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Traditional and Cyber Bullying and Victimization Among Youth With Autism Spectrum Disorder: An Investigation of the Frequency, Characteristics, and Psychosocial Correlates

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Abstract

High rates of Internet use among youth with autism spectrum disorder (ASD) increases the likelihood for engagement in cyber bullying and experiences of cyber victimization, which subsequently increases risk for behavioural and mental health problems. The current study aimed to examine the frequencies, characteristics, and psychosocial correlates of traditional and cyber bullying and victimization among youth with ASD. Youth with ASD (n = 23, aged 10–17 years) completed an online questionnaire about their experiences of traditional and cyber bullying and victimization, technology use, social support, symptoms of anxiety and depression, and life satisfaction. Parents answered questions related to their children's general demographic characteristics (e.g., age, gender, cultural background) and autistic traits. Rates of traditional (60.9%) and cyber (73.9%) victimization exceeded rates for traditional (26.1%) and cyber (17.4%) bullying. Multiple regression analyses indicated that engagement in cyber bullying and experiences of cyber victimization were associated with increased symptoms of anxiety but not depression. Findings show the pervasiveness of bullying and victimization even amongst a small sample of youth with ASD, and demonstrate the importance of developing intervention strategies to help youth use effective coping strategies and to reduce the rates of traditional and cyber bullying and victimization in this population.

Bullying is a pervasive global problem that has a negative impact on youth development. Several meta-analyses suggest that traditional forms of peer-based bullying and victimization (i.e., physical, verbal, or relational) are bi-directionally associated with behavioural and mental health problems in adolescence (Casper & Card, 2017; Reijntjes, Kamphuis, Prinzie, & Telch, 2010; Reijntjes et al., 2011). Increased advancements and accessibility to technology have changed the landscape of social interactions and have coincided with the emergence of a new form of bullying called cyber bullying, or peer-based bullying through the use of technology. Cyber bullying is also associated with behavioural and mental health problems in typically developing youth (Holfeld & Mishna, 2019; Kowalski, Giumetti, Schroeder, & Lattanner, 2014). Despite similarities with traditional forms of bullying with regard to intent, repetition, and a power imbalance between the victim and perpetrator (Kowalski et al., 2014), cyber bullying appears to be a unique and distinct form of bullying (Dempsey, Sulkowski, Nichols, & Storch, 2009; Law, Shapka, Domene, & Gagne, 2012;

Wang, Iannotti, & Nansel, 2009). Although cyber bullying is reported less frequently than traditional forms of bullying (see Modecki, Minchin, Harbaugh, Guerra, & Runions, 2014), it may be more distressing because it can be perpetrated anonymously, involve an unlimited audience, and can leave youth susceptible to abuse day or night, at home or at school (Holfeld & Mishna, 2018).

Youth with developmental disabilities (DD) in general are at a heightened risk for peer-based bullying or victimization compared to typically developing youth (see Schroeder, Cappadocia, Bebko, Pepler, & Weiss, 2014) and high rates of Internet use in this group makes it highly probable that they will experience cyber victimization (e.g., been bullied through technology) and/or engage in cyber bullying behaviours (e.g., bullied others through technology) (Kuo, Orsmond, Coster, & Cohn, 2014). Youth with autism spectrum disorder (ASD) are particularly vulnerable because the characteristics of the disability itself include difficulties with social communication and interaction, and rigid, repetitive, and often unusual behaviours, making them particularly vulnerable and visible targets for bullying. Social communication issues such as lack of social insight and poor theory of mind (i.e., difficulty understanding others' perspectives) (Carter, 2009; Kowalski & Fedina, 2011; Twyman et al., 2010), and difficulties understanding non-literal speech (e.g., sarcasm, figures of speech) and social nuances of speech all increase the probability that youth with ASD may misunderstand communications or respond in socially inappropriate ways. Further, youth with ASD have a high risk for developing behavioural and mental health problems (Kowalski et al., 2014), and consequently, it is critical to understand and prevent further risk in this vulnerable group. In the current study, we report the frequencies, characteristics, and psychosocial correlates of traditional and cyber bullying and victimization among youth with ASD to facilitate a clearer picture of the problem.

Rates of traditional victimization (from being bullied) range from 44 to 75% across studies involving youth with ASD (Carter, 2009; Rose, Espelage, Aragon, & Elliot, 2011; Schroeder et al., 2014; Twyman et al., 2010; van Roekel, Scholte, & Didden, 2010). The rates for traditional victimization are generally high in disability groups (Kumpulainen, Rasanen, & Puura, 2001), and may be up to four times higher among youth with less severe autism (e.g., Asperger's Syndrome) than among typically developing youth (Little, 2001). Youth with ASD are particularly vulnerable to bullying because their typically developing peers often see them as odd and unusual (Cappadocia, Weiss, & Pepler, 2012; Kowalski & Fedina, 2011). They have difficulties interacting with others because they struggle to process and interpret emotional information and other social cues in the typical ways (Montgomery, Stoesz, & McCrimmon, 2012; Rigby, Stoesz, & Jakobson, 2015; 2018). This makes establishing friendships challenging, and may isolate youth with ASD from their peer group, thus leaving them highly vulnerable to additional social challenges. Furthermore, youth with ASD are more prone to aggressive behaviours, which may increase their risk for engaging in bullying behaviours (Gotham, Unruh, & Lord, 2015; McClintock, Hall, & Oliver, 2003). Both victimization and aggression towards others may be exacerbated by a lack of insight (see Frith, 1994) in social situations and impaired ability to accurately and efficiently process social and emotional information (Montgomery et al., 2012). For example, they may mimic the bullying behaviours that they see others demonstrating without understanding the social nuances and implications (Frith & Hill, 2004). Thus, youth with ASD may not be aware of or understand the consequences of their own behaviour.

