

UNIVERSITY OF CALGARY

Cyber Bullying: The New Era of Bullying

By

Ann Poole

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF SCIENCE

DIVISION OF APPLIED PSYCHOLOGY

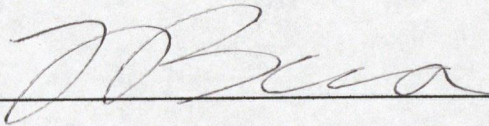
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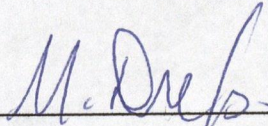
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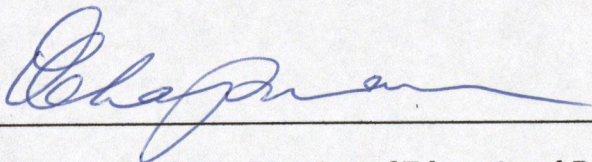
The undersigned certify that they have read, and recommended to the Faculty of Graduate Studies for acceptance, a thesis entitled "Cyber Bullying: The New Era in Bullying" submitted by Ann Poole in partial fulfillment of the requirements for the degree of Master of Science: [REDACTED]



Supervisor, Dr. Tanya Beran, Community Health Sciences



Dr. Michelle Drefs, Division of Applied Psychology



Dr. Olive Chapman, Graduate Division of Educational Research

July 3, 2009

Date

Abstract

Bullying involves a powerful person intentionally harming a less powerful person repeatedly. With advances in technology, students are finding new methods of bullying, including sending harassing emails, instant messages, text messages, and pictures. Although school bullying has been studied since the 1970s, relatively little is known about students' experiences of cyber bullying. The present study explored the prevalence of cyber bullying while also examining gender and grade differences. Results show that a substantial minority of students in grades 7-11 are involved in cyber bullying, girls are more likely to be the targets of cyber bullying than boys, and cyber bullying peaks in grade 7. Despite significant findings, the magnitude of group differences suggests that all students have similar experiences of cyber bullying. Implications for intervention are discussed.

Acknowledgements

The completion of this thesis would not have been possible without the support of my family, friends, and colleagues. I would like to thank my thesis supervisor, Dr. Tanya Beran, for her expertise, guidance, encouragement, and support. Thank you for pushing me at times when my motivation waned; it truly made for a better product. I have learned so much from you, both in the area of bullying and research in general. I know that if I pursue further graduate studies you have given me an excellent foundation upon which to build.

I would also like to thank Dr. Michelle Drefs and Dr. Olive Chapman for participating on my examining committee. I appreciate your wisdom, kind words, and professionalism. Thank you for the contributions you made to my thesis. Your comments served to strengthen the final product.

This project was supported by the Social Science and Humanities Research Council of Canada (SSHRC) granted in 2007. I would like to thank the Council for their support and validation of my research potential.

To my fiancé, Jeff, thank you for reminding me what is most important in life. Thank you for understanding when I needed to work, when I needed to play, and when I needed to rest. I am very exciting to be starting the next stage of our lives together next month and I promise that I will now have more time for you!

I am extremely thankful for the love and support offered by my family and friends. Thank you for encouraging me at times when I may have been discouraged, celebrating with me in my accomplishments, and being a sounding board for my ideas

and frustrations. To my parents, thank you for always supporting me in all my endeavors. You helped me gain the confidence I needed to take on new challenges. To my friends, thank you for providing an outlet for my stress and opportunities for distraction. The memories and laughs truly helped to keep me balanced.

Finally, I would like to thank all my professors at the University of Calgary for guiding me throughout the program. I have learned from each of you and your insights and instruction have helped me to progress toward my goal of becoming a competent, dedicated, and ethical school psychologist.

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Cyber Bullying: The New Era of Bullying

A 14-year-old girl killed herself in 2000 after repeated bullying, including a threatening phone call, saying “You’re dead” (Canadian Broadcasting Corporation [CBC], 2002). A website was created to humiliate a high school student; the targeted boy said that the humiliation it caused was the worst he experienced: “It’s up there [on the Internet] for 6 billion people to see. Anyone with a computer can see it. And you can’t get away from it. It doesn’t go away when you come home from school. It made me feel even more trapped.” (Coloroso, 2006, p. 207). An embarrassing film of a 15-year-old boy was posted on a school computer as a ‘joke’; one month later the clip had been downloaded 1.1 million times and within 6 months a website that had posted the video had 76 million visits (Ha, 2006).

Bullying occurs in most developed countries and presents a major social concern (Smith, Morita, Junger-Tas, Olweus, Catalano, & Slee, 1999). Involvement in bullying, whether as a bully, victim, or both, often results in poor psychosocial adjustment such as loneliness (Parker & Asher, 1987). Bullying is also associated with other problem behaviors, including smoking and underage drinking (Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001). Although quite common, it is not exclusively perpetrated in a school setting (Elinoff, Chafouleas, & Sassu, 2004). It can also occur when traveling to and from school. In addition, with the advent of sophisticated forms of communication technology, bullying can now occur in the cyber world.

Recently, attention has turned toward the new era of bullying, dubbed cyber bullying. As it is a relatively new area of research, there is no universally accepted

definition of cyber bullying. The general concept has also been referred to by different terms, such as cyber-harassment (Beran & Li, 2005), online bullying (Patchin & Hinduja, 2006), and online harassment (Ybarra & Mitchell, 2004b). In general, it is defined as intentional acts of aggression, or intentional acts causing harm, toward someone else that are perpetrated via an electronic medium (Patchin & Hinduja, 2006; Ybarra & Mitchell, 2004b). Some definitions include an element of repetition in their definition (Patchin & Hinduja, 2006), whereas others qualify the definition by mentioning that cyber bullying involves overt aggression (Ybarra & Mitchell, 2004b). The definition of cyber bullying closely parallels the definition of school bullying (Patchin & Hinduja, 2006); however, it is distinguished as a unique form of bullying in its reliance on electronic media. Additionally, the power differential between bully and victim may be different in cyber bullying in that it involves technological proficiency rather than physical strength or popularity (Patchin & Hinduja, 2006). Specific examples of cyber bullying include bothering or threatening someone online, sending unwanted sexual messages, and intentionally embarrassing another person (Patchin & Hinduja, 2006; Ybarra & Mitchell, 2004b). Cyber bullying can occur through email, instant messaging, cell phones, websites, personal digital assistants, Internet gaming, and so on. Each method can be used in different ways. For instance, many cell phones can be used for calling, texting, and sending pictures or videos (de Souza e Silva, 2006). Cyber bullying may even have more severe consequences than school bullying as targets have no relief or respite from the bullying because it can happen anytime and anywhere.

Technology is prolific, increasing the risk for cyber bullying. The Internet is now commonplace in many homes, schools and businesses. In fact, more than half a billion people worldwide have access to it, with the numbers increasing each year (Nua Internet Survey, 2003). Over 90% of children in nursery school through grade 12 use computers; 56% of the same children use the Internet (National Center for Education Statistics [NCES], 2005). In Canada, 37% of children in grades 4 to 11 reported that they have their own computer with Internet access (Media Awareness Network, 2005). Only 4% reported that they do not use the Internet (Media Awareness Network, 2005). The widespread use of the Internet inevitably brings new challenges and problems for society and our children.

In addition to personal computers, over 150 million people own cellular phones. This figure includes half of the students between the ages of 12 and 17 (Fattah, 2003). According to the Media Awareness Network (2005), 6% of grade 4 students have their own cell phone, with this figure increasing to 46% by grade 11. In 2005, Canadians sent 1.5 billion person-to-person text messages. This figure increased from 174 million in 2002 (Canadian Wireless Telecommunications Association [CWTA], 2005). Although this figure suggests nothing sinister in itself, it does suggest that there is the potential for some of these messages to contain insults, threats or slander.

