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CYBERVICTIMIZATION AS A PREDICTOR OF AGGRESSION AND  
CYBERBULLYING AMONG ADOLESCENTS: EXAMINATION OF  
POTENTIAL RISK AND PROTECTIVE FACTORS

by

Laura Ashley Cook

Abstract of a Dissertation  
Submitted to the Graduate School  
of The University of Southern Mississippi  
in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Philosophy

August 2015

## ABSTRACT

# CYBERVICTIMIZATION AS A PREDICTOR OF AGGRESSION AND CYBERBULLYING AMONG ADOLESCENTS: EXAMINATION OF POTENTIAL RISK AND PROTECTIVE FACTORS

by Laura Ashley Cook

August 2015

The current study examined how cybervictimization is related to aggression outcomes among adolescents. The current study also examined various potential risk and protective factors, including depressive symptoms, anger rumination, impulsivity, social support, and gender. It was hypothesized that the relation between cybervictimization and aggression or cyberbullying would be intensified when levels of depressive symptoms, impulsivity, and anger rumination were higher and that the relation between cybervictimization and aggression or cyberbullying would be attenuated when levels of social support were higher. Gender was examined as a research question, with no specific directionality hypothesized. The data for the current study were collected from parents and adolescents via an internet survey site. In total, 144 adolescents (69 males, 75 females,  $M = 14.90$  years) and their parents (recruited from the community) completed the survey and were included in the study. Moderated multiple regression analyses were used to examine the effects of the various moderators on the relation between cybervictimization and aggression or cyberbullying. No significant interactions involving anger rumination or impulsivity were found. However, significant interactions involving depressive symptoms, social support, and gender were found when investigating the relation between cybervictimization and aggression or cyberbullying.

The finding that cybervictimization relates to aggression and cyberbullying differentially, depending on gender and levels of depression and social support, could be particularly valuable when treating aggression and/or cyberbullying in adolescents, emphasizing a need to target mood and relational concerns.

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A Dissertation  
Submitted to the Graduate School  
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August 2015

## DEDICATION

I would like to dedicate this dissertation to my parents for their never ending support and encouragement as I worked on this project and on my doctoral degree. Furthermore, the completion of this project would not have been possible without their effortless assistance in recruiting participants.

## ACKNOWLEDGMENTS

I would like to thank my committee chair and major professor, Dr. Tammy D. Barry, for all of her assistance and patience with this project. Only with her guidance and teaching was this project completed. Through Dr. Barry's supervision, I have continued to grow as a researcher and as a professional. I would also like to thank my other committee members, Dr. Christopher T. Barry, Dr. Sara S. Jordan, and Dr. Robert D. Lyman for their constructive feedback and support throughout this process.



## TABLE OF CONTENTS

ABSTRACT .....	ii
DEDICATION.....	iv
ACKNOWLEDGMENTS .....	v
LIST OF TABLES .....	viii
LIST OF ILLUSTRATIONS.....	ix
CHAPTER	
I. INTRODUCTION .....	1
Cyberbullying and Cybervictimization	
Depressive Symptoms	
Anger Rumination and Aggression	
Impulsivity and Aggression	
Social Support and Aggression	
Rationale and Current Study	
II. METHOD.....	29
Participants	
Measures	
Procedure	
III. RESULTS .....	46
Descriptive Data Regarding Access to and Experiences with Electronic Communication	
Descriptive Statistics of Variables of Interest	
Correlations with Possible Covariates	
Analyses for Hypothesis 1	
Moderated Multiple Regression Hypothesis Testing	
IV. DISCUSSION.....	72
Support for Hypotheses	
Theoretical and Clinical Implications	
Limitations and Directions for Future Research	
Conclusions	

APPENDIXES .....	90
REFERENCES .....	95

LIST OF TABLES

Table

1. Child Sample Characteristics .....31

2. Parent/Caregiver Sample Characteristics.....32

3. Electronic Use Sample Characteristics .....47

4. Results of Paired T-Tests Between Parent- and Adolescent-Reported Electronic Use.....50

5. Descriptive Data for Variables of Interest .....53

6. Zero-Order Correlations Between Outcome Variables and Demographic Variables .....54

7. Zero-Order Correlations Among Variables of Interest.....55

8. Results of Moderated Multiple Regression Analysis of Cybervictimization and Depression Predicting Parent-reported Aggression, Self-Reported Aggression, and Cyberbullying.....58

9. Results of Moderated Multiple Regression Analysis of Cybervictimization and Anger Rumination Predicting Parent-reported Aggression, Self-Reported Aggression, and Cyberbullying .....61

10. Results of Moderated Multiple Regression Analysis of Cybervictimization and Impulsivity Predicting Parent-reported Aggression, Self-Reported Aggression, and Cyberbullying .....63

11. Results of Moderated Multiple Regression Analysis of Cybervictimization and Social Support Predicting Parent-reported Aggression, Self-Reported Aggression, and Cyberbullying .....64

12. Results of Moderated Multiple Regression Analysis of Cybervictimization and Gender Predicting Parent-reported Aggression, Self-Reported Aggression, and Cyberbullying .....68

LIST OF ILLUSTRATIONS

Figure

1. Interaction Between Cybervictimization and Depression Predicting Adolescent Reported Aggression .....	59
2. Interaction Between Cybervictimization and Depression Predicting Cyberbullying .....	60
3. Interaction Between Cybervictimization and Social Support Predicting Adolescent Reported Aggression.....	66
4. Interaction Between Cybervictimization and Social Support Predicting Cyberbullying.....	67
5. Interaction Between Cybervictimization and Gender Predicting Parent-reported Aggression.....	69
6. Interaction Between Cybervictimization and Gender Predicting Cyberbullying .....	70

## CHAPTER I

### INTRODUCTION

Bullying is a serious social phenomenon. Olweus (1995) identified two classes of victims of bullying; specifically, traditional victims and provocative victims. The traditional victims are identified as being children who are more insecure and anxious than their peers. These features enable others to identify them as weak, easy targets for bullying. Alternatively, Olweus (1995) identified a smaller group of provocative victims. These children are more hyperactive and/or aggressive, often aggravating their peers and inviting negative feedback in the form of victimization. Importantly, Olweus (1997) determined that individuals who are traditionally victimized as a child or adolescent are more likely than others to be depressed as a young adult, demonstrating the lasting negative effects associated with victimization. Furthermore, Olweus (1997) demonstrated that traditional bullies are not only more aggressive with their peers, but are also more aggressive overall, including toward adults.

Victims of bullying often experience far-reaching negative outcomes, such as internalizing problems (e.g., depression, suicidality) and externalizing problems (e.g., aggression, anger; Cook, Williams, Guerra, Kim, & Sadek, 2010). With the pervasiveness of technology for use in personal communication, it follows that some individuals use such technology to cyberbully, which has become a significant problem, particularly among children and adolescents (Cook et al., 2010). Despite the documentation of the growing phenomenon of cybervictimization and cyberbullying, relatively few studies have investigated their relation to one another, particularly within

the context of other important social variables. Thus, the current study addressed this issue.

Depending on the definition of cyberbullying used, prevalence rates of adolescents reporting that they have experienced cyberbullying have been reported as low as 5% (with more selective definitions; Wolak, Mitchell, & Finkelhor, 2006; Olweus, 2012) and up to 72% (with more inclusive definitions; Juvonen & Gross, 2008). However, many sources report that approximately 25% of adolescents report that they have experienced some form of cyberbullying, be it through the internet, their cell phone, or another electronic source (e.g., Ybarra et al., 2012). After conducting a review of 35 peer-reviewed studies regarding cyberbullying, Patchin and Hinduja (2012) determined that 24% of students identified as cybervictims and 17% of students identified as cyberbullies.

Cyberbullying, a phenomenon that has mostly developed in the 2000s as adolescents' use of technology has sky-rocketed (Donegan, 2012), may be used to describe a variety of behaviors when engaging with others in an array of modalities. Research on this topic is still in its infancy. Tokunaga (2010) noted that when conducting a meta-analysis of the literature regarding cyberbullying, no articles were available prior to 2004. This contributes to the problem that researchers continue to be divided on how to best define cyberbullying (Tokunaga, 2010). An inclusive definition refers to cyberbullying as any hostile behavior of an individual or group that is directed toward another individual or group through any form of technology that can be used for communication (Arıcak et al., 2008; Smith, Mahdavi, Carvalho, Fisher, Russell, & Tippett, 2008). Furthermore, these actions must occur repeatedly in a manner in which

the cybervictim is unable to defend him/herself (Strom & Strom, 2005). For example, online journals (i.e., blogs), Facebook, Twitter, e-mail, instant messaging, and text messages are each modalities through which cyberbullying can occur (Arıcak et al., 2008). For clarity's sake, henceforth in this paper, electronic bullying will be referred to as "cyberbullying," and non-electronic bullying will be referred to as "traditional bullying."

Another natural difficulty with studying cyberbullying in its relative infancy is how to best measure it. Ybarra and colleagues (2012) acknowledged this difficulty, particularly focusing on what measures of bullying should contain to best capture the concept of cyberbullying. By having 2,400 children ages 6 to 17 years (randomly selected from an online panel) complete online surveys in four experimental groups, it was found that including a definition of bullying in the measure is not beneficial (whether it was not read by the participants or whether it was unimportant to them was not clear) but that including the word "bully" in the measure was beneficial. In particular, they found that by including behavioral explanations rather than the word "bully," participants were inclined to endorse more items, making it a more sensitive measure that is able to pick up on the behavioral descriptions of what actually occurred (Ybarra et al., 2012). Furthermore, after conducting a review of measures for cyberbullying, Mehari, Farrell, and Le (2014) emphasized that, although most measures currently available define cybervictimization and/or cyberbullying and then ask several questions involving the word "bully," this approach is not generalizable enough to compare and contrast studies using different measures or to fit the cybervictimization/bullying literature within the broader adolescent aggression literature base due to the differences in the definition used

across studies. The current study addressed these difficulties by using both a measure that included the word “bully” and a measure that included behavioral explanations.

Berne et al. (2012) also addressed the difficulty with measuring cyberbullying by conducting a systemic review of all of the available cyberbullying instruments. Through this review, 44 instruments were identified. The researchers identified the lack of a consistent definition as being the root of the primary differences between the measures. Similar to Ybarra et al. (2012), Berne et al. (2012) emphasized the need for an operational definition of cyberbullying on which the literature base can agree. Thomas, Connor, and Scott (2015) conducted a review of measures that can be used to investigate bullying (traditional and cyber) and concluded that self-report measures that include both traditional bullying and cyberbullying elements are the best option. Additionally, they posited that it is beneficial to further investigate the impact/distress that the bullying had on the victim/bully to further allow for comparisons between the two types of bullying (Thomas et al., 2015). Although traditional victimization is not a construct being considered by the current study, this recommendation was still taken into account by including a self-report scale which queries about both traditional victimization and cybervictimization, as well as querying about the impact the experience has on the victims.

Research indicates that children and adolescents involved in cyberbullying, either as the bully or as a victim, typically exhibit higher levels of aggression than their peers who are not involved in cyberbullying (Schultze-Krumbholz & Scheithauer, 2009). Further, adolescents who are cybervictimised often are willing to report that they retaliated by cyberbullying others (Tyman, Saylor, Taylor, & Corneaux, 2010).



Cybervictims who report cyberbullying others have expressed that doing so made them feel negative emotions such as guilt, but also positive feelings such as being powerful, popular, and funny (Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010). Thus, adolescents who are aggressive are more likely to be victimized by their peers but are also more likely to aggress against others by perpetrating the bullying, and this tendency also plays out when considering bullying and victimization through the use of technological modalities.

A meta-analysis conducted by Cook et al. (2010) showed that children who are bullied, in general, are more likely than children who are not bullied to develop internalizing problems such as depression. Similarly, Schneider, O'Donnell, Stueve, and Coulter (2012) demonstrated that children who are cyberbullied are at heightened risk for lower academic performance as well as increased anxiety, depressive symptoms, self-harm behaviors, and suicide. Additionally, Klomek, Sourander, and Gould (2010) conducted an empirical review of the literature and found that cybervictims are more likely not only to report suicidal ideation but also to successfully complete suicide when compared to their non-bullied peers. Thus, the negative impact of cyberbullying can manifest itself in diverse ways, some of which can be unquestionably devastating.

Although the prevalence rates vary by study as indicated earlier, approximately 50 percent of adolescents are willing to report that they have been cyberbullied or have acted as cyberbullies (Li, 2006), making it a widespread problem. Despite the potential for extremely negative outcomes, much of the research currently available on cyberbullying focuses on defining what cyberbullying is and describing who it affects. For this rapidly increasing problem to be more deeply understood and more effectively addressed,

however, it is important to understand outcomes associated with being cyberbullied as well as how such cybervictimization interacts with other factors to increase the likelihood of various outcomes for the victim. The current study addresses this gap in the literature by focusing on potential protective and risk factors that may moderate the relation between cybervictimization and aggression outcomes (including cyberbullying itself) among adolescents.

### Cyberbullying and Cybervictimization

Various forms of bullying are related to maladaptive effects on victims. Prinstein, Boergers, and Vernberg (2001) considered the effects of overt and relational aggression in adolescents. They considered being the recipient of physical aggression or threat of physical aggression as being overt victimization and having one's relationship with someone else utilized or threatened (e.g., excluding him/her from a social activity, spreading rumors or gossip) as being relational victimization (Prinstein et al., 2001). Their research demonstrated that adolescents who were victims of both overt and relational victimization were more likely to exhibit higher levels of both internalizing problems such as depression and loneliness and externalizing behaviors such as anger and self-control problems (Prinstein et al., 2001). Using a longitudinal design, Barker and Salekin (2012) demonstrated that for male and female adolescents, irritability is positively correlated with incidences of being victimized by their peers. Additionally, adolescents who have been victimized are more likely to struggle with externalizing problems such as acting aggressively, consuming alcohol underage, smoking, and attending school less regularly than their non-victimized peers (Mason, 2008).

Research has also indicated that individuals who are traditionally victimized often are also cybervictimized (Tyman et al., 2010). As many as 30 percent of these traditional victims/cybervictims are also willing to retaliate by cyberbullying their aggressors, apparently empowered by the anonymity provided to them by the electronic means through which they can bully. The result is that traditional bullies are often in turn cybervictimized (Tyman et al., 2010). Other research suggests that traditional bullies also tend to be cyberbullies and that traditional bully-victims (i.e., individuals who are victimized and bully others) also tend to be cyberbully-cybervictims (i.e., individuals who are both cyberbullies and cybervictims; Li, 2006). Furthermore, cyberbullies are more likely to be cybervictims than those who do not cyberbully (Li, 2006).

Aiming to better understand cyberbullying as a whole, Li (2007) administered the Cybervictimization/Cyberbullying Questionnaire (CCQ) with a sample of Canadian middle school students. Through his study, Li (2007) demonstrated that approximately 33% of the students described themselves as being victims of traditional bullying and 25% of the students described themselves as being cybervictims. Additionally, approximately 52% of the students reported that they knew someone who has been cyberbullied, demonstrating the far-reaching nature of this social problem.

Demographically, Li (2007) found that over 60% of the cyberbullies and 70% of the cybervictims were White and that 60% of the cybervictims identified as female, whereas 70% of the cyberbullies identified as male. Of particular interest to the current study was the finding that over half of the cybervictims reported that they have also engaged in cyberbullying others (Li, 2007). Similarly, Werner, Bumpus, and Rock (2010) found in their study involving 6<sup>th</sup>-8<sup>th</sup> grade students that cybervictims were 16 times more likely

than their uninvolved peers to engage in cyberbullying. These findings lend support to the current study's inclusion of cyberbullying as an aggression outcome.

Sticca, Ruggieri, Alsaker, and Perren (2013) investigated risk factors for engaging in cyberbullying and found that an individual's inclination to engage in antisocial behavior and the frequency of online communication are the most prominent. Consistent with Tyman et al. (2010)'s findings, Sticca et al. (2013) found that traditional bullies are more likely to engage in cyberbullying behavior, due in part to their antisocial tendencies. Furthermore, the more time adolescents spent online, the more likely they were found to be involved with cyberbullying, whether as the bully or the victim (Sticca et al., 2013). Similarly, Smith et al. (2008) also demonstrated that cybervictims used the internet more than their peers who were not cybervictims, and Werner et al. (2010) demonstrated that regular users of electronic communication engaged in internet aggression more frequently than their peers who used electronic communication less frequently. Thus, it is important to consider how much access to electronic forms of communication and supervision an adolescent has when investigating cyberbullying. The current study screened for both parent- and adolescent-reported electronic use and involvement, determined how electronic use relates to the variables of interest, and used adolescent-reported electronic use as a covariate where indicated. Adolescent-reported electronic use was utilized rather than parent-reported electronic use, given the probability that parents may be unaware of some of the manners in which adolescents use electronic forms of communication.

Of participants, Wang, Iannotti, and Nansel (2009) found that approximately 27% were best classified as cyberbullies only, 40% were best classified as cybervictims only, and approximately 33% were best classified as cyberbully-cybervictims. Furthermore, it

has been demonstrated that boys are more likely to perpetrate cyberbullying, whereas girls are more likely to be cybervictimized (Wang et al., 2009). Interestingly, contrary to traditional victimization, which has been negatively correlated with number of friends, cybervictimization has been demonstrated to be unrelated to number of friends (Wang et al., 2009). Thus, a child with many friends is still susceptible to becoming a cybervictim. Additionally, Wang et al. (2009) demonstrated that age may play an important role in cybervictimization. Specifically, they found that adolescents in the 9<sup>th</sup> and 10<sup>th</sup> grades were less involved in traditional bullying and cyberbullying than younger adolescents in the 6<sup>th</sup> through 8<sup>th</sup> grades. Although technological advances can be beneficial for adolescents, technology is advancing so rapidly that schools and parents are not prepared to fully understand how it relates to bullying or its repercussions for victims. Worldwide, children and adolescents using cell phones or computers appear to be at high risk for cybervictimization (Li, 2006). Thus, more needs to be done to understand the negative consequences associated with cybervictimization as well as the factors that may worsen or improve outcomes.

Sticca and Perren (2013) compared adolescents' views of traditional victimization versus cybervictimization. Their results demonstrated that overall, cybervictimization is equally severe as traditional victimization. However, their results also demonstrated that depending on the circumstances, adolescents view cybervictimization as being worse than traditional victimization. Specifically, publicity and anonymity are critical aspects when considering the severity of the impact of traditional or cybervictimization (Sticca & Perren, 2013). Overall, public victimization is perceived as being worse than private, and anonymous victimization is perceived as being worse than non-anonymous. Of particular

relevance to the proposed study is that adolescents perceived public cybervictimization and anonymous cybervictimization to be the more severe forms of victimization (Sticca & Perren, 2013). The authors concluded that this was due to the broader audience available through electronic sources and the increased fear associated with not knowing the identity of the aggressor. Thus, although it has been determined that cybervictimization is not in fact more severe than traditional victimization, it is often perceived by adolescents as being more severe, making it important to understand the ramifications of such behavior.

Grading, Stromhmeier, and Spiel (2009) investigated the consequences of being involved with both traditional bullying and cyberbullying. Consistent with the literature, they found that combined bullies (i.e., a bully in both traditional and cyber contexts) have higher incidences of externalizing problems than traditional bullies or cyberbullies; combined victims (i.e., a victim in both traditional and cyber contexts) have higher incidences of internalizing problems, like depression, than traditional victims or cybervictims; and that combined bully/victims (i.e., a bully/victim in both traditional and cyber contexts) have higher incidences of both internalizing and externalizing problems than traditional bully/victims or cyberbully/victims. Furthermore, they reported that cybervictims are likely to experience depressive symptoms and hopelessness and that cyberbullies are likely to struggle in school and demonstrate delinquent behavior. Finally, cyberbully-cybervictims tend to exhibit both externalizing behaviors and depressive symptoms (Grading et al., 2009). Given the array of problems experienced by the latter group, it is relevant to consider both cybervictimization and cyberbullying among the same adolescents. The current study, in particular, investigated whether

cybervictimization is positively related to cyberbullying as well as other forms of aggression. Furthermore, the current study examined whether the magnitude of these relations is intensified or diminished under certain conditions.

