift of appreciation.

2.3. Measures

The questionnaires included general questions about the socio-demographic characteristics of students and their families, technology use, and experience of cyber bullying.

2.4. Socio-demographic characteristics

Questions related to individual and family characteristics included gender (0 = females vs. 1 = males); age (10–17); typical academic achievement in school (1 = mostly As to 5 = mostly Fs). Questions related to possible racial and/or cultural marginalization included language spoken at home (answers were classified to 0 = English 1 = other); country of birth (answers were classified to 0 = Canada, 1 = other).

2.5. Technology use, parental involvement and safety

Technology use was measured using items including: how many computers the participants had at home (0, 1, 2 and 3 or more computers); how many hours spent on a computer daily (0, 1, 2, and 3 or more); whether passwords were shared among friends (two categories were created 0 = never 1 = sometimes or always); and the location of the computer they used most often (two categories were

created: 1 = my bedroom in my house and 2 = in a public space in my house).

Furthermore, students were asked whether their parents/guardians supervised their Internet use, and whether their parents/guardians used blocking programs for the Internet (1 = yes vs. 0 = no or don't know). With respect to safety, one item was used to examine how safe students feel using the Internet. Three categories for response were presented, very, somewhat, and not at all.

2.6. School violence

A four item scale relating to physical and verbal violence toward others was created (internal consistency reliability $\alpha = 0.77$). Students were asked to indicate whether they had engaged in any of these acts during the last month on a scale ranged from 0 = Never to 5 = every day (e.g., 'I yelled, cursed at, insulted, teased or called another student names'; 'I hit, kicked, or shoved another student'). The scale was based on the means of the four items included. Respondents were assigned one point for each specific behavior in which they had engaged; thus the measure's range is 0–4.

2.7. Cyber bullying involvement

In order to gain a more comprehensive understanding of online behavior, the questionnaire involved a series of questions about perpetrating (seven items) or being the victim (six items) of various online behaviors, without explicitly defining the behaviors as bullying. Participants were asked to indicate whether they had experienced or perpetuated any of the following in the three months prior to the administration of the survey: calling someone names, threatening, spreading rumors, sending a private picture without consent, pretending to be someone else, receiving or sending unwanted sexual text or photos, or being asked to do something sexual. The response options ranged from 0 = never to 5 = every day. For each of the measures (perpetrating and victimization), respondents were assigned one point for each specific behavior they had identified as either experiencing or perpetrating; thus each measure's range is 0–7 for perpetration and 0–6 for victimization.

Four bully–victim categories were created based on the previous measures: not involved in any bullying; victims; bullies; and bully–victims. The procedure used to create the categories was creating the summative measures of involvement with cyber bullying. Students who received a 0 in both measures were placed in the first category (0 = not involved in any bullying). Students who received a 0 for bullying and a 1 for having been bullied were placed at the second category (1 = victims). Students who had a 0 for having been bullied and received a 1 for bullying were the third category (2 = bullies). The fourth category included students who had received a 1 in both being bullied and bullying others (3 = bully–victims).

2.8. Data analysis

We used SPSS 18 to analyze the study data. We first examined the descriptive data related to students' involvement in cyber bullying with the independent variables (see [Tables 1 and 2](#)). Second, we performed a Multinomial Logistic Regression that enabled us to examine the relationship between the cyber bullying categories and our independent variables while simultaneously controlling for how each of these may be influenced by the other variables. The reference group in this analysis was students who were not involved in cyber bullying.

Table 1
Summary statistics of study's variables (N = 2186).

Measures and items		Min	Max
Gender	54.7% females	0	1
Age	Mean = 13.85, sd = 1.98	10	17
Place born	66.1% born in Canada	0	1
Language parents speak at home	55.5% English	0	1
Grades in school	89.0% mostly As' and Bs'	1	5
Number of computers in students' home	31.6% at least one computer	0	3
Number of hours a day students use the computer	32.5% at least 3 h	0	3
Location of the computer used most of the time	48.2% in the bedroom	1	2
Giving password to friends	32.1% give their password	0	1
Parents/guardians supervise Internet use	23.4% yes	0	1
Parents/guardians have blocking programs for the Internet	26.9% yes	0	1
Safety using the Internet	49.0% somewhat unsafe	0	2
Violence toward peers	Mean = .41, sd = 0.59	0	4

3. Results

3.1. Descriptive statistics

3.1.1. Cyber bullying

Over 50% of the students in this study identified themselves as involved in cyber bullying, as victims, perpetrators or both (see Table 2). Almost one quarter of the students (23.8%) reported being victimized, 8% reported cyber bullying others, and one in four students (25.7%) reported having been involved in cyber bullying as both bully and victim during the previous three months. Boys reported bullying others more than girls, whereas girls reported being victimized and both bullying and victimizing. Younger children reported being victims of cyber bullying more than older children, whereas the reverse trend was revealed with respect to older children, who were more likely to report being bullies and bully-victims.