Although relatively few studies currently exist, previous studies on cyber bullying suggest that it is occurring and it has a negative impact on youth (Patchin & Hinduja, 2006). Also, as Internet usage appears to be on the rise, cyber bullying is becoming a compelling adolescent mental health issue (Ybarra & Mitchell, 2004b).

Given the relatively new emergence of this field of study, it is necessary to describe this phenomenon (Patchin & Hinduja, 2006).

The Present Study

This section will begin by discussing cyber bullying and how it relates to school bullying. This section will discuss the power of anonymity involved in cyber bullying, as well as the ways in which it may be perpetrated. This will be followed by prevalence reports of both cyber bullying and school bullying. Finally, research on gender and grade differences in both cyber and school forms of bullying will be explored.

School Bullying

Thus far, research suggests that cyber bullies are similar to school bullies in some ways, while remaining unique in other ways (Ybarra & Mitchell, 2004b). So it is expected that children who bully in cyber space also bully at school, and children who are targeted in cyber space are also targeted at school (Li, 2007). In addition, children who bully at school are five times more likely to be the target of online harassment than are children who do not bully at school (Ybarra & Mitchell, 2004b). Also, cyber bullies are more likely than otherwise similar students to have been the targets of school bullying (Ybarra & Mitchell, 2004b). It is possible that bullying begins at school and then follows children home; however, it is also possible that cyber bullying leads to face-to-face encounters (Beran & Li, 2005). Also, perhaps victims of school bullying seek revenge under the security of anonymity while online, targeting their offline bullies. Therefore, while cyber bullying exists in a separate

social context, it is tied to school forms of bullying. As such, research on school bullying can inform the current study.

Olweus pioneered the study of school bullying in the 1970s (Olweus, 1979; 1978). Although it has been suggested that there is no universal definition of bullying (Elinoff et al., 2004), many subscribe, at least in part, to Olweus' (1997) definition (e. g., Craig & Pepler, 2003; Monks & Smith, 2006; Nansel et al., 2001; Pepler, Craig, Connolly, Yuile, McMaster, & Jiang, 2006; Wolke, Woods, Stanford, & Shulz, 2001). He stated that bullying essentially involves three core characteristics including (a) intentionally aggressive or harmful behavior that is (b) repeated over time and (c) involves a power differential (Olweus, 1997). It has also been stated that the action must have hostile intent and cause distress (Craig & Pepler, 2003). In addition, the criterion of a power differential has been elaborated upon in that it may be a real or perceived asymmetry in strength (Wolke et al., 2001) and it may be physical or psychological (Nansel et al., 2001). Furthermore, the aggressive behaviors may be physical (e. g., hitting, kicking), verbal (e. g., name-calling, threatening), or psychological (e. g., exclusion, spreading rumors; Nansel et al., 2001). Open attacks such as hitting, threatening or teasing are considered acts of direct bullying, whereas social isolation and exclusion are considered to be indirect bullying (Elinoff et al., 2004). Direct bullying can be summarized as physical and verbal bullying, whereas indirect bullying can be characterized as psychological and relational (Baldry, 2004). Given the covert nature of indirect bullying, it is the least identified form of bullying and the most difficult to prove (Elinoff et al., 2004; Sander, 2004).

Power of Anonymity

Cyber bullying is unique from school forms of bullying in that it allows for a pseudo-sense of anonymity (Li, 2007), as individuals are not interacting face-to-face. That being said, it is possible to trace messages. The Internet provides the opportunity for pseudo-anonymous communication (Ybarra & Mitchell, 2004b) given that it is possible to create temporary e-mail accounts and pseudonyms in chat rooms and instant messengers (Patchin & Hinduja, 2006). Perceived anonymity may free cyber bullies from the constraints of social norms (Patchin & Hinduja, 2006; Ybarra & Mitchell, 2004b). Not only does it require little time and skill to type hurtful comments and hit “send” (Patchin & Hinduja, 2006), but cyber bullies cannot always be immediately identified, nor can they directly witness the impact of their actions (Ybarra & Mitchell, 2004b). Therefore, anonymity may serve to embolden cyber bullies and they may not realize the extent of harm they are causing others. Anonymity not only facilitates cyber bullying, it also makes it more difficult to prevent (Li, 2007).

Acts of Bullying

A majority of those who have been cyber bullied state that they have been ignored while online, whereas half of the victims state that they were disrespected by others (Patchin & Hinduja, 2006). Almost one third have been called names and slightly less than one quarter have been threatened. Also, to a lesser extent, a substantial proportion of victims have been picked on or teased by others, or had rumors spread about them (Patchin & Hinduja, 2006). Of those who admit to cyber

bullying others, most admit to making rude or mean comments to others, but very few admit to harassing or embarrassing others online (Ybarra & Mitchell, 2004b).

Name-calling appears to be the most commonly perpetrated means of school bullying (Boulton, Truman, & Flemington, 2002; Seals & Young, 2003), but it is not the only form of bullying. For example, 10.8% of participants hit or kick others, whereas 6.6% verbally threaten others (Seals & Young, 2003), and although an extremely high percentage of participants reported calling others names and laughing at others, between one third and one half of participants report also relying on additional means of harassment (Boulton et al., 2002). According to Beran and Tutty (2002), the largest group of bullies report both verbal and physical bullying behaviors. Also, the combination of verbal and physical bullying is most commonly reported by victims (Beran & Tutty, 2002).

Prevalence

A primary goal of the current study was to determine the prevalence rate of cyber bullying among children and adolescents in Calgary. Studies on the prevalence of cyber bullying in general have been fairly consistent in their findings. Across studies, 11-17 % of students have cyber bullied someone else at some point (Li, 2007; 2006; Patchin & Hinduja, 2006; Ybarra & Mitchell, 2004b). Beran and Li (2005), Li (2007), and Patchin and Hinduja (2006) found that about one quarter or more of their sample were the targets of cyber bullying at some point (23%, 24.9% and 29%, respectively), with 6.5-7% of children being targeted in any given year (Ybarra, 2004; Ybarra & Mitchell, 2004b). Victims of cyber bullying appear to be more

prevalent than cyber bullies, suggesting that cyber bullies typically target more than one person.

In comparison, reports on the prevalence of school bullying vary greatly. Across studies, approximately 8-57% of students have been the targets of bullying (Baldry, 2004; Baldry & Farrington, 2005; Beran & Tutty, 2002; Johnson, Thompson, Wilkinson, Wash, Balding, & Wright, 2002; Nansel et al., 2001; Natvig, Albrektsen, & Qvarnstrom, 2001; Scheithauer, Hayer, Petermann, & Jugert, 2006). There is also great variability in reports of individuals who perpetrate bullying behaviors, with prevalence rates ranging from 10.6% (Nansel et al., 2001) to 49.5% (Baldry, 2004). This is due to variations in measures, definitions, sample size, and school systems across countries. Also, there is no direct translation for “bullying” in many languages (Wolke et al., 2001; Yang, Kim, Kim, Shin, & Yoon, 2006), making cross-cultural comparisons difficult. Some variation also occurs due to the time frame that researchers use. For example, Baldry and Farrington (2005) asked about experiences of bullying over a three-month period, whereas Johnson and colleagues (2002) asked about experiences within the previous school week. It is believed that prevalence rates will appear higher, if the time frame examined is longer. If children are asked about their bullying experiences within a truncated time frame, reports from those who are infrequently involved in bullying incidents may be missed.