### Depressive Symptoms

#### *Depression and Aggression*

Depressive symptoms are a risk factor for aggressive behaviors (Dutton & Karakanta, 2013), a link that may initially seem counterintuitive, as the two problems appear to have different presentations. However, negative cognitions—including rumination (i.e., conscious repetitive thoughts that focus on a particular theme)—may be a shared thread that ties depression and aggression together (Peled & Moretti, 2010). In particular, the common theme of thoughts found with rumination is generally intrusive and aversive. Peled and Moretti (2010) theorized that rumination could serve as the link between depression and anger based on the conceptualization of two types of rumination: anger rumination and sadness rumination. The authors found that anger rumination in particular is what seems to incite anger and aggression in individuals with depression, whereas sadness rumination further intensifies depressive symptoms (Peled & Moretti, 2010). Characteristics of depressive symptoms such as increased anger rumination could put individuals who experience cybervictimization at an even higher risk for aggressive behavior when they also have higher levels of depressive symptoms. Given the association between cybervictimization and internalizing symptoms (e.g., depression; Gradinger et al., 2009), it is particularly important to consider whether depressive symptoms place adolescents at heightened risk for other negative outcomes (e.g., aggression) when they are cybervictimized.

Indeed, there are other characteristics associated with depressive symptoms that may make such symptoms a risk factor for aggressive behaviors when individuals are cybervictimized. For example, Peluso and colleagues (2007) address the fact that individuals with depression or depressive symptoms are often impulsive, which can lead to a decreased tolerance for delayed gratification, heightened anger, and increased reactive aggression (Anderson & Bushman, 2002; Peluso et al., 2007). Individuals with depressive symptoms often lack the insight and/or self-control to manage their impulsivity and, thus, are more likely to engage in aggressive acts (Dutton & Karakanta, 2013).

Price, Salekin, Klinger, and Barker (2013) demonstrated that, when adolescents have a combination of depressive symptoms and psychopathy, they were particularly likely to experience psychosocial problems in areas such as anger and aggression (Price et al., 2012). That is, depressive symptoms were a risk factor for aggressive behavior, given other interpersonal characteristics. The current study examined depressive symptoms as a risk factor for aggression, given a set of environmental circumstances, namely being cybervictimized. Such an examination was warranted not only because of the previously established depression-aggression link but also because recent research shows that cybervictimization is related to depressive symptoms (Schneider et al., 2012).

#### *Depression and Victimization/Cybervictimization*

It is well-established that children who are involved with traditional bullying, including the bullies, the victims, and the bully/victims, are at an increased risk for experiencing internalizing problems such as depression (Perren et al., 2010; Mason, 2008; Schneider et al., 2012;). Specifically, Perren and colleagues (2010) found that children



who are classified as bully-victims have the highest rate of depressive symptoms, followed by children who are classified as victims only, followed by children who are classified as bullies only. The children with the least amount of depressive symptoms appear to be those who are not involved in bullying in any capacity (Perren et al., 2010). However, Wang, Nansel, and Iannotti (2011)'s research demonstrated that adolescents who are involved in bullying or victimization in any manner report higher levels of depression and that cybervictims report higher levels of depression than any other group, including cyberbully-cybervictims. Regardless, these results highlight that children involved in bullying, particularly when victimized, tend to be more depressed.

Other recent research has further substantiated this conclusion. For example, Zwierynska, Wolke, and Lereya (2013) studied the relation between depressive symptoms and traditional peer victimization longitudinally. As established in previous research, they demonstrated that children who are victimized are at a heightened risk of developing short-term problems such as nightmares, worrying, and depressive symptoms. Moreover, these researchers demonstrated that victims of traditional bullying are also more likely to experience more severe, long-lasting effects such as social isolation, depression, suicidal ideation, and successfully completing suicides (Zwierynska et al., 2013).

Also utilizing a longitudinal design, Cappadocia, Craig, and Pepler (2013) investigated Canadian adolescents' involvement in cyberbullying and cybervictimization across two time points. Through this research, it was demonstrated that girls were significantly more likely to report having been cybervictimized than boys. It was also shown that adolescents who were involved in traditional bullying at Time 1 were twice as

likely than their non-involved peers to be cyberbullies at Time 2 and that adolescents who reported higher traditional victimization at Time 1 were three times more likely than their non-victimized peers to be cybervictims at Time 2. Of particular interest to the current study was the researchers' finding that adolescents who reported higher levels of depressive symptoms at Time 1 were 50% more likely than their peers to identify as cybervictims at Time 2 (Cappadocia et al., 2013). Furthermore, and particularly relevant for the current study, Perren and colleagues (2010) demonstrated that cybervictims are at an increased risk of experiencing depressive symptoms, with the level of depressive symptoms increasing as the frequency of the cybervictimization increases. This relation was significant even after controlling for any depressive symptoms that may be attributed to traditional bullying (Perren et al., 2010). This latter result is of particular importance as it demonstrates not only that cybervictimization/cyberbullying appear to have the same negative sequelae as traditional bullying/victimization but also that cybervictimization may contribute unique variance above and beyond traditional victimization when considering depression outcomes.

Taking into account victims' perceptions and depressive symptoms when comparing traditional victimization and cybervictimization outcomes, Campbell, Spears, Slee, Butler, and Kift (2012) found similarly relevant results. In particular, they found that children and adolescents (ages 9 to 19 years) were more likely to perceive traditional victimization experiences as being more harsh and severe than cybervictimization experiences, but they were also more likely to report higher rates of negative social impacts, anxiety symptoms, and depressive symptoms related to cybervictimization. Children and adolescents who identified as both traditional victims and cybervictims

reported levels of social distress, anxiety, and depressive symptoms similar to students who identified as cybervictims alone (Campbell et al., 2012). Thus, even though children and adolescents may perceive traditional bullying as being more severe, the impact of cyberbullying may be more severe.

Similarly, Machmutow, Perren, Sticca, and Alsaker (2013) investigated cybervictimization as a risk factor for depressive symptoms in a sample of adolescents using a longitudinal design. In this study, cybervictimization and depression were shown to positively relate to each other at both time points. Additionally, cybervictimization was shown to negatively relate to retaliation (i.e., aggression toward others and/or revenge). Machmutow et al. (2013) also demonstrated that cybervictimized girls were more likely to have higher levels of depressive symptoms at Time 2 and that higher levels of cybervictimization predicted higher levels of depressive symptoms at Time 2, even after controlling for Time 1 depression. This relation remained significant above and beyond the relation between traditional victimization and depression. These findings are of particular interest to the current study, which aimed to further support the relation between cybervictimization and depressive symptoms and to take it one step further by investigating how they relate to aggression outcomes.

Investigating the link between traditional bullying, cyberbullying, and mental health concerns such as depression in adolescents, Landstedt and Persson (2014) demonstrated that depressive symptoms are highly related to both traditional victimization and cybervictimization. That is, the more victimization an adolescent experienced, the higher their level of reported depressive symptoms (Landstedt & Persson, 2014). Furthermore, Hinduja and Patchin (2010) investigated the link between

traditional victimization and cybervictimization and bullying with suicidality in a sample of American middle school students and found that all forms of peer aggression were related to increased rates of suicide attempts. Specifically, they found that victims of both traditional bullying and cyberbullying were approximately 2 times more likely to attempt suicide when compared to their non-victimized peers. Additionally, traditional bullies and cyberbullies were approximately 2 times more likely to attempt suicide than their non-bullying peers (Hinduja & Patchin, 2010). Given the strong relation between depression and suicidality, these findings are supportive of the notion that there is cause to investigate how cybervictimization and depressive symptoms relate. Therefore, the current study examined how depressive symptoms interacted with cybervictimization and aggression concurrently, thus adding to the literature.

#### Anger Rumination and Aggression

Anger rumination has been shown to be another risk factor for aggression (Peled & Morretti, 2010). More specifically, Peled and Morretti (2010) demonstrated that anger rumination is predictive of anger and aggression (overt and relational). The researchers theorized that this relation may be due in part to the solitary nature of ruminating on anger. That is, individuals who ruminate on their anger are more likely to be aggressive than individuals who instead seek support from a close friend or family member (Peled & Morretti, 2010). As the current study aimed to better understand risk factors for aggression in cybervictimized adolescents, this construct is of particular interest. Specifically, if anger rumination is shown to be a risk factor, it will have important clinical implications.

Also investigating anger rumination, Anestis, Anestis, Selby, and Joiner (2009) found similar results through a study involving a sample of college students. Specifically, their research demonstrated that anger rumination was a significant predictor of hostility, verbal aggression, and physical aggression. However, unlike Peled and Morretti (2010), Anestis et al. (2009) also demonstrated that anger rumination is not a significant predictor of anger. Strengthening their findings, these results were maintained even after controlling for covariates such as gender. These researchers theorized that individuals who aggress after ruminating on their anger may be using aggression as a way to temporarily cope with their negative emotions, similar to individuals who engage in self-injurious behavior to release emotional pain (Anestis et al., 2009).

A natural correlate of anger rumination is provocation, particularly when the anger-inducing provocation is interpersonal (Denson, Pederson, Friese, Hahm, & Roberts, 2011). Denson et al. (2011) were interested in how this relation might be involved in the relation between anger rumination and aggression. Comparing individuals who were provoked with individuals who were not provoked, those who were provoked exhibited a significantly diminished capacity for self-regulation when provided with an opportunity to aggress against the researcher following a 20-minute period of rumination (compared to the control group's 20 minutes of distraction; Denson et al., 2011). Thus, anger rumination contributes to a decrease in self-regulation, which further contributes to aggression. This concept is of particular interest to the current study, as cybervictimization could be perceived as the interpersonal provoking event leading to anger rumination.

Interested in possible differences in the relation between anger rumination and proactive aggression versus reactive aggression, White and Turner (2014) also investigated the relation between anger rumination, self-regulation, and aggression. These researchers demonstrated that age and gender did not significantly relate to anger rumination but that anger rumination was positively correlated with aggression (reactive and proactive) and negatively correlated with self-regulation. Thus, similar to Denson et al (2011)'s findings, the more anger rumination, the more aggression and the more anger rumination, the less self-regulation (White & Turner, 2014). Uniquely, this study demonstrated that only the relation between anger rumination and reactive aggression was significantly partially mediated by self-regulation when proactive aggression was entered as a control. Although not mediated by self-regulation, the researchers also discovered that anger rumination was associated with proactive aggression when reactive aggression was entered as a control (White & Turner, 2014). The researchers theorized that this could be one of the links to bullying, which they conceptualize as being a form of proactive aggression.

Investigating gender differences regarding aggression and mass media use, Knobloch-Westerwick and Alter (2006) found some intriguing results. After provoking either low or high anger, participants were either told they would have an opportunity to retaliate against the individual who provoked them or not. All participants were then provided with the opportunity to freely browse experimental online news articles. Interestingly, women who were told they would be able to retaliate were more inclined to read positive articles (as if to reduce their anger) when compared to women not primed for retaliation and men who were told they would be able to retaliate were more inclined

to read negative articles (as if to ruminate on their anger) when compared to men not primed for retaliation (Knobloch-Westerwick & Alter, 2006). Although it is important to acknowledge that this study was conducted on a sample of adults, it is interesting to consider the important role that gender played in anger rumination and how it might translate to adolescents using social media and other forms of electronic communication rather than news stories.

The studies discussed above demonstrates that anger rumination relates to aggression. However, what is involved in this relation still remains unclear, be it gender, self-regulation, proactive vs. reactive aggression, etc. The current study aimed to contribute to the literature base on this relation by considering anger rumination as a risk factor for aggression or cyberbullying in the face of cybervictimization.

#### Impulsivity and Aggression

Throughout the aggression literature, there are references to the relation between self-control and aggression. One way to conceptualize low-levels of self-control is with the concept of impulsivity. Thus, impulsivity has also been shown to relate positively to aggression (Denson, DeWall, & Finkel, 2015). Specifically, it has been demonstrated that when something reduces an individual's self-control by triggering or provoking anger, the individual is more likely to act impulsively and aggressively. Denson et al. (2015) emphasized that this aggression is most frequently reactive in nature. This relates particularly to the current study, as it is believed that many individuals who are cybervictimized experience higher levels of aggression and cyberbullying, both of which can be conceptualized as being reactive depending on the situation.

Fite, Goodnight, Bates, Dodge, and Pettit (2008) investigated the role that impulsivity plays as a moderator in the relation between social information processing and aggression in a longitudinal study. They found that response evaluation (i.e., evaluation of possible responses to a certain social situation) was significantly related to later aggressive behavior in adolescents who were medium-high in impulsive but not for adolescents who were low in impulsivity (Fite et al., 2008). That is, adolescents who were medium to high in impulsivity were more aggressive than those who were low in impulsivity when considering how they evaluated their possible responses. Based on Fite et al. (2008)'s findings, it is important to consider how aggressive the adolescent is when one attempts to predict whether he/she will engage in cyberbullying.

Runions (2013) considered impulsivity and reactive aggression to be closely linked through hostile schema and lack of self-control, particularly for adolescents in a social context. That is, some adolescents perceive through their hostile schema that others are out to get them and might lash out impulsively with reactive aggression (Runions, 2013). He also noted that due to the electronic nature of the communication, many adolescents may lack insight into how severe their actions might be (Runions, 2013).

Interested in the development of physical aggression in adolescents, Martino, Ellickson, Klein, McCaffrey, and Edelen (2008) utilized a longitudinal design and identified that higher levels of impulsivity (among other factors) at Time 1 (i.e., 7<sup>th</sup> grade) was most commonly associated with the groups that were aggressive from a young age. These groups were identified in this study as the Persistent High Aggressors and the Desistors. In contrast, the group that remained non-aggressive throughout the study and



the group that developed aggression later in adolescence had lower levels of impulsivity at Time 1 (Martino et al., 2008). Furthermore, the researchers concluded that impulsivity was consistently useful in identifying the more problematic levels of physical aggression from less problematic levels. Whereas the current study did not utilize a longitudinal design and thus conclusions based on the development of aggression are not made, it is of interest to the current study that impulsivity was consistently linked with problematic levels of aggression. Furthermore, as Martino et al. (2008) investigated the link between physical aggression and impulsivity, it is of interest to see how the current study might contribute information regarding the link between more electronic/relational forms of aggression and impulsivity.

Raine et al. (2006) were interested in the differences between reactive and proactive aggression in a sample of adolescent boys. These researchers determined that whereas individuals high in proactive aggression were primarily found to initiate fights, have higher hyperactivity, and have impaired familial and peer relationships, individuals high in reactive aggression were primarily high in impulsivity, hostility-based aggression, and lack of close friends (Raine et al., 2006). Thus, again reactive aggression was highly related to impulsivity and hostility. This is of interest to the current study, as cyberbullying was examined as an outcome that is believed to result partially in response to experiencing cybervictimization.

Further extending the research linking aggression and impulsivity, Low and Espelage (2014) investigated how the relation between exposure to community violence and peer aggression might be moderated by impulsivity and parental monitoring. Through their research, the investigators discovered that both impulsivity and parental

monitoring were significant moderators in the relation between exposure to community violence and peer aggression (specifically to peer fighting and bullying perpetration; Low & Espelage, 2014). Specifically, impulsivity was found to be a risk factor for aggression, with higher levels of impulsivity significantly relating to higher levels of aggression, and parental monitoring was found to be a protective factor against aggression, with higher levels of parental monitoring significantly relating to lower levels of aggression (Low & Espelage, 2014). These moderation models are of particular interest to the current study, which examined impulsivity as a moderator with an outcome of aggression as well. Furthermore, although parental monitoring is not a main focus of the current study, qualitative data regarding parental monitoring of their adolescent's online behavior were collected.

A subset of the literature linking impulsivity to aggression relates to attention-deficit/hyperactivity disorder (ADHD). One example of this is the research conducted by Yen, Chou, Liu, Ko, Yang, and Hu (2014), which investigated cyberbullying in a sample of male adolescents with ADHD. The researchers determined that of the adolescents diagnosed with ADHD, approximately 19% reported that they were cybervictims, and 14% reported that they were cyberbullies. They also determined that cybervictims were at higher risk than their non-cybervictim peers to cyberbully others (Yen et al., 2014). Although the above studies linked impulsivity to higher risk of aggression, Yen et al. (2014) found no differences between inattention and hyperactivity/impulsivity symptoms between individuals involved in cyberbullying and individuals not involved in cyberbullying. This finding being in contradiction to much of the available literature is further evidence for the value of the current study investigating impulsivity as a potential

moderator in the relation between cybervictimization and aggression and/or cyberbullying. It was the aim of the current study to continue to shine light on this lingering question.

### Social Support and Aggression

In addition to many risk factors, there are also numerous protective factors that help prevent children and adolescents from developing problematic levels of aggression even when other factors known to predict aggression are present. One such protective factor is social support (Cohen & Wills, 1985), consisting of the network of people who play some sort of supportive role in an individual's life. Examples include any supportive personal, social, or familial relationships (Hamama & Ronen-Shenhay, 2012). Social support can be experienced through different relationships with various individuals, such as family, teachers, and peers (Benhorin & McMahon, 2008). Social support is an important factor that can help ameliorate aggression (Dutton & Karakanta, 2013) as well as depressive symptoms (Peirce, Frone, Russell, Cooper, & Mudar, 2000) and, therefore, is relevant for consideration in the context of the proposed study.

Two particular theoretical models of the protective roles of social support proposed in the literature are the stress-buffering model and the main-effect model (Cohen & Wills, 1985). The stress-buffering model proposes that social support only serves as a protective factor for individuals who are under stress. Thus, the support buffers the individual from the potentially iatrogenic influence of stressful events and situations (Cohen & Wills, 1985). Alternatively, the main-effect model proposes that social support has a protective role regardless of whether the individual is experiencing stress. This model posits that with social support, individuals are likely to have a greater

sense of self and to be more integrated into positive social situations which will protect against negative social situations or experiences (Cohen & Wills, 1985). Cohen and Wills (1985) also noted that cultural and demographic factors play a role in how support is experienced. That is, males and females as well as members of various races and ethnicities can experience social support differently.

For example, in a brief longitudinal study investigating the effects of social support on internalizing and externalizing problems in adolescents, Windle (1992) found some interesting gender differences. Although low familial support and stressful life situations were associated with an increased risk of problem behaviors such as delinquent activities (e.g., hit teacher or parent, beat someone up) and higher levels of alcohol consumption for both boys and girls in theory; stressful events and low familial social support were significant predictors of problem behaviors for girls only. Boys were shown to be more negatively impacted by high stress levels than low friend support and stressful life events (Windle, 1992). This finding further supports the theory that there are different developmental pathways for problem behaviors in boys and girls (Windle, 1992). Such results also mirror the differences often seen between males and females' pathways to psychopathology.

To account for these expected differences between demographic groups, much of the literature available on social support and related outcomes focuses on specific gender, racial, and ethnic groups. Accordingly, as a research question, the relation of gender to cybervictimization and aggression or cyberbullying, as well as how their relation to one another is moderated by gender, was examined in the current study. Additionally, analyses will be conducted to determine if gender or race/ethnicity need to be included as

control variables. Should either demographic variable be found to significantly affect the results, it will be included as a control for relevant analyses.