3.1.2. Technology use, parental involvement and safety

Two-thirds of the students (65.5%) reported using computers a minimum of 2 h per day. Only 2% of all students reported not using computers at all. More than two thirds of the students (67.4%) reported having at least two computers in their home, while only 1% of all students reported not having a computer in their home. Almost half (45.2%) of the students reported that they typically use a computer in their bedroom, 48.5% stated that they use the computer in a public space in their house and 5.6% reported using computers in other places. One third (32.1%) of the students reported giving their password to friends at least some of the time.

Regarding parental supervision we found that 23.4% of the students indicated that their parents/guardians supervise their Internet use, and 26.9% reported that their parents/guardians have blocking programs for the Internet. With respect to safety, 49.0% of students reported feeling unsafe or somewhat unsafe when using the Internet.

Table 2
Frequency of cyber-bullying for the entire sample and by gender and age group.

	Overall N = 2186	Gender		Age group	
		Females n = 1191	Males n = 987	6 and 7 grades n = 1019	10 and 11 grades n = 1167
Not involved	42.5	40.1	45.3	44.7	40.4
Victims	23.8	25.5	21.7	27.1	21.0
Bullies	8.0	7.5	8.7	6.8	9.1
Bully-victims	25.7	26.9	24.3	21.4	29.5

3.1.3. School violence

More than half of the students (56.3%) reported using at least one form of violence towards peers, while 13.1% reported using at least three of the four violent acts presented in the survey questions, during the last month.

3.2. Multinomial Logistic Regression

In this analysis the model for each of the three bullying categories (victims, bullies, and bully-victims) is estimated relative to the model of students who were not bullied and did not bully others, which was treated as the reference group.

The results presented in Table 3 show that the number of hours the computer was used in a day, giving their password to a friend and perpetration of violence toward peers are significant across the three models. Students who were victims, bullies, and bully-victims were more likely than students who were not involved in cyber bullying to use the computer for more hours a day, to give their password to friends and to act violently toward peers at school.

Children whose parents speak English at home were more likely to be victims or to be bully-victims than to not be involved in cyber bullying. With respect to age, the findings indicated that the older the student the more likely he or she was to be a bully-victim or to bully than to be neither a bully nor victim.

Other factors were found to be specific only for one category of cyber bullying. More particularly, safety emerged as an issue specifically for students who were victims. Students who were victims reported feeling significantly more unsafe than students not involved in cyber bullying.

Bully-victims were more likely to be female and to report that their parents or guardians used blocking programs compared to students not involved in cyber bullying.

4. Discussion

This paper reports on a survey of cyber bullying with a sample of 2186 middle and high school students, in a large urban setting. The aim of the study was to examine the frequency of students' involvement in cyber bullying and to explore the factors that contribute to their involvement in this phenomenon. We report the findings of this study, which we compare with research results on traditional bullying.

Since the 1990s there has been greater focus in research on identifying aggressive victims or bully-victims as a distinct group, whereby some victims of school bullying also display aggressive behavior as bullies (Pellegri, 1998; Schwartz, Proctor, & Chien, 2001; Solberg, Olweus, & Endresen, 2007). There is a lack of research on this group with respect to cyber bullying. The current research is among the first studies to distinguish among the three categories of involvement in cyber bullying: victims, bullies, and bully-victims and to compare these to a fourth category of students who are not involved in cyber bullying.

The results of the current study revealed that students are highly involved in cyber bullying, especially as victims and bully-victims: almost one quarter reported being victimized, and one quarter reported having been involved in cyber bullying as both bully and victim. Furthermore, 8% reported cyber bullying others during the previous three months. As previous research has not separated the combined group (bully-victims) from the victims and bullies groups, it is difficult to compare our results with previous studies.