Therefore, there is great variation in prevalence reports with both cyber and school bullying. As such, it is difficult to make direct conclusions about the prevalence of cyber bullying in relation to school bullying. Currently, the findings on cyber bullying suggest that it is quite prevalent; therefore, it is predicted that a

sizeable minority of children will have been the targets and/or perpetrators of cyber bullying.

Gender Differences

A second goal of the current study was to examine group differences in students' experiences of cyber bullying. More specifically, we were interested in whether girls and boys experience different forms of cyber bullying at different rates.

School bullying. Several studies suggest that boys are more likely to perpetrate bullying behaviors than are girls (e. g., Baldry, 2004; Beran & Tutty, 2002; Ma, 2002; Nansel et al., 2001; Pepler et al., 2006; Scheithauer et al., 2006; Seals & Young, 2003; Yang et al., 2006); however, bullying is not one uniform behavior; as such, it is important to consider gender differences across different modes of bullying. Studies suggest that male students are more likely to perpetrate direct forms of bullying, such as physically hurting others, threatening, name-calling, and taking others' belongings (Baldry, 2004; Beran & Tutty, 2002). However, a study by Crick and Grotpeter (1995) indicates that female students are equally as aggressive as male students, but they use different bullying behaviors. Whereas their findings are consistent with previous research in that they found boys to be more overtly aggressive than girls, they found that girls are significantly more relationally aggressive than boys. When overt and relational behaviors are combined there are no gender differences. Therefore, contrary to previous research, boys and girls may display similar rates of bullying behavior when relational aggression is considered along with more overt forms (Crick & Grotpeter, 1995).

Gender differences in bullying are typically explained by socialization practices (Dhami, Hoglund, Leadbeater, & Boone, 2005). At young ages, the socialization of girls and boys is typically segregated so that boys tend to socialize predominately with boys and girls tend to socialize predominately with girls (Craig & Pepler, 2003). Boys play with each other differently than girls play with each other (Craig & Pepler, 2003). Boys tend to engage in more physical, rough-and-tumble play, whereas girls tend to engage in quieter, more intimate play (Craig & Pepler, 2003). Overt aggression is valued more in boys as it helps them gain and maintain social dominance within their peer group. Relational aggression is more relevant to girls' peer groups as it contributes to psychosocial development within a smaller same-sex peer group. Girls prefer relational aggression because it allows them to be socially manipulative while still adhering to gender roles (Scheithauer et al., 2006). In one study, Pepler and colleagues (2006) found that boys are more likely to bully when they are the oldest students in the elementary school grades. Presumably, this is a time when boys would be at the top of the social hierarchy. Girls are more likely to bully when they are adjusting to the social context of high school. Therefore, girls rely on aggression more when they are trying to establish new relationships (Pepler et al., 2006).

Much of the research suggests that there are no gender differences in victimization (e. g., Beran & Tutty, 2002; Craig & Pepler, 2003; Kochenderfer-Ladd & Skinner, 2002; Yang et al., 2006). However, a substantial amount of research suggests that, as with bullying, boys are more likely to be victimized (e. g., Baldry, 2004; Jantzer, Hoover, & Narloch, 2006; Johnson et al., 2002; Ma, 2002; Nansel et

al., 2001; Seals & Young, 2003). Reports of boys being targeted may be underestimated, as boys are less likely to report being bullied than girls (Unnever & Cornell, 2004). Generally, studies that have found boys to be victimized more than girls have shown that boys are more likely to experience direct forms of bullying (Baldry, 2004; Jantzer et al., 2006). Whereas there is consensus among researchers that boys are physically bullied more often than girls, there is some debate as to whether boys are verbally bullied more often than girls (Baldry, 2004; Jantzer et al., 2006; Nansel et al., 2001; Scheithauer et al., 2006). There are also mixed findings surrounding relational aggression. Some researchers suggest that girls are more likely to be the recipients of such behaviors (e. g., Nansel et al., 2001), whereas others suggest that there are no gender differences (e. g., Scheithauer et al., 2006).

One explanation for why boys may possibly be the victims of bullying more often than girls is that bullies tend to target victims of the same gender. Boys are likely to be victims when the bully is another boy or a mixed-gender group (Seals & Young, 2003). As boys are typically thought of as the most prominent aggressors, it would be reasonable to assume that boys may be at a higher risk for victimization.

Cyber bullying. There is some debate as to whether there are gender differences in cyber bullying. Some suggest that boys and girls cyber bully at similar rates (Beran & Li, 2005; Li, 2007; Ybarra & Mitchell, 2004b), whereas Li (2006) found that almost twice as many male students cyber bully than female students. Interestingly, Li's 2006 and 2007 studies used the same self-report survey of cyber bullying experiences, yet the results were quite different. The survey asked about cyber bullying generally, rather than exploring the various types of cyber bullying.

Ybarra and Mitchell (2004b) explored two specific forms of cyber bullying: ‘making rude or nasty comments to someone on the Internet’ and ‘using the Internet to harass or embarrass someone with whom the youth was mad’ (p. 232). Li (2006) looked at cyber bullying among grade 7-9 students, whereas her 2007 study only looked at grade 7 students. It is possible that when asking about cyber bullying generally, rather than specifying specific behaviors that constitute cyber bullying, there are gender differences in higher grades (i.e., 8 and 9) that are not observed when solely examining grade 7 students. It could be that male students self-identify more of their behaviors as cyber bullying than female students do, but that when behaviors are specified these gender differences no longer exist. This could reflect socialization trends that chastise girls for acts of aggression, thereby leading them to disassociate themselves from the term ‘cyber bullying’. The fact that female students may cyber bully at a similar rate as male students may reflect the fact that women and girls feel liberated in an online context, potentially leading to acts of aggression (Ybarra & Mitchell, 2004b).

There is also some debate as to whether there are gender differences among victims of cyber bullying. Li (2006) found that male and female students are equally likely to experience and witness cyber bullying, whereas her more recent study suggests that female students are at higher risk for victimization (Li, 2007). Ybarra (2004) found that male students are more than eight times more likely to experience cyber bullying if they reported depressive symptoms. In contrast, the rate of cyber bullying experiences among female students is dependent on Internet usage (Ybarra, 2004). The findings on gender differences in cyber bullying are inconsistent;

therefore, the present study will examine these differences to determine if boys bully more frequently online as they do offline.

Grade/Age Differences

The final aim of the study was to examine grade differences in students' experiences of cyber bullying. In particular, we wanted to know if there are differences among students in grades 6, 7, 10, and 11 in their reports of cyber bullying. We used grade as an indicator of developmental stage, as it reflects the influence of school groupings and peer groups on social behaviors (Pepler et al., 2006).

School bullying. Overall, school bullying behaviors appear to decline gradually with age (Baldry & Farrington, 2000; Fitzpatrick, Akilah, & Bettina, 2007; Hanish & Guerra, 2000; Ma, 2002; Scheithauer et al., 2006; Smith, Madsen, & Moody, 1999), after a peak between grades 6 – 8/9 (Nansel et al., 2001; Scheithauer et al., 2006). It has been suggested that younger children lack the physical, social, cognitive, and self-protective skills required to defend themselves or articulate their desires or concerns (Craig & Pepler, 2003; Hanish & Guerra, 2000). As such, they may resort to bullying as a defensive mechanism when they feel vulnerable to their peers. However, there are discrepancies in the literature. For example, Pepler and colleagues (2006) found that bullying occurred less often in grades 6 – 8 than in grades 9 – 12. Also, Boulton and colleagues (2002) found that grade 9 students engage in less bullying than grade 7, 8, or 10 students, suggesting that there may not always be a gradual decline in bullying as children age.