Despite the growing concern surrounding traditional bullying and victimization among youth with ASD, less is known about this specific group's engagement in cyber bullying or experiences of cyber victimization. For example, rates of engagement in cyber bullying and experiences of cyber victimization were 6% and 21% respectively for a sample of 42 youth (aged 10-20 years) diagnosed with ADHD and/or Asperger's Syndrome; 38% reported engagement in traditional bullying and 57% experienced traditional victimization (Kowalski & Fedina, 2011). For youth with DD (n = 114, aged 12–19 years), 16% engaged in cyber bullying and 22% reported cyber victimization via the Internet at least once in the past month (Didden et al., 2009). However, research that has focused specifically on youth with ASD and their experiences with cyber bullying and victimization is limited.

Similar to typically developing peers, youth with ASD report increased mental health symptomatology when they are involved in traditional bullying (see Schroeder et al., 2014). For example, traditional victimization is positively associated with internalizing symptoms (e.g., anxiety and depression) whereas traditional bullying is negatively associated with emotional regulation challenges (Cappadocia et al., 2012; Rieffe, Camodeca, Pouw, Lange, & Stockman, 2012; Zablotsky, Bradshaw, Anderson, & Law, 2013). A similar trend was shown for youth with ADHD and/or Asperger's syndrome who were involved in cyber bullying (i.e., engaged in cyber bullying behaviours or had experiences of cyber victimization) and reported greater symptoms of anxiety and depression than for those reporting no involvement (Kowalski & Fedina, 2011). Likewise, in a longitudinal study of 113 youth aged 13 to 15 years with DD, Wright (2017) found that cyber victimization was associated with more symptoms of depression, however, this association was weakened when youth reported more support from parents or teachers (but not peers). Given the risk to youth with ASD, the specific aims of the current study were to: (1) determine the frequencies of both traditional and cyber bullying and victimization in a sample of youth with ASD; (2) extend past research to describe youths' unique experiences with traditional and cyber victimization; and (3) examine the psychosocial correlates (e.g., symptoms of anxiety and depression, life satisfaction, and social support) for cyber bullying and victimization.

Method

Participants and Procedure

Youth with ASD were recruited via word-of-mouth, social media advertising, through the Autism Spectrum Disorders Canadian-American Research Consortium (ASD-CARC; www.asdcarc.com), a research organization whose primary goal is to improve the "lives of those affected by ASD," and via newsletters distributed by community autism service agencies across Canada. One hundred parents and their children began the online survey, and recruitment was continuous over a 2-year period from 2013 to 2015. Data from 42 participants were excluded due to missing data patterns on at least 50% of the questions; in these cases, a parent started the survey but did not complete their portion. Because the data for the present study was collected via anonymous web-based survey, we paid particular attention to the pattern of responses of the 58 complete questionnaires that remained. We found strong evidence to suggest 35 cases of inattentive or careless responses (e.g., same responses on many or all items) on the portions of the survey that the adolescents were asked to complete. Thus, the final sample included 23 youth (18 boys, 5 girls) who scored 30+ on the adolescent version of the Autism-Spectrum Quotient (AQ-Adol; Baron-Cohen, Hoekstra, Knickmeyer, & Wheelwright, 2006) indicating increased severity of autistic traits (M = 36.0, SD = 4.4, $Range$ = 30.0–45.0). Participants ranged in age from 10 to 17 years (M = 13.7 years, SD = 2.4), were in enrolled in grades four to 12 (M_{grade} = 8.4, SD = 2.4), and identified as Caucasian (91.3%), Asian (4.3%), or other (4.3%).

Parents interested in participating in the study clicked on the link that directed them to an online questionnaire created and delivered using Qualtrics (Qualtrics LLC, US). Parental consent and youth assent were required to initiate the online survey, and participants were prompted to print consent/assent forms for their records. The questionnaire took 30–90 minutes for participants to complete. Parents who provided an email address were eligible to win one of five Amazon gift cards worth $50. This study was approved by the Psychology/Sociology Research Ethics Review Board at the University of Manitoba, Winnipeg, Canada.

Measures

Measures completed by parents. Parents responded to questions about their child's general demographic characteristics (e.g., age, sex, grade, and cultural background) and severity of autistic traits.