Benhorin and McMahon (2008) investigated social support as a protective factor against aggression among African-American adolescents. Family members, teachers, and peers were all examined as potential sources of social support. The researchers found that when considering adolescent-report, peer-report, and teacher-report, exposure to violence significantly predicted aggressive behavior. Parental, teacher, and close-friend social support were each associated with less teacher-reported aggression (Benhorin & McMahon, 2008). Interestingly, when examining the relation between exposure to violence and peer-reported aggression, classmate social support was found to significantly attenuate the relation. That is, for adolescents who experienced greater levels of exposure to violence, higher levels of classmate social support were associated with lower levels of peer-reported aggression, whereas lower levels of classmate social support were related to higher levels of peer-reported aggression (Benhorin & McMahon, 2008). These findings highlight the impact of exposure to violence on aggression and the complicated role of social support on aggressive behavior in various settings. It follows that social support may protect against aggressive outcomes in the face of other types of stressors, such as cybervictimization—a question that was directly addressed by the current study.

Fanti, Demetriou, and Hawa (2012) investigated social support as a protective factor associated with cyberbullying. After conducting a longitudinal study, they concluded that social support was associated with lower rates of cyberbullying (as the bully or as the victim). Additionally, adolescents who lived in single parent households

and/or had low friend support were more likely to be involved with cyberbullying (as the bully or as the victim) at a later point in time (Fanti et al., 2012). Furthermore, Calvete, Orue, Estevez, Villardon, and Padilla (2010) demonstrated that adolescents who engaged in cyberbullying were more likely to have lower levels of social support than their peers who did not engage in cyberbullying. This is of particular relevance for the current study, as it highlights the importance of social support in preventing adolescents from engaging in cyberbullying behavior.

In their longitudinal study investigating how cybervictimization relates to depressive symptoms, Machmutow et al. (2013) also investigated the benefit of specific coping strategies that adolescents can use to deal with their cybervictimization. Positive and negative strategies were examined (e.g., seeking support versus seeking revenge) and the data reflected that social support may attenuate the relation between cybervictimization and depressive symptoms. However, Machmutow et al. (2013) also demonstrated that adolescents who have been cybervictimised are less likely to seek social support when compared to their non-victimised peers. Two hypotheses the researchers had for this finding were that the adolescents have not had success in the past when seeking support or that they fear negative consequences from seeking support (e.g., they might lose their electronic privileges if they tell a parent they were cybervictimised).

Overall, research demonstrates the value that social support has for adolescents. Adolescents with a strong sense of social support are better prepared to handle stressful situations when they arise and are less likely than adolescents with low social support to engage in problem behaviors (aggressive acts in particular), including risky behaviors (such as dangerous alcohol drinking). The proposed study aims to further the literature

by demonstrating how social support is related specifically to aggression outcomes, including cyberbullying itself, as well as how it interacts with cybervictimization in predicting these outcomes.

### Rationale and Current Study

Taken together, the literature reviewed demonstrates that victimization and, more recently, cybervictimization are associated with negative consequences in the short and long term. Given that the phenomenon of cybervictimization is still relatively new, the available research is largely limited to descriptions of the individuals typically involved and the subsequent consequences of cybervictimization. It is important to understand how cybervictimization interacts with other factors to better understand what increases the likelihood for various outcomes. The current study investigated the relation between cybervictimization and aggression, including cyberbullying itself, with a focus on depressive symptoms, anger rumination, impulsivity, social support, and gender as potential moderators. By better understanding the relation between cybervictimization and aggression, it may set the stage for future studies to learn how to help prevent cybervictims from becoming cyberbullies and perpetuating a vicious cycle.

### *Goals*

One of the goals of the current project was to examine how cybervictimization (e.g., being bullied through technological modalities) is related to aggression outcomes (i.e., aggression and cyberbullying) among adolescents. A second goal of the current project was to examine whether depression, anger rumination, and impulsivity are risk factors for aggression and/or cyberbullying, and whether social support is a protective factor against aggression and/or cyberbullying, when an adolescent is a victim of

cyberbullying. A third goal was to better understand the role that gender plays in the relation between cybervictimization and aggression and/or cyberbullying. That is, depression, anger rumination, impulsivity, social support, and gender were each examined as a moderator in the relations between cybervictimization and aggression and between cybervictimization and cyberbullying.

### *Hypotheses*

First, it was hypothesized that depressive symptoms, impulsivity, anger rumination, and cybervictimization would be positively correlated with aggression and cyberbullying and that social support and gender (coded as Male = 0, Female = 1) would be negatively correlated with aggression and cyberbullying among adolescents. Second, it was hypothesized that depressive symptoms, anger rumination, and impulsivity would moderate the relation between cybervictimization and aggression or cyberbullying. Specifically, it was expected that the relation between cybervictimization and aggression or cyberbullying would be exacerbated when levels of depressive symptoms, anger rumination, and impulsivity were higher. Third, it was hypothesized that social support would moderate the relation between cybervictimization and aggression or cyberbullying. Specifically, it was expected that the relation between cybervictimization and aggression or cyberbullying would be attenuated when levels of social support were higher. Finally, gender was examined as a research question in relation to cybervictimization and aggression or cyberbullying without hypothesizing a specific direction for the potential relation.



## CHAPTER II

### METHOD

#### Participants

Adolescents between the ages of 12 and 18 years and their parents were recruited from a community sample. Participants were recruited from communities throughout the United States, Canada, Mexico, and Latin America. A total of 149 parents were recruited for participation in the study. Parents with more than one child between the ages of 12 and 18 were asked to randomly select which child to include in the study by drawing a name from a hat or bowl (from all of the children within the study age range). Five adolescents denied assent and did not provide any data; thus, a total of 144 adolescents and their parents were included in the analyses. A total of 48% of the adolescents were males ( $n = 69$ ), and 52% of the adolescents were females ( $n = 75$ ). A total of 89% of the adolescents ( $n = 128$ ) identified themselves as White/Caucasian, whereas 6% of the sample ( $n = 9$ ) identified themselves as Hispanic, and 5% of the sample ( $n = 7$ ) identified themselves as Other. Adolescents ranged from 12 to 18 years of age with a mean age of 14.90 years ( $SD = 1.76$ ).

Of the parents and caregivers accompanying adolescents to the study and completing forms on their behalf, 74% of the parents identified as females ( $n = 107$ ) and 26% of the parents identified as males ( $n = 37$ ). A total of 65% of the caregivers ( $n = 94$ ) identified themselves as the adolescent's mother, whereas others identified themselves as the adolescent's father ( $n = 36$ ; 25%) or other (e.g., guardian, grandparent, aunt, stepmother, stepfather;  $n = 14$ ; 9%). A total of 89% of the sample ( $n = 128$ ) identified themselves as White/Caucasian, whereas 6% of the sample ( $n = 9$ ) identified themselves as Hispanic, and 5% of the sample ( $n = 7$ ) identified themselves as Other. When asked

about their highest level of education, 1% of respondents reported that they completed junior high school (i.e., 7<sup>th</sup>, 8<sup>th</sup>, or 9<sup>th</sup> grade), 5% graduated high school, 14% completed some college (at least 1 year) or specialized training, 52% graduated college/university (i.e., 4-year degree), and 29% completed a graduate professional degree (i.e., Master's, Doctoral). When asked about their spouse's highest level of education, if applicable, 1% of respondents completed junior high school (i.e., 7<sup>th</sup>, 8<sup>th</sup>, or 9<sup>th</sup> grade), 1% completed some high school (i.e., 10<sup>th</sup> or 11<sup>th</sup> grade), 6% graduated high school, 18% completed some college (at least 1 year) or specialized training, 29% graduated college/university (i.e., 4-year degree), and 33% completed a graduate professional degree (i.e., Master's, Doctoral). Tables 1 and 2 provide additional demographic information regarding participants.

#### Measures

##### *Youth Reported Internet Harassment (YRIH; Ybarra, Diener-West, & Leaf, 2007)*

For the current study, adolescent-reported cybervictimization was measured using a brief, three-item scale developed by Ybarra et al. (2007). One of the items was created for the Second Youth Internet Safety Survey (YISS-2; Ybarra, Mitchell, Wolak, & Finkelhor, 2006), the second item was adapted by Ybarra et al. (2007) from an item in the CDC's Youth Risk Behavior Surveillance Survey (CDC, 2006), and the third was created by Ybarra and colleagues (2007) for their brief survey. The three items measure how often the adolescent "received rude or nasty comments from someone while online," how often the adolescent was the "target of rumors spread online (whether they were true or not)," and how often the adolescent "received threatening or aggressive comments while online" (Ybarra et al., 2007, p. S44). Adolescents rated each item as occurring everyday/almost every day, once or twice a week, once or twice a month, a few times a

year, less than a few times a year, or never. A point value was given to each rating, ranging from 0-*Never* to 5-*Occurring everyday/almost every day*.

Table 1

*Child Sample Characteristics*

Child Characteristics	<i>N (%)</i>	Mean ( <i>SD</i> )
Age		14.90 (1.76)
12	12 (8.3)	-
13	29 (20.1)	-
14	21 (14.6)	-
15	20 (13.9)	-
16	33 (22.9)	-
17	19 (13.2)	-
18	10 (6.9)	-
Gender		0.52 (.50)
Male	69 (47.9)	-
Female	75 (52.1)	-
Race		2.78 (.65)
White	128 (88.9)	-
Hispanic	9 (6.3)	-
Other	7 (4.9)	-
School		
Traditional		
Public	113 (78.5)	-
Private	16 (11.1)	-
Other	1 (0.7)	-
Home-School	6 (4.2)	-
Boarding	2 (1.4)	-
College/University	5 (3.5)	-
Other	1 (0.7)	-

Note. SD = Standard deviation; Gender coded as Male = 0, Female = 1.

For the current study, the three items were modified to also include text messaging (in addition to “online”). Therefore, the items measured how often the adolescent received rude or nasty comments from someone while online or while text messaging, how often the adolescent was the target of rumors spread online or through

text messaging (whether they were true or not), and how often the adolescent received threatening or aggressive comments while online or while text messaging.

Table 2

*Parent/Caregiver Sample Characteristics*

Parent/Caregiver Characteristics		<i>N</i> (%)
<b>Gender</b>		
	Male	37 (25.7)
	Female	107 (74.3)
<b>Race</b>		
	White	128 (88.9)
	Hispanic	9 (6.3)
	Other	7 (4.8)
<b>Marital Status</b>		
	Married	126 (87.5)
	Separated	4 (2.8)
	Divorced	12 (8.3)
	Never Married/Living Alone	2 (1.4)
<b>Family Income</b>		
	\$0 - \$4,999	1 (0.7)
	\$5,000 - \$9,999	1 (0.7)
	\$10,000 - \$14,999	1 (0.7)
	\$15,000 - \$24,999	3 (2.1)
	\$25,000 - \$34,999	4 (2.8)
	\$35,000 - \$49,999	7 (4.9)
	\$50,000 - \$74,999	14 (9.7)
	\$75,000 - \$99,999	22 (15.3)
	≥ \$100,000	89 (61.8)
<b>Rater Education</b>		
	Junior High School (7 <sup>th</sup> , 8 <sup>th</sup> , 9 <sup>th</sup> grade)	1 (0.7)
	High School Graduate	7 (4.9)
	Some College or Specialized Training	20 (13.9)
	College/University Graduate	75 (52.1)
	Graduate Professional Degree	41 (28.5)
<b>Spouse/Partner Education</b>		
	Junior High School (7 <sup>th</sup> , 8 <sup>th</sup> , 9 <sup>th</sup> grade)	1 (0.7)
	Some High School (10 <sup>th</sup> , 11 <sup>th</sup> grade)	2 (1.4)
	High School Graduate	9 (6.3)
	Some College or Specialized Training	26 (18.1)
	College/University Graduate	41 (28.5)

Table 2 (continued).

Parent/Caregiver Characteristics	<i>N</i> (%)
Spouse/Partner	
Education (continued)	
Graduate Professional Degree	48 (33.3)
Not Applicable	16 (11.1)
Relationship of Rater	
Father	36 (25.1)
Mother	94 (65.3)
Other	14 (9.6)

Note. Gender coded as Male = 0, Female = 1.

Consistent with the original measure, any adolescent who reported experiencing any of the three types of harassment was asked a follow-up question with the intention of better understanding the impact that cybervictimization may have on adolescents (Ybarra et al., 2007). Specifically, they were asked to rate how upset they were about the experience on a 5-point Likert scale ranging from 1-*Not at All Upset* to 5-*Extremely Upset*. In the original measure, this follow-up question was only asked once after all three of the items were completed and only if the individual endorsed one of the three cybervictimization items as having occurred. For the current study, the follow-up question was asked after each item if that item was endorsed as having occurred. It was excluded as a follow-up on any question to which the adolescent responded that the event happened “never” (Ybarra et al., 2007). Each victimization item was multiplied by its corresponding impact rating, and those three products were summed to create a weighted cybervictimization score. This score was used in the analyses as the estimate for adolescent-reported cybervictimization (the predictor variable).

In previous psychometric research, the three items composing the cybervictimization score have demonstrated good internal consistency, with a

Chronbach's alpha of .79 (Ybarra et al., 2007). Acceptable consistency was found for the current sample, with an alpha coefficient of .72. Because deleting any one item did not improve the overall consistency, the original scale was retained.

Ybarra et al. (2007) also measured cyberbullying with three similar items mirroring the victimization items with the same frequency options. For the current study, these items had the same modifications to include text messaging. For example, the adolescents were asked how many times in the last year they sent rude or nasty comments to someone else while online or while text messaging, how often in the past year they spread rumors about someone else online or through text messaging (whether they were true or not), and how often in the past year they sent threatening or aggressive comments to someone else while online or while text messaging. For the current study, scores on the three cyberbullying items were summed to form a total cyberbullying score, which was used in the analyses as the estimate for adolescent-reported cyberbullying (one of the outcome variables).

In previous psychometric research, the three cyberbullying items have also demonstrated strong internal consistency, with a Chronbach's alpha of .82 (Ybarra et al., 2007). For the current sample, acceptable internal consistency was found, with an alpha coefficient of .60. Deleting any one item did not improve the overall consistency, so the original scale was retained.

*Peer Conflict Scale (PCS; Marsee & Frick, 2007)*

The PCS is a 40-item measure of reactive, proactive, overt, and relational aggression. For the current study, the self-report and parent-report versions of the measure were both utilized. The measure is designed for use with adolescents,

particularly between the ages of 12 and 19 years. All items on the measure are worded such that there is a corresponding reactive overt item for each reactive relational item and that there is a corresponding proactive overt item for each proactive relational item. Respondents respond on a 4-point *Likert* scale ranging from *Not at All True* to *Definitely True*. There are four individual subscales, including Proactive Overt, Proactive Relational, Reactive Overt, and Reactive Relational. Scores for each subscale are calculated by summing the 10 items. Additional scales for Total Aggression, Total Overt, Total Relational, Total Reactive, or Total Proactive can also be calculated by summing the relevant items (e.g., summing the 20 “overt” items to form the Total Overt scale). For the current study, the Total Aggression score (sum of all 40 items) from each respondent was used in the analyses as the estimate for adolescent-reported aggression and parent-reported aggression (two of the outcome variables).

For the self-report version, the Total Aggression score consists of questions such as, “I start fights to get what I want,” “I gossip about others to become popular,” “When I am teased, I will hurt someone or break something,” and “When someone makes me angry, I try to exclude them from my group” (Marsee et al., 2011). For the parent-report version, the Total Aggression score consists of questions such as “Starts fights to get what he/she wants,” “Gossips about others to become popular,” “Hurts others when angry at them,” and “When mad at someone, he/she will try to exclude them from his/her group” (Marsee et al., 2011).

In previous psychometric research, the PCS has demonstrated good reliability as evidenced by similar internal consistency across three different samples (high school, detained, and residential), with coefficient alphas ranging from .76 to .83 for the

proactive overt scale, from .77 to .81 for the proactive relational scale, from .86 to .88 for the reactive overt scale, and from .77 to .81 for the reactive relational scale. Additionally, good reliability was evidenced for the overall sample with coefficient alphas ranging from .79 to .89. Likewise, it has also demonstrated adequate convergent validity. For example, each of the four subscales was significantly positively correlated with arrest history and Callous-Unemotional traits for the overall sample (Marsee et al., 2011). For the current sample, excellent internal consistency was found for adolescent-reported total aggression, with an alpha coefficient of .92. Excellent internal consistency was also found for parent-reported total aggression, with an alpha coefficient of .91.

*Revised Child Anxiety and Depression Scale (RCADS;* Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000)

The RCADS is a 47-item parent- and self-report measure of child anxiety and depressive symptoms. The current study utilized the self-report version of the measure. This measure is appropriate for children and adolescents ages 6 to 18 years (County of Los Angeles Department of Mental Health, 2011a/2011b). Respondents rate how often each of the items happen to them by responding to a 4-point *Likert* scale including *Never*, *Sometimes*, *Often*, or *Always*. The RCADS consists of a Separation Anxiety Disorder scale, a Social Phobia scale, a Generalized Anxiety Disorder scale, a Panic Disorder scale, an Obsessive Compulsive Disorder scale, and a Major Depressive Disorder scale. Additionally, the sum of the five anxiety subscales generates a Total Anxiety Scale and the sum of all six subscales generates a Total Internalizing Scale. For the current study, whereas the entire measure was administered, only the Major Depressive Disorder (MDD) scale was of interest and was used in the analyses as the estimate for depressive



symptoms (one of the moderator variables). The MDD scale consists of 11 items. Items measure symptoms such as “feels sad or empty,” “has no energy for things,” “feels worthless,” and “feels tired a lot” (Chorpita et al., 2000). The scale scores are derived by summing the items that comprise that scale.

The MDD scale of the RCADS demonstrates adequate to good reliability as evidenced by internal consistency (coefficient alphas of .78) and test-retest reliability ( $r_s$  of .77, Chorpita et al., 2000). It also demonstrated moderate convergent validity and discriminative validity. For example, responses on the MDD domain correlated .70 with responses on the Children’s Depression Inventory (CDI; Kovacs, 1980). For the current study, excellent internal consistency was found, with an alpha coefficient of .92.

*Sadness and Anger Rumination Inventory (SARI; Peled & Morretti, 2007)*

The SARI is a 22-item self-report measure of anger rumination and sadness rumination (Peled & Morretti, 2007). The measure was designed for use with adolescents, particularly between the ages of 12 and 18 years. Respondents give ratings on a 5-point *Likert* scale ranging from *Never* to *Always*. The responses contribute to two scales, including Anger Rumination and Sadness Rumination. The total scores are determined by summing the 11-items comprising each scale. For the current study, the Anger Rumination score from each respondent was used in the analyses as the estimate for adolescent-reported anger rumination (one of the moderator variables).

The Sadness Ruminations scale consists of questions such as, “I keep thinking about past experiences that have made me sad,” and “I get absorbed in thinking about why I am sad and find it difficult to think about other things” (Peled & Morretti, 2007). The Anger Rumination scale consists of questions such as, “I keep thinking about past

experiences that have made me angry,” and “When something makes me angry, I turn this matter over and over again in my mind” (Peled & Morretti, 2007). Excellent internal consistency was found for the total anger rumination scale for the current study, with an alpha coefficient of .97.

*Barratt Impulsivity Scale, Version 11, For Adolescents (BIS-11-A; Hartmann, Rief, & Hilbert, 2011)*

The BIS-11-A is a 30-item self-report measure of impulsivity. Patton, Stanford, and Barratt (1995) developed the original, adult version to measure impulsivity. It has since been adapted into an adolescent version for Spanish and German populations (Hartmann, Rief, & Hilbert, 2011). The adapted version was utilized for the current study. The measure was adapted for use with adolescents, particularly between the ages of 10 and 20 years. Participants respond on a 4-point *Likert* scale ranging from *Rarely/Never* to *Almost Always/Always*. The responses contribute to various scales, including Non-Planning Impulsiveness, Cognitive Impulsiveness, Motor Impulsiveness, and Total Impulsiveness. A scoring worksheet was utilized to determine each scales' score by prorating the score on the adolescent version to match the original (adult) version's scoring instruction. These instructions vary for each scale, including which items are included for each scale. In total, 10 items comprise the Non-planning Impulsiveness scale, 5 items comprise the Cognitive Impulsiveness scale, 9 items comprise the Motor Impulsiveness scale, and 24 items comprise the Total Impulsiveness scale. For the current study, the Total Impulsiveness score (sum of 24 of the 30 items) from each respondent was used in the analyses as the estimate for adolescent-reported impulsivity (one of the moderator variables).