It is also important to consider grade differences in bullying in its varied forms. Overall, it appears that physical bullying declines with age, such that it tapers off in high school. This result is consistent between children's self-reports of bullying others and being bullied (Scheithauer et al., 2006). However, Beran and Tutty (2002) found that grades 4 – 6 students were more likely to engage in verbal bullying than younger students. According to Scheithauer and colleagues (2006), these behaviors, along with relational bullying, peak in grade 9. Therefore, while there appears to be a decline in physical bullying as children progress developmentally, verbal and relational bullying may actually increase over time (Garandeau & Cillessen, 2006).

Several explanations have been suggested for the decline in the overall prevalence rates as children age. First, it has been suggested that younger children have yet to reach an understanding that it is inappropriate to bully others (Smith, Madsen et al., 1999). Second, young children have yet to acquire the necessary social and assertive skills to deal effectively with peer conflict (Smith, Madsen et al., 1999). Many children do acquire social skills as they progress through to secondary school age; therefore, this hypothesis has been supported through research (Smith, Madsen et al., 1999). Third, young children define bullying differently than older children. Older children define bullying more broadly, as younger children tend to limit their definitions to physical bullying. This trend would predict opposite empirical findings than what the research has suggested (Smith, Madsen et al., 1999). However, younger children are very simplistic in their definitions and they generally only distinguish between aggressive and non-aggressive acts, such that an imbalance of power is not a necessary criterion (Monks & Smith, 2006; Smith, Madsen et al., 1999), thereby

identifying more behaviors as bullying than older children and adolescents. The hypothesis with the most support is that younger children are surrounded by older children, who are in a position to bully them (Smith, Madsen et al., 1999). Indeed, 69% of grades 1 – 3 students identified older children as their aggressors (Beran & Tutty, 2002). This explanation may explain almost all of the age-related change in bullying prevalence rates in elementary school. The other three hypotheses likely account more for the decline in secondary school (Smith, Madsen et al., 1999).

Cyber bullying. There is debate as to whether there are grade differences in cyber bullying. Beran and Li (2005) found that children in lower and higher grades report similar rates of cyber bullying. In contrast, Ybarra and Mitchell (2004b) found that the rates of cyber bullying increase with age. Thirteen to fourteen year olds and 15 – 17 year olds are more likely to cyber bully than 10 – 12 year olds. There was no mention of whether 13 – 14 year olds and 15 – 17 year olds differ from one another. Given the inconsistent results, age differences in cyber bullying also warrant further attention. Beran and Li's (2005) participants were in grades 7-9 (approximately 12-14 years of age), whereas Ybarra and Mitchell (2004b) included a wider age range (10 – 17 years). Therefore, it is possible that age differences are not apparent until at least 15 years of age (Smith, Madsen et al., 1999). Also, Beran and Li (2005) reported on students' experiences of being cyber bullied, whereas Ybarra and Mitchell (2004b) were concerned with students' experiences of cyber bullying others. Therefore, older students may be more likely than younger students to cyber bully others, whereas students of all ages experience victimization.

Research Questions

Cyber bullying is a reality among today's youth, which carries with it negative consequences (Patchin & Hinduja, 2006). At this point, we are unsure of whether various forms of cyber bullying are experienced and perpetrated differently among boys and girls and students from different grades. As such, the present study aimed to explore this phenomenon while answering several research questions:

1. What is the overall prevalence rate of cyber bullying among children and adolescents?
2. Do girls experience different forms of cyber bullying in comparison to boys?
3. Are there grade differences across the different forms of cyber bullying?

Method

Participants

Participants were recruited from Calgary public schools. All Calgary Board of Education schools with grades 6, 7, 10 or 11 (207 schools) were contacted and informed about the study; of those schools 19 (9%) consented to participate in the study. A total of 529 participants (20% of eligible students) were recruited from these schools. Students ranged in age from 10 to 17 years, with a mean age of 12.4 ($SD = 1.8$). The majority of students was born in Canada (74.5%) and came from primarily English-speaking homes (73.2%); however, several ethnic and linguistic backgrounds were represented. Parents were from over 50 countries and families spoke over 30 non-English primary languages (see Table 1).

Table 1

Demographic Characteristics of Sample (N = 529)

	Frequency
Gender	
Male	247
Female	280
Missing	2
Age	529
Grade	
6	234
7	203
10	10
11	80
Missing	2
Years in Canada	
Born in Canada	394
5+ years	64
2-4 years	29
1 year or less	22
Missing	20
Home language	
English	387
Other	142
Mother's birthplace	
Canada	313
Other	205
Missing	11
Father's birthplace	
Canada	260
Other	212
Missing	57

The vast majority of participants (97.6%) had at least one computer in their home and almost 30% reported having three or more computers at home. Most participants (93.6%) used the Internet daily, with more than 20% of participants reporting that they used the Internet three or more hours a day.

Instruments

As cyber bullying is a relatively new area of research, there is no published instrument to measure the construct. Therefore, a self-report questionnaire, *Checking In Online: What's Happening in Cyberspace?* (Mishna et al., 2009) was created as part of a larger study. The questionnaire consists of 140 questions, which are divided into eight sections. Not all children answered all questions as they were told to skip question sets that were not applicable. Section 1 of the questionnaire contains 11 items about participant and family demographics (e.g., 'How long have you lived in Canada' which was answered by choosing 'I was born in Canada', '1 year or less', '2-4 years', or '5 years or more'). Section 2 asks about technology use (e.g., 'How many hours do you use a computer in a day?' which is answered by choosing 'none', '1 hour or less', '2 hours', or '3 or more hours'); this section consists of 14 questions. Section 3 asks students about their experiences while using the Internet; this section consists of seven questions, each of which has seven follow-up questions. For example, participants were asked 'In the past 3 months when you have been online, how often has anyone ever called you names or made you feel bad?' Participants chose 'never', 'once or twice', 'more than once or twice (now and then)', 'about once a week', 'several times a week', or 'everyday'; if participants chose 'never', they skipped the follow-up questions and moved onto a question about another online

experience. Section 4 has eight questions about recent behaviors. For example, participants were asked if they had skipped school in the last month; they responded by selecting 'never', 'once or twice', 'a few times', 'many times', or 'every day'. Section 5 contains six questions, each with 3-4 follow-up questions, about what participants had done to other students online. For example, participants were asked 'In the past 3 months when you have been online, how often have you ever called someone names or made them feel bad?' Questions in this section were answered by selecting 'never', 'once or twice', 'more than once or twice (now and then)', 'about once a week', 'several times a week', or 'every day'; if participant selected 'never', they skipped the follow-up questions and moved onto a question about another online behavior. Section 6 contains two questions concerning whether participants had ever watched while other students were being bullied online. If they answered 'yes' to witnessing cyber bullying, they were asked what they did. Possible responses include: 'I joined in', 'I watched but I didn't participate', 'I objected to the person doing the bullying', 'I left the online environment', 'I tried to get the person to stop', 'I objected, but NOT to the person doing it', 'I tried to befriend the person being bullied', 'I reported the bullying to someone who can help', and 'other, specify:'. Section 7 contains 5 questions addressing parental knowledge of computer and cell phone use and Internet safety (e.g., 'Do your parents/guardians supervise your Internet use?' which was answered by selecting 'yes', 'no', or 'don't know'). Section 8 contains 15 questions about participants' views about cyber bullying. For example, 'What do you think about the bullying you see?' which was answered by choosing 'it is not serious', 'it is serious', or 'don't know'. The questionnaire consists of two

forms: grades 6 – 7 and grades 10 – 11. The only differences in the two forms are in the demographics section.