The high rate of reported cyber bullying victimization and perpetration in the current study may be due in part to the nature of the survey. We asked students whether they engaged in or were the target of distinct cyber bullying behaviors without labeling these behaviors as bullying. In many other surveys students were provided a definition of online bullying or harassment, and were then asked to

Table 3
Results of the Multinomial Logistic Regression analysis^a.

Variable	Victims		Bullies		Bully–Victims	
	Exp (B)	CI	Exp (B)	CI	Exp (B)	CI
Gender (0 = female)	.790	.606–1.030	.923	.618–1.377	.597***	.541–.792
Age	.975	.910–1.045	1.142*	1.026–1.271	1.116**	1.037–1.201
Canadian born (reference = yes)	.846	.621–1.151	.811	.561–1.274	.891	.647–1.225
English speaker at home (reference = yes)	.707*	.526–.951	.992	.640–1.537	.654**	.481–.889
Grades in school	1.148	.949–1.390	.832	.622–1.113	1.140	.938–1.384
Number of computers in students' home	1.146	.947–1.347	.919	.719–1.173	1.131	.955–1.339
Amount of hours a day students use the computer	1.224*	1.035–1.446	1.364*	1.059–1.756	1.466***	1.231–1.745
Computers located in bedroom (reference = yes)	.922	.709–1.199	1.026	.693–1.520	.990	.753–1.302
Giving password to friends (reference = no)	1.410*	1.061–1.874	1.874**	1.250–2.809	2.069***	1.561–2.741
Parents/guardians supervise internet use (reference = no or don't know)	.968	.751–1.310	1.083	.683–1.717	.733	.523–1.028
Parents/guardians have blocking programs for the internet (reference = no or don't know)	1.213	.906–1.624	1.369	.879–2.131	1.503**	1.105–2.044
Safety using the internet	.785*	.629–.979	.991	.713–1.376	1.037	.823–1.307
Violence toward peers	1.793***	1.265–2.542	4.841***	3.297–7.108	6.710***	4.894–9.200

^a The reference group in this analysis was students who were not involved in any cyber bullying.

*** p<0.001.

* p<0.05.

** p<0.01.

identify whether they thought they were “bullied” or “harassed” by others or whether they thought they “bullied” or “harassed” others online based on the definition provided (Hinduja & Patchin, 2008; Kowalski & Limber, 2007; Li, 2007; Raskauskas & Stoltz, 2007; Williams & Guerra, 2007; Ybarra & Mitchell, 2004a, 2007). When students were explicitly asked about “bullying” and “being bullied” online rather than asked to respond to involvement in specific behaviors, students reported lower rates of bullying involvement (Mishna et al., 2010).

4.1. The unique nature of cyber bullying

Despite the similarities between cyber bullying and traditional bullying (Ybarra et al., 2007), several differences between both types of bullying have been found.

4.1.1. Cyber bullying involvement

Research on traditional bullying has typically found that compared to the other two categories (bully or victim), students in the bully–victim represents the smallest group (Khoury-Kassabri, 2009; Schwartz, 2000) with a very low prevalence rate (Solberg et al., 2007). In the current study on cyber bullying, bully–victim emerged as a common category of cyber bullying involvement. It is important to determine factors that make the cyber sphere unique whereby more students bully and are victims online. It may be “easier” or more accessible to act as both bully and victim. We suggest two main characteristics unique to cyber bullying that may contribute to more youth being involved as bully and victim: the dramatically increasing access and use of technology by children and youth (Hinduja & Patchin, 2009; Palfrey & Gasser, 2008; Schrock & Boyd, 2008); and the lack of face to face interaction and associated social cues (Ang & Goh, 2010; Mishna, McLuckie, & Saini, 2009).

In a study that examined youth's perceptions and opinions regarding cyber bullying participants stated that bullying now can occur all day since technology has extended ‘schoolyard bullying’ to home computers and cell phones, making it possible for “non-stop bullying” (Mishna, Saini, et al., 2009). The participants explained that not seeing others' reactions to their bullying behaviors and actions enables individuals to behave in ways they might not otherwise and that would not otherwise be tolerated. It appears that this lack of social cueing makes it easier to both initiate bullying others and to respond in kind when bullied by peers (Ang & Goh, 2010; Mishna, Saini, et al., 2009). Accordingly, it is not surprising that the category of bully–victims would be more prevalent in the cyber world because “revenge” or “payback” might be easier than in traditional bullying.