The Non-planning Impulsiveness scale consists of questions such as, “I plan tasks carefully” (reverse-scored), the Cognitive Impulsiveness scale consists of items such as, “I have ‘racing’ thoughts,” and the Motor Impulsiveness scale consists of items such as, “I do things without thinking” (Hartmann, Rief, & Hilbert, 2011). Additionally, the Total scale consists of items such as, “I act on the spur of the moment” (Hartmann, Rief, & Hilbert, 2011).

In a psychometric analysis with the German sample, the measure demonstrated good internal consistency (Hartmann et al., 2011). Specifically, the Total Impulsivity score had a Cronbach’s alpha of .74, the General Impulsiveness score had a Cronbach’s alpha of .74, and the Nonplanning Impulsiveness score had a Cronbach’s alpha of .72. Motor impulsiveness had a low internal consistency of .30; however, this individual scale was not utilized in the current study. Additionally, acceptable test-retest reliability was evidenced across six months by a test-retest coefficient of .56 for General Impulsiveness and .66 for the Total Score. Nonplanning Impulsiveness (.30) and Motor Impulsiveness (.37) showed medium stability across six months. The BIS-11-A also demonstrated adequate convergent and discriminant validity. Each of the subscales was correlated with the general problem score from the CBCL. Additionally, scores for individuals with ADHD were higher than for a sample of healthy individuals with no impairment. For the current sample, acceptable to good internal consistency was found, with an alpha coefficient of .79.

*Child and Adolescent Social Support Scale (CASSS; Malecki & Demaray, 2002)*

The CASSS is a 40-item self-report measure of perceived social support from parents, teachers, classmates, and friends. The CASSS has two age-based forms (Level 1

and Level 2), which have a high degree of overlap (i.e., 80 percent of the questions are on both versions, with additional age-appropriate questions on each form; Malecki & Demaray, 2002). Level 2 is designed for use with children and adolescents in the 6<sup>th</sup> through 12<sup>th</sup> grades and was the level of interest for the current study. Respondents rate each item in terms of frequency and importance. Specifically, for frequency, they respond on a 6-point *Likert* scale ranging from *Never* to *Always*. The importance ratings are only intended to be used for clinical interpretation and, thus, were not used for the current study. There are four individual subscales, with each corresponding to one specific source of support (e.g., parent, teacher, classmate, or close friend) and one total frequency score, which corresponds to the total of the four subscales. Items on the parent support subscale measures perceived social support through questions such as “My parents express pride in me.” Items on the teacher support subscale measures perceived social support through questions such as “My teacher cares about me.” Items on the classmate support subscale measures perceived social support through questions such as “My classmates treat me with respect.” Finally, items on the close friend support subscale measure perceived social support through questions such as “My close friend helps me when I need it,” (Malecki & Demaray, 2002). The Total Support scale (raw score based on summed frequency ratings) was of interest for the current study, and were used in the analyses as the estimate for perceived social support (one of the moderator variables).

In previous psychometric research, the CASSS has displayed strong reliability. Level 2 demonstrated internal consistency, with the Total scale demonstrating a coefficient alpha of .95 and a range of coefficient alphas from .89 to .94 for the four subscales. Excellent internal consistency was also found in the current sample, with an

alpha coefficient of .98. Level 2 has also demonstrated strong reliability as evidenced by a test-retest reliability, with an  $r$  equal to .70 for the Total scale and a range from .60 to .76 for the four subscales. It has also demonstrated moderate convergent validity, as evidenced by a correlation value of .70 for Total scores and a range from .55 to .66 for the four subscales when compared to responses on the Social Support Scale for Children (SSSC), which is a similar measure of social support for children. Discriminant validity also was demonstrated, as evidenced by correlation coefficients ranging from -.17 to -.34 for the four subscales when compared to the parent-rated externalizing composite score on the Behavioral Assessment System for Children (BASC) and from -.13 to -.25 for the four subscales when compared to the parent-rated internalizing composite score on the BASC (Malecki & Demaray, 2002).

*Cybervictimization/Cyberbullying Questionnaire* (Li, 2006)

For the current study, adolescents also completed a brief 15-item questionnaire developed by Li (2006) called the Cybervictimization/Cyberbullying Questionnaire (CCQ). The 15 items ask whether the adolescent has any experience of being victimized or cybervictimimized. If so, the questionnaire has follow-up items regarding details of the experiences. For example, the adolescents were asked to respond to “I have been cyberbullied: yes or no” and then, as a follow-up if they responded affirmatively, “If yes, I was cyberbullied via: email, chat room, cell phone, other (circle all that apply),” (Li, 2006). The questionnaire also includes questions about whether the adolescent has a history of cyberbullying others. For example, one item is “I have cyberbullied others” with appropriate follow-up questions similar to the one seen above. Most of the questions either require a yes/no answer or an assortment of possible answers from which

the adolescent may choose to respond. This measure does not yield specific scales, and no reported psychometrics are available at this time. It was used for descriptive purposes only, providing valuable additional information regarding the nature of the victimization experienced or the bullying perpetrated.

*Electronic Communication Use Questionnaire (ECUQ)*

Each parent and adolescent completed the ECUQ. This 21-item questionnaire was developed by the researcher for the purposes of the current study (Appendix A parent report; Appendix B, adolescent report). The 21 items pertain to the adolescent's exposure to and use of various forms of electronic communication. Specifically, participants were asked to report on the types of electronic communication with which the adolescent is familiar and to which the adolescent has access, as well as how often the adolescent utilizes these forms of communication. Additionally, some questions pertain to the adolescent's access to the internet, what type of computer the adolescent uses, and whether the adolescent has a cell phone with or without a data plan. Finally, the measure included questions regarding how often the adolescent has conversations with his or her parent regarding internet safety and how much access the parent has to the adolescent's online activity. Several of the items have follow-up questions that the adolescents were asked if they answered in the affirmative. For example, the adolescents were asked to respond to "Do you have a cell phone," and then, as a follow-up if they responded affirmatively, "If yes, does your cell phone have a data plan?" and "If yes, do you have access to your cell phone at school?" Most of the questions either required a yes/no answer or an assortment of possible answers from which the parents and adolescents could choose to respond. However, eight of the items pertaining to frequency of use

were scored using a 5-point *Likert* scale ranging from *Never* to *Almost Daily*. An example of one of these items is “How often would you estimate that you use social media sites (e.g., Facebook, Twitter)?” The eight *Likert* scale items were summed together to create a Total Score of electronic communication use. The remaining items were used for descriptive purposes only, providing valuable additional information regarding the nature of the sample’s familiarity with, exposure to, and access to sources of electronic communication. The adolescent-report Total Score (raw score based on summed ratings) of electronic communication use was of interest for the current study, and was used both to describe the sample and as a possible covariate in the analyses examining cyberbullying as the outcome. The parent-report Total Score was only used in the current sample as a means to further describe the sample. For the current study, acceptable internal consistency was found for the adolescent-report total score, with an alpha coefficient of .62, and for the parent-report total score, with an alpha coefficient of .70. Deleting any one item from either of the scales did not improve the overall consistency, so the original scales were retained.

### *Demographic Questionnaire*

Each parent completed the Demographic Questionnaire created for the current study on their adolescent (Appendix C). This form requests information on the adolescent, the reporting parent, and family. Information about the adolescent includes descriptors such as age, gender, ethnic group/race, education history, and social history (e.g., estimated number of friends, typical length of friendships). Parents also included information about themselves, including age, gender, ethnic group/race, and relationship to adolescent (e.g., biological mother, adoptive mother, stepmother). To obtain

information relating to socioeconomic status, parents also reported total annual gross family income, parental education, and parental employment. Other requested family information included: family structure (e.g., number of parents in the household, number of siblings, who lives in the home) and number of hours parents spend time with the adolescent each day.

### Procedure

Approval from The University of Southern Mississippi Institutional Review Board (Appendix D) was obtained prior to data collection. Families were recruited via email, flyers posted around local community, and snowball sampling (i.e., participants were encouraged to share the survey with other individuals). Each parent and adolescent was informed that they were entered separately to win one of ten \$25 gift cards to a major store chain for their participation in the study (i.e., each family had two chances to win).

Once parents agreed to participate by providing the researcher with their contact information (e.g., email), they were emailed a unique link to a secure online website. Prior to completing the measures, parental consent and adolescent assent were obtained via an electronic consent form. If the adolescent was 18 years old, then adolescent consent was obtained rather than adolescent assent. Specifically, parents were asked to sign the electronic consent form first and adolescent assent/consent was only sought (electronically) after parental consent was obtained. No measures were accessible until parental consent (and adolescent consent, when appropriate) was obtained. Even if parents consented, adolescents were not given measures unless they assented. The parents were then asked to complete the demographic questionnaire, the PCS, and the ECUQ, in that order, on their adolescent. Each adolescent was then asked to complete the YRIH, the CCQ, the PCS, the RCADS, the CASSS, the SARI, the BIS-11-A, and the



ECUQ, in that order, on themselves. Parents and adolescents were allowed to return to the website to complete unfinished measures at a later time in case they were not able to complete them in one sitting. Once all data were collected, they were coded for statistical analyses.

## CHAPTER III

### RESULTS

#### Descriptive Data Regarding Access to and Experiences with Electronic Communication Use

Given that the study involved a community sample, a range of cybervictimization experience was anticipated because it was not a requirement for participation that the adolescent was involved with cybervictimization (as a victim or a bully) or even that the adolescent have any experience using social media. Accordingly, qualitative data regarding electronic communication use (ECUQ, with both adolescent and parent report) and cybervictimization/cyberbullying experience (CCQ, for adolescent report only) were collected.

Data regarding parent- and adolescent-reported familiarity with and access to various forms of electronic communication, frequency of conversations about internet usage safety, and amount of parental access to online activity can be found in Table 3. Of the parents and caregivers accompanying adolescents to the study and completing forms on their behalf, 100% reported that their adolescent has access to the internet ( $n = 144$ ), and 93.1% of the parents reported that their adolescent has access to the internet at school ( $n = 134$ ). A total of 94.4% of the caregivers ( $n = 136$ ) reported that their adolescent has a cell phone, 81.9% of the caregivers ( $n = 118$ ) reported that their adolescent's cell phone has a data plan, and 68.8% of the caregivers ( $n = 99$ ) reported that their adolescent has access to their cell phone at school. A total of 45.1% of caregivers ( $n = 65$ ) reported that their adolescent has a tablet. When asked about computers, 31.3% of parents ( $n = 45$ ) reported that their adolescent has a desktop computer, 64.6% of parents ( $n = 93$ ) reported

that their adolescent has a laptop computer, 20.8% of parents ( $n = 30$ ) reported that their adolescent has access to their laptop computer at school. A total of 86.8% of caregivers ( $n = 125$ ) reported that their adolescent's school has guidelines or rules regarding the use of electronics during school hours.

Table 3

*Electronic Use Sample Characteristics*

Sample Electronic Characteristics	Parent Report – $N$ (%)	Adolescent Report – $N$ (%)
<b>Adolescent Familiar With</b>		
Facebook	140 (97.2)	132 (91.7)
Twitter	115 (79.9)	113 (78.5)
Other Social Media	83 (57.6)	109 (75.7)
Email	143 (99.3)	136 (94.4)
Instant Messaging	117 (81.3)	92 (63.9)
Google Chat (GChat)	40 (27.8)	36 (25.0)
Other Chat Rooms	24 (16.7)	40 (27.8)
Text Messaging	140 (97.2)	135 (93.8)
Blogs	94 (65.3)	72 (50.0)
YouTube	135 (93.8)	136 (94.4)
Live Video Communication	116 (81.9)	106 (73.6)
Other	19 (13.2)	46 (31.9)
None	2 (1.4)	1 (0.7)
<b>Adolescent Access To</b>		
Facebook	105 (72.9)	108 (75.0)
Twitter	81 (56.3)	84 (58.3)
Other Social Media	83 (59.0)	102 (70.8)
Email	131 (91.0)	133 (92.4)
Instant Messaging	89 (61.8)	78 (54.2)
Google Chat	23 (16.0)	34 (23.6)
Other Chat Rooms	20 (13.9)	35 (24.3)
Text Messaging	132 (91.7)	130 (90.3)
Blogs	43 (29.9)	51 (35.4)
YouTube	133 (92.4)	133 (92.4)
Live Video Communication	96 (66.7)	96 (66.7)
Other	18 (12.5)	40 (27.8)
None	2 (1.4)	1 (0.7)

Table 3 (continued).

Sample Electronic Characteristics	Parent Report – <i>N</i> (%)	Adolescent Report – <i>N</i> (%)
Frequency of Conversations About Internet Usage Safety (Continued)		
Never	3 (2.1)	22 (15.3)
Once Ever	11 (7.6)	13 (9.0)
1-2 Times a Year	31 (21.5)	41 (28.5)
3-4 Times a Year	21 (14.6)	13 (9.0)
5- 6 Times a Year	19 (13.2)	17 (11.8)
Once a Month	29 (20.1)	18 (12.5)
Once a Week	16 (11.1)	9 (6.3)
Several Times Per Week	13 (9.0)	11 (7.6)
Once a Day	1 (0.7)	0 (0)
Parent Access to Adolescent Electronic Use		
None	8 (5.6)	17 (11.8)
Limited	57 (39.6)	55 (38.2)
Full	79 (54.9)	72 (50.0)

Note. As measured by the ECUQ.

Also shown in Table 3, of the adolescents completing the study, 99.3% ( $n = 143$ ) reported that they have access to the internet, and 93.8% reported that they have access to the internet at school ( $n = 135$ ). When asked about cell phones, 94.4% of the adolescents ( $n = 136$ ) reported that they have a cell phone, 77.1% reported that their cell phone has a data plan ( $n = 111$ ), and 63.2% reported that they have access to their cell phone at school ( $n = 91$ ). A total of 50.7% of adolescents ( $n = 73$ ) reported that they have a tablet. When asked about computers, 51.4% of the adolescents ( $n = 74$ ) reported that they have a desktop computer, 66% reported that they have a laptop computer ( $n = 95$ ), and 26.4% reported that they have access to their laptop computer at school ( $n = 38$ ). A total of

89.6% of adolescents reported that their school has guidelines or rules regarding the use of electronics during school hours.

It was also of interest how adolescent- and parent-report might relate and/or differ with regards to the above information (e.g., access to internet, frequency of conversations about safety, type of electronic devices). Intercorrelations among all of the items described qualitatively above were run, and it was determined that parent-report was always significantly positively correlated with the adolescent-report when comparing the same item ( $r$ 's ranging from .38 to .87; e.g., "Do you have access to the internet?" versus "Does your adolescent have access to the internet?"). Additionally, paired samples  $t$ -tests were run to analyze the difference between adolescent- and parent-report on these same items. These results can be found in Table 4. Overall, these results indicated that there were not significant differences between adolescent- and parent-report.

However, some interesting differences emerged. It was found that parents reported significantly more often that their adolescent has a desktop computer ( $M = 1.69$ ,  $SD = .47$ ) when compared to the adolescents' report ( $M = 1.48$ ,  $SD = .50$ ),  $t(142) = 5.55$ ,  $p < .001$ . Furthermore, it was found that parents reported having conversations about internet usage safety with their adolescents significantly more frequently ( $M = 4.83$ ,  $SD = 1.90$ ) than adolescents reported having with their parents ( $M = 3.94$ ,  $SD = 2.11$ ),  $t(143) = 4.90$ ,  $p < .001$ . Finally, the finding that, on average, parents reported have more access to their adolescent's online activity ( $M = 2.49$ ,  $SD = .60$ ) than the adolescents reported ( $M = 2.38$ ,  $SD = .69$ ),  $t(143) = 1.93$ ,  $p = .06$ , was marginally significant.

Table 4

*Results of Paired T-Tests Between Parent- and Adolescent-Reported Electronic Use*

	Parent <i>M</i>	Parent <i>SD</i>	Adol <i>M</i>	Adol <i>SD</i>	Paired <i>M</i>	Paired <i>SD</i>	Paired <i>t</i>	Paired <i>p</i>
Access to the internet at home <sup>a</sup>	1.00	.00	1.01	.083	-.01	.08	-1.00	.32
Access to the internet at school <sup>a</sup>	1.07	.26	1.06	.24	.01	.28	.30	.76
Have a cell phone <sup>a</sup>	1.06	.23	1.06	.23	.00	.12	.00	1.00
Access to a cell phone with data plan <sup>b</sup>	1.11	.31	1.15	.03	-.04	.26	-1.68	.10
Access to cell phone at school <sup>b</sup>	1.28	.45	1.30	.46	-.02	.32	-.83	.41
Have a tablet <sup>a</sup>	1.55	.50	1.49	.50	.06	.35	1.90	.06
Have a desktop computer <sup>c</sup>	1.69	.47	1.48	.50	.20	.44	5.55	< .001
Have a laptop computer <sup>a</sup>	1.35	.48	1.34	.48	.01	.26	.63	.53
Access to laptop at school <sup>d</sup>	1.66	.48	1.59	.49	.07	.45	1.42	.16
Frequency of conversations about internet usage safety <sup>a</sup>	4.83	1.90	3.94	2.11	.90	2.20	4.90	< .001
Parent access to adolescent's online activity <sup>a</sup>	2.49	.60	2.38	.69	.11	.69	1.93	.06
Does school have guidelines regarding use of electronics during school hours <sup>a</sup>	1.22	.60	1.16	.50	.06	.51	1.49	.14

Note. *M* = Mean; *SD* = Standard deviation; Adol = Adolescent; As measured by the ECUQ.

<sup>a</sup> *N* = 144. <sup>b</sup> *N* = 129. <sup>c</sup> *N* = 143. <sup>d</sup> *N* = 88.

Furthermore, when adolescents were asked on the CCQ about traditional victimization/bullying and cybervictimization/bullying, 42.4% of adolescents ( $n = 61$ ) reported that they have been traditionally victimized, 14.6% of adolescents ( $n = 21$ ) reported that they have traditionally bullied others, 18.1% of adolescents ( $n = 26$ ) reported that they were cyberbullied, and 3.5% of the adolescents ( $n = 5$ ) reported that they have cyberbullied others. A total of 61.8% of adolescents ( $n = 89$ ) reported that they know someone who has been cyberbullied, 69.4% of adolescents ( $n = 100$ ) reported that when adults in school know cyberbullying has occurred, they try to stop it, and 84% of adolescents ( $n = 121$ ) reported that they know safety strategies in cyberspace. Finally, 38.9% of the adolescents ( $n = 56$ ) reported that when they were cyberbullied, they told adults (e.g., parents, teachers), and 43.1% of the adolescents ( $n = 62$ ) reported that when they knew someone who was being cyberbullied, they told adults.

#### *Descriptive Statistics of Variables of Interest*

Prior to analyzing the data to test the study hypotheses, data were examined descriptively and screened for any irregularities, problems, or significant outliers. In particular, skewness, kurtosis, and outliers were examined and were of interest. Given that a community sample was recruited rather than a targeted sample of cybervictims and cyberbullies, some skew was expected on those constructs. Indeed, cybervictimization (skewness = 2.09) and cyberbullying (skewness = 2.43) both demonstrated a positive skew, indicating more adolescents who reported that they are not cybervictims or cyberbullies. Additionally, adolescent-reported aggression (skewness = 3.38) and parent-reported aggression (skewness = 2.92) demonstrated a positive skew, indicating a higher distribution of adolescents who do not have notable aggression. Finally, depression

(skewness = 1.92) demonstrated a positive skew, indicating a higher distribution of adolescents who do not report experiencing depressive symptoms. Additionally, substantial positive kurtosis was observed in the same measures described above (i.e., cybervictims, cyberbully, adolescent-reported aggression, parent-reported aggression, and depression), indicating a sharper curve of distribution in the sample. Finally, negative kurtosis was observed in gender, indicating a flatter shape in the distribution. Because some skew was expected for the community sample, the variables were not transformed. No other significant irregularities (e.g., evidence that the parent/caregiver completed some or all of the adolescent's questions) or outliers were found in the data, and, therefore, no subjects or variables were removed from the final dataset. Descriptive statistics of variables of interest are reported in Table 5.