Content validity was established for the questionnaire as the items were created and edited by experts in the field. Using the grade 6-7 and 10-11 data, the internal reliability for items addressing experiences of different forms of cyber bullying (7 items) was analyzed, Cronbach's Alpha = .14. This could indicate that individual participants' experiences of cyber bullying vary considerably and that experiencing one form of cyber bullying has little bearing on whether someone experiences another form. Internal reliability for items addressing perpetration of cyber bullying (6 items) was moderate, Cronbach's Alpha = .55, suggesting that people who perpetrate particular forms of cyber bullying may also perpetrate other forms, but that there is not a strong relationship between perpetrating one particular behavior along with any other. Considering that these relationships are low to moderate, these results may indicate that cyber bullying behaviors should not be considered homogeneous.

Consent form packages were also created. These contained a cover letter briefly detailing the study, two copies of informed consent forms for children's participation, two copies of informed consent forms for parents' participation, and a parent version of the above questionnaire. Results of this questionnaire are not included in this thesis.

Procedure

Researchers explained the purpose of the research to principals and if they consented, teachers of the relevant grades were contacted and consent form packages

were delivered to the classes. Students were asked to take the consent form packages home to their parents or guardians and to return them to their teachers. After 1-2 weeks, researchers visited the schools to administer the questionnaires to the students who had parental consent and assented to participate.

Students were pulled out of class and administered the questionnaires by research assistants in groups in school classrooms or libraries. The study was explained to them and they were offered the opportunity to ask any questions before, during, and after administration. Whenever space allowed, participants sat apart from one another in an effort to keep responses private. The administration took approximately 30-60 minutes, depending on participants' level of on-task behavior, English proficiency, and literacy skills.

To analyze the data, Mann-Whitney U tests and Kruskal-Wallis analyses were conducted. Mann-Whitney U tests were selected to examine gender differences as this analysis is appropriate for examining group differences in two independent samples. Kruskal-Wallis analyses were selected to examine grade differences as this analysis examines group differences when there are two or more independent samples. When a Kruskal-Wallis was significant, Q-tests were conducted for pairwise comparisons between grades. A Bonferroni correction was conducted so as to control for inflated Type I error. Effect size was determined by calculating Vargha and Delaney's (2000) A , which was in turn used to calculate δ .

Results

Prevalence

In total, 21.9% of children endorsed at least one form of cyber bullying behavior that was perpetrated against them within the past three months. The most frequently experienced forms of cyber bullying included being called names or made to feel bad (30.3%), having rumors spread about them (22.8%), and having someone pretend to be them online (16.1%). The least frequent forms of cyber bullying experienced included having someone send private pictures of them to others (3.3%) and being asked to do something sexual (0%).

Similar to participants' experiences of being cyber bullied, more than a quarter of the participants (29.7%) reported being the perpetrators of cyber bullying within the past three months. The most frequently perpetrated forms of cyber bullying included calling someone names or making them feel bad (20.1%), pretending to be someone else online (13.2%), and spreading rumors about someone else online (9.9%). The least frequently perpetrated forms of cyber bullying include sending unwanted sexual messages or pictures to others (1.6%) and sending private pictures of someone else to others (1.0%).

Gender Differences

The data violated the assumptions of homogeneity of variance and normally distributed variables necessary to compute a MANOVA (see Table 2). To determine if data were skewed and/or peaked, two times the value of the respective standard error was compared to the skewness and kurtosis statistics. If the skewness and kurtosis values are greater than two times the standard error, the data are

Table 2

Properties of Victimization and Bullying Variables

Variable	Levene's F	p	Skewness Standard Error	Skewness	Kurtosis	Kurtosis Standard Error
Victimization						
Called names	10.73	<.001	2.61*	.107	8.08**	.213
Threatened	10.73	<.001	4.56*	.106	25.44**	.212
Rumors were spread	10.80	<.001	3.13*	.107	10.87**	.213
Private pictures sent to others	2.14	.04	8.64*	.107	82.65**	.213
Imitated	12.57	<.001	3.78*	.106	16.87**	.212
Sent sexual content	9.74	<.001	5.30*	.107	34.81**	.213
Sexually solicited	16.76	<.001	6.41*	.107	46.18**	.214
Bullying						
Called others names	10.77	<.001	3.68*	.106	17.59**	.212
Threatened others	6.39	<.001	10.92*	.107	161.03**	.214
Spread rumors	8.35	<.001	5.02*	.107	34.21**	.213
Sent private pictures	1.66	.12	15.09*	.107	261.72**	.213
Imitated someone	9.04	<.001	4.36*	.107	30.87**	.213
Sent sexual content	39.41	<.001	12.00*	.106	155.15**	.213

* skewed variables ** peaked variables

skewed/peaked (Tabachnick & Fidell, 1996). Due to the violated assumptions of normality and homogeneity of variance, nonparametric tests (Mann-Whitney U and Kruskal-Wallis) were used. These statistics are univariate; therefore, each dependent variable was examined separately. Bonferroni corrections were used to reduce the likelihood of committing a Type I error. Accordingly, for an effect to be deemed significant, the probability level was set to .002. This value applies to Mann-Whitney U tests and Kruskal-Wallis analyses. Nonparametric effect sizes were calculated using Vargha and Delaney's (2000) A and δ (Leech & Onwuegbuzie, 2002). Accordingly, a δ of .11 is a small effect size; a δ of .28 is a medium effect size; and a δ of .43 is a large effect size.

Mann-Whitney U tests were calculated to examine gender differences in participants' experiences and perpetration of cyber bullying. As shown in Table 3, girls were significantly more likely to have been called names or made to feel bad than boys. Girls were also more likely than boys to have rumors spread about them. More girls than boys have had someone pretend to be them online. Finally, girls were significantly more likely than boys to have been solicited to engage in sexual activities. Effect sizes indicate that the magnitude of these differences is small. Boys did not report experiencing any form of cyber bullying more often than girls. There were no significant differences between boys and girls in their perpetration of cyber bullying.

Table 3

Gender Differences in Experiences of Cyber Bullying (N = 526)

	Mean	Standard Deviation	Mann-Whitney U	p	δ
Called names			27548.00*	<.001	.18
Boys	.33	.83			
Girls	.61	.96			
Threatened			32112.50	.03	.06
Boys	.19	.74			
Girls	.21	.52			
Rumors spread			28080.50*	<.001	.16
Boys	.22	.69			
Girls	.52	1.00			
Private pictures sent			33695.50	.65	.00
Boys	.07	.49			
Girls	.04	.21			
Imitated online			30533.00*	<.001	.10
Boys	.15	.54			
Girls	.30	.70			
Sent sexual content			31318.50	.01	.08
Boys	.12	.50			
Girls	.21	.65			
Sexually solicited			30127.00*	<.001	.08
Boys	.05	.39			
Girls	.20	.72			

* significant at the .002 level

Grade Differences

Grade differences in cyber bullying were examined by conducting Kruskal-Wallis analyses across grades 6, 7, and 11. Grade 10 students were removed from these analyses as there were only 10 in this grade. When a Kruskal-Wallis analysis was significant, Q-tests were calculated to determine which means were significantly different. Students from different grades differentially experienced name-calling and other insulting remarks, $\chi^2(2) = 20.46, p < .001$. Students from different grades also differed in their perpetration of name-calling, $\chi^2(2) = 19.81, p < .001$. There were grade differences in how often participants had been threatened, $\chi^2(2) = 15.20, p = .001$. Also, the frequency with which students from different grades had rumors spread about them significantly differed, $\chi^2(2) = 13.61, p = .001$, as did the frequency with which they spread rumors about others, $\chi^2(2) = 12.01, p = .002$. Finally, there were significant grade differences in participants' reports of pretending to be someone else online, $\chi^2(2) = 16.67, p < .001$. There were no significant grade differences in terms of how frequently participants had private pictures of themselves sent to others, $\chi^2(2) = 3.27, p = .20$; were imitated online, $\chi^2(2) = 8.72, p = .01$; received sexual content, $\chi^2(2) = 4.12, p = 0.13$; or were sexually solicited, $\chi^2(2) = 4.78, p = .09$. Further, they did not differ in terms of how often they threatened someone, $\chi^2(2) = 9.45, p = .01$; sent private pictures of someone else, $\chi^2(2) = .09, p = .96$; or sent sexual content to someone, $\chi^2(2) = .99, p = .61$.

