Cyber Victimization and Depression among Adolescents with Autism Spectrum Disorder: The Buffering Effects of Parental Mediation and Social Support

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Abstract The purpose of the present study was to examine the buffering effect of parental mediation of technology use and social support from parents on the association between cyber victimization and depression, assessed over one year. Participants were 113 7th through 9th graders from the Midwestern United States (age ranged from 12 to 17 years old; 86% were male) who were diagnosed with autism spectrum disorder. They completed questionnaires on their perceptions of parental mediation of technology use, perceived social support from parents, and self-reported face-to-face and cyber victimization and depression at Wave 1. One year later, at Wave 2, they completed a questionnaire on their depression. Results indicated that the associations between cyber victimization and depression were more negative at higher levels of perceived parental technology mediation and social support, while these associations were more negative at lower levels of these variables, after controlling for face-to-face victimization and Wave 1 depression.

Keywords Cyberbullying · Cyber aggression · Autistic disorder · Asperger syndrome · Pervasive developmental disorder

Introduction

Digital technologies have a significant role in many adolescents' lives. Digital technologies allow adolescents to have constant connection and communication with their world, deliver access to an array of information, and provide almost endless opportunities for entertainment. Despite the many benefits and conveniences afforded by digital technologies, adolescents are also at risk for a variety of negative experiences and risks, such as sexual predation, identity theft or misrepresentation, and viewing gory or violent images, and pornography (Smahel et al. 2015). Another negative experience associated with adolescents' digital technology use is cyber victimization. Cyber victimization has gained increased attention from educators, parents, researchers, and the general public due to high profile cases of victims committing suicide. These individuals are also concerned with cyber victimization because of the associated negative psychosocial, behavioral, and academic adjustment difficulties resulting from this experience (Bauman et al. 2013; Campbell et al. 2012; Hinduja and Patchin 2008; Kowalski and Limber 2013; Wright 2015).

Our world is becoming more digitally connected and consequently it is unlikely that these technologies will disappear overnight. Therefore, adolescents will continue to embrace digital technologies, leading researchers to focus more attention on examining factors which might help to reduce or mitigate the negative effects associated with cyber victimization among adolescents. Parental mediation of technology use and perceived social support from parents are two factors receiving increased attention among researchers because these factors have the potential to buffer against the depression associated with cyber victimization (Lwin et al. 2008; Mesch 2009; Wright 2015). Most of the research on cyber victimization includes typically developing adolescents, while adolescents with autism spectrum disorder receive less attention. A focus on adolescents

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with autism spectrum disorder is important, as these adolescents are twice as likely to be victims of cyberbullying (Rose and Monda-Amaya 2011). Furthermore, adolescents with autism spectrum disorder experience more victimization than their peers with intellectual disabilities (Zedyk et al. 2014). Given that adolescents with autism spectrum disorder might be more vulnerable to cyber victimization, it is important to understand factors that might mitigate the negative consequences associated with their experience of cyber victimization. To this end, the purpose of the present study was to investigate whether parental mediation of technology use and perceived social support from parents would buffer against the depression associated with cyber victimization among adolescents with autism spectrum disorder.

Cyber victimization and Autism Spectrum Disorder

Cyber victimization is defined as being the target of purposefully hostile, embarrassing, or intimidating behaviors through the internet or other digital technologies (Ferdon and Hertz 2007; Grigg 2010; Kowalski and Limber 2007; Wolak et al. 2007; Ybarra et al. 2007). Other forms of cyber victimization involve receiving abusive emails and being the target of identity theft, harassment, flaming, trolling, physical threats, social exclusion, verbal assaults, and humiliation (Wolak et al. 2007; Ybarra and Mitchell 2004). Researchers have also explained that cyber victimization includes severe forms, such as having embarrassing or explicit pictures or videos distributed of oneself, happy slapping, and hacking (Gillespie 2006; Rideout et al. 2005; Smith et al. 2008). Cyber victimization includes some overlaps with face-to-face victimization, though there are a few distinctions. For example, cyber victimization does not necessarily need to include an imbalance of power between the target and the bully for it to occur. In addition, cyber victimization does not necessarily have to occur more than once to have emotional consequences for victims.