#### *Correlations with Possible Covariates*

Initial correlation analyses between demographic variables and outcome variables were conducted to determine if demographic controls were needed in the regression analyses (Table 6). Race was dichotomized as White/Caucasian and non-White (coded White/Caucasian = 0, non-White = 1) for the analyses. Gender, race, age, and income were not significantly correlated with any of the outcome variables. However, parent- and adolescent-reported electronic usage was significantly correlated with cyberbullying, with higher rates of electronic use being associated with higher rates of cyberbullying. Given that electronic usage was found to be significantly correlated with cyberbullying, it was examined as a possible covariate in analyses involving cyberbullying.



Table 5

*Descriptive Data for Variables of Interest*

	<i>Mean</i>	<i>SD</i>	Range		Range	Skew	Kurtosis
			Minimum	Maximum			
Cybervictimization <sup>a</sup>	4.52	5.94	0	30	0 – 30	2.09	5.12
Cyberbullying <sup>a</sup>	.88	1.56	0	8	0 – 18	2.43	6.62
Aggression <sup>b</sup>	5.90	9.74	0	71.79	0 – 120	3.38	15.91
Aggression (Parent Report) <sup>b</sup>	4.03	6.05	0	34	0 – 120	2.87	9.87
Depression <sup>c</sup>	4.85	5.67	0	27	0 – 141	1.92	3.52
Anger Rumination <sup>d</sup>	2.06	.96	1	4.82	1 – 5	.72	-.29
Impulsivity <sup>e</sup>	67.04	11.16	40	99.13	40 – 160	.25	.03
Social Support <sup>f</sup>	259.57	50.17	93	360	60 – 360	-.28	-.04
Gender <sup>g</sup>	.52	.50	0	1	0 – 1	-.08	-2.02
Electronic Use <sup>h</sup>	23.44	5.19	11	38	8 – 40	.07	-.09
Electronic Use (Parent Report) <sup>i</sup>	23.94	5.63	10	40	8 – 40	.01	.25

Note. *M* = Mean; *SD* = Standard deviation; Min = Minimum; Max = Maximum; Gender coded as Male = 0, Female = 1; All constructs are based on adolescent report unless otherwise noted.

<sup>a</sup> As measured by the YRIH. <sup>b</sup> As measured by the PCS; prorated value accounting for up to 1 missing item. <sup>c</sup> As measured by the RCADS. <sup>d</sup> As measured by the SARI; prorated value accounting for up to 2 missing items. <sup>e</sup> As measured by the BIS-11-A; prorated value accounting for up to 4 missing items. <sup>f</sup> As measured by the CASSS. <sup>g</sup> Gender coded as Male = 0, Female = 1.

<sup>h</sup> As measured by the AECUQ. <sup>i</sup> As measured by the PECUQ.

Table 6

*Zero-Order Correlations Between Outcome Variables and Demographic Variables*

	Aggression	Aggression (P)	Cyberbullying
Gender	-.14	-.05	-.01
Race	-.14	-.07	-.14
Age	-.02	-.02	.10
Income	.06	-.14	.04
Electronic Use (P)	-.12	-.11	.19*
Electronic Use	-.10	-.07	.17*

Note. (P) = parent report. Gender coded as Male = 0, Female = 1; Race coded dichotomously as White/Caucasian = 0, Nonwhite = 1.

\*  $p < .05$ .

When cyberbullying was the outcome variable, each analysis was conducted twice—once without the electronic usage as a covariate and once with it as a covariate to determine if the pattern changed accounting for this variable.

Additionally, initial correlation analyses with all variables of interest were conducted to determine how all predictor, criterion, and moderating variables were interrelated. Zero-order correlations between these variables are reported in Table 7.

#### Analyses for Hypothesis 1

Intercorrelations among all constructs of interest are presented in Table 7. Hypothesis 1 was partially supported. Cybervictimization, depressive symptoms, impulsivity, and anger rumination were all significantly positively correlated with aggression (both reporters) and cyberbullying.

Table 7

*Zero-Order Correlations Among Variables of Interest*

	1.	2.	3.	4.	5.	6.	7.	8.
1. Cybervictimization	--							
2. Cyberbullying	.56***	--						
3. Aggression	.22**	.36***	--					
4. Aggression (P)	.25**	.32***	.42***	--				
5. Depression	.50***	.33***	.45***	.25**	--			
6. Anger Rumination	.34***	.27**	.41***	.36***	.48***	--		
7. Impulsivity	.31***	.28**	.30***	.23**	.33***	.24**	--	
8. Social Support	-.30***	-.13	-.26**	-.05	-.48***	-.25**	-.20*	--
9. Gender	.17*	-.01	-.14	-.05	.11	.12	-.04	.09

Note.  $N = 144$ ; P = Parent Report; Gender coded as Male = 0, Female = 1.

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

Furthermore, gender was negatively correlated with aggression (both reporters) and cyberbullying, but neither of these relations was statistically significant. Social support was also negatively correlated with aggression and cyberbullying, but the relation with adolescent-reported aggression was the only significant correlation with social support (Table 7).

Because adolescent-reported electronic communication use related to cyberbullying, all correlations with cyberbullying were re-examined as partial correlations accounting for adolescent-reported use. Controlling for adolescent-reported use, for the most part, did not alter the correlations. Specifically, depressive symptoms,  $pr(141) = .32, p < .001$ , impulsivity,  $pr(141) = .30, p < .001$ , anger rumination,  $pr(141) = .27, p = .001$ , and cybervictimization,  $pr(141) = .54, p < .001$ , remained significantly positively correlated with cyberbullying, whereas social support was non-significantly negatively correlated with cyberbullying,  $pr(141) = -.14, p = .10$ . Gender continued to be non-significantly negatively correlated with cyberbullying,  $pr(141) = -.04, p = .63$ .

#### Moderated Multiple Regression Hypothesis Testing

Hypotheses 2 and 3 and the research question were tested by conducting 15 moderated multiple regression analyses using *PROCESS* and the methods recommended by Hayes (2013). Specifically, there were five moderators (i.e., depressive symptoms, anger rumination, impulsivity, social support, and gender) and three outcomes (i.e., parent-reported aggression, adolescent-reported aggression, and adolescent-reported cyberbullying).

On step 1 of each of the regression analyses, the predictor (i.e., adolescent-reported cybervictimization) and one of the moderators were entered separately to reflect

the main effects of the model. On step 2, one two-way interaction term (predictor x moderator) was included. Before creating each interaction term, *PROCESS* automatically centered the variables by subtracting the mean from each score to reduce multicollinearity and to facilitate the interpretation of any significant models. All hypothesized interactions were examined, even when main effects were found to be non-significant. Post-hoc plots were used to determine the nature of any significant interactions following the procedures described by Hayes (2013). This was done by testing the slopes of the plotted regression lines to indicate at which level(s) of the moderator significance between the predictor and the outcome variables exists. To increase ease of interpretation of these plots, a constant of 1 was added to each of the plotted points to ensure that all values were in the positive range.

*Hypothesis 2: Depressive Symptoms as a Moderator*

The results of the analyses investigating the hypothesis that depressive symptoms would moderate the relation between cybervictimization and aggression (or cyberbullying) are reflected in Table 8. Cybervictimization and depressive symptoms were entered simultaneously on Step 1. The models for step 1 were significant overall when predicting parent-reported aggression,  $R^2 = .08$ ,  $F(2, 141) = 6.41$ ,  $p = .002$ , adolescent-reported aggression,  $R^2 = .20$ ,  $F(2, 141) = 17.50$ ,  $p < .001$ , and cyberbullying,  $R^2 = .32$ ,  $F(2, 141) = 32.75$ ,  $p < .001$ . Cybervictimization accounted for marginally significant unique variance in the model for parent-reported aggression,  $B = .17$ ,  $SE = .10$ ,  $p = .07$ , and significant unique variance in the model for cyberbullying,  $B = .14$ ,  $SE = .02$ ,  $p < .001$ . There was no main effect for cybervictimization for adolescent-reported aggression. Depression accounted for marginally significant variance in the model for

parent-reported aggression,  $B = .17$ ,  $SE = .10$ ,  $p = .08$ , and significant variance in the model for adolescent-reported aggression,  $B = .77$ ,  $SE = .15$ ,  $p < .001$ . However, there was no main effect for depression for cyberbullying.

Table 8

*Results of Moderated Multiple Regression Analysis of Cybervictimization and Depression Predicting Parent-reported Aggression, Self-reported Aggression, and Cyberbullying*

Predictors	Outcome Variables		
	Aggression (parent-report)	Aggression (self-report)	Cyberbullying
<b>Main Effects Model <math>R^2</math></b>	<b>.08**</b>	<b>.20***</b>	<b>.32***</b>
Cybervictimization	.17 (.10) <sup>†</sup>	-.01 (.14)	.14 (.02)***
Depression	.17 (.10) <sup>†</sup>	.77 (.15)***	.02 (.02)
<b>Interaction Model <math>R^2\Delta</math></b>	<b>.0004</b>	<b>.05**</b>	<b>.03*</b>
Cybervictimization	.19 (.11) <sup>†</sup>	.22 (.16)	.17 (.02)***
Depression	.18 (.11) <sup>†</sup>	.94 (.16)***	.04 (.02) <sup>†</sup>
Cybervictimization X Depression	-.003 (.01)	-.04 (.01)**	-.006 (.002)*

Note.  $R^2$  for main effects model and  $R^2\Delta$  for interaction model are shown in **bold**. Unstandardized regression coefficients reported for each predictor. Standard errors are shown in parentheses. Adolescent-reported electronic usage was controlled when examining cyberbullying as an outcome given that it related to cyberbullying; the pattern of findings did not change.

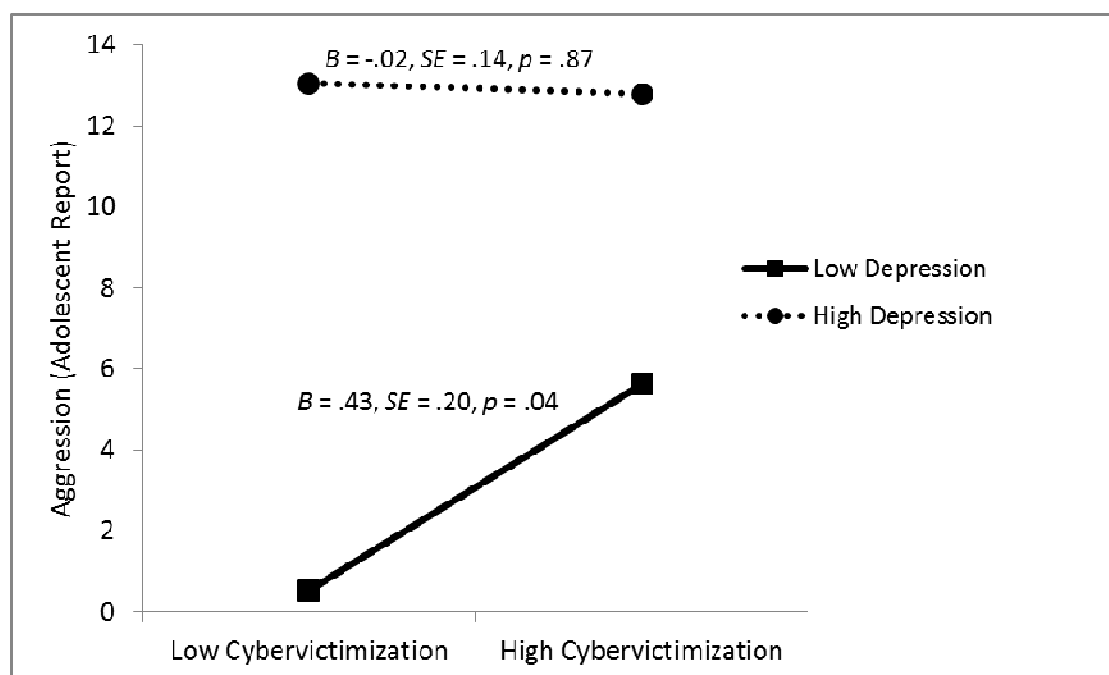
<sup>†</sup>Trend,  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

When the interaction term (cybervictimization X depression) was added on step 2, the increase in variance explained was significant for adolescent-reported aggression,  $R^2\Delta = .05$ ,  $F(1, 140) = 8.68$ ,  $p = .004$ , and cyberbullying,  $R^2\Delta = .03$ ,  $F(1, 140) = 6.67$ ,  $p = .01$  but was non-significant for parent-reported aggression. Specifically, the interaction term accounted for significant unique variance, above and beyond the main effects, when predicting adolescent-reported aggression,  $B = -.04$ ,  $SE = .01$ ,  $p = .004$ . and cyberbullying,  $B = -.006$ ,  $SE = .002$ ,  $p = .01$  (Table 8).

Given that the cyberbullying outcome derives from adolescent report, the analyses involving this outcome were reexamined with adolescent-reported electronic use entered

as a covariate on Step 1. However, even after controlling for electronic use, the pattern of findings did not change.

A post-hoc plot of the interaction for adolescent-reported aggression indicated that adolescents with higher depression are generally higher in aggression regardless of whether they experience relatively higher levels of cybervictimization (Figure 1).



*Figure 1.* Interaction between cybervictimization and depression predicting adolescent-reported aggression.

However, adolescents with lower depression are shown to be less aggressive when their levels of cybervictimization are relatively lower and more aggressive when their levels of cybervictimization are relatively higher. Thus, only adolescents with lower levels of depressive symptoms are significantly impacted (in terms of their level of overall aggression) by cybervictimization. This finding differs from the hypothesis that depression would exacerbate the relation between cybervictimization and aggression.

Rather, it demonstrates that that relation only exists when depression is lower, given that when depression is higher, aggression is higher regardless.

A plot of the interaction for cyberbullying as the outcome variable indicated that adolescents experiencing higher cybervictimization reported higher levels of cyberbullying regardless of their level of depression (Figure 2).

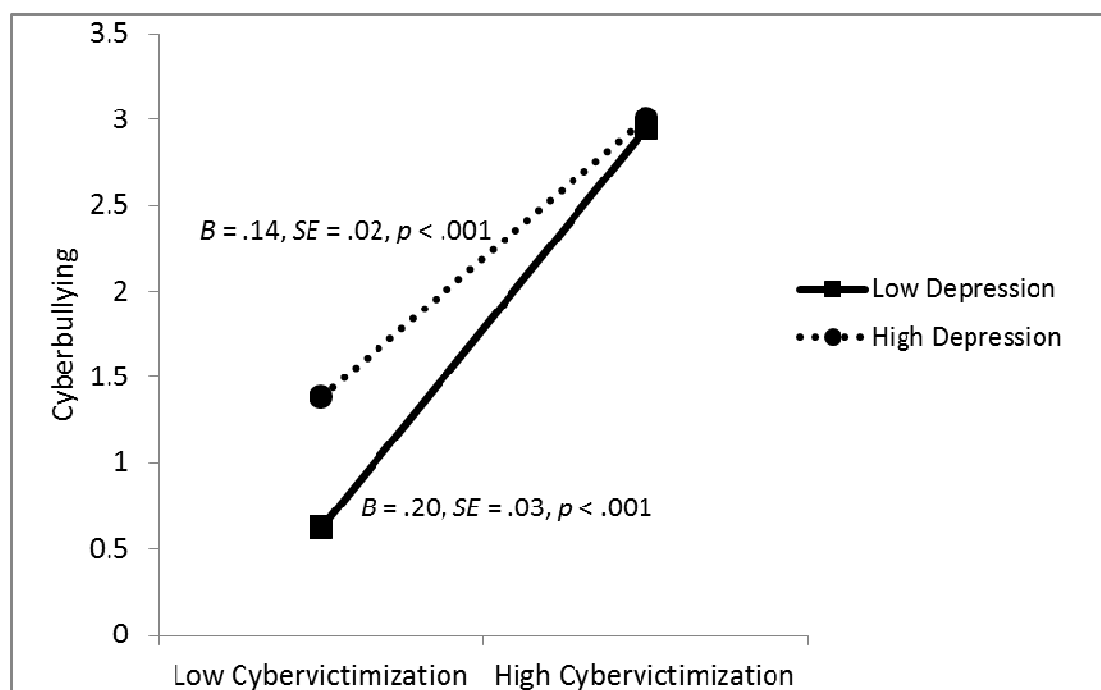


Figure 2. Interaction between cybervictimization and depression predicting cyberbullying.

However, at lower levels of cybervictimization, adolescents with higher depression were indicated to have somewhat higher levels of cyberbullying as well. Although depression was a significant moderator of the relation between cybervictimization and cyberbullying, it did not exacerbate that relation as hypothesized.

*Hypothesis 2: Anger Rumination as a Moderator*



The results of the analyses investigating the hypothesis that anger rumination would moderate the relation between cybervictimization and aggression (or cyberbullying) are reflected in Table 9. Cybervictimization and anger rumination were entered simultaneously on Step 1.

Table 9

*Results of Moderated Multiple Regression Analysis of Cybervictimization and Anger Rumination Predicting Parent-reported Aggression, Self-reported Aggression, and Cyberbullying*

Predictors	Outcome Variables		
	Aggression (parent-report)	Aggression (self-report)	Cyberbullying
<b>Main Effects Model <math>R^2</math></b>	<b>.15***</b>	<b>.18***</b>	<b>.32***</b>
Cybervictimization	.15 (.08) <sup>†</sup>	.15 (.13)	.14 (.02)***
Anger Rumination	1.92 (.08)***	3.87 (.83)***	.15 (.12)
<b>Interaction Model <math>R^2\Delta</math></b>	<b>.006</b>	<b>.003</b>	<b>.002</b>
Cybervictimization	.09 (.11)	.22 (.17)	.15 (.02)***
Anger Rumination (AR)	1.94 (.52)***	3.84 (.83)***	.15 (.12)
Cybervictimization X AR	.07 (.07)	-.09 (.12)	-.01 (.02)

Note.  $R^2$  for main effects model and  $R^2\Delta$  for interaction model are shown in **bold**. Unstandardized regression coefficients reported for each predictor. Standard errors are shown in parentheses. Adolescent-reported electronic usage was controlled when examining cyberbullying as an outcome given that it related to cyberbullying; the pattern of findings did not change.

<sup>†</sup> Trend,  $p < .10$ . \*\*\*  $p < .001$ .

The models for Step 1 were significant overall when predicting parent-reported aggression,  $R^2 = .15$ ,  $F(2, 141) = 12.00$ ,  $p < .001$ , adolescent-reported aggression,  $R^2 = .18$ ,  $F(2, 141) = 15.10$ ,  $p < .001$ , and cyberbullying,  $R^2 = .32$ ,  $F(2, 141) = 33.46$ ,  $p < .001$ . Cybervictimization accounted for marginally significant variance in the model for parent-reported aggression,  $B = .15$ ,  $SE = .08$ ,  $p = .07$ , and significant variance in the model for cyberbullying,  $B = .14$ ,  $SE = .02$ ,  $p < .001$ . There was no main effect for cybervictimization for adolescent-reported aggression. Anger rumination accounted for

significant variance in the model for parent-reported aggression,  $B = 1.92$ ,  $SE = .08$ ,  $p < .001$ , and adolescent-reported aggression,  $B = 3.87$ ,  $SE = .83$ ,  $p < .001$ . However, no main effect for anger rumination was found for cyberbullying.