Generally, grade 7 students were more likely than students from grades 6 and 11 to experience and perpetrate various forms of bullying. With the exception of

Table 4

Grade Differences in Cyber Bullying (N = 517)

	p	Q	Means for Each Grade
Victimization			
Called names*			
Grade 6 – Grade 7	.01	49.32	.33-.76
Grade 6 – Grade 11	.01	9.10	.33-.22
Grade 7 – Grade 11	.01	64.46	.76-.22
Threatened*			
Grade 6 – Grade 7	.01	45.48	.12-.33
Grade 6 – Grade 11	.01	10.70	.12-.14
Grade 7 – Grade 11	.01	56.18	.33-.14
Rumors spread*			
Grade 6 – Grade 7	.01	43.86	.24-.59
Grade 6 – Grade 11	.01	14.48	.24-.31
Grade 7 – Grade 11	.01	29.83	.59-.31
Bullying			
Called others names*			
Grade 6 – Grade 7	.01	61.50	.14-.38
Grade 6 – Grade 11	.01	56.46	.14-.45
Grade 7 – Grade 11	.05	5.04	.38-.45
Spread rumors*			
Grade 6 – Grade 7	.01	54.26	.08-.20
Grade 6 – Grade 11	.01	12.18	.08-.05
Grade 7 – Grade 11	.01	66.44	.20-.05
Imitated others*			
Grade 6 – Grade 7	.01	72.37	.10-.27
Grade 6 – Grade 11	.05	4.58	.10-.09
Grade 7 – Grade 11	.01	76.95	.27-.09

* χ^2 significant at the .002 level

Table 5

Magnitude of Grade Differences (N = 516)

	δ
Victimization	
Called names	
Grade 6 – Grades 7 & 11	-0.12
Grade 7 – Grades 6 & 11	0.18
Grade 11 – Grades 6 & 7	-0.14
Threatened	
Grade 6 – Grades 7 & 11	-0.04
Grade 7 – Grades 6 & 11	0.12
Grades 11 – Grades 6 & 7	0.00
Rumors spread	
Grade 6 – Grades 7 & 11	-0.12
Grade 7 – Grades 6 & 11	0.14
Grades 11 – Grades 6 & 7	0.00
Bullying	
Called others names	
Grade 6 – Grades 7 & 11	-0.16
Grade 7 – Grades 6 & 11	0.12
Grades 11 – Grades 6 & 7	0.08
Spread rumors	
Grade 6 – Grades 7 & 11	-0.06
Grade 7 – Grades 6 & 11	0.10
Grades 11 – Grades 6 & 7	0.00
Imitated others	
Grade 6 – Grades 7 & 11	-0.08
Grade 7 – Grades 6 & 11	0.02
Grades 11 – Grades 6 & 7	0.00

calling others names (which was highest in grade 11), grade 7 students reported the greatest frequency of cyber bullying. They have also been threatened and had rumors spread about them the most often. Grade 6 students are more likely than grade 11 students to be called names, to spread rumors about others, and to pretend to be others online (see Table 4). By calculating δ , it was determined that the magnitude of the above differences is small (see Table 5). The values indicate that grade 7 students experience and perpetrate more cyber bullying than grades 6 and 11 students when they are combined; and grade 6 students experience and perpetrate less cyber bullying than grades 7 and 11 students when they are combined. Grade 11 students are called names less often than grades 6 and 7 students when they are combined; call others names more often than grades 6 and 7 students; and do not differ from grades 6 and 7 students in terms of being threatened, having rumors spread about them, spreading rumors about others, and pretending to be others online.

Discussion

The purpose of this study was to examine current prevalence rates of cyber bullying among youth, along with gender and grade differences in youth's experiences of this phenomenon. Results show cyber bullying is occurring among approximately one quarter of students with girls at greater risk for victimization, boys and girls target others at similar rates, and it peaks in grade 7.

Prevalence

Results indicate that almost a quarter of the students report being targeted and more than a quarter of the students state that they cyber bully others. The present findings are commensurate with previous findings on the prevalence of being the

target of cyber bullying; however, a greater percentage of participants admitted to cyber bullying others than what has been previously reported in research. Previous reports indicated that 11-17% of students had cyber bullied someone (Li, 2007; 2006; Patchin & Hinduja, 2006; Ybarra & Mitchell, 2004b), whereas the current findings indicate a higher rate. One possible interpretation for the increase in reported perpetrators of cyber bullying could be due to methodological reasons. For example, Patchin and Hinduja's (2006) questionnaire was linked to the website of a popular female music artist. As such, they may have targeted a selective population rather than representing the majority of youth. Li (2007; 2006) asked students if they had ever been cyber bullied, but specific forms of cyber bullying were not specified. It is possible that these participants did not have a clear understanding of what behaviors constitute cyber bullying. Ybarra and Mitchell (2004b) asked their participants about two very specific cyber bullying behaviors: making rude or nasty comments and using the Internet to harass or embarrass someone with whom the youth was angry. By narrowing the focus, they may have missed many youths' experiences of cyber bullying. Alternatively, it could be that students are now more aware of cyber bullying and what constitutes cyber bullying, and are therefore, better able to accurately report their involvement in cyber bullying others. It could also be that more children are in fact perpetrating cyber bullying behaviors than before and that this phenomenon is on the rise. Finally, it is possible that as new technology emerges and children gain increased access to it, more engage in cyber bullying. Previous studies indicate that more youth report being the targets of cyber bullying than they report perpetrating cyber bullying (Beran & Li, 2005; Li, 2007; 2006; Patchin &

Hinduja, 2006; Ybarra & Mitchell, 2004b), suggesting that cyber bullies typically target more than one person. In the present study, youth were more likely to report being the perpetrators rather than the targets of cyber bullying. As such, the nature of cyber bullying may be shifting such that youth are ganging up on individuals, turning cyber bullying into a social activity. This may represent a change in social norms such that cyber bullying is a socially accepted behavior among a substantial proportion of students.

Given the proliferation of technology in our society, students are frequently in at-risk situations for cyber bullying. The vast majority (90%) of students in nursery school through grade 12 have access to a computer and more than half of those students use the Internet (NCES, 2005). A significant proportion (37%) of school-age children have their own computer with Internet access. In addition, half of students ages 12-17 own cellular phones (Fattah, 2003). As such, the majority of children have access to the technology to perpetrate and be targeted by cyber bullying. With the present findings that about one quarter of students are the targets of cyber bullying and almost one third of students cyber bully others, it appears that many students are utilizing technology for malicious and harmful purposes.