Autism Spectrum Quotient. Parents' perceptions of the severity of autistic traits among their children were measured using a 50-item adolescent version of the AQ-Adol (Baron-Cohen et al., 2006). The AQ-Adol assesses five areas of functioning, social skills, attention switching, attention to detail, communication, and imagination, using 10 questions for each

area. Items are rated on a 4-point Likert-type scale ranging from 1 (*definitely agree*) to 4 (*definitely disagree*). Each response is coded as either a "0" or "1" to represent the absence or presence of each symptom, respectively. A total AQ-Adol score was created by summing the coded responses; higher scores represented a greater severity of autistic traits (α = .97). Subscale scores were computed by summing the responses to 10 questions for each scale. Previous work has shown that 90% of adolescents with increased severity of autistic traits met the cut-score, (i.e., scored 30+ on the total AQ-Adol), but controls did not meet the cut-score (Baron-Cohen et al., 2006). Thus, for the present study, we analyzed the data from youth scoring at or above the cut-score of 30 to help ensure that the experiences of youth with ASD were being described.

Measures completed by youth. Youth completed questions about their involvement in traditional and cyber bullying and victimization, technology access and use, symptoms of anxiety and depression, social support, and life satisfaction.

Technology access and use. Youth were asked whether they owned a cell phone and the amount of time they spent using it during the week and on the weekend. They were also asked how many computers were in the household, and the amount of time they spent on it during the week and on the weekend. Time spent using cell phones and computers were each rated on a 5-point Likert scale (1 = *less than 1 hour*, 2 = *1–2 hours*, 3 = *2–3 hours*, 4 = *3–4 hours*, 5 = *more than 4 hours*). Week and weekend responses for cell phone and computer use were summed to create a technology use score.

Traditional bullying behaviours and victimization experiences. We adapted the Revised Olweus Bully/Victim Questionnaire (Olweus, 1996), a widely used instrument to assess bullying (Solberg & Olweus, 2003). Youth were provided with a definition of traditional bullying:

A student is being bullied when a student or group of students do any of the following: say mean or hurtful things to him/her or tease him/her in a hurtful way; spread false rumours about him/her; hit, kick, or push around him/her; or intentionally leave them out of the group. These things happen repeatedly over time and it is hard for the student being bullied to defend him/herself. It is not bullying when these things are done in a friendly or playful way or when two students of about the same strength argue or fight.

Youth then reported their involvement for discrete traditional bullying (i.e., "How often have you bullied others?") and victimization (i.e., "How often have you been bullied?") events in the past two to three months on a 4-point Likert-type scale (0 = *never*, 1 = *once or twice*, 2 = *a few times*, 3 = *many times*, 4 = *every day*). Follow-up questions asked youth about their most recent victimization experience such as: why they thought they were targeted, how long the situation lasted, the severity of the experience, the identity of the bully and the strongest emotion they experienced. Youth were also asked about their responses to the experience and the perceived effectiveness of the response(s) in reducing the bullying and distress.

Cyber bullying behaviours and victimization experiences. Involvement in cyber bullying was assessed using a behavioural index of cyber bullying offending and victimization (adapted from Patchin & Hinduja, 2010). Over the last decade (Hinduja & Patchin, 2015), strong psychometric properties have been reported for these measures across a range of studies. Five-items asked youth about their engagement in cyber bullying behaviours (e.g., "Took a picture of someone and posted it online without their permission") and 9-items asked about their cyber victimization experiences (e.g., "Something posted online that you did not want others to see") in the past two to three months. Items were rated on a 5-point Likert-type scale, ranging from 0 (*never*) to 4 (*every day*). Two indices of cyber bullying involvement were computed by summing the ratings for each scale; higher scores represented greater engagement in cyber bullying (α = .99) and greater cyber victimization (α = .99). Similar to traditional victimization in the previous measure, we asked youth to share details about their most recent cyber victimization experience.

Perceived social support. Adolescents' perceived level of social support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). Strong psychometric properties (e.g., reliability and validity) of the MSPSS have

been reported in past research (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). In the current study, we assessed perceived social support from friends (4-items; e.g., "I can count on my friends when things go wrong") and family (4-items; e.g., "My family really tries to help me"). Youth rated each item on a 7-point Likert-type scale that ranged from 1 (*very strongly disagree)* to 7 (*very strongly agree*). Items on each scale were summed with higher scores representing greater perceived support from friends (α = .96) and family (α = .92).

Symptoms of anxiety and depression. Youths' self-reported symptoms of anxiety and depression were measured using the shortened 21-item version of the Depression, Anxiety, and Stress Scale (DASS-21; Lovibond & Lovibond, 1995). Although originally developed for adult populations (Henry & Crawford, 2005), strong psychometric properties for the DASS-21 have been found in adolescent samples (Campbell, Slee, Spears, Butler, & Kift, 2013; Szabó, 2010) Participants rated their symptoms of anxiety (7-items; e.g., "I felt I was close to panic") and depression (7-items; e.g., "I felt that I had nothing to look forward to") in the past week on a 4-point Likert-type scale, ranging from 0 (*did not apply to me at all*) to 3 (*applied to me very much* or *most of the time*). Scores from each subscale were summed with higher scores representing higher levels of anxiety (α = .94) and depression (α = .97).