When the interaction term (cybervictimization X anger rumination) was added on Step 2, the increase in variance explained was non-significant for parent-reported aggression, adolescent-reported aggression, and cyberbullying (Table 9). The analyses involving cyberbullying as an outcome were re-examined with adolescent-reported electronic use entered as a covariate on Step 1. However, even after controlling for electronic use, the pattern of findings did not change.

#### *Hypothesis 2: Impulsivity as a Moderator*

The results of the analyses investigating the hypothesis that impulsivity would moderate the relation between cybervictimization and aggression (or cyberbullying) are reflected in Table 10. Cybervictimization and impulsivity were entered simultaneously on Step 1. The models for Step 1 were significant overall when predicting parent-reported aggression,  $R^2 = .09$ ,  $F(2, 141) = 6.97$ ,  $p = .001$ , adolescent-reported aggression,  $R^2 = .11$ ,  $F(2, 141) = 8.52$ ,  $p < .001$ , and cyberbullying,  $R^2 = .33$ ,  $F(2, 141) = 34.21$ ,  $p < .001$ . Cybervictimization accounted for significant variance in the model for parent-reported aggression,  $B = .20$ ,  $SE = .09$ ,  $p = .02$ , marginally significant variance in the model for adolescent-reported aggression,  $B = .23$ ,  $SE = .14$ ,  $p = .10$ , and significant variance in the model for cyberbullying,  $B = .14$ ,  $SE = .02$ ,  $p < .001$ . Impulsivity accounted for marginally significant variance in the model for parent-reported aggression,  $B = .09$ ,  $SE = .05$ ,  $p = .05$ , and significant variance in the model for adolescent-reported aggression,  $B = .22$ ,  $SE = .07$ ,  $p = .002$ . However, no main effect for impulsivity was found for cyberbullying.

Table 10

*Results of Moderated Multiple Regression Analysis of Cybervictimization and Impulsivity Predicting Parent-reported Aggression, Self-reported Aggression, and Cyberbullying*

Predictors	Outcome Variables		
	Aggression (parent-report)	Aggression (self-report)	Cyberbullying
<b>Main Effects Model <math>R^2</math></b>	<b>.09**</b>	<b>.11***</b>	<b>.33***</b>
Cybervictimization	.20 (.09)*	.23 (.14) <sup>†</sup>	.14 (.02)***
Impulsivity	.09 (.05) <sup>†</sup>	.22 (.07)**	.02 (.01)
<b>Interaction Model <math>R^2\Delta</math></b>	<b>.004</b>	<b>.009</b>	<b>.003</b>
Cybervictimization	.24 (.10)*	.33 (.16)*	.15 (.02)***
Impulsivity	.09 (.05) <sup>†</sup>	.22 (.07)**	.02 (.01)
Cybervictimization X Impulsivity	-.01 (.01)	-.02 (.01)	-.002 (.002)

Note.  $R^2$  for main effects model and  $R^2\Delta$  for interaction model are shown in **bold**. Unstandardized regression coefficients reported for each predictor. Standard errors are shown in parentheses. Adolescent-reported electronic usage was controlled when examining cyberbullying as an outcome given that it related to cyberbullying; the pattern of findings did not change.

<sup>†</sup>Trend,  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

When the interaction term (cybervictimization X impulsivity) was added on Step 2, the increase in variance explained was non-significant for parent-reported aggression, adolescent-reported aggression, and cyberbullying (Table 10). The analyses involving cyberbullying as an outcome were re-examined with adolescent-reported electronic use entered as a covariate on Step 1. However, even after controlling for electronic use, the pattern of findings did not change.

#### *Hypothesis 2: Social Support as a Moderator*

The results of the analyses investigating the hypothesis that social support would moderate the relation between cybervictimization and aggression (or cyberbullying) are reflected in Table 11. Cybervictimization and social support were entered simultaneously on Step 1. The models for Step 1 were significant overall when predicting parent-reported

aggression,  $R^2 = .06$ ,  $F(2, 141) = 4.82$ ,  $p = .01$ , adolescent-reported aggression,  $R^2 = .09$ ,  $F(2, 141) = 6.80$ ,  $p = .002$ , and cyberbullying,  $R^2 = .32$ ,  $F(2, 141) = 32.53$ ,  $p < .001$ .

Table 11

*Results of Moderated Multiple Regression Analysis of Cybervictimization and Social Support Predicting Parent-reported Aggression, Self-reported Aggression, and Cyberbullying*

Predictors	Outcome Variables		
	Aggression (parent-report)	Aggression (self-report)	Cyberbullying
<b>Main Effects Model <math>R^2</math></b>	<b>.06**</b>	<b>.09**</b>	<b>.32***</b>
Cybervictimization	.26 (.09)**	.26 (.14) <sup>†</sup>	.15 (.02)***
Social Support	.003 (.01)	-.04 (.02)*	.001 (.002)
<b>Interaction Model <math>R^2\Delta</math></b>	<b>.003</b>	<b>.03*</b>	<b>.05**</b>
Cybervictimization	.30 (.10)**	.43 (.16)**	.19 (.02)***
Social Support (SS)	.003 (.01)	-.04 (.02)**	.001 (.002)
Cybervictimization X SS	.001 (.002)	.005 (.002)*	.001 (.0003)**

Note.  $R^2$  for main effects model and  $R^2\Delta$  for interaction model are shown in **bold**. Unstandardized regression coefficients reported for each predictor. Standard errors are shown in parentheses. Adolescent-reported electronic usage was controlled when examining cyberbullying as an outcome given that it related to cyberbullying; the pattern of findings did not change.

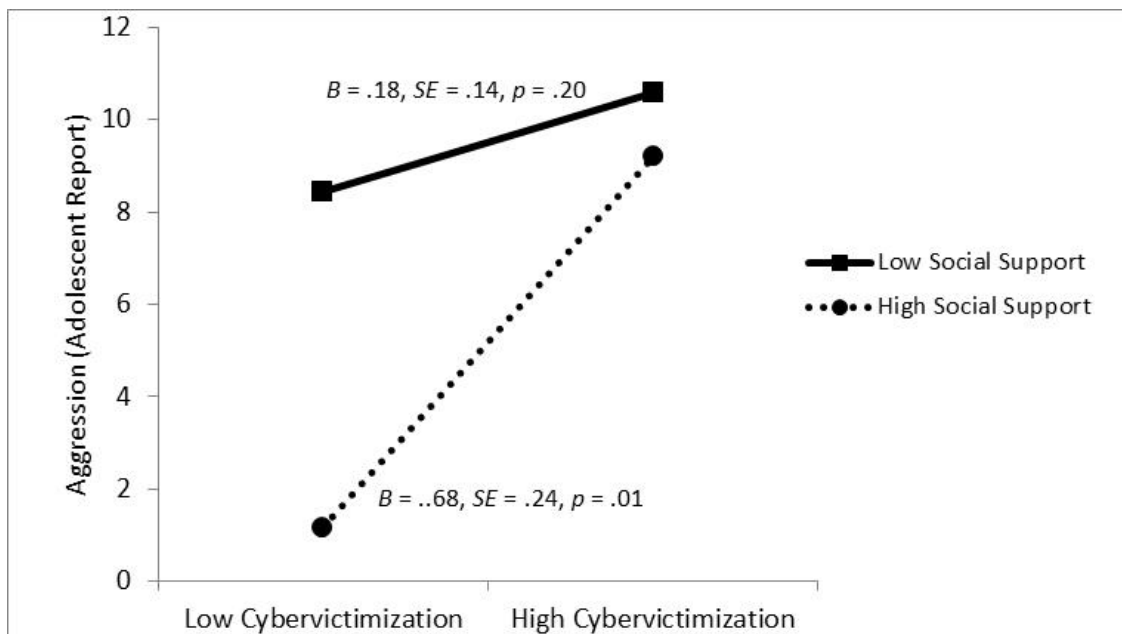
<sup>†</sup> Trend,  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Cybervictimization accounted for significant variance in the model for parent-reported aggression,  $B = .26$ ,  $SE = .09$ ,  $p = .003$ , marginally significant variance in the model for adolescent-reported aggression,  $B = .26$ ,  $SE = .14$ ,  $p = .07$ , and significant variance in the model for cyberbullying,  $B = .15$ ,  $SE = .02$ ,  $p < .001$ . Social support accounted for significant variance in the model for adolescent-reported aggression,  $B = -.04$ ,  $SE = .02$ ,  $p = .01$ . However, no main effects for social support were found in the models for parent-reported aggression or cyberbullying.

When the interaction term (cybervictimization X social support) was added on Step 2, the increase in variance explained was significant for adolescent-reported

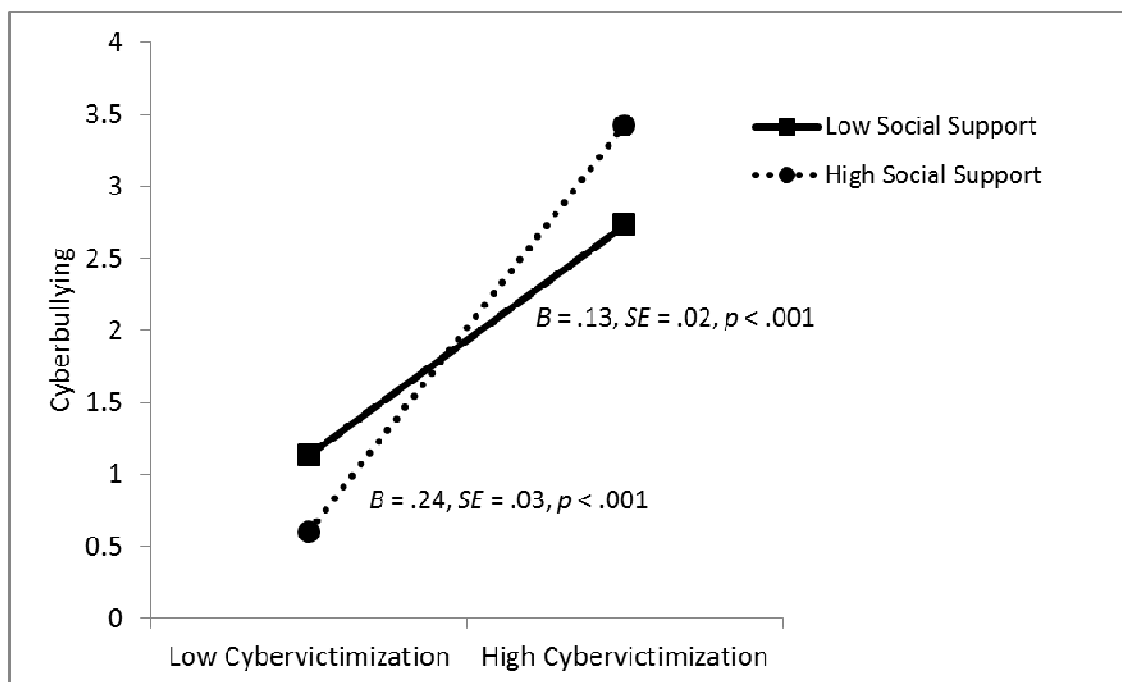
aggression,  $R^2\Delta = .03$ ,  $F(1, 140) = 4.42$ ,  $p = .04$ , and cyberbullying,  $R^2\Delta = .05$ ,  $F(1, 140) = 10.55$ ,  $p = .002$ . However, it was non-significant in the model for parent-reported aggression. Specifically, the interaction term accounted for significant unique variance, above and beyond the main effects, when predicting adolescent-reported aggression,  $B = .005$ ,  $SE = .002$ ,  $p = .04$ , and cyberbullying,  $B = .001$ ,  $SE = .0003$ ,  $p = .002$  (Table 11). The analyses involving cyberbullying as an outcome were re-examined with adolescent-reported electronic use entered as a covariate on Step 1. However, even after controlling for electronic use, the pattern of findings did not change.

A plot of the interaction for adolescent-reported aggression indicated that adolescents with lower social support are generally higher in aggression regardless of whether they experience relatively higher levels of cybervictimization (Figure 3). However, adolescents with higher social support are shown to be more significantly more aggressive when their levels of cybervictimization are relatively higher. Thus, only adolescents with higher levels of social support are significantly impacted (in terms of their overall aggression) by cybervictimization. This finding differs from the hypothesis that social support would attenuate the relation between cybervictimization and aggression. Rather, it demonstrates that the hypothesized relation only exists when social support is higher, given that when social support is lower, aggression is higher regardless.



*Figure 3.* Interaction between cybervictimization and social support predicting adolescent-reported aggression.

A plot of the interaction for cyberbullying indicated that when levels of cybervictimization are lower, adolescents with lower levels of social support are relatively more likely to cyberbully others and that when levels of cybervictimization are higher, adolescents with higher levels of social support are relatively more likely to cyberbully others (Figure 4). However, for both adolescents with lower levels of social support and adolescents with higher levels of social support, they are shown to be significantly more likely to cyberbully others at higher levels of cybervictimization compared to lower levels of cybervictimization. This finding differs from the hypothesis that social support would attenuate the relation between cybervictimization and aggression. Rather, it demonstrates that adolescents with higher levels of social support report higher levels of cyberbullying compared to adolescents with lower levels of social support when levels of cybervictimization are higher.



*Figure 4.* Interaction between cybervictimization and social support predicting cyberbullying.

*Research Question: Gender as a Moderator*

The results of the analyses investigating the research question regarding how gender relates to cybervictimization and aggression (or cyberbullying) are reflected in Table 12. Cybervictimization and gender (coded 0 = male, 1 = female) were entered simultaneously on Step 1. The models for Step 1 were significant overall when predicting parent-reported aggression,  $R^2 = .07$ ,  $F(2, 141) = 5.47$ ,  $p = .01$ , adolescent-reported aggression,  $R^2 = .08$ ,  $F(2, 141) = 5.95$ ,  $p = .003$ , and cyberbullying,  $R^2 = .33$ ,  $F(2, 141) = 33.95$ ,  $p < .001$ . Cybervictimization accounted for significant variance in the model for parent-reported aggression,  $B = .27$ ,  $SE = .08$ ,  $p = .001$ , adolescent-reported aggression,  $B = .41$ ,  $SE = .13$ ,  $p = .003$ , and cyberbullying,  $B = .15$ ,  $SE = .02$ ,  $p < .001$ . Gender accounted for significant variance in the model for adolescent-reported aggression,  $B = -$

3.41,  $SE = 1.59$ ,  $p = .03$ . However, no main effects for gender were found in the models for parent-reported aggression or cyberbullying.

Table 12

*Results of Moderated Multiple Regression Analysis of Cybervictimization and Gender Predicting Parent-reported Aggression, Self-reported Aggression, and Cyberbullying*

Predictors	Outcome Variables		
	Aggression (parent-report)	Aggression (self-report)	Cyberbullying
<b>Main Effects Model <math>R^2</math></b>	<b>.07**</b>	<b>.08**</b>	<b>.33***</b>
Cybervictimization	.27 (.08)**	.41 (.13)**	.15 (.02)***
Gender	-1.13 (.99)	-3.41 (1.6)*	-.33 (.22)
<b>Interaction Model <math>R^2\Delta</math></b>	<b>.02<sup>†</sup></b>	<b>.004</b>	<b>.08***</b>
Cybervictimization	.20 (.09)*	.35 (.15)*	.19 (.20)***
Gender	-.96 (.99)	-3.29 (1.60)*	-.41 (.21)*
Cybervictimization X Gender	.35 (.19) <sup>†</sup>	.25 (.31)	-.17 (.04)***

Note.  $R^2$  for main effects model and  $R^2\Delta$  for interaction model are shown in **bold**. Unstandardized regression coefficients reported for each predictor. Standard errors are shown in parentheses. Adolescent-reported electronic usage was controlled when examining cyberbullying as an outcome given that it related to cyberbullying; the pattern of findings did not change.

<sup>†</sup>Trend,  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

When the interaction term (cybervictimization X gender) was added on Step 2, the increase in variance explained was marginally significant for parent-reported aggression,  $R^2\Delta = .02$ ,  $F(1, 140) = 3.36$ ,  $p = .07$ , and significant for cyberbullying,  $R^2\Delta = .08$ ,  $F(1, 140) = 18.78$ ,  $p < .001$ . However, it was non-significant in the model for adolescent-reported aggression. Specifically, the interaction term accounted for marginally significant variance, above and beyond the main effects, when predicting parent-reported aggression,  $B = .35$ ,  $SE = .19$ ,  $p = .07$ , and accounted for significant unique variance when predicting cyberbullying,  $B = -.17$ ,  $SE = .04$ ,  $p < .001$  (Table 12). The analyses involving cyberbullying as an outcome were re-examined with adolescent-



reported electronic use entered as a covariate on Step 1. However, even after controlling for electronic use, the pattern of findings did not change.

A plot of the interaction for parent-reported aggression indicated that boys are higher than girls in aggression when levels of cybervictimization are lower and that girls are higher than boys in aggression when levels of cybervictimization are higher (Figure 5). Boys are shown to be relatively the same level of aggression regardless of whether

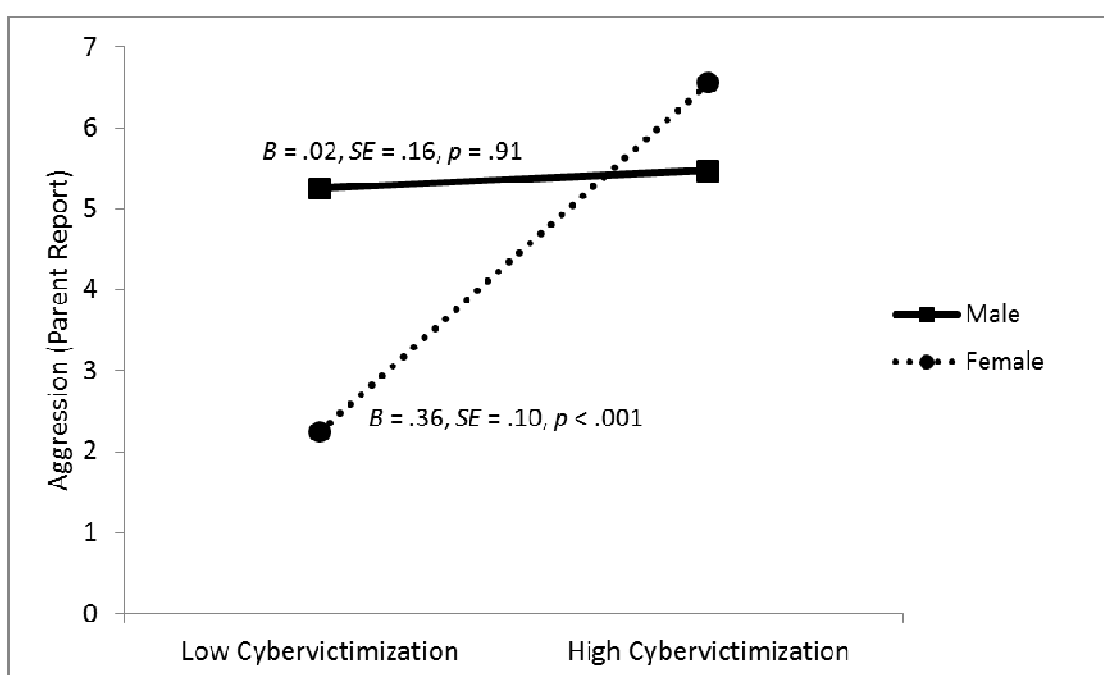


Figure 5. Interaction between cybervictimization and gender predicting parent-reported aggression.

they experience relatively higher levels of cybervictimization or not. Alternatively, girls are shown to be significantly relatively more aggressive when they experience higher levels of cybervictimization than when they experience lower levels of cybervictimization. No specific hypothesis was made regarding this research question,

but this plot indicates that girls are more significantly impacted than boys by the level of cybervictimization they experience.

A plot of the interaction for cyberbullying indicated that both boys and girls are significantly impacted by the level of cybervictimization they experience (Figure 6).