Not seeing the effect on others (e.g., the hurt) due to one's actions might also decrease guilt (Mishna, McLuckie, et al., 2009).

The findings of the current study suggest that a significant percentage of youth may shift between perpetrator and victim roles (Livingstone & Haddon, 2008; Tokunaga, 2010), and that the profile of the youth that both bully and are victimized in cyber space may be quite different from the group of youth that are considered bully–victims or aggressive victims in traditional bullying. Research is thus required to examine whether youth who both bully and are victimized online differ from youth who are bully–victims in traditional bullying, specifically whether the youth involved in cyber bullying in both roles are less at risk and experience fewer problematic issues than those in traditional bullying.

4.1.2. Gender and cyber bullying

No gender differences were found among students who bullied others or who were victimized online. These results are in accord with other research examining students' reports on cyber bullying during the previous 30 days, although they differ from results that over their life girls are significantly more likely than boys to be involved in cyber bullying as a victim or perpetrator (Hinduja & Patchin, 2010).

The only difference that emerged between males and females in our study was whether they identified themselves as both bully and victim. Compared to students not involved in cyber bullying, females were more likely than males to be bully–victims. This finding is interesting in light of the findings in traditional bullying, whereby more males than females are typically involved in bullying as bully–victims (Schwartz, 2000, Solberg et al., 2007). One explanation for this finding is that since females tend to use indirect bullying more frequently than males, cyber, which in many ways is considered indirect, may provide an opportunity for females to engage in more aggressive behaviors (Wolak et al., 2007). Cyber space may thus provide females additional ways to be aggressive without resorting to physical violence.

4.1.3. Age and bullying

Research examining traditional bullying and violence indicates that self-reported victimization and perpetration declines with increasing age (within the grade 7–11 group) (Benbenishty & Astor, 2005; Nansel et al., 2001). Students in elementary schools reported more bullying than students in secondary schools (Dake, Price, & Telljohann, 2003). In the current study the findings indicate that the older the student the more likely he/she was to bully others or to both bully and be bullied online, than to be neither a bully nor victim.

Similarly, Ybarra and Mitchell (2004b) found that the older the child the more likely he/she was to be involved in online violence as a harasser. They suggested that these differences between traditional and online aggression may be due to certain aspects of online harassment such as power dynamics that may differ from traditional bullying. The finding that compared to traditional bullying, greater numbers of students report being both cyber bullies and victims suggests that different dynamics may be operative in these cyber interactions. Among the differences may be power dynamics.

An alternative explanation by Khoury-Kassabri (2009) suggested that while certain forms of aggressive behaviors decline with age (e.g., school bullying) other forms that may occur outside of school (e.g., cyber bullying, dating violence), might be more prevalent among and applicable to older students.

4.1.4. Risk factors for cyber bullying

In this study several factors characterized the three categories of students who are involved in cyber bullying (victims, bullies and bully-victims) which differed significantly from students who are not involved in cyber bullying. All of the students involved in cyber bullying reported using the computers for more hours a day, and reported giving their password to friends. This finding corresponds to other research, for example in a study among 1501 youth Internet users Wolak et al. (2007) found that youth harassed online engage in high Internet use. Furthermore, youth harassed through the Internet were more likely than youth who were not harassed to talk to people they did not know in their lives (Slovak & Singer, 2011). These factors suggest that more prevention and intervention efforts are needed to expand children's knowledge of the risks of using the Internet in ways that are not safe.

In addition, all of the students involved in cyber bullying reported involvement in verbal or physical school aggression (e.g., cursing, bullying, kicking) more significantly than students who were not involved in cyber bullying. A similar trend was reported by Raskauskas and Stoltz (2007) who found that being a victim of school violence was related to being bullied online. Wolak et al. (2007) argued that several incidents of perpetration that occur online have their origins in school events or relationships. The Internet may therefore provide opportunities for students to extend traditional school bullying. This suggestion finds support in our findings, whereby only 11% of students indicated that they did not know the perpetrator of their cyber bullying victimization, whereas 58% of the students reported that the cyber bullying was perpetrated by a friend or a student from their school (Mishna et al., 2010). Students might therefore use cyber technology to continue incidents or behaviors that began at school, or alternately, may bring incidents that begin in their online world to the school yard.