Satisfaction with life. Youths' subjective well-being and satisfaction with life was assessed using the 5-item Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffith, 1985). Past research demonstrates the reliability and validity of the SWLS across different age groups (Pavot & Diener, 2008; Pavot, Diener, Colvin, & Sandvik, 1991). Youth rated each item (e.g., "I am satisfied with my life") on a 7-point Likert-type scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Overall life satisfaction scores were created by summing the responses for each item so that higher scores represented greater levels of life satisfaction (α = .94).

Data Analyses

Descriptive statistics and zero-order correlations were used to examine the associations between all study variables. Descriptive statistics were also used to assess the frequency of traditional and cyber bullying and victimization, as well as the characteristics of youth's most recent experience with traditional and cyber victimization. Two multiple regression analyses were conducted to examine the relation between traditional and cyber victimization and anxiety and depression. Due to our small sample size, we limited the number of predictor variables to three (i.e., cyber bullying, cyber victimization, and satisfaction with life). We chose the standard 'enter' method because it is the most conservative and recommended for smaller sample sizes (Brace, Kemp, & Snelgar, 2006). Thus, the three selected predictor variables were added simultaneously in one block/step. All variables were examined for normality, outliers, skew, and kurtosis; results suggested that the scores were normally distributed. All analyses were conducted using SPSS version 25.0.

Results

Descriptive Statistics and Zero-Order Correlations

Descriptive statistics and zero-order correlations between variables are presented in Table 1. Overall, symptoms of anxiety were positively associated with symptoms of depression and engagement in cyber bullying behaviours, and negatively correlated with satisfaction with life. Symptoms of depression were negatively correlated with satisfaction with life but not with engagement in cyber bullying behaviours. Cyber victimization experiences were positively associated with both traditional bullying behaviours and traditional victimization experiences, but not related to engagement in cyber bullying behaviours.

Technology Access and Use

More than half of the youth (60.9%) did not own a cell phone. Of the nine that did, six reported that they received a cell phone at the average age of 12 years (*SD* = 2.3; *Range* = 10–15 years). Cell phones were used primarily for sending and receiving text messages (44.4%) and social networking (33.3%). However, all youth reported access to a computer (and/or iPad) in their homes, and most had access to three or

Table 1. Descriptive Statistics and Zero-Order Correlations

Variable	*M*	*(SD)*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1. Anxiety	3.83	(3.08)	—								
2. Depression	3.87	(3.67)	.58**	—							
3. Technology use	8.87	(3.49)	.29	.34	—						
4. Traditional bullying	0.26	(.45)	.17	-.12	-.30	—					
5. Traditional victimization	1.17	(1.15)	.39	.09	-.07	.44*	—				
6. Cyber bullying	0.52	(1.28)	.58**	.32	.26	.07	.21	—			
7. Cyber victimization	3.43	(3.27)	.31	.24	.03	.45*	.56**	-.19	—		
8. Family support	24.57	(3.76)	-.17	-.34	.04	.12	.44*	-.34	.18	—	
9. Peer support	21.09	(4.63)	-.11	-.13	.07	.14	-.39	.08	-.07	-.30	—
10. Satisfaction with life	24.17	(7.20)	-.55**	-.75***	-.21	-.13	-.18	-.15	-.23	.26	.33

*Note: *p < 0.05, ** p < 0.01, *** p < 0.001.*

more computers (73.9%). Nearly 69.6% of youth used a computer in an open area in the home, whereas 30.4% used a computer in their bedrooms. The majority of youth primarily used a computer to play online games (34.8%) or watch videos online (21.7%). The mean technology use score for cell phones and computers was 8.9 (*SD* = 3.5; *Range* 3–19).

Frequency and Characteristics of Bullying and Victimization

Traditional bullying. Youth were less likely to report engaging in bullying behaviours (26.1%) than experiencing victimization (60.9%) in the past two to three months. When recalling their most recent victimization experience, youth felt the bullying occurred for no particular reason (40.0%), for having a disability (35.0%), or for their physical appearance (15.0%). These experiences often lasted less than a week (50.0%) with many of them ending within one day (30.0%). For others, the experience lasted a few months or longer (30.0%). The majority of youth rated their victimization experience as moderate (63.3%) or severe (15.8%), and reported feeling upset (35.0%), frustrated (30.0%), angry (20.0%), or helpless (10.0%) as a result. Approximately 5% of youth reported that they were not bothered by the experience. In the majority of cases (90.0%), youth knew the identity of their harasser. Youth first responded to their experience by using an active response (25.8%; e.g., telling an adult), a reactive response (21.5%; e.g., confronting their harasser), or a passive response (17.2%; e.g., trying to ignore it). The first response was rated as at least somewhat effective for 26.5% of youth in reducing the bullying, and 47.4% of youth in making them feel better. Responding by telling a peer was at least somewhat effective for 29.4% of youth in reducing the bullying and 37.6% of youth in making them feel better. Responding by telling a parent was at least somewhat effective for 55.6% of youth in reducing the bullying and 62.6% of youth in making them feel better.