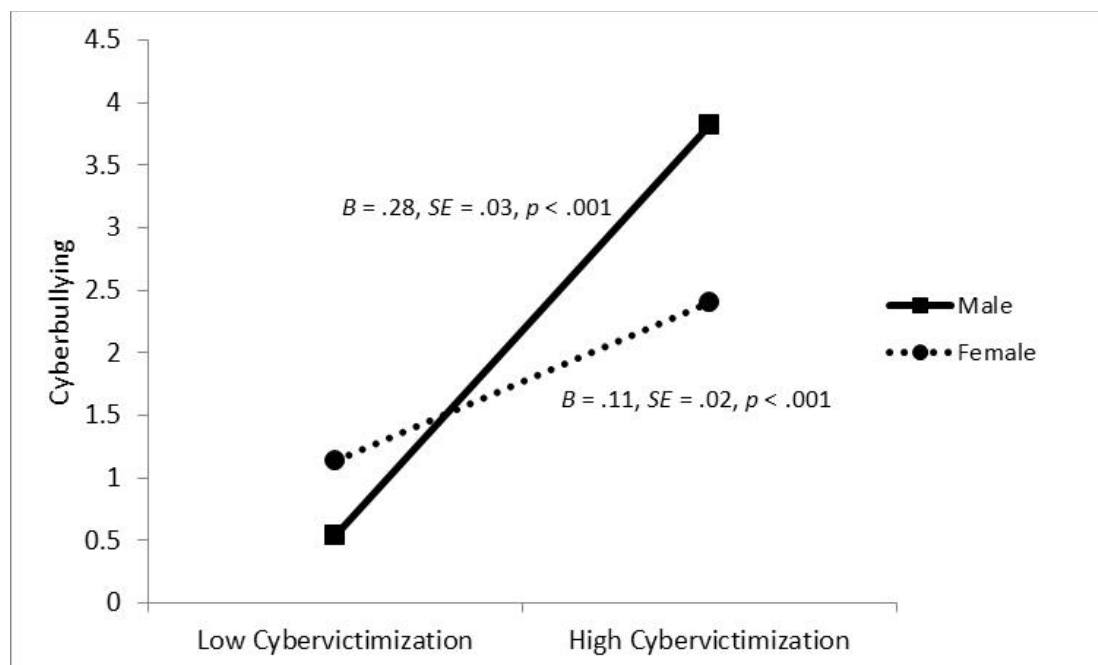


Figure 6. Interaction between cybervictimization and gender predicting cyberbullying.

Specifically, both boys and girls are more likely to report cyberbullying others relatively more when they experience higher levels of cybervictimization than when they experience lower levels of cybervictimization. Additionally, the plot reflects that when levels of cybervictimization are lower, boys are relatively less likely to cyberbully others than girls, but when levels of cybervictimization are higher, boys are relatively more likely to cyberbully others than girls. Considering this in conjunction with Figure 5, girls are more aggressive in terms of both parent-reported aggression and cyberbullying when

levels of cybervictimization are higher, but boys are only more aggressive in terms of cyberbullying when levels of cybervictimization are higher.

### *Follow-up Analyses*

As a follow-up, all 15 of the analyses were re-examined using the three outcome variables as the predictors and cybervictimization as the outcome, with the same five moderators. Five interactions were statistically significant, with only two involving the same variables as in the original findings above. When social support as a moderator was re-examined using adolescent-reported aggression as the predictor variable and cybervictimization as the outcome, the pattern was significant and reflected that adolescents who endorsed lower levels of social support were higher in cybervictimization regardless of the level of aggression they reported. Additionally, the pattern reflected that adolescents reported having higher levels of social support, cybervictimization was only higher when they reported higher levels of aggression. When gender was re-investigated as the moderator, with parent-reported aggression as the predictor and cybervictimization as the outcome, the pattern was the reverse of what was originally found, demonstrating that girls who were the highest in parent-reported aggression reported higher levels of cybervictimization when compared to other girls and boys. The other three findings involved moderators (i.e., anger rumination and impulsivity) that were not significant in the original analyses or involved an interaction with a predictor (adolescent-reported aggression when interacting with gender) that was not a significant outcome in the original analyses examining gender as a moderator.

## CHAPTER IV

### DISCUSSION

Cyberbullying, any hostile behavior of an individual or group that is directed toward another individual or group through any form of technology that can be used for communication (Arıcak et al., 2008) and occurs repeatedly in a manner in which the cybervictim is unable to defend him/herself (Strom & Strom, 2005), has become a significant problem with adolescents (Cook et al., 2010). One aspect of the traditional bullying definition that many believe to be missing from the cyberbullying definition is the lack of a power differential. However, it is believed that the perceived anonymity of the aggressive acts provides this power differential. An adolescent who might be more powerful in person may completely lack power if faced with a seemingly anonymous attacker.

Adolescents involved in cyberbullying, either as the bully or as the victim, typically have higher levels of aggression than their peers who are not involved in cyberbullying (Schultze-Krumbholtz & Scheithauer, 2009). The current study aimed to contribute to the literature by investigating the effects of cyberbullying, hoping to discover a link to help end the negative cycle of cybervictims becoming more aggressive and cyberbullying others.

Specifically, it was hypothesized that depressive symptoms, impulsivity, anger rumination, and cybervictimization would be positively related to aggression and cyberbullying and that social support and gender (coded Male = 0, Female = 1) would be negatively related to aggression and cyberbullying. Furthermore, it was hypothesized that depressive symptoms, anger rumination, impulsivity, and social support would

moderate the relation between cybervictimization and aggression or cyberbullying. Specifically, it was expected that the relation between cybervictimization and aggression or cyberbullying would be exacerbated when levels of depressive symptoms, anger rumination, and impulsivity are higher and attenuated when levels of social support are higher. Gender was also examined as a research question without any specifically hypothesized relation. The results indicated partial support for these hypotheses. That is, whereas anger rumination and impulsivity did relate to aggressive outcomes, they did not interact with cybervictimization within this sample. However, the results underscore the importance of considering depressive symptoms, social support, and gender in the prediction of aggression and cyberbullying from cybervictimization.

#### Support for Hypotheses

##### *Descriptive Findings*

Because data for the current study were collected from a community sample, a range of cybervictimization experience was anticipated. Whereas no hypotheses were made regarding these data, interesting similarities and differences emerged between parent and adolescent report. Regarding the significant difference between parent- and adolescent-report of whether the adolescent has a desktop computer, it is believed that one or both of the participants in the dyads may have been confused with what the question was asking. For example, it is possible that the adolescents may have considered “having a desktop computer” to include access to a desktop computer at school. Of greater interest are the findings that parents reported having conversations about internet usage safety with their adolescents significantly more frequently than their adolescents

reported having such conversations with their parents and that parents reported having more access to their adolescents' online activity than the adolescents reported.

These differences are in line with other parent- and adolescent-report differences in the literature. For example, generally speaking, parents report having conversations about sex education more frequently with their children than their children report. With regards to access, it is believed that adolescents may report that their parents have less access than their parents report due to the adolescents having greater knowledge of ways to access the internet. That is, parents may believe that they have full access to their child's online activity, whereas their child is using forms of electronic communication that the parent is not even aware of.

Furthermore, when asked if they had been cyberbullied or had cyberbullied others on the CCQ, a limited number of adolescent participants in the current study endorsed these items. In particular, only 26 adolescents reported that they had been cyberbullied and only 5 adolescents reported that they had cyberbullied others. These findings not only reflect that the results should be interpreted with caution due to the restricted range, but also reflect interesting differences when compared to the adolescent report on the YRIH. Specifically, if cybervictimization were to be conceptualized as occurring if at least one of the three YRIH items were endorsed, 95 adolescents reported that they have been cybervictimized and 54 reported that they have cyberbullied others. These differences reflect that more adolescents than was reflected on the CCQ have experienced at least aspects of cybervictimization or cyberbullying.

### *Main Effect Findings*

The first hypothesis, that depressive symptoms, impulsivity, anger rumination, and cybervictimization would be positively correlated with aggression and cyberbullying and that social support and gender (coded Male = 0, Female = 1) would be negatively correlated with aggression and cyberbullying was partially supported. The correlations between depression, anger rumination, and impulsivity with all aggression outcomes were significant and medium to large in magnitude (Cohen, 1988). Additionally, the correlation between social support and adolescent-reported aggression was significant and medium in magnitude (Cohen, 1988). Gender was not found to significantly correlate with any of the three outcome variables.

Not only did depression and social support significantly relate to the aggression outcomes in the correlation analyses, the robustness of the relations was also tested in the regression analyses, which allowed an examination of the unique variance in outcomes attributable to these variables. These findings indicated that depressive symptoms and social support both contributed unique variance in the prediction of aggression and cyberbullying.

These findings highlight several points. First, they suggest that adolescents with higher levels of depressive symptoms, anger rumination, and impulsivity are likely to be aggressive and/or cyberbully others. Secondly, it suggests that adolescents with higher levels of social support are less likely to be aggressive by their own report. This finding is consistent with previous literature (e.g., Dutton & Karakanta, 2013; Price, Salekin, & Barker, 2013; Peled & Moretti, 2010) and underscores the importance of considering these symptoms when dealing with aggressive behaviors in adolescents. This

information could be particularly valuable when treating any of these problems clinically and warrants closer investigation.

However, the findings also suggest that boys and girls who are cybervictimised are no more or less likely to have higher levels of aggression or cyberbullying than their peers. Historically, the literature has suggested that boys are generally more overtly aggressive than girls (e.g., Smith et al., 2010) and that girls are more relationally aggressive than boys (e.g., Coie & Dodge, 1998). However, the literature has been more vague on the role gender plays on cybervictimization and cyberbullying (e.g., Wang et al., 2009). This finding highlights that the gender roles involved in this new realm of bullying are more complicated than one might think. Additionally, given that the current study involved a community sample, it is possible that not enough participants who identified as cybervictims or cyberbullies participated to be able to identify gender differences in the correlation analyses. Alternatively, gender differences might become apparent if the relation between cybervictimization and aggression is broken down to cybervictimization and subtypes of aggression (e.g., relational, reactive).

#### *Moderator Findings: Hypothesized Risk Factors*

The hypothesis that depressive symptoms would moderate the relation between cybervictimization and aggression or cyberbullying, was partially supported. Not only were the main effect models for all three outcomes (i.e., parent-reported aggression, adolescent-reported aggression, and cyberbullying) significant, but also a significant interaction was found between cybervictimization and depression when predicting adolescent-reported aggression and cyberbullying. However, the interaction between cybervictimization and depression is in contrast to that which was hypothesized based on



previous literature (i.e., that depression would exacerbate the relation between cybervictimization and aggression). Rather, for this sample, the interactions found were more complicated.

First considering the interaction between cybervictimization and depression predicting adolescent-reported aggression, the data reflected that adolescents higher in depressive symptoms are generally higher in aggression and are seemingly unaffected by the level of cybervictimization they experience. Of great interest is that the data reflected that adolescents with lower levels of depression are significantly impacted by the level of cybervictimization they experience, becoming increasingly aggressive the higher the level of cybervictimization they experience. These data confirm what has been indicated previously in the literature, that adolescents with more depressive symptoms are more aggressive than their peers (e.g., Dutton & Karakanta, 2013; Price et al., 2013). However, it also reflects that depressive symptoms only appear to exacerbate the relation between cybervictimization and aggression when the level of depressive symptoms is lower.

One possible explanation for this finding is that the adolescents with higher depressive symptoms may be experiencing a sense of withdrawal and/or hopelessness, leading them to believe that no matter how they react to the cybervictimization, nothing will change. In this scenario, an adolescent not experiencing withdrawal or hopelessness might be more inclined to react to the threat of cybervictimization by acting out.

Then considering the interaction between cybervictimization and depression predicting cyberbullying, the data again reflected that adolescents with lower depressive symptoms are more impacted by cybervictimization than adolescents with higher

depressive symptoms. An interesting difference between this outcome and the adolescent-reported aggression outcome discussed above is that when considering this interaction, both adolescents with higher and lower depressive symptoms were shown to be impacted. That is, both adolescents with lower and higher depressive symptoms are less likely to cyberbully others when they are faced with lower levels of cybervictimization and are more likely to cyberbully others when they are faced with higher levels of cybervictimization.

Another possible explanation could be that adolescents with lower depressive symptoms perceive cybervictimization as being a bigger threat, and thus are more inclined to lash out at others in response to this threat.

Although there was support for depressive symptoms as a moderator, there was no support for anger rumination or impulsivity as a moderator in the relation between cybervictimization and aggressive outcomes.

#### *Moderator Findings: Hypothesized Protective Factor*

The hypothesis that social support would moderate the relation between cybervictimization and aggression or cyberbullying was partially supported in the current study. The main effect models for all three outcomes were significant. Additionally, when the interaction term was included in the model, the interaction models were significant for adolescent-reported aggression and cyberbullying, but not for parent-reported aggression. However, in both cases, the significant interactions are in contrast to that which was hypothesized based on previous literature (i.e., that social support would attenuate the relation between cybervictimization and social support). Rather, for this sample, the interactions found were much more complicated.

Considering the interaction of cybervictimization by social support predicting adolescent-reported aggression first, the data reflected that adolescents with lower social support are generally higher in aggression, regardless of whether they experience relatively higher levels of cybervictimization or not, and that adolescents with higher social support are significantly more aggressive when their levels of cybervictimization are higher. Put more simply, only adolescents with higher levels of social support were shown to be affected by cybervictimization in terms of their overall report of their aggression. Therefore, rather than social support globally attenuating the relation between cybervictimization and aggression, this relation appears to only exist when levels of social support are higher.

The finding that adolescents with lower social support are more aggressive overall is in conjunction with the previous literature on the topic (e.g., Dutton & Karakanta, 2013; Benhorin & McMahon, 2008). Of particular interest is the finding that adolescents with higher levels of social support were shown to be significantly impacted by the level of cybervictimization they experienced. For these adolescents, higher levels of cybervictimization appear to override the protective nature of having higher levels of social support. It is possible that the higher levels of social support have provided these adolescents with recognition that they do not deserve to be subjected to cybervictimization and the feeling of empowerment to respond to such a threat with aggression. Alternatively, higher levels of social support could represent higher instances of peer pressure to engage in cyberbullying.

Then considering the interaction between cybervictimization and social support predicting cyberbullying, the data reflected that when levels of cybervictimization are

lower, adolescents with lower levels of social support are relatively more likely to cyberbully others and that when levels of cybervictimization are higher, adolescents with higher levels of social support are more likely to cyberbully others. This interaction is in contrast to that which was hypothesized (i.e., that social support would attenuate the relation between cybervictimization and aggression). The finding that adolescents are more likely to cyberbully others when they are faced with higher levels of cybervictimization, regardless of their level of social support, is consistent with previous literature on the topic (e.g., Li, 2006). However, the data collected with the current sample reflect that adolescents with higher levels of social support are more likely to engage in cyberbullying when faced with higher levels of cybervictimization than their peers with lower levels of social support.

A possible explanation for this finding is that adolescents with higher levels of social support may feel more empowered by their peers to engage in cyberbullying others. This possibility is consistent with the “mean girl” concept reflected in popular media (but including all genders). Using this concept as an example, a “popular” adolescent who is surrounded by peers providing positive feedback might perceive being cyberbullied as an ego threat and then might feel empowered by the positive feedback they receive from their peers to lash out at others via cyberbullying, thus reinforcing their popular status in their own mind.

To broadly conceptualize what the significant moderation findings reflect, in the absence of negative states (e.g., depressive symptoms, low social support), higher levels of cyberbullying/aggression are only apparent when the adolescent experiences higher levels of cybervictimization. Put more simply, if things are good, the adolescent appears

to need to be provoked to aggress. Specifically for the current study, high depressive symptoms and low social support relates to aggression outcomes regardless of cybervictimization and high cybervictimization relates to aggression outcomes regardless of depressive symptoms/social support.

*Research Question: Gender as a Moderator*

For the current study, how gender moderated the relation between cybervictimization and aggression or cyberbullying was also investigated as a research question. The main effect models for all three outcomes were significant. Additionally, when the interaction term was included in the model, the interaction model was marginally significant for parent-reported aggression and cyberbullying. No specific directionality was hypothesized for this research question, but once the data were plotted, they reflected interesting results.

In particular, when looking at cybervictimization by gender predicting parent-reported aggression, the data reflected that boys are higher in aggression when levels of cybervictimization are lower and that girls are higher in aggression when levels of cybervictimization are higher. Of particular interest is that within the current sample, boys' level of parent-reported aggression was seemingly not impacted by the level of cybervictimization experienced. Alternatively, girls were shown to be significantly more aggressive when faced with higher levels of cybervictimization compared to when they are faced with lower levels of cybervictimization.

When looking at cybervictimization by gender predicting cyberbullying, the data reflected a different picture. In particular, both boys and girls were shown to be more likely to cyberbully others when faced with higher levels of cybervictimization than when

faced with lower levels of cybervictimization. Additionally, girls were shown to be more likely to report cyberbullying others when levels of cybervictimization are lower and boys are more likely to report cyberbullying others when levels of cybervictimization are higher.

These data are most interesting when both plots are considered together. In terms of both parent-reported aggression and cyberbullying, girls in the current sample were more likely to have higher levels of aggression or cyberbullying when faced with higher levels of cybervictimization. Alternatively, boys' level of parent-reported aggression was seemingly unaffected by the level of cybervictimization experienced whereas their level of cyberbullying was significantly impacted by the level of cybervictimization experienced. As previously mentioned, boys have historically been shown to be more overtly aggressive overall (e.g., Smith et al., 2010). This finding is generally consistent with the parent-reported aggression outcome, which reflected that the gender norms were only disrupted when levels of cybervictimization were higher. However, research has been mixed on gender roles in cybervictimization and cyberbullying (e.g., Wang et al., 2009).

The finding that girls are more likely to cyberbully when levels of cybervictimization are low could be conceptualized by considering cyberbullying as a newer form of relational aggression, which girls have historically been shown to engage in more frequently (e.g., Coie & Dodge, 1998). Alternatively, when boys are faced with cybervictimization, their likelihood of cyberbullying others increasing could be conceptualized as boys adding in a relational component to their already traditionally higher level of overt aggression. Boys might also perceive cybervictimization as a

greater threat than girls perceive it to be, thus explaining their stronger reaction to it in terms of cyberbullying others.

### Theoretical and Clinical Implications

The results found in the current study indicate that there are significant relations between depressive symptoms, social support, gender, and aggression outcomes. That these findings were derived from information gathered from parent- and self-report is further indicative of the strength of the relations. Theoretically, the finding that cybervictimization relates to aggression and cyberbullying differentially, depending on levels of depression and social support, could be particularly valuable when treating adolescents with aggression and/or cyberbullying, emphasizing a need to target mood and relational concerns. That is, if treating an adolescent who presents with aggression concerns, before initiating treatment focused solely on reducing the aggression, it would be beneficial to inquire as to whether the adolescent has ever experienced cybervictimization. The clinician could then further query into whether or not mood or relational concerns are present. If such concerns are present, treatment may be more effective if those are the initial targets of treatment. For example, looking at adolescent-reported aggression, the current study indicates that targeting high levels of depressive symptoms first could reduce or remove the need to focus on aggression concerns entirely.

Additionally, the finding that anger rumination and impulsivity did not relate to the aggressive outcomes may have important clinical implications. Previous literature suggests that adolescents with higher levels of impulsivity and/or anger rumination are more likely to aggress against others (e.g., Dutton & Karakanta, 2013; Peled & Moretti, 2010). However, the findings from the current study indicate that there may be other

variables to consider in this relation. For example, it could be that other individual differences may increase the adolescent's risk of becoming aggressive or cyberbullying others rather than his/her level of anger rumination or impulsivity alone. Due to the previous literature, it should not be discounted that there does appear to be a relation between cybervictimization and aggression outcomes, but it seems important to be receptive to other variables playing a role as well. This is particularly important clinically, because by considering all potential risk and protective factors, it may be possible to prevent the adolescent from becoming more aggressive or cyberbullying others.