Due to its portability and ease of access, the internet is recognized as removing physical barriers and limitations present in many face-to-face interactions. Because of this potential, clinicians and researchers recognized the benefits of using the internet and other digital technologies to help individuals with a variety of disabilities (Domingo 2012; Hassett et al. 1992). Research suggests that adolescents with autism spectrum disorder also use the internet and digital technologies, although they might use these technologies slightly less than their peers with other types of disabilities (Mazurek et al. 2012). Adolescents with autism spectrum disorder tend not to use social media, instead preferring other online activities, such as computer gaming. In one study, Kuo et al. (2014) found that 98% of adolescents with autism spectrum disorder in their sample used their home computers at least five hours a day. Research evidence indicates that the use of digital technologies increases adolescents' risk of cyber victimization

(Didden et al. 2009). Due to their use of these technologies, adolescents with autism spectrum disorder might be at risk for exposure to cyberbullying.

Few research studies have been conducted on cyber victimization among adolescents with autism spectrum disorder. In one of the few studies on this topic, Kowalski and Fedina (2011) found that adolescents with Asperger syndrome or Attention Deficit Hyperactivity Disorder (ADHD) were at risk for cyber victimization. According to their findings, when these adolescents experienced cyber victimization, they were at an increased risk of physical and psychological health issues in comparison to adolescents who were not involved in cyberbullying. More research attention has been given to cyber victimization among adolescents with intellectual or attentional disabilities. In particular, Didden et al. (2009) found that 2% to 18% of the youths in their research with intellectual disabilities reported experiencing cyber victimization. In addition, Wells and Mitchell (2013) reported that adolescents with intellectual or physical disabilities were more likely to report experiencing distress after cyber victimization than adolescents without intellectual or physical disabilities. Other research has revealed that adolescents with ADHD reported more cyber victimization when compared to adolescents without ADHD (Heiman et al. 2015). In addition, adolescents with intellectual or attentional disabilities also report adjustment difficulties, like depression, associated with their experience of victimization (Hu et al. 2016; Van Roekel et al. 2010). Taken together, these studies conclude that adolescents with special needs are vulnerable to cyber victimization and that they experience negative adjustment consequences related to experiencing victimization. Considering the association between adjustment consequences and cyber victimization, it is important to understand what factors might mitigate the harm associated with cyber victimization among adolescents with autism spectrum disorder. In the next sections, the role of parental mediation of technology use and perceived social support from parents will be explored as two potential variables which buffer against the negative consequence associated with cyber victimization.

Parental Mediation of Technology Use

Defined as parents' enactment of prevention strategies to manage their children's relationship with digital media, parents' use of mediational strategies might involve setting rules concerning their children's consumption of digital media (Livingstone and Helsper 2008). These strategies might also involve parents discussing appropriate use of digital media with their children and the setting of limits regarding what can be viewed or assessed (Dehue et al. 2012). Parents might also implement a set time limit on how often or long their children can use digital media and technologies. For parental mediation of technology use to be truly effective, parents must

maintain a continuous dialogue with their children regarding appropriate content to view, how to use online tools, and respectful online behaviors. They should also set rules regarding their children's involvement in negative online behaviors, such as cyberbullying, which addresses children's potential roles as perpetrators, victims, and/or bystanders.

Research on parental mediation of technology use has linked mediational strategies to adolescents' risk of negative online experiences. Parents' use of monitoring software and the creation of technology rules relates to children spending less time online and disclosing less personal information online (Navarro et al. 2015). When adolescents spend less time online and disclose less personal information, they are at a reduced risk of experiencing cyberbullying. Furthermore, parents who check the websites that their children access have children who report lower rates of cyber victimization in comparison to children who reported that their parents did not employ such a strategy. Active and restrictive parental mediation strategies reduce adolescents' perpetration of cyberbullying, although these patterns were found for boys only (Chng et al. 2014).