Cyber bullying. Table 2 includes the percentages of youth engaged in various cyber bullying behaviours or victimization experiences at least once in the past two to three months. Similar to the pattern seen with traditional bullying, youth were less likely to report engaging in cyber bullying behaviours (17.4%) than experiencing cyber victimization (73.9%). However, when asked to report on specific, discrete cyber bulling behaviours, engagement in cyber bullying ranged from 4.3% to 17.4% (two behaviours were not endorsed), and experiences of cyber victimization ranged from 4.3% to 30.4%. The most common cyber bullying behaviour was "posting something online about someone else to make others laugh." The most common cyber

Table 2. Percentage of Youth Engaged in Cyber Bullying Behaviours and Victimization Experiences at Least Once within the Past 2-3 months

Cyber bullying behaviours	*%*
Posted something online about someone else to make others laugh	17.4
Sent someone a text message to make that person angry or to make fun of that person	4.5
Sent someone an email to make that person angry or to make fun of that person	0
Posted something on someone's social networking profile (e.g., Facebook) to make that person angry or to make fun of that person	0
Taken a picture of someone and posted it online without that person's permission	4.3
Cyber victimization experiences	*%*
Made fun of in a chat room	13.0
Received an email from someone you know that made you really mad	13.0
Received an email from someone you didn't know that made you really mad	4.3
Someone posted something on your social networking profile (e.g., Facebook) that made you upset or uncomfortable	17.4
Someone posted something on another web page that made you upset or uncomfortable	30.4
Received an instant message that made you upset or uncomfortable	27.3
Been bullied or picked on by another person while online	30.4
Have you been afraid to go on the computer	8.7
Anyone posted anything about you online that you didn't want others to see	17.4

victimization experience was "someone posting something on another web page that made you upset or uncomfortable."

When asked about their most recent cyber victimization experience, most youth reported that they did not know why they were harassed (66.7%) but some indicated they were victimized because of their physical appearance (11.1%) or disability (11.1%). These experiences often lasted less than a week (66.7%) with most situations lasting just a day (55.6%). One-third of situations lasted a week or two. The majority of youth rated the severity of the experience as moderate (77.8%) and knew the identity of their harasser (66.7%). Youth reported that their strongest emotion from the experience was feeling upset (44.4%), followed by feeling sad (22.2%), angry (22.2%), or frustrated (11.1%).

Youth first responded to the experience using an active response (33.3%; e.g., telling an adult); a reactive response (33.3%; e.g., confronting their harasser); or a passive response (11.1%; e.g., trying to ignore it). Overall, the first response was rated as at least somewhat effective for 77.7% of youth in reducing the bullying, and 77.8% of youth in making them feel better. Responding by telling a peer was at least somewhat effective for 37.5% of youth in reducing the bullying and 66.6% of youth in making them feel better. Responding by telling a parent was at least somewhat effective for 77.8% of youth in reducing the bullying, yet 100% of youth indicated it made them feel better.

Psychosocial Correlates of Anxiety and Depression for Cyber Bullying and Victimization

In the first analysis (see Table 3 on the following page), a significant model emerged, $F(3,19) = 11.76$, $p < .001$, explaining 65.0% of the variance in anxiety. Engagement in cyber bullying behaviours ($\beta = .58$, $p = .001$) and experiences

Table 3. Standardized Regression Coefficients for Predicting Anxiety and Depression

	Anxiety			*Depression*		
Predictors	*B (95% CI)*	*SE*	β	*B (95% CI)*	*SE*	β
Satisfaction with life	-.17 (-.29, -.04)	.06	-.40*	-.35 (-.51, -.19)	.08	-.69***
Cyber bullying	1.41 (.69, 2.12)	.34	.58**	.68 (-.21, 1.57)	.42	.24
Cyber victimization	.31 (.02, .59)	.14	.32*	.14 (-.22, .49)	.17	.12

*Note: CI = confidence interval. *p < 0.05, ** p < 0.01, *** p < 0.001.*

of cyber victimization (β = .32, p = .04) were associated with greater anxiety symptoms, whereas satisfaction with life (β = -.40, p = .01) was associated with fewer symptoms of anxiety. In the second analysis (see Table 3), a significant model also emerged, $F(3, 19) = 10.27$, $p < .001$, explaining 61.8% of the variance in depression. Greater satisfaction with life (β = -.69, $p < .001$) was associated with fewer symptoms of depression; however, engagement in cyber bullying behaviours or experiences of cyber victimization was not associated with level of depressive symptoms.