#### Limitations and Directions for Future Research

One of the most significant limitations of this study is the demographics of the sample. Specifically, a significant majority of the participants identified as Caucasian (89%) and as being of a high socioeconomic class (62% identified as earning a total family income equal to or greater than \$100,000 a year, and 77% identified as earning a total family income of \$75,000 or greater). The demographics of the sample may have been impacted by the electronic recruitment and completion of the study. That is, individuals in a higher socioeconomic class may have had more access to technology through which they could participate. Furthermore, as participants had to volunteer to participate, it is also possible that a self-selection bias in which individuals in this demographic group were more concerned about cybervictimization and thus more interested in participating, may have been involved.

Even though the data were collected from participants over a wide geographic area, these results may not generalize to individuals of different race/ethnicities or to



different socioeconomic classes. Societal attitudes may differ significantly between different groups when considering these factors. For example, one racial/ethnic group might view certain behaviors as being normative whereas another might view the same behaviors as being aggressive. Additionally, participants' conceptualization of what is problematic in terms of cybervictimization/cyberbullying may differ. For example, individuals in a lower socioeconomic class might experience more hardships in their day-to-day life and thus might be less inclined to refer to actions as being cybervictimization/cyberbullying unless they are more severe. Therefore, it would be important for this research to be replicated with more diverse samples.

Another significant limitation of the current study is the restricted range of the predictor, moderators, and outcomes. That is, a small percentage of the sample endorsed high levels of cybervictimization/cyberbullying, depressive symptoms, anger rumination, impulsivity, and aggression. This limitation is a risk associated with recruiting a community sample instead of a more targeted clinical sample. In particular, reports of cybervictimization and cyberbullying were infrequent, low severity, and not necessarily intended to harm the victim. This, in combination with the finding that the levels of the outcomes involved very mild increases, the need to interpret the findings of this study with caution is underscored.

Another potential limitation of the study is that the operationalization of cybervictimization and cyberbullying. Each of these outcomes was measured with three items, and it is possible that these items may have missed some adolescents who were in fact cybervictimized or cyberbullied. In support of this theory, upon investigation of items on the CCQ, it was noted that many of the adolescents who denied experiencing

cybervictimization or cyberbullying on the YRIH simultaneously reported experiencing cybervictimization and/or cyberbullying on the CCQ. There are several possible explanations for this finding. One possibility is that the items on the YRIH might not have fully captured what the adolescents who participated conceptualize as being cybervictimization or cyberbullying. That is, an adolescent who reported that he/she did not receive or send threatening or aggressive comments online or while text messaging in the past year might still consider themselves as a cybervictim and/or cyberbully.

Alternatively, the adolescents may have been reporting experiences (on the CCQ) that would not qualify as cybervictimization/cyberbullying under the current study's operational definition of cybervictimization or cyberbullying. This would explain why they would deny being cybervictimized or cyberbullied when the questions are asked more directly (i.e., via the YRIH), involving components of the operational definition in the question. For example, an adolescent who received a mean remark through an electronic source might have reported that they were cyberbullied, but might not consider that remark to be rude or nasty. Additionally, given the media's proliferation of discussions about cyberbullying in recent years, adolescents might consider themselves a victim when they do not actually meet the criteria to be classified as such.

The fact that the current study utilized a cross-sectional design is an additional limitation of the current study. That is, because the data were not obtained longitudinally, no conclusions regarding the temporal relationship between the variables can be made. Specifically, although cybervictimization was shown to relate to aggression in some of the models, no conclusions can be made whether the cybervictimization or

aggression came first. Therefore, it would be extremely valuable to repeat this research utilizing a longitudinal design.

In an attempt to address this as best as possible in the current study, the analyses were re-examined with cybervictimization entered as the outcome for all 15 moderated multiple regression analyses and each of the three original outcomes (i.e., adolescent-reported aggression, parent-reported aggression, and cyberbullying) entered as predictors with the same five moderators (i.e., depressive symptoms, anger rumination, impulsivity, social support, and gender). Six of these interactions were significant, three of which involved the same variables as the significant interactions found in the primary analyses. Given the cross-sectional nature of the study, as well as these post hoc findings, caution should be used when interpreting the temporal order of the models.

The current study utilized adolescents' report of their overall level of social support, including parents, teachers, close friends, classmates, and people in (their) school, as the moderator variable for analyses involving social support. The CASSS provides total scores on scales including only one type of support as well. Given that the current study investigated how aggression outcomes relates to cybervictimization, a scenario that generally involves peers, it would be interesting to conduct additional analyses using the various friend scales. That is, utilizing the total score from the "My Close Friend" scale might contribute more valuable information to the literature than a scale that includes support from adults. Even further supporting this assertion, adolescents often are reluctant to tell their parents or teachers that they have been cybervictimized, fearing the consequences of such a confession (Li, 2010). This held true

for the current sample as well, evidenced by the fact that, on the CCQ, only 38.9% of adolescents ( $N = 56$ ) reported that when they were cyberbullied, they told adults.

It would also be interesting if future research examined aggression as separate subtypes. The PCS, utilized in the current sample as the source of parent- and adolescent-reported aggression, results in a Total Score (which was used in the current study), but also results in various other aggression scales (e.g., Total Relational Aggression, Total Overt Aggression, Total Proactive Aggression, Total Reactive Aggression). Given that cybervictimization is arguably a form of relational aggression in an electronic setting, it would be valuable to conduct additional analyses and examine the how the various aggression scales, Total Relational Aggression in particular, relate to cybervictimization.

Whereas it was important to conduct this study within a community sample given the novelty of the research questions, it would be beneficial for the research to be repeated within a sample of adolescents who endorse being cybervictims. By investigating such a targeted sample, it may be possible to understand the relation between cybervictims and the aggression outcomes even more clearly.

### Conclusions

The current study found significant relations between cybervictimization and aggression outcomes. Additionally, depressive symptoms, social support, and gender were found to significantly moderate the relation between cybervictimization and the aggression outcomes. The relations were more complex than hypothesized and contributed valuable insights to the literature. It is believed that these relations are worthy of further study. Given that social media and adolescents' use of electronic

communication does not appear to be going anywhere anytime soon, it is imperative to better understand the role that cybervictimization may play in increasing the likelihood of specific types of aggression among adolescents. Future research should consider these moderators within a sample of adolescents who all identify as having experienced cybervictimization. Future research should also consider investigating additional moderators to further explain the relation between cybervictimization and behavior.

## APPENDIX A

## ELECTRONIC COMMUNICATION USE QUESTIONNAIRE – PARENT REPORT

**Electronic Communication Use Questionnaire (Parent Report)**

**The following questions refer to the adolescent participating in the study's electronic communication:**

Are you familiar with the following forms of electronic communication? (Select *all* that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Facebook  | <input type="checkbox"/> Text Messaging                                     |
| <input type="checkbox"/> Twitter   | <input type="checkbox"/> Blogs  |
| <input type="checkbox"/> Other social media sites (besides Facebook and Twitter) | <input type="checkbox"/> YouTube  |
| <input type="checkbox"/> Email   | <input type="checkbox"/> Live video communication (e.g., Skype or Facetime) |
| <input type="checkbox"/> Instant Messaging                                       | <input type="checkbox"/> Other  |
| <input type="checkbox"/> Gchat (Google Chat)                                     | <input type="checkbox"/> None   |
| <input type="checkbox"/> Other chat rooms (besides Gchat)                        |   |

Which of the following does your adolescent have access to? (Select *all* that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Facebook  | <input type="checkbox"/> Text Messaging                                     |
| <input type="checkbox"/> Twitter   | <input type="checkbox"/> Blogs  |
| <input type="checkbox"/> Other social media sites (besides Facebook and Twitter) | <input type="checkbox"/> YouTube  |
| <input type="checkbox"/> Email   | <input type="checkbox"/> Live video communication (e.g., Skype or Facetime) |
| <input type="checkbox"/> Instant Messaging                                       | <input type="checkbox"/> Other  |
| <input type="checkbox"/> Gchat (Google Chat)                                     | <input type="checkbox"/> None   |
| <input type="checkbox"/> Other chat rooms (besides Gchat)                        |   |

How often would you estimate that your adolescent uses social media sites (e.g., Facebook, Twitter)?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that your adolescent uses text messaging?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that your adolescent uses email?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that your adolescent uses instant messaging?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that your adolescent uses live video communication (e.g., Skype, Facetime)?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that your adolescent uses Gchat or other chat rooms?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that your adolescent uses YouTube?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that your adolescent uses blogs that allow posts?:

1	2	3	4	5
Never		Occasionally		Almost Daily

Does your adolescent have access to the internet? Yes \_\_\_\_\_ No \_\_\_\_\_

Does your adolescent have access to the internet at school? Yes \_\_\_\_\_ No \_\_\_\_\_

Does your adolescent have a cell phone? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, does your adolescent's cell phone have a data plan? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, does your adolescent have access to his/her cell phone at school?

Yes\_\_\_\_\_ No \_\_\_\_\_

Does your adolescent have a tablet? Yes \_\_\_\_\_ No \_\_\_\_\_

Does your adolescent have a desktop computer? Yes\_\_\_\_\_ No \_\_\_\_\_

Does your adolescent have a laptop? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, does your adolescent have access to his/her laptop at school?

Yes\_\_\_\_\_ No\_\_\_\_\_

Where is the computer your adolescent uses most often located?

\_\_\_\_\_

How often do you have conversations with your adolescent about internet usage safety?

\_\_\_\_\_ Never

\_\_\_\_\_ Once a week

\_\_\_\_\_ Once ever

\_\_\_\_\_ Several times per week

\_\_\_\_\_ 1-2 times a year

\_\_\_\_\_ Once a day

\_\_\_\_\_ 3-4 times a year

\_\_\_\_\_ 5-6 times a year

\_\_\_\_\_ Once a month



How much access do you have to your adolescent's online activity?

None \_\_\_\_\_ Limited \_\_\_\_\_ Full Access \_\_\_\_\_

Does your adolescent's school have guidelines or rules regarding the use of electronics during school hours? \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Don't Know

If yes, please describe: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Does your adolescent's school have guidelines or rules regarding how to handle cybervictimization/cyberbullying? \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Don't Know

If yes, please describe: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## APPENDIX B

ELECTRONIC COMMUNICATION USE QUESTIONNAIRE – ADOLESCENT  
REPORT**Electronic Communication Use Questionnaire (Self Report)****The following questions refer to your electronic communication:**

Are you familiar with the following forms of electronic communication? (Select *all* that apply)

- |   |  |
|---|--|
| <input type="checkbox"/> Facebook   | <input type="checkbox"/> Text Messaging  |
| <input type="checkbox"/> Twitter  | <input type="checkbox"/> Blogs   |
| <input type="checkbox"/> Other social media sites (besides<br>Facebook and Twitter) | <input type="checkbox"/> YouTube   |
| <input type="checkbox"/> Email  | <input type="checkbox"/> Live video communication (e.g.,<br>Skype or Facetime) |
| <input type="checkbox"/> Instant Messaging  | <input type="checkbox"/> Other   |
| <input type="checkbox"/> Gchat (Google Chat)  | <input type="checkbox"/> None  |
| <input type="checkbox"/> Other chat rooms (besides Gchat)                           |  |

Which of the following do you have access to? (Select *all* that apply)

- |   |  |
|---|--|
| <input type="checkbox"/> Facebook   | <input type="checkbox"/> Text Messaging  |
| <input type="checkbox"/> Twitter  | <input type="checkbox"/> Blogs   |
| <input type="checkbox"/> Other social media sites (besides<br>Facebook and Twitter) | <input type="checkbox"/> YouTube   |
| <input type="checkbox"/> Email  | <input type="checkbox"/> Live video communication (e.g.,<br>Skype or Facetime) |
| <input type="checkbox"/> Instant Messaging  | <input type="checkbox"/> Other   |
| <input type="checkbox"/> Gchat (Google Chat)  | <input type="checkbox"/> None  |
| <input type="checkbox"/> Other chat rooms (besides Gchat)                           |  |

How often would you estimate that you use social media sites (e.g., Facebook, Twitter)?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that you use text messaging?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that you use email?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that you use instant messaging?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that you use live video communication (e.g., Skype, Facetime)?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that you use Gchat or other chat rooms?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that you use YouTube?:

1	2	3	4	5
Never		Occasionally		Almost Daily

How often would you estimate that you use blogs that allow posts?:

1                      2                      3                      4                      5  
 Never                      Occasionally                      Almost Daily

Do you have access to the internet? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you have access to the internet at school? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you have a cell phone? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, does your cell phone have a data plan? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, do you have access to your cell phone at school?

Yes \_\_\_\_\_ No \_\_\_\_\_

Do you have a tablet? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you have a desktop computer? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you have a laptop? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, do you have access to your laptop at school?

Yes \_\_\_\_\_ No \_\_\_\_\_

Where is the computer you use most often located? \_\_\_\_\_

How often do you have conversations with your parent(s) or guardian(s) about internet usage safety?

\_\_\_\_\_ Never                      \_\_\_\_\_ Once a month

\_\_\_\_\_ Once ever                      \_\_\_\_\_ Once a week

\_\_\_\_\_ 1-2 times a year                      \_\_\_\_\_ Several times per week

\_\_\_\_\_ 3-4 times a year                      \_\_\_\_\_ Once a day

\_\_\_\_\_ 5-6 times a year

How much access do your parents have to your online activity?

None \_\_\_\_\_ Limited \_\_\_\_\_ Full Access \_\_\_\_\_

Does your school have guidelines or rules regarding the use of electronics during school hours? \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Don't Know

If yes, please

describe: \_\_\_\_\_

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Does your school have guidelines or rules regarding how to handle cybervictimization/cyberbullying? \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Don't Know

If yes, please

describe: \_\_\_\_\_

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## APPENDIX C

## DEMOGRAPHIC FORM

**Demographic Questionnaire****The following questions refer to you and your family:**

Your Gender: Female \_\_\_ Male \_\_\_ Your Age: \_\_\_\_\_ years

Relation to adolescent: \_\_\_\_\_

Location: (City, State) \_\_\_\_\_, \_\_\_\_\_

Your Race: White \_\_\_ Black \_\_\_ Hispanic \_\_\_ Asian \_\_\_ Other \_\_\_

\* If Other, please describe: \_\_\_\_\_

## Marital Status:

Married \_\_\_ Separated \_\_\_ Divorced \_\_\_ Widowed \_\_\_

Never Married/Living Alone \_\_\_ Never Married/Living with Someone \_\_\_

Education: What is the highest level of education completed by:

## Yourself:

\_\_\_\_\_ 6th grade or less

\_\_\_\_\_ Junior high school (7th, 8th, 9th grade)

\_\_\_\_\_ Some high school (10th, 11th grade)

\_\_\_\_\_ High school graduate

\_\_\_\_\_ Some college (at least 1 year) or specialized training

\_\_\_\_\_ College/university graduate (4-year degree)

\_\_\_\_\_ Graduate professional degree (Master's, Doctorate)

## Your Spouse/Significant other living in the home

\_\_\_\_\_ 6th grade or less

\_\_\_\_\_ Junior high school (7th, 8th, 9th grade)

\_\_\_\_\_ Some high school (10th, 11th grade)

\_\_\_\_\_ High school graduate

\_\_\_\_\_ Some college (at least 1 year) or specialized training

\_\_\_\_\_ College/university graduate (4-year degree)

\_\_\_\_\_ Graduate professional degree (Master's, Doctorate)

## Occupation:

Please provide your job title or position, NOT the just name of your employer. If you are retired, please state your prior occupation. If you do not work outside the home, state "unemployed."

What is your occupation? \_\_\_\_\_ (Please be specific)

What is your spouse/significant other living in the home's occupation?  
\_\_\_\_\_ (Please be specific)

Income: What is the total annual income of your household? (Combine the income of all people living in your house.)

- \$ 0 -- \$ 4,999  
 \$ 5,000 -- \$ 9,999  
 \$10,000 -- \$14,999  
 \$15,000 -- \$24,999  
 \$25,000 -- \$34,999  
 \$35,000 -- \$49,999  
 \$50,000 -- \$74,999  
 \$75,000 -- \$99,999  
 \$100,000 and above

Please list who lives in your household:

Name	Age	Gender	Relation to Adolescent in study
------	-----	--------	---------------------------------


\*\*\*Please be specific in describing the relation to the adolescent in the study: self, brother, sister, mother, father, step-father, step-mother, stepbrother, half-brother, adopted sister, grandmother, aunt, cousin, etc.

**The following questions refer to the adolescent participating in the study:**

Adolescent's first and last name: \_\_\_\_\_

Adolescent's gender: Male\_\_ Female\_\_

Adolescent's date of birth (MM/DD/YYYY): \_\_\_\_\_

How old is the adolescent?: \_\_\_\_\_

Adolescent's race: White \_\_\_ Black \_\_\_ Hispanic \_\_\_ Asian \_\_\_  
Other \_\_\_\_\_

\* If Other, please describe: \_\_\_\_\_

What type of school does this adolescent attend?:

Traditional (Public \_\_\_ Private \_\_\_ Other \_\_\_) Home-School \_\_\_\_\_

Boarding \_\_\_ Military \_\_\_ College/University \_\_\_

Other (Please Specify) \_\_\_\_\_

In what grade is this adolescent?: \_\_\_\_\_

Adolescent's overall performance in school:

A \_\_\_ A-B \_\_\_ B-C \_\_\_ C-D \_\_\_ D-F \_\_\_

In what extracurricular activities does your adolescent participate at school (check all that apply)?:

Sports \_\_\_ Band/Music \_\_\_ Academic Club \_\_\_ Non-academic/interest club \_\_\_

Drama/Theater: \_\_\_ Other: \_\_\_ None: \_\_\_

\*If Other, please describe \_\_\_\_\_

In what extracurricular activities does your adolescent participate outside of school (check all that apply)?

Sports: \_\_\_ Community Service: \_\_\_ Religious/Youth Group: \_\_\_

Club: \_\_\_ (e.g., Boy/Girl Scouts) Other: \_\_\_ None: \_\_\_

\*If Other, please describe \_\_\_\_\_

How well do you get along with your adolescent?:

1	2	3	4	5
Not well		Well		Very Well
At all				

How well does your adolescent get along with siblings (if any)?:

N/A	1	2	3	4	5
	Not well		Well		Very Well
	At all				

How many hours per day do you spend with your adolescent during the week (e.g., doing homework; playing games; talking about their day, plans, or other topics; watching television; going on trips)?: \_\_\_\_\_

How many hours per day do you spend with your adolescent during weekends (e.g., doing homework; playing games; talking about their day, plans, or other topics; watching television; going on trips)?: \_\_\_\_\_



## APPENDIX D

## INSTITUTIONAL REVIEW BOARD NOTICE OF COMMITTEE ACTION

**INSTITUTIONAL REVIEW BOARD**

118 College Drive #5147 | Hattiesburg, MS 39406-0001

Phone: 601.266.5997 | Fax: 601.266.4377 | [www.usm.edu/research/institutional-review-board](http://www.usm.edu/research/institutional-review-board)**NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

**PROTOCOL NUMBER: 14020403****PROJECT TITLE: Cybervictimization as a Predictor of Aggression and Cyberbullying among Adolescents: Depression and Social Support as Potential Moderators****PROJECT TYPE: New Project****RESEARCHER(S): Laura Cook****COLLEGE/DIVISION: College of Education and Psychology****DEPARTMENT: Psychology****FUNDING AGENCY/SPONSOR: N/A****IRB COMMITTEE ACTION: Expedited Review Approval****PERIOD OF APPROVAL: 03/17/2014 to 03/16/2015****Lawrence A. Hosman, Ph.D.  
Institutional Review Board**

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