Expanding on the research linking parental mediation of technology use and cyber victimization, other research has investigated the buffering effect of parental mediation of technology use on the negative consequences associated with cyber victimization. In this research, Wright (2015) found that higher levels of parental mediation of technology use made the relationship between cyber victimization and depression and anxiety more negative. Lower levels of parental mediation increased adolescents' depression and anxiety related to their experience of cyber victimization. No research has examined whether parental mediation of technology might also serve a protective function for reducing the risk of cyber victimization among adolescents with autism spectrum disorder. Similarly, none of this research has focused on the potential of parental mediation to reduce the negative consequences associated with cyber victimization among these adolescents. One study has focused on the differences in parental mediation strategies among ADHD and non-ADHD adolescents (Arrizabalaga-Crespo et al. 2010). Adolescents with ADHD reported that their parents implemented more restrictive and instructive parental mediation strategies than non-ADHD adolescents. Although Wright's (2017) article did not examine adolescents with autism spectrum disorder or ADHD, she found that instructive mediation protected adolescents from depressive and anxiety symptoms following cyber victimization. On the other hand, restrictive strategies worsened adolescents' experience of cyber victimization and depression and anxiety resulting from their experiences. Considering Arrizabalaga-Crespo et al.'s (2010) and Wright's (2017) research, it might be likely that parental mediation of technology use could protect adolescents with autism spectrum disorder from experiencing the negative outcomes associated with cyber victimization.

Perceived Social Support from Parents

Perceived social support is defined as a child's understanding that he or she will be cared for and respected (Cohen et al. 2000; Davidson and Demaray 2007; Espelage and Holt 2007). It also involves a child recognizing the he or she belongs to a social network of people who are concerned with his or her welfare. Children who perceive that they have people there for them to provide physical, social, and psychological support during negative events are more likely to feel secure and have higher self-worth. Victims of face-to-face bullying are more likely to report lower levels of perceived social support from their families, teachers, and peers (Galand and Hospel 2013). High levels of perceived social support reduce adolescents' risk of experiencing negative adjustment difficulties resulting from experiencing face-to-face victimization (Wormington et al. 2013).

Research has been conducted on the linkage between perceived social support and cyber victimization. Most of this research has focused on friends as a source of support. In one study on this topic, Williams and Guerra (2007) found that adolescents with high levels of perceived social support from their friends reported lower levels of cyberbullying perpetration and victimization. Similar patterns were found by Navarro and colleagues (2015). Utilizing a longitudinal design, Fanti et al. (2012) found that family social support decreased adolescents' risk of cyber victimization, particularly when these adolescents had poor friendships. Other research (i.e., Smokowski et al. 2014) indicates that perceived social support from parents, teachers, and friends reduced adolescents' risk of cyber victimization, with the strongest associations linked to perceived parental social support.

No studies have examined whether perceived social support moderates the relationship between cyber victimization and the negative consequences associated with these experiences. Despite no research on this topic, there is ample research on the role of perceived social support in buffering against the negative effects related to the depression and anxiety associated with experiencing face-to-face victimization (Davidson and Demaray 2007). Victims of face-to-face bullying experienced lower levels of anxiety and depression when they experienced moderate or high levels of peer social support (Espelage and Holt 2007). Similarly, perceived social support from friends and families buffers against poor academic achievement among victims of face-to-face bullying (Roth et al. 2011).