Discussion

In the new technological world, youth have an endless number of tools (e.g., social media, text messaging, discussion boards, and chat rooms) at their disposal to socialize and communicate with strangers, friends, and family all over the world (Holfeld & Leadbeater, 2015). Digital technology can be a powerful tool for establishing friendships, especially for youth with ASD who often have difficulties interacting socially with others in face-to-face situations. However, their social naiveté in combination with a greater frequency of online access and use may leave them susceptible to bullying in the digital world (Zweers, Scholte, & Didden, 2017). In the current study, our objectives were to calculate the frequencies of traditional and cyber bullying and victimization among a sample of youth with ASD; describe the unique characteristics of youths' experiences of traditional and cyber victimization; and examine the relationships between psychosocial variables and cyber bullying behaviours and victimization experiences to understand risk level and inform prevention opportunities.

In our small sample of youth with ASD, we found that the self-reported rates of traditional and cyber bullying were 26% and 17%, respectively. These rates support past research examining the frequency of traditional bullying behaviour in youth with ASD (e.g., 26.9%, Campbell et al., 2017; range of 15% to 46% across informants, van Roekel et al., 2010) and typical youth (35%, see meta-analysis by Modecki et al., 2014). However, the rates of engagement in cyber bullying behaviours was higher than past research in youth with ASD and intellectual and developmental disabilities combined (e.g., 7.7%; Campbell et al., 2017; 6%, Kowalski & Fedina, 2011), but consistent with the pattern found with typical youth (e.g., range of 5% to 33%, see review by Holfeld & Leadbeater, 2015; 15%, see meta-analysis by Modecki et al., 2014). As seen with typically developing youth (Patchin & Hinduja, 2012), engagement in bullying behaviours was lower than those reported for traditional and cyber victimization experiences (61% and 74%).

The high rates of traditional victimization are consistent with past research among youth with DD (44–75%, Carter, 2009; Rose et al., 2011; Schroeder et al., 2014; Twyman et al., 2010; van Roekel et al., 2010); however, the rates of cyber victimization are again higher than in past research using a similar sample (see Campbell et al., 2017; Didden et al., 2009; Kowalski & Fedina, 2011). When considering the frequency of each type of cyber victimization experience, rates ranged from 4.3% to 30.4%, which is comparable to past research of youth with DD (Campbell et al., 2017; Kowalski & Fedina, 2011) and typically developing youth (Holfeld & Leadbeater, 2015).

Indeed, one reason for differences between studies is that we asked participants about their direct experiences with different types of cyber bullying behaviours or victimization experiences without mention of cyber bullying or cyber victimization. This approach has been shown to result in higher estimates of the frequency of cyber bullying or victimization than more conservative global assessments (Ybarra, Boyd, Korchmaros, & Oppenheim, 2012), and thus may provide a more accurate account of youth's actual online experiences. Using a direct approach is particularly important when surveying (or otherwise communicating with) children and youth with ASD (Hagner & Cooney, 2005; Wetherby, Prizant, & Schuler, 2000), as some researchers have argued that they may not interpret bullying and victimization in the same way as their typical peers (Schroeder et al., 2014; van Roekel et al., 2010).

Results such as these suggest that odd or unusual behaviours and the inability to perceive and accurately process social cues (Montgomery et al., 2012; Rigby et al., 2015; 2018) in youth with ASD increase the challenge of developing positive peer relationships and friendships. Specifically, peers may view youth with ASD as awkward, making those with ASD vulnerable to bullying. Because of their difficulties in understanding others' facial expressions, feelings, and intentions (Montgomery et al., 2012; Rigby et al., 2015; 2018), youth with ASD may inadvertently engage in more bullying behaviours or experience victimization more often (see Zweers et al., 2017). Given the importance of social and emotional processing in this context, an important avenue for future research would be to examine the emotional intelligence, social perception, and processing abilities of youth with ASD to further understand how this relates to bullying behaviours and victimization experiences. Although this study was limited to questionnaire items, using videos or scenarios depicting traditional and cyber bullying and victimization may facilitate an understanding of the nature of impairments that may be more closely related to everyday experiences. Further, it may be helpful to examine the aspects of the scenarios that children and youth with ASD pay attention to and how they interpret the situations, which may be useful for developing interventions to help youth with ASD to cope with or avoid cyber victimization experiences.

Our findings highlight similarities and differences between our samples' most recent experiences with traditional or cyber victimization. Youth with ASD felt that they were more likely to experience traditional victimization than cyber victimization because of their disability. When recalling their most recent victimization experience, youth felt the bullying occurred for no particular reason (40% for traditional victimization and 67% for cyber victimization). This is not surprising given that youth with ASD often struggle in face-to-face social interactions, lack social insight, and report poor theory of mind. In the online world with an absence of social or visual cues, it may be even more difficult for youth with ASD to recognize other's intentions.