Despite the similarities among the three groups of students who are involved in cyber bullying, analysis of the data revealed interesting differences. With respect to the effects of cyber bullying we found that only victims reported feeling significantly more unsafe than students not involved in cyber bullying. No differences in this regard were found among students who were bullied or who both bullied and are victimized. These results correspond with previous research findings which identify the effects of Internet harassment including psychological difficulties (Ybarra et al., 2007).

With respect to parental involvement we found that only the parents of youth in the bully-victim category were more likely to use blocking programs in comparison to students not involved in cyber bullying. Studies on traditional bullying indicate that children in the bully-victim group present with more severe psychosocial and behavioral difficulties (Kupersmidt, Patterson, & Eickholt, 1989; Pellegrini, 1998; Schwartz, 2000). It might be that these children, because of their involvement as both cyber bullied and victimized may require a greater degree of parental involvement, including for example blocking to address behavioral problems and difficulties. Because

little is known about this group in the literature, further research is needed in order to expand our understanding of the characteristics of the cyber bully-victim group.

Another issue related to parental involvement or supervision with their child's cyber activity (Sengupta & Chaudhuri, 2011) is whether to place computers in public spaces at home or in private spaces such as youth's bedrooms. According to findings of the current study placement of computers at home did not significantly differentiate between those youth who are involved in cyber bullying and those who are not. This finding is in contrast to Sengupta and Chaudhuri (2011) which found that using the Internet in a private rather than a public space at home increases the likelihood of experiencing cyber bullying victimization. These results thus call for further examination of factors related to parental involvement and supervision and their effects on cyber bullying. Research on optimal parental supervision is particularly needed with the advent of ubiquitous use by youth of cell phones and other mobile forms of technology which have Internet and wireless access, thus making the matter of parental supervision more complex.

4.2. Limitations

Although the current study utilized a large and diverse sample of youth, limitations must be noted. While data from the students in the participating school boards underscore that the final sample is quite similar to the overall population on key demographics, the low response rate particularly of the older grades (as a result of the requirement to obtain written parental consent) limits the generalizability of these findings. These results should therefore be viewed as preliminary. Future research should include additional relevant correlates, such as the sexual orientation of the students. Another limitation is that all grades between six and twelve were not sampled due to constraints imposed by the school boards due to resource issues. Caution must therefore be taken in generalizing the results to students in the nonparticipating grades. Furthermore, several variables were measured using only one question, such as the item about feeling safe. Lastly, the cross-sectional nature of the survey does not allow for inference about temporal direction and hence, causal relationships cannot be concluded.

4.3. Implications for research and practice

The findings of the current study have important implications for research and practice. The larger number of youth in the bully-victim category highlights the need to examine cyber bullying in order to compare this form of aggression with traditional bullying. Similarities, such as factors and characteristics related to youth who both bully and are bullied, cannot be assumed. Notwithstanding the need to be cautious about generalizing the findings of the current study, research is needed to examine a) the dynamics of cyber bullying that contribute to a larger number of youth becoming involved in cyber bullying as both aggressor and victim; and b) risk factors of the youth who are in the cyber bully-victim category. Such knowledge is critical to inform education and practice interventions. Furthermore, from a practice perspective it is important to raise professionals' awareness of cyber bullying dynamics and of the harmful consequences of unsafe online use. Training opportunities for school social workers and other professionals who work with parents and children need to be expanded beyond the focus on traditional bullying and should include relevant knowledge and skills to dealing effectively with cyber bullying. The findings are important in light of a study which found that almost one half of school social workers reported that they did not feel equipped to deal with cyber bullying (Slovak & Singer, 2011).

5. Conclusion

This study is unique in examining not only the frequency of youth's self-reported involvement in cyber bullying, but also the ways in which youth are involved. Almost one quarter of the students reported being victimized alone, and one quarter reported being involved as both bully and victim. It is striking that the category of bully–victim emerged as one that included a sizeable percentage of youth, whereas in traditional bullying this category represents the smallest and most vulnerable group of students. These findings indicate the need to examine whether a significant percentage of youth may shift between perpetrator and victim roles (Livingstone & Haddon, 2008; Tokunaga, 2010). Such dynamics have significant implications for prevention, education and intervention. In addition, females were more likely than males to be bully–victims, in contrast to findings on traditional bullying, in which more males than females are typically involved as bully–victims. The findings highlight the need to further investigate cyber bullying to increase understanding of the dynamics including the risk and protective factors and characteristics of youth involved in cyber bullying as victim, aggressor or as both.