The Present Study

The aim of the present study was to investigate the buffering effect of parental mediation of technology use and perceived social support from parents in the association between cyber victimization and depression among adolescents with autism

spectrum disorders. This study examined these associations over one year. Furthermore, this research accounted for adolescents' face-to-face victimization due to the high correlation between cyber victimization and face-to-face victimization (Smith et al. 2008; Wright and Li 2012). The following research questions were used to guide this study:

- (1) What is the relationship among cyber victimization, parental mediation of technology use, perceived social support from parents, and depression, while controlling for face-to-face victimization and previous levels of depression?
- (2) What, if any, buffering effects do parental mediation of technology use and perceived social support from parents have on the associations between cyber victimization and depression, while controlling for face-to-face victimization and previous levels of depression?

Method

Participants

The participants for this study were 113 adolescents (86% male; ages ranged from 12 to 17 years old) with autism spectrum disorder in the 7th, 8th, or 9th grade at 16 middle schools and two high schools, located in the suburbs of a large Midwestern city. Adolescents were diagnosed with one of the following autism spectrum disorders: autistic disorder, Asperger syndrome, or pervasive developmental disorder. The middle schools and high schools were all located in predominantly middle-class neighborhoods, with 33% of students at the schools receiving free or reduced cost lunch. Participants self-identified as White (83%), Black/African American (8%), Latino/a (1%), and Asian (10%). Income data was not collected from adolescents' families.

Procedures and Measures

The Institutional Review Board at the principal investigator's university approved the research. The 16 middle schools were in different school districts. Six middle schools fed into the two high schools. This resulted in a total of 14 different school districts, with 12 requiring district level approval to collect data in their schools. The other schools required principal-level approval. American Psychological Association ethical standards were implemented throughout the study's duration.

A list of over 150 public middle schools was generated. Next, 30 middle schools were randomly selected from this list and school principals were sent an email detailing the study's purpose, which students were eligible to participate, what these students would be expected to do, and how long the

study would take. This recruitment strategy resulted in 16 school principals expressing interest in the study. Meetings were coordinated between the principal investigator, school principals, and teachers. The purpose of the meeting was to describe the research project, who would participate, and how long the study would take. After this meeting, the principal investigator met with school psychologists to identify adolescents with the diagnosis of an autism spectrum disorder, either autistic disorder, Asperger syndrome, or pervasive developmental disorder, and who could read the questionnaires without the help from a paraprofessional. Data was not collected on the specific autism spectrum disorder that the participants had. What was important was that the adolescents had the diagnosis. This resulted in the identification of 201 eligible adolescents. Announcements were made to these adolescents, with a graduate assistant who had specialized training in autism spectrum disorder present. During the announcement, the study's purpose was discussed, along with what adolescents would be expected to do and how long the study would take. Parental permission slips, along with a letter addressed to parents, were passed out to adolescents to take home to their parents/guardians. There were 201 parental permission slips sent home, with 138 returned with permission, 45 returned without permission, and the rest were never returned. Wave 1 data collection occurred in the fall. Before completing the questionnaires, adolescents provided their assent. Of the adolescents with parental permission, five adolescents did not provide their assent to participate and consequently they were sent to another classroom to work on a different activity. Furthermore, five adolescents were not present during data collection on the day of data collection or on the make-up day. Adolescents completed questionnaires on demographic information, including gender, age, and ethnicity, their face-to-face and cyber victimization, parental mediation, perceived social support from parents, and depression. During data collection, trained research assistants answered any questions that adolescents might have had. These research assistants were trained in special education and were led by a graduate student with experience in this area. Final total of participants at Wave 1 was 128, with adolescents in either the 6th, 7th, or 8th grades.

One year later (Wave 2) data was collected again. During Wave 2, 35 adolescents were now in the 9th grade, at one of two high schools. Of these participants, 25 were available during Wave 2. A letter was sent home to parents/guardians to remind them about the study that their child participated in one year earlier. Parents/guardians were asked to return the letter back to their child's homeroom, if they or their child no longer wanted to participate in the study. No letters were turned to school. From the available 118 adolescents, five were unavailable during data collection and the make-up day. This resulted in a total of 113 adolescents at Wave 2. They completed a questionnaire on their depression.