Not only do students have access to various modes of technology, they know how to use them. Youth spend an average of 18 hours online per week (Hinduja & Patchin, 2008). They engage in numerous online activities, including using instant messengers, chat rooms, and email (Ybarra & Mitchell, 2004a). Chatrooms and instant messengers appear to be the preferred method of cyber bullying, whereas email is less frequently used (Ybarra & Mitchell, 2004a). Cyber bullying

victimization and perpetration are both positively related to computer proficiency and the amount of time spent online (Hinduja & Patchin, 2008; Smith et al., 2008; Ybarra & Mitchell, 2004a). Knowing how to maneuver the cyber world likely facilitates cyber bullying by increasing a perpetrator's power over a target and more time spent online allows an individual greater opportunity to perpetrate or experience acts of cyber bullying.

Many online activities allow for the use of a pseudonym, which provides a pseudo sense of anonymity (Chen, Chen, Lo, & Yang, 2008). In reality, the use of pseudonyms and deception is necessary to protect individuals' privacy online. Off-line, people generally have the option to opt out of listing personal information in various directories, whereas anonymity cannot be guaranteed online without disguising user identity or concealing personal information (Woo, 2006). As such, user solutions to conceal or falsify their personal information are viewed as logical and practical (Woo, 2006). However, anonymity tends to enable antisocial behaviors, such as rule-breaking behaviors (Nogami & Takai, 2008). Anonymity has also been shown to increase aggressive behavior (Zimbardo, 1969) and lead individuals to encourage suicidal people to follow through with their plans (Mann, 1981). Alternatively, anonymity allows for positive self-exploration (Maczewski, 2002). While this is positive for the individuals seeking self-exploration, it may make them vulnerable to attack or coercion. De-individuation theory, indicates that anonymity results in a "decrease in self-observation, self-evaluation, and concern for social comparison and evaluation" (Christopherson, 2007, p. 3044). This theory was revised to create the Social Identity model of De-Individuation Effects (SIDE; Spears & Lea,

1992) for use with computer-mediated communications. The cognitive component of the SIDE theory suggests that an individual will conform to social norms and group goals when there is group anonymity (Spears & Lea, 1992). As such, antisocial behaviors can be encouraged if these behaviors are the group norm (Christopherson, 2007). This component of the theory supports the idea that cyber bullying is “cool” or socially accepted by some students’ peer groups. Given that a sizeable minority of participants in the present study engaged in cyber bullying, it appears that cyber bullying is accepted by at least a subset of youth. Anonymity may also be employed strategically by marginalized individuals in an attempt to resist or overpower majority groups (Spears, Corneliussen, Postmes, & Haar, 2002). It could be that those who admitted to cyber bullying others were victimized by school bullying and sought revenge online. Finally, adaptive structuration theory (AST) suggests that technology is created with an intended purpose, but that as more technology becomes available, the uses for that technology evolve, sometimes beyond the intended purpose (DeSanctis & Poole, 1994). It can safely be assumed that the creators of the Internet, MSN messenger, MySpace, Facebook, Nexopia, text messaging functions on cell phones, and camera phones did not intend to facilitate cyber bullying, and as such it appears that AST supports the idea that youth are evolving new uses for these technologies. Certainly, a substantial portion of the youth in the current study is using various technological methods as avenues for cyber bullying.

Gender Differences

In regards to the research question on gender differences, girls were more likely to be the targets of name-calling, rumor-mongering, impersonation, and sexual

solicitation than were boys. These results replicate Li's (2007) findings that girls are at greater risk for being the target of cyber bullying and contrast research on school bullying that has found boys to be the targets of bullying more often than girls (e. g., Baldry, 2004; Beran & Tutty, 2002; Ma, 2002). Bullies tend to target same-sex peers (Seals & Young, 2003), so it is possible that girls would be primarily cyber bullied by other girls. In many published studies, adolescent girls are found to participate in more indirect forms of bullying, such as spreading rumors and socially excluding peers, than direct forms, such as hitting, kicking, and threatening (Bowie, 2007; Crick & Grotpeter, 1995; Letendre, 2007). The majority of cyber bullying is also said to involve indirect forms of harassment and, as such, it would follow that girls would engage in cyber bullying as frequently as they engage in relational aggression (Hinduja & Patchin, 2008). It could be that the verbal and relational nature of cyber bullying fits more closely with female socialization practices. Whereas boys are socialized toward autonomy and goal-directed behavior, girls are socialized to foster empathic connectedness so as to promote a positive sense of self and focus on relationships (Letendre, 2007). Interdependence is emphasized in girls' social development, such that their sense of self is deeply intertwined with their connections to others (Bowie, 2007; Letendre, 2007). This emphasis on relationships mediates aggressive behavior (Letendre, 2007). Conflict or disagreement threatens girls' sense of self as they fear losing valuable relationships, which are intrinsic to their self-concept. As such, social norms restrict girls from expressing their aggressive feelings directly, and, instead, they must manage their anger, hurt, and disappointments using covert methods. When wishing to inflict harm on another, they rely on inflicting

psychological pain in the target's relationships with others, as this is a crucial area to a girl's psyche (Letendre, 2007). Relational aggression is most relevant to girls because it allows them to be socially manipulative while still adhering to gender roles (Scheithauer et al., 2006) and avoiding peer rejection (Letendre, 2007). However, it must be remembered that the size of the above gender difference is small, suggesting that boys and girls are more alike than different in terms of their cyber bullying experiences. In fact, effect sizes varied little between variables that were found to be significant at the more stringent probability criteria of .002 and those that were not significant at this level, indicating that boys and girls report similar types and frequency of cyber bullying.

There were no significant differences in how boys and girls perpetrate cyber bullying, which is consistent with previous research (e. g., Beran & Li, 2005; Li, 2006). As Crick and Grotpeter (1995) reported, when relational aggression is considered along with more overt forms of aggression, there are no gender differences. It stands to reason that cyber bullying is a level "playing field" in that it involves relational bullying and more direct forms of bullying, such as name-calling and threatening, as relational bullying is typically favored by girls (Crick & Grotpeter, 1995) and direct forms of bullying are typically favored by boys (Beran & Tutty, 2002).

Grade Differences

Grade 7 students experienced and perpetrated significantly more cyber bullying behaviors than students in other grades. Specifically, they were called names, threatened, and had rumors spread about them more often than grade 6 and 11

students. They also called others names, spread rumors about others, and pretended to be others online more often than grade 6 and 11 students. This finding supports research on school bullying indicating that bullying behaviors peak between grades 6 and 8/9 (Nansel et al., 2001; Scheithauer et al., 2006). Given these results, it can be interpreted that grade 7 students experience more cyber bullying than high school students and developmental trends lead to a decline in cyber bullying in high school. Whether grade 7 students are enrolled in a junior high or middle school, they are one of the youngest groups in the school. They may rely on cyber bullying as a form of relational aggression to assert power, establish new relationships, and gain and maintain social dominance (Pepler et al., 2006; Scheithauer et al., 2006). That being said, effect sizes were small, indicating that these differences, although significant, hold little practical importance. Rather, a student from grade 7 is more likely to report experiences and behaviors similar to a grade 6 or 11 student than to report meaningfully higher occurrences of cyber bullying. Further, when looking at the Q values and their corresponding probability level, we see that there is little difference across variables; however, considering guidelines for determining acceptable probability levels and by using a Bonferroni correction to determine a more stringent criterion for judging significance, only variables significant at the .002 level were considered. The similar Q value significance levels, though, further supports the fact that there is little difference in the frequency and type of cyber bullying experienced or perpetrated across the grades.