References

- Agatston, P., Kowalski, R., & Limber, S. (2007). Students' perspectives on cyber bullying. *Journal of Adolescent Health, 41*, S59–S60.
- Ang, R. P., & Goh, D. H. (2010). Cyberbullying among adolescents: The role of affective and cognitive empathy, and gender. *Child Psychiatry and Human Development, 41* (4), 387–397.
- Atlas, R. S., & Pepler, D. J. (1998). Observations of bullying in the classroom. *The Journal of Educational Research, 92*, 86–99.
- Benbenishty, R., & Astor, A. R. (2005). *School violence embedded in context*. Oxford Press.
- Beran, T., & Li, Q. (2005). Cyber-harassment: A study of a new method for an old behaviour. *Journal of Educational Computing Research, 32*(3), 265–277.
- Berson, I. R., Berson, M. J., & Ferron, J. (2002). Emerging risks of violence in the digital age: Lessons for educators from an online study of adolescent girls in the United States. *Journal of School Violence, 1*(2), 51–72.
- Blais, J. (2008). Chatting, befriending, and bullying: Adolescents' internet experiences and associated psychosocial outcomes (Unpublished doctoral dissertation). Queen's University, Kingston, Ontario.
- Blais, J., Craig, W. M., Pepler, D. J., & Connolly, J. (2008). Adolescents online: The importance of Internet activity choices to salient relationship. *Journal of Youth and Adolescence, 37*(5), 49–58.
- Brown, K., Jackson, M., & Cassidy, W. (2006). Cyber-bullying: Developing a policy to direct responses that are equitable and effective in addressing this special form of bullying. *Canadian Journal of Educational Administration and Policy, 57* Retrieved January 15, 2007 from http://umanitoba.ca/publications/cjeap/articles/brown_jackson_cassidy.html
- Campbell, M. A. (2005). Cyber bullying: An old problem in a new guise? *Australian Journal of Guidance and Counselling, 15*, 68–76.
- Cassidy, W., Jackson, M., & Brown, K. (2009). Sticks and stones can break my bones, but how can pixels hurt me? Students' experiences with cyber-bullying. *School Psychology International, 30*(4), 383–402.
- Craig, W. M., & Pepler, D. J. (2007). Understanding bullying. From research to practice. *Canadian Psychology, 48*, 86–93.
- Craig, W. M., & Pepler, D. J. (2008). Introduction: Understanding and addressing bullying: An international perspective. In D. Pepler, & W. Craig (Eds.), *Understanding and addressing bullying: An international perspective* (pp. xix–xxvi). Bloomington, Indiana: Authorhouse.
- Dake, J. A., Price, J. H., & Telljohann, S. K. (2003). The nature and the extent of bullying at school. *Journal of School Health, 75*, 173–180.
- Dehue, F., Bolman, C., & Vollink, T. (2008). Cyberbullying: Youngsters' experiences and parental perception. *Cyberpsychology & Behaviour, 11*(2), 217–225.
- Dodge, K. A. (1991). The structure and function of reactive and proactive aggression. In D. J. Pepler, & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 201–218). Hillsdale, NJ: Erlbaum.
- Fosse, G. K., & Holen, A. (2006). Childhood maltreatment in adult female psychiatric outpatients with eating disorders. *Eating Behaviours, 7*, 404–409.
- Gasser, U., Maclay, C. M., & Palfrey, J. G. (2010). Working towards a deeper understanding of digital safety for children and young people in developing nations (June 21, 2010). *Harvard Public Law Working Paper* (pp. 10–36). Retrieved from August 1, 2010 from <http://ssrn.com/abstract=1628276>
- Gross, E. F. (2004). Adolescent Internet use: What we expect, what teens report. *Journal of Applied Developmental Psychology, 25*(6), 633–649.
- Hinduja, S., & Patchin, J. W. (2008). Cyberbullying: An exploratory analysis of factors related to offending and victimization. *Deviant Behaviour, 29*(2), 129–156.
- Hinduja, S., & Patchin, J. W. (2009). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying*. Thousand Oaks, California: Sage.
- Hinduja, S., & Patchin, J. W. (2010). Summary of our cyber bullying research from 2005–2010. Retrieved on January 29, 2011 from <http://cyberbullying.us/research.php>
- Hoff, D. L., & Mitchell, S. N. (2008). Cyberbullying: Causes, effects, and remedies. *Journal of Educational Administration, 47*(5), 652–665.
- Jackson, L. A., von Eye, A., Biocca, F. A., Barbatsis, G., Zhao, Y., & Fitzgerald, H. E. (2006). Does home Internet use influence the academic performance of low-income children? *Developmental Psychology, 42*(3), 429–435.
- Juvonen, J., & Gross, E. F. (2008). Extending the school grounds? – Bullying experiences in cyberspace. *Journal of School Health, 78*(9), 496–506.
- Khoury-Kassabri, M. (2009). The relationship between staff maltreatment of students and students' violent behavior. *Child Abuse & Neglect, 33*, 914–923.
- Kowalski, R. M., & Limber, S. P. (2007). Electronic bullying among middle school students. *Journal of Adolescent Health, 41*, S22–S30.