Face-to-Face Victimization Adolescents were asked how often they experienced face-to-face victimization within the current school year. The 12 items were rated on a scale of 1 (*not at all*) to 5 (*all of the time*) (Wright et al. 2014). Sample items included: “A peer called me insulting names” and “A peer spread rumors about me to get others not to like me.” Cronbach’s alpha was .83 for face-to-face victimization.

Cyber Victimization Similar to the face-to-face victimization questionnaire, this questionnaire assessed how often adolescents experienced victimization online or via text messages during the current school year (Wright and Li 2013). The questionnaire included nine items, which were rated on a scale of 1 (*not at all*) to 5 (*all of the time*). Sample items included: “A peer spread rumors about me online or through text messages” and “A peer posted or sent nasty and humiliating messages to me.” Cronbach’s alpha was .86.

Parental Mediation of Technology Use This questionnaire assessed adolescents’ perceptions of whether their parents were involved in their digital media use (Arrizabalaga-Crespo et al. 2010). Items were rated on a scale of 1 (*completely disagree*) to 5 (*completely agree*). This questionnaire included eight questions. Sample items included: “My parents explain to me issues related to certain websites” and “My parents tell me what websites I should visit or which I shouldn’t visit.” Cronbach’s alpha was .91.

Perceived Social Support from Parents To assess perceived social support from parents, the parent subscale from The Child and Adolescents Social Support Scale was used (Malecki et al. 2000). Adolescents answered 12 items on a scale of 1 (*never*) to 6 (*always*). A sample item includes: “My parent(s) show they are proud of me.” Cronbach’s alpha was .88.

Depression The Center for Epidemiological Studies Depression Scale was used to assess adolescents’ depressive symptoms (Radloff 1977). The directions of the questionnaire asked adolescents to rate 20 items on a scale of 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Sample items included: “I was bothered by things that usually don’t bother me” and “I did not feel like eating, my appetite was poor.” This questionnaire was administered at Wave 1 and Wave 2. Cronbach’s alphas were .86 for Wave 1 and .83 for Wave 2.

Analytic Plan

Two multiple hierarchical regression analyses were conducted for parental mediation of technology use and perceived social support from parents. Predictor variables included cyber victimization, parental mediation of technology use, and perceived social support from parents. The outcome variable

was Wave 2 depression. Gender, face-to-face victimization, and Wave 1 depression were included as covariates. In Block 1, gender, face-to-face victimization, and Wave 1 depression were included. In Block 2, cyber victimization was included. In Block 3, parental mediation of technology use or perceived social support from parents was included. In Block 4, an interaction was included between cyber victimization and parental mediation of technology use or perceived social support from parents. All continuous predictor variables were centered. To probe interactions, the interaction program was used. This program provides the simple slopes of the regression lines, the unstandardized betas, and significance levels (Soper 2013).

Results

Before hypotheses were tested, correlations were performed among all variables (see Table 1). Cyber victimization was related positively to face-to-face victimization and Wave 1 and Wave 2 depression, while it was associated negatively with parental mediation of technology use and perceived social support from parents. Parental mediation of technology use and perceived social support from parents were related negatively to depression. Face-to-face victimization was related positively to Wave 1 and Wave 2 depression, whereas this variable was associated negatively with parental mediation of technology use and perceived social support from parents. Wave 1 and Wave 2 depression were related positively to each other.