Experiences of traditional victimization tended to last longer than those of cyber victimization. For example, two-thirds of situations involving cyber victimization ended in less than a week compared to half of the situations involving traditional victimization. One-third of traditional victimization experiences lasted at least a few months, but none of the cyber victimization experiences lasted that long. Despite a shorter duration, it has been suggested that the characteristics of online world (e.g., potentially unlimited audience, permanency of online content, and the potential anonymity of the perpetrator) can make experiences of cyber victimization (from being bullied) more distressing than traditional forms of victimization (Holfeld & Mishna, 2018). In our study, both traditional and cyber victimization were rated as very serious as nearly 80% of youth rated the severity of their experience as moderate or severe. In both types of victimization situations, youth reported a range of emotions but (understandably) were most likely to feel upset from the experience. Accurately recognizing one's own and others' emotions is important for successful social interactions and increased social interactions facilitate skills improvement. However, individuals with ASD often find social interactions stressful, and thus may avoid them and consequently miss opportunities for improvement.

Youth were most likely to respond to traditional or cyber victimization by using active responses such as telling someone (e.g., friend or adult) or reactive responses such as confronting their harasser or getting revenge. Passive responses

(e.g., doing nothing or trying to ignore it) were less likely to be endorsed. Overall, youth reported greater effectiveness in dealing with cyber victimization than traditional victimization. Specifically, the first response(s) to cyber victimization were perceived to be more effective at reducing the bullying and distress associated with it, whereas the first response(s) to traditional victimization were perceived as less effective. Moreover, youth were more likely to receive the help they needed to reduce the bullying and distress when they told a friend or adult in situations involving cyber victimization compared to traditional victimization. Past research with typically developing youth has found that victims often did not receive the help they needed to reduce the bullying or distress when reporting their experience to a friend or an adult (Holfeld & Grabe, 2012). Similarly, youth with ASD may not use parents as a support in these instances (Bitsika & Sharpley, 2014; Humphrey & Symes, 2010a; 2010b). In contrast, youth in the current study indicated both friends and adults were particularly helpful when reporting cyber victimization; other recent research reported that teen girls with ASD indicated parent support was crucial in navigating bullying (Ward, 2016). It is possible that youth with ASD receive a significant amount of family support, and thus may have strong and positive relationships with their parents and siblings (Hutton & Caron, 2005; Pilowsky, Yirmiya, Doppelt, Gross-Tsur, & Shalev, 2004). However, given mixed findings in this area, more research is required to fully understand this. Alternatively, given that all of our youth accessed computers located in open spaces in the home, it is possible that they were more comfortable with their parents about their technology experiences and any internet activity would provide observable opportunities for parent supervision and intervention. We did not collect information about specific child-parent interactions in our sample, but examining child-parent relationships in the ASD population and how that influences the tendency for youth with ASD to report cyber bullying behaviours or victimization experiences to their parents is an important area to understand further.

Past research shows that engagement in cyber bullying is more likely to be related to externalizing problems, whereas experiences of cyber victimization are more likely to be associated with internalizing symptoms (Nixon, 2014). Surprisingly, both engagement in cyber bullying behaviours and experiences of cyber victimization were related to greater symptoms of anxiety, but not depression. In the traditional bullying literature, anxiety and depression are typically combined to form a measure of internalizing symptoms; however, while they often co-exist and overlap, they are distinct constructs (Beck & Clark, 1988; Cummings, Caporino, & Kendall, 2014) with different diagnostic criteria (American Psychiatric Association, 2013). In addition, even adolescents who have both anxiety and depression demonstrate different coping strategies, depending on whether the primary diagnosis is anxiety or depression (Garnefski & Kraajj, 2018), suggesting a strong case to assess these disorders separately. Further, there is some evidence to suggest that these constructs are differentially associated with cyber victimization. For example, in a sample of typically developing youth, Rose and Tynes (2015) found that cyber victimization predicted anxiety whereas depression predicted cyber victimization across three assessment points. While both anxiety and depression impact emotion recognition (e.g., in faces), depressed adolescents demonstrate more severe impairments (Demenescu, Kortekaas, den Boer, & Aleman, 2010) and also show poorer ability to accurately discriminate emotional vocalizations, while anxious teens showed no impairment (Morningstar, Dirks, Rappaport, Pine, & Nelson, 2019).

Engagement in cyber bullying behaviours also predicted anxiety. However, this result is not surprising as the relation between cyber bullying and victimization appears to be more cyclical than the pattern seen with traditional bullying and victimization (Den Hamer, Konijn, & Keijer, 2014; Holfeld & Mishna, 2018). Specifically, youth who engage in cyber bullying are also more likely to experience cyber victimization. In fact, these roles have been also found to predict more cyber witnessing, which in turn, predicts greater engagement in cyber bullying and experiences of cyber victimization in typically developing youth (Holfeld & Mishna, 2018). It is important for future research to consider how youth with ASD who witness cyber bullying may be impacted by the experience and how this may be exacerbated by involvement in other roles of cyber bullying.