- Kupersmidt, J. B., Patterson, C. J., & Eickholt, C. (1989). Socially rejected children: Bullies, victims, or both? Aggressors, victims, and peer relationships. Paper presented at the Society for Research in Child Development, Kansas City, MO.
- Lenhart, A., Ling, R., Campbell, S., & Purcell, K. (2010). *Teens and mobile phones*. Pew Research Center's Internet & American Life Project.
- Lenhart, A., & Madden, M. (2007). *Teens, privacy & online social networks. How teens manage their online identities and personal information in the age of MySpace*. Washington: Pew Internet & American Life Project Retrieved June 13, 2007 from http://www.pewinternet.org/pdfs/PIP_Teens_Privacy_SNS_Report_Final.pdf
- Lenhart, A., Purcell, K., Smith, A., & Zichuhr, K. (2010). *Social media and young adults*. Pew Research Center's Internet & American Life Project.
- Li, Q. (2007). New bottle but old wine: A research of cyberbullying in schools. *Computers in Human Behaviour, 23*, 1777–1791.
- Livingstone, S., & Haddon, L. (2008). Risky experiences for children online: Charting European research on children and the Internet. *Children & Society, 22*, 314–323.
- Mishna, F., Cook, C., Gadalla, T., Daciuk, J., & Solomon, S. (2010). Cyber bullying behaviours among middle and high school students. *The American Journal of Orthopsychiatry, 80*(3), 362–374.
- Mishna, F., McLuckie, A., & Saini, M. (2009). Real world dangers in an online reality: A qualitative study examining online relationships and cyber abuse. *Social Work Research, 33*(2), 107–118.
- Mishna, F., Saini, M., & Solomon, S. (2009). Ongoing and online: Children and youth's perceptions of cyber bullying. *Children and Youth Services Review, 31*(12), 1222–1228.
- Mitchell, K. J., Ybarra, M., & Finkelhor, D. (2007). The relative importance of online victimization in understanding depression, delinquency, and substance use. *Child Maltreatment, 12*(4), 314–324.
- Nansel, T., Overpeck, M., Pilla, R., Ruan, W., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among U.S. youth: Prevalence and association with psychosocial adjustment. *JAMA: The Journal of the American Medical Association, 285*, 2094–2100.
- National Children's Home (2002). 1 in 4 children are the victims of 'on-line bullying'. Retrieved January 19, 2009, from <http://www.nch.org.uk/information/index.php?i=23775>
- Olweus, D. (1978). *Aggression in the schools: Bullies and whipping boys*. Washington, DC: Hemisphere.
- Palfrey, J., & Gasser, U. (2008). *Born digital: Understanding the first generation of digital natives*. New York: Basic Books.
- Patchin, J., & Hinduja, S. (2006). Bullies move beyond the school yard: A preliminary look at cyberbullying. *Youth Violence and Juvenile Justice, 4*, 148–169.
- Pellegrini, A. D. (1998). Bullies and victims in school: A review and call for research. *Journal of Applied Developmental Psychology, 19*, 165–176.
- Perry, D. G., Kusel, S. J., & Perry, L. C. (1988). Victims of peer aggression. *Developmental Psychology, 24*, 807–814.
- Raskauskas, J., & Stoltz, A. D. (2007). Involvement in traditional and electronic bullying among adolescents. *Developmental Psychology, 43*(3), 564–575.
- Schrock, A., & Boyd, D. (2008). Online threats to youth: Solicitation, harassment, and problematic content: Literature review prepared for the Internet Safety Technical Task Force. Retrieved March 25, 2009 online at http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/RAB_Lit_Review_121800.pdf
- Schwartz, D. (2000). Subtypes of victims and aggressors in children's peer groups. *Journal of Abnormal Child Psychology, 28*, 181–192.
- Schwartz, D., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1997). The early socialization of aggressive victims of bullying. *Child Development, 68*, 665–675.
- Schwartz, D., Proctor, L. J., & Chien, D. H. (2001). The aggressive victim of bullying: Emotional and behavioral dysregulation as a pathway to victimization by peers. In J. Juvonen, & S. Graham (Eds.), *Peer harassment in school: The plight of the vulnerable and victimized* (pp. 147–174). New York: Guilford Press.
- Sengupta, A., & Chaudhuri, A. (2011). Are social networking sites a source of online harassment for teens? Evidence from survey data. *Children and Youth Services Review, 33*, 284–290.
- Shariff, S. (2009). *Confronting cyber-bullying: What schools need to know to control misconduct and avoid legal consequences*. New York: Cambridge University Press.
- Shariff, S., & Johnny, L. (2007). Cyber-libel and cyber bullying: Can schools protect student reputations and free expression in virtual environments? *McGill Journal of Education, 16*, 307–342.
- Slonje, R., & Smith, P. K. (2008). Cyberbullying: Another main type of bullying? *Scandinavian Journal of Psychology, 49*, 147–154.
- Slovak, K., & Singer, J. B. (2011). School social workers' perceptions of cyberbullying. *Children and Schools, 33*(1), 5–16.
- Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry, 49*(4), 376–385.