For the multiple regression analyses, gender was not related to depression (see Table 2). Face-to-face victimization and cyber victimization were related positively to Wave 2 depression. Wave 1 depression was associated positively with Wave 2 depression. Parental mediation of technology use and perceived social support from parents were associated negatively

Table 1 Correlations among face-to-face victimization, cyber victimization, parental mediation of technology use, perceived social support from parents, and Wave 1 and Wave 2 depression

	1	2	3	4	5	6
1. Face-to-face Victimization	—					
2. Cyber Victimization	.46***	—				
3. Parental Mediation of Technology Use	-.25**	-.28***	—			
4. Perceived Social Support from Parents	-.36***	-.30***	.27**	—		
5. Wave 1 Depression	.29***	.27**	-.21*	-.26**	—	
6. Wave 2 Depression	.20*	.20*	-.17*	-.29***	.43***	—

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 2 Cyber victimization, parental mediation of technology use, perceived social support from parents, and depression

	β	R^2	ΔR^2
Wave 2 Depression			
Block 1		.33	.33**
Gender	.02		
F2F Vic	.18*		
W1 Dep	.26**		
Block 2		.43	.10***
Gender	.01		
F2F Vic	.17*		
W1 Dep	.25*		
CVic	.32***		
Block 3		.45	.02**
Gender	.01		
F2F Vic	.20*		
W1 Dep	.21*		
CVic	.27**		
PM	-.20*		
Block 4		.47	.02**
Gender	.01		
F2F Vic	.16		
W1 Dep	.17*		
CVic	.29*		
PM	-.20*		
Cvic x PM	-.26**		
Wave 2 Depression			
Block 1		.33	.33**
Gender	.02		
F2F Vic	.18*		
W1 Dep	.26**		
Block 2		.43	.10***
Gender	.01		
F2F Vic	.17*		
W1 Dep	.25*		
CVic	.32***		
Block 3		.49	.06***
Gender	.01		
F2F Vic	.19*		
W1 Dep	.20*		
CVic	.25**		
PSP	-.25**		
Block 4		.50	.02**
Gender	.01		
F2F Vic	.15		
W1 Dep	.20*		
CVic	.21*		
PSP	-.19*		
CVic x PSP	-.27**		

F2F Vic Face-to-face Victimization, CVic Cyber Victimization, W1 Wave 1, Dep Depression, PM Parental Mediation of Technology Use, PSP Perceived Social Support from Parents

* $p < .05$. ** $p < .01$. *** $p < .001$

with Wave 2 depression. The two-wave interactions between cyber victimization and parental mediation of technology use and between cyber victimization and perceived social support from parents were also significant. The findings revealed that high levels of parental mediation of technology use ($B = .08$, $SE = .02$, $p < .01 + 1 SD$) and perceived social support from parents ($B = .15$, $SE = .07$, $p < .001 + 1 SD$) made the relationship between cyber victimization and Wave 2 depression

more negative, while lower levels of parental mediation of technology use ($B = -.13$, $SE = .08$, $p < .01 - 1 SD$) and perceived social support from parents ($B = -.19$, $SE = .09$, $p < .001 - 1 SD$) made the association more positive.

Discussion

The purpose of this study was to examine the moderating role of parental mediation of technology use and perceived social support from parents in the association between cyber victimization and depression among adolescents with autism spectrum disorder. Another purpose of this study was to examine these associations over one year. Findings from this study contribute to the growing literature on how parental mediation of technology use and perceived social support from parents buffers against depression associated with cyber victimization among adolescents with autism spectrum disorder. These findings further highlight the importance of examining the online negative experiences and the variables which protect from these experiences among adolescents with autism spectrum disorder.

Cyber victimization was associated negatively with parental mediation of technology use and perceived social support from parents, which is aligned with previous literature (Mesch 2009; Navarro et al. 2015; Wright 2015). It might be likely that parental mediation of technology use is a specific type of social support engaged in by parents. Such mediation provides adolescents, even those with autism spectrum disorder, with opportunities to discuss their exposure to negative online experiences, like cyber victimization, with their parents (Livingstone et al. 2011). Parents might use these discussions to share strategies to prevent, eliminate, or reduce adolescents' experience of online risks (Wright 2015). Even when adolescents experience minor problematic online experiences, they might seek out support, guidance, and feedback from their parents concerning what happened to them. Research evidence indicates that adolescents seek out the support of their parents when they experience technical problems or extremely problematic online experiences (Nikken and de Haan 2015; Talves and Kalmus 2015). Because parental mediation of technology use has the potential to reduce adolescents' risk of cyber victimization, it is important for parents to understand the potential supportive role that they might have in adolescents' digital technology use. Parents should also recognize that their mediation of technology use and social support might protect against cyber victimization and depression. Consequently, parents should be involved in their children's digital technology use. Furthermore, parental mediation of technology use and social support might lead to continuous dialogue between parent and adolescent regarding online risks and opportunities. This continuous dialogue might involve parents offering solutions and support for cyber victimization,