Clinical Significance

Had effect sizes not been calculated, the significant findings would have been overestimated and conclusions would have been drawn upon group differences that hold little to moderate meaning. Hyde (2005) also argued for the importance of effect size calculations in explaining the gender similarities hypothesis. She argued that gender differences were being overestimated and men and women, and boys and girls, were being portrayed as vastly psychologically different, whereas in reality they are more similar than different. She presented evidence that most psychological gender differences are in the close-to-zero or small range, whereas very few are large or very large. Indeed, from meta-analyses Hyde (2005) found that 78% of effect sizes in gender difference studies are minimal.

Although Hyde's (2005) similarities hypothesis is specific to gender differences, it points out the need to examine effect sizes to determine the magnitude of group differences. In the current study, the vast majority of grade differences were close-to-zero to small. Had effect sizes not been calculated, these differences would have likely been over-interpreted, leading to implications that may be wasteful or misleading.

Implications

Previous research has established a link between poor psychosocial outcomes and bullying (e.g., Nansel et al., 2001; Ybarra, Diener-West, & Leaf, 2007) and cyber bullying is also related to negative psychological, emotional, and behavioral outcomes (Diamanduros, Downs, & Jenkins, 2008; Hinduja & Patchin, 2007; Smith,

Mahdavi, Carvalho, Fisher, Russell, & Tippet, 2008). Cyber bullying leaves youth feeling angry, frustrated, sad, scared, and embarrassed (Hinduja & Patchin, 2009), which may result in deviant coping behaviors, such as violent behavior, drinking alcohol, smoking, cheating on a test, and low school commitment (Hinduja & Patchin, 2007; Ybarra & Mitchell, 2004a). As cyber bullying adversely impacts both targets and perpetrators (Ybarra & Mitchell, 2004a), the present results indicate that a significant minority of students (approximately 22% who are the targets of cyber bullying and approximately 30% who perpetrate cyber bullying) may experience negative psychosocial consequences as a result of cyber bullying. Therefore, intervention efforts are necessary to avoid or treat the consequences of cyber bullying.

Although we typically believe that significant and meaningful differences are necessary for a study's findings to lead to practical application, the present findings do hold implications for future interventions. The fact that significant differences were small suggests that cyber bullying interventions do not necessarily need to be tailored to different groups. However, this recommendation is specific to cyber bullying rather than bullying in general, as there have been several intervention programs that found differential effects for boys and girls. For example, Menesini, Codecasa, Benelli, and Cowie (2003) found a significant effect for gender by treatment condition, such that the treatment had a significantly better impact on girls than boys. Following treatment, girls were more well-liked, less victimized, and less aggressive with peers than were girls in the control condition. Boys were less aggressive following treatment, but their level of victimization and likeability did not

change. Additionally, programs may focus on bullying forms or issues that are more salient to either boys or girls. For example, taunting and rumor spreading involving homosexuality tends to be viewed as a threat to boys' masculinity. Bullying of this nature appears to lead to more negative consequences than other forms of bullying, thereby warranting specific attention to this form of bullying with boys (Swearer, Turner, & Givens, 2008). Also, as relationships are fundamental to girls' social development (Letendre, 2007), an intervention such as the Girls Circle (Hossfeld, 2008), which aims to empower girls and foster close friendships, may serve as a preventative measure against bullying among girls. However, cyber bullying appears to affect boys and girls, and younger and older students, similarly; therefore, resources can be concentrated on creating interventions that can be targeted to all students. As such, time, money, and effort need not be divided between the development of multiple interventions and every effort can be made to create a universal intervention with maximum impact. It is critical to put such findings into action, as the cycle of victimization will intensify without intervention. Prolonged victimization is associated with the direst consequences, such as suicide; therefore, it is important to intervene as early as possible (Goldbaum, Craig, Pepler, & Connolly, 2003).

Strengths

The current study expanded on previous research by Beran and Li (2005), by including a wider age range and older participants and asking questions about specific cyber bullying behaviors (e. g., sending private pictures, imitating others, and being threatened). As such, this study was able to examine gender differences across

different types of cyber bullying, finding that whereas boys and girls perpetrate cyber bullying behaviors at similar rates, girls are more likely to be the targets of cyber bullying. This further supports the idea that cyber bullying, and bullying more generally, is not a uniform phenomenon, but rather a complex, multifaceted phenomenon incorporating several different behaviors, some of which are experienced differently by boys and girls. Additionally, by expanding the grade range studied (grades 6-11), the present study was able to explore differences between students in a wide grade range.

Limitations

The foremost limitation of the current study was the response rate. Nine percent of contacted schools agreed to participate and 20% of eligible students at those schools participated. As the response rate was low at most schools that participated, the results may not be generalizable to the Calgary population. Perhaps principals agreed to participate because cyber bullying was a problem at their school, or they wanted to implement strategies and gain more information from researchers about the problem. Additionally, there may be a self-selection bias among the participants. These participants may be the type to volunteer (or be volunteered by their parents) for various activities on a regular basis. They may also experience more or less cyber bullying than the general student population. In addition, the results of grade 10 students may not be representative as only 10 students from this grade participated.

As a self-report questionnaire was the measure used in this study, participants were expected to read the questionnaires and basic literacy skills were assumed.

Given that 28% of participants' home language was not English, their ability to read and understand the questionnaire – and their parents' ability to understand and complete the consent forms – may have been limited. Indeed, many students asked questions clarifying the meaning of the items; however, researchers were able to address all of these questions to ensure understanding.

Additionally, the low to moderate internal reliability between test items suggests that the items may be inconsistent. As such, they may not consistently measure the construct of cyber bullying.

Future Directions

Based on our results, future research should focus on whether there is a differential impact of cyber bullying among boys and girls and students of different grades. We now know that there are small gender differences in the rate of cyber bullying experienced, but we do not know what impact this has on these students or whether increased experiences of cyber bullying translates to increased impact. It is possible that the forms of cyber bullying girls experience more frequently than boys lead to different consequences, or differences in the severity of the consequences, than do the forms that are experienced equally by both. Also, although the majority of significant grade differences were low in effect size, it is possible that cyber bullying impacts students differently in different grades. For example, perpetrating bullying may enhance someone's perceived status in one grade while decreasing their status in another or being shunned in grade 6 may be more difficult to cope with than it would be in grade 11, when an individual has developed more self-reliance and social skills.

Future research should also concentrate on expanding the present findings and increasing generalizability. A national study targeting children and adolescents of various ages would be ideal for determining the scope of cyber bullying across Canada. Some research has found differences in bullying experiences among urban, suburban, and rural youth (Ma, 2002; Nansel et al., 2001; Theriot, Dulmus, Sowers, & Johnson, 2005). As such, experiences of cyber bullying among children and adolescents in Calgary (population: 1,042,892) may be very different than the experiences of children and adolescents in Nahanni Butte, Northwest Territories (population: 129). By studying such a large and diverse population, difference across age, gender, ethnicity, and urban versus rural populations could be explored. Such findings would contribute to developing and implementing nation-wide cyber bullying prevention and interventions programs.

Conclusions

The age of technology appears to be upon us and with it comes uncharted territory and ever-evolving uses. Approximately one in four students has been the target of cyber bullying within the past three months alone and almost one in three students has cyber bullied someone within the past three months. This indicates that cyber bullying is a prominent behavior among today's youth. The current findings indicate that both boys and girls throughout secondary school are similarly involved in cyber bullying. As such, cyber bullying is a relevant concern for secondary school students and perhaps all students. Given the relationship between cyber bullying and negative psychosocial outcomes, cyber bullying poses a serious threat to students' well being.

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