- Solberg, M. E., Olweus, D., & Endresen, I. M. (2007). Bullies and victims at school: Are they the same pupils? *British Journal of Educational Psychology*, 77, 441–464.
- Tokunaga, R. S. (2010). Following you home from school: A critical review and synthesis of research on cyberbullying victimization. *Computers in Human Behavior*, 26, 277–287.
- Vaillancourt, T., McDougall, P., Hymel, S., Krygsman, A., Miller, J., Stiver, J., et al. (2008). Bullying: Are researchers and children/youth talking about the same thing? *International Journal of Behavioral Development*, 32(6), 486–495.
- Valkenburg, P., & Peter, J. (2007). Preadolescents' and adolescents' online communication and their closeness to friends. *Developmental Psychology*, 43(2), 267–277.
- Vandebosch, H., & Van Cleemput, K. (2008). Defining cyberbullying: A qualitative research into the perceptions of youngsters. *Cyberpsychology & Behaviour*, 11(4), 499–503.
- Williams, K., & Guerra, N. (2007). Prevalence and predictors of Internet bullying. *Journal of Adolescent Health*, S14–S21.
- Wolak, J., Mitchell, K. J., & Finkelhor, D. (2006). *Online victimization of youth: Five years later*. Washington, DC: National Center for Missing and Exploited Children.
- Wolak, J., Mitchell, K. J., & Finkelhor, D. (2007). Does online harassment constitute bullying? An exploration of online harassment by known peers and online-only contacts. *Journal of Adolescent Health*, 41, S51–S58.
- Ybarra, M. L., Diener-West, M., & Leaf, P. J. (2007). Examining the overlap in Internet-harassment and school bullying: Implications for school intervention. *Journal of Adolescent Health*, 41(6), 42–50.
- Ybarra, M., & Mitchell, K. J. (2004). Online aggressor/targets, aggressors and targets: A comparison of associated youth characteristics. *Journal of Child Psychology and Psychiatry*, 45, 1308–1316.
- Ybarra, M., & Mitchell, K. J. (2004). Youth engaging in online harassment: Associations with caregiver–child relationships, Internet use, and personal characteristics. *Journal of Adolescence*, 27, 319–336.
- Ybarra, M. L., & Mitchell, K. J. (2007). Prevalence and frequency of Internet harassment instigation: Implications for adolescent health. *Journal of Adolescent Health*, 41, 189–195.