even if their children do not need advice (Livingstone et al. 2011; Wright 2015). Parental mediation and social support contribute to adolescents' beliefs that someone is there for them, reducing their risk of cyber victimization (Mesch 2009; Wright 2016).

Consistent with the literature, cyber victimization was related to Wave 2 depression, after accounting for previous levels of depression (Campbell et al. 2012; Kowalski and Limber 2013). The study's results are better understood by the findings revealing the moderating effect of parental mediation of technology use and perceived social support from parents on the relationships between cyber victimization and Wave 2 depression, while accounting for face-to-face victimization and Wave 1 depression. Higher levels of parental mediation of technology use and perceived social support from parents reduced the association between cyber victimization and Wave 2 depression. Opposite patterns were found for lower levels of parental mediation of technology use and perceived social support from parents. Such findings are consistent with the literature indicating that parental mediation of technology use and perceived social support reduces adolescents' risk of cyberbullying (Mesch 2009; Wright 2016). Other research also supports the buffering effect of parental mediation of technology use and perceived social support from parents on the depression associated with cyber victimization (Cheng et al. 2008; Wright 2015; Wright 2016; Ybarra et al. 2015). Negative online experiences are likely to be difficult to avoid forever. However, when adolescents experience high levels of parental mediation of technology use and perceived social support from their parents, it is likely that they feel secure. This knowledge helps to mitigate the depression associated with experiencing online risks among adolescents with autism spectrum disorder.

Limitations and future directions

This study focused on a general assessment of parental mediation. Follow-up research should be conducted to understand more about whether different parental mediation strategies have differential effects on the association between cyber victimization and depression. Research evidence indicates that parents use various parental mediational strategies, such as restrictive, co-viewing, and instructive strategies (Arrizabalaga-Crespo et al. 2010). This follow-up research might also investigate whether parents' use of these strategies vary based on their children having a diagnosis of autism spectrum disorder. Although the present study provided a longitudinal examination of the association between cyber victimization, parental mediation of technology use, perceived social support from parents, and depression, the study included two waves of data collection. Such a design makes it difficult to fully understand the temporal ordering of the variables examined in this study. Therefore, future research should

examine the buffering effect of parental mediation of technology use and perceived social support from parents over long periods of time. Another limitation of this study is the disproportionate number of males who participated in this research compared to females, roughly 86% male to 14% female. Because of this limitation, the findings of the study might not necessarily be generalizable to females with autism spectrum disorder.

Conclusion

The present longitudinal study was one of a few studies examining the buffering effect of parental mediation of technology use and perceived social support from parents in the association between cyber victimization and depression among adolescents with autism spectrum disorder. Support was found for protective function of high levels of parental mediation and perceived social support from parents, while lower levels contribute to adolescents' greater vulnerability to cyber victimization and depression. More research attention is needed to better understand protective factors for reducing adolescents' depression resulting from experiencing cyberbullying. Furthermore, prevention and intervention programs should be developed or redesigned to include all adolescents, especially those with autism spectrum disorder.

Compliance with Ethical Standards All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation [institutional and national] and with the Helsinki Declaration of 1975, as revised in 2000. Parental permission and assent was obtained from all participants included in the study.

Conflict of Interest The author declares that she has no conflict of interest.

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