Limitations

Concerns over participant response patterns (e.g., same responses on many or all items) considerably reduced the amount of usable data. Careless responding may result from survey length, environmental distraction, lack of respondent interest, and lack of social contact between participants and researchers (Meade & Craig, 2012). Moreover, an official clinical diagnosis of ASD was not made in the present study, although the AQ was used to validate the presence or absence of autistic traits as has been done in previous research (Rigby et al., 2015; 2018). A limitation of the Total AQ-Adol scores, however, is that these scores do not distinguish between individuals with ASD who require support, substantial support, and very substantial support, or identify the presence of an intellectual disability. Because we opted to conduct an online study, ensuring that an official diagnosis was provided by a qualified practitioner was not possible.

Some have questioned the ability of people with ASD to accurately self-report their experiences given that their symptoms may preclude sophisticated awareness of self and others. Although this is an appropriate consideration in contextualizing the responses of those with ASD, several research studies indicate that youth with ASD do provide accurate self-report (Keith, Jamieson, & Bennetto, 2019; Mazefsky, Borue, Day, & Minshew 2014; Ozsivadjian, Hibberd, & Hollocks, 2014) that are consistent with their autonomic arousal recordings (Keith et al., 2019) and parent-report (Ozsivadjian et al., 2014). Under-reporting rather than over-reporting experiences and/or symptoms may be more of a concern for some youth with ASD. Montgomery et al. (2012) found that youth (aged 16 to 21 years) under-reported the severity of experiences and/or symptoms, or scored high on positive impression validity scales, suggesting reporting better outcomes (although still in the impaired range) than was really the case. Despite slight differences between studies, there is sufficient evidence to demonstrate that self-reports from youth with ASD are indeed appropriate and provide meaningful self-perception/symptom report information for this population.

Participation self-selection, rather than random selection, may have also limited the generalizability of the findings. Access to technology and youths' ability to independently complete the survey (i.e., ASD symptom severity level) may have contributed to a self-selection bias. We also acknowledge that parents and/or youth with ASD with bullying and victimization experiences may have been drawn to participate in our study because it was online and anonymous. Compared to individuals without ASD, individuals with ASD often prefer communication via computers because the messages are easier to control, allows for greater comprehension, and provides a safer way to communicate to others about their true selves and experiences (Gillespie-Lynch, Kapp, Shane-Simpson, Smith, & Hutman, 2014). While providing a sense of safety and security for some individuals, the anonymous online environment could inflate the frequencies of all types of bullying behaviour and victimization. As described above, however, inflation of frequencies of traditional and cyber bullying behaviours and victimization experiences in our study is unlikely as our estimates were consistent with previous reports with larger samples and in paper-based survey research conducted during class time in schools (e.g., Campbell et al., 2017; Carter, 2009; Rose et al., 2011; Schroeder et al., 2014; Twyman et al., 2010; van Roekel et al., 2010).

Because of the limited sample size of our study, the results from the multiple regression analyses should be interpreted with caution as the calculated effect sizes could be strongly influenced by possible sampling error as described above. A small sample size prevented us from controlling for traditional forms of bullying and victimization in multiple regression models. A small sample size also limited our ability to examine how perceived support from family and friends may serve as a protective factor (particularly over the long-term) and reduce the effects of bullying on the development of anxiety and depression in youth with ASD. There is some evidence to suggest that parent and teacher support provide a buffer against symptoms of depression associated with cyber victimization in youth with DD (Wright, 2017). A strong support network has also been found to be protective against traditional victimization for youth with ASD (Gray, 2004). Research with typically developing youth shows that more positive perceptions of support is associated with less traditional victimization (Conners-Burrow et al., 2009; Jenkins & Demaray,

2012; Wang et al., 2009; Yeung Thompson & Leadbeater, 2013) and cyber victimization (Smokowski, Evans, & Cotter, 2014). Future work could determine whether gender differences in social support received exist, and how this affects psychosocial outcomes in those who experience traditional or cyber victimization.

Conclusion

Our findings demonstrate the pervasiveness of bullying and victimization among youth with ASD. The majority of youth reported at least some experience with traditional and cyber victimization. Compared to their typical developing peers, youth with ASD reported much higher rates of peer victimization. Youth reported greater effectiveness in dealing with experiences of cyber victimization (e.g., reducing the bullying and distress) compared to traditional victimization. Greater engagement in cyber bullying and more cyber victimization experiences was also associated with more anxiety, but not depression. The findings from this study may influence the development of intervention strategies to help youth with ASD to acquire and utilize effective coping strategies and to further develop home and school programming to reduce the rates of traditional and cyber bullying and victimization in this clinical population.

Key Messages From This Article

People with disabilities. We hope that this project will help your family and teachers to understand that having a disability makes it more likely that you will be bullied online or offline, so that you can learn what to do to feel safe.

Professionals. Both engagement in cyber bullying and experiences of cyber victimization are more likely to happen to and relate to greater anxiety in youth with ASD. Intervention strategies appropriate for youth with ASD must be developed and implemented so they can acquire and utilize coping strategies.

Policymakers. Efforts to create safe and supportive school environments must be inclusive for all youth to effectively reduce rates of bullying and victimization.

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