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SOME MEN JUST WANT TO WATCH THE WORLD BURN:  
THE ROLE OF SENSATION SEEKING, IMPULSIVITY, AND EMPATHY IN  
CYBERBULLYING

By

Anandi C. Ehman, B.A.

A Thesis

Submitted in partial fulfilment

For the degree of Master of Arts

Department of Psychology

The University of Mississippi

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## **ABSTRACT**

This study explored the potential role of sensation seeking, impulsivity, and empathy in cyberbullying behavior directed towards known and unknown persons. Sensation seeking is one's propensity to desire novel situations and stimuli. Impulsivity is one's tendency to engage in behavior without regard for potential consequences. Empathy is conceptualized as one's ability to understand the experiences and emotions of others. Cyberbullying is the act of intentionally aggressing against another individual via some form of technology. University of Mississippi students (N=393) participated in an online survey and completed measures of the aforementioned variables. Cyberbullying behavior was measured in the context of aggressing towards both known and unknown persons. When sensation seeking was examined as a mediator between impulsivity and cyberbullying of known persons, a significant indirect path was found, indicating mediation. A similar trend relationship was observed for cyberbullying of unknown persons. Results and implications of findings are discussed.

## **DEDICATION**

This work is dedicated to Mom and Dad. Thank you for teaching me to be curious,  
passionate, and relentless in the pursuit of my goals.

## **ACKNOWLEDGMENTS**

I would like to thank my committee members for their invaluable assistance. In particular I'd like to thank Dr. Lair for her help in all matters stats related. I'd also like to thank my friends for serving as constant sounding boards and sources of encouragement. Last but not least, I'd like to thank my boyfriend for his unwavering confidence in me and for helping me remember to laugh when things got challenging along the way.

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## **BACKGROUND**

Cyberbullying is generally defined as a repeated intentional act of aggression carried out by one individual against another through the use of electronic media (Calvete et al, 2010; Hinduja & Patchin, 2007; Smith et al., 2008). This aggression can take many forms, including, but not limited to: sending threatening or derogatory messages (via text or email), posting cruel comments about an individual on social media or a website, spreading rumours, secrets, or otherwise attempting to socially undermine peers, intentionally excluding someone from an online group, or distributing embarrassing or sexually explicit photos or other information online or via text message (Calvete et al., 2010; Hinduja & Patchin, 2007; Kokkinos et al., 2014; Pelfrey & Weber, 2013; Pettalia et al., 2013; Smith et al., 2008).

Research suggests cyberbullying victimization rates range between 11 and 40%, with some studies demonstrating rates as high as 72% (Kowalski et al., 2014; Junoven & Gross, 2008; Kowalski & Limber, 2013; Tokunaga, 2010; Twyman et al., 2010). Rates of cyberbullying perpetration also vary from study to study, but generally appear to range from 5-35% (Bastiaenssens et al., 2014; Cappadocia et al., 2014; Kowalski et al., 2014; Patchin & Hinduja, 2006). Additionally, rates of individuals' involvement as both cyberbullies and cyber-victims varied from 3-25% (Cappadocia et al., 2014; Kowalski et al., 2014; Mishna et al., 2012). These studies were conducted with individuals across a wide range of ages, however most research to date has focused on individuals aged 11-17 (Bastiaenssens et al., 2014; Cappadocia et al., 2014; Junoven & Gross, 2008; Kowalski & Limber, 2013; Mishna et al., 2012; Tokunaga, 2010; Twyman et al., 2010). Research among college age populations is

limited. However, preliminary studies have demonstrated similar trends in the prevalence of both cyberbullying and victimization (Kokkinos, Antiniadou, & Markos, 2014).

Cyberbullying is associated with a variety of negative outcomes for both victims and perpetrators (Tokunga et al., 2010). Individuals who have been victims of cyberbullying report higher scores on measures of depression and anxiety and experience these problems at a greater rate than both individuals who are just victims of traditional bullying, and those who do not report having been victims of a bullying of any sort (Campbell et al., 2015; Kowalski & Limber, 2013; Patchin & Hinduja, 2008). Victims of cyberbullying also scored lower on measures of academic performance and self-esteem (Kowalski & Limber, 2013). Some studies have additionally demonstrated that both cyberbullying perpetration and victimization are linked to offline delinquent behaviours such as underage drinking, illegal drug use, criminal activity, and various forms of interpersonal violence (Patchin & Hinduja, 2008; Pelfrey & Weber, 2013; Schenk, Fremouw & Keelan, 2013).

Studies emphasizing peer-relationship aspects of cyberbullying place a great deal of emphasis on cyberbullies' "intent to cause harm" in their victim (Li, 2007; Francisco et al., 2015; Wingate et al., 2013). However, among college age students, one of the most commonly stated reasons for engaging in cyberbullying behavior is "entertainment" or "just for fun" (Francisco et al., 2015; Rafferty & Ven, 2014; Smith et al., 2008; Thacker & Griffiths, 2012). While individuals who engage in cyberbullying behavior for "fun" may be aggressing against someone they know, a subset of these individuals find it rewarding to use the anonymity of the internet to cyberbully or otherwise harass strangers (Rafferty & Ven, 2014). Patchin and Hinduja (2006) found that a striking 26% of offenders did not appear to

know their victim “in person”. Thus, it appears that a good proportion of online aggressors may be cyberbullying a stranger.

This sort of “thrill seeking” hostility engaged in towards a stranger is well documented in the broader literature of aggression and is referred to as “appetitive” aggression. This behaviour is theoretically engaged in to achieve a desired internal emotional state (such as excitement) (Runions, 2013). This differentiates “appetitive” from “reactive” aggression, which occurs to redress an emotional state caused by an outside source (such as the reduction of fear via an aggressive response) (Runions, 2013). Appetitive aggression is by no means restricted to the internet and cyberbullying type behaviours; however, it may provide a useful framework for understanding why certain individuals engage in cyberbullying behaviour against individuals they do not know outside of their cyber-interactions.

The purpose of this work is to examine cyber-bullying with a particular focus on aggressors who engage in this behaviour against someone they do not know. The specific epidemiology of cyberbullying will be examined, as well as the impact of this behaviour on both the perpetrator and the victim. Appetitive aggression will be broadly discussed, and traits associated with both cyberbullies and individuals who engage in appetitive aggression more generally will also be examined.

## **Cyberbullying**

Cyberbullying is a relatively new area of research, and has only recently begun to be regarded as a unique form of aggression, rather than merely as a technological variant of traditional bullying. Some of the earliest researchers to examine cyberbullying, Patchin and

Hinduja (2006), initially defined this behaviour as “wilful and repeated harm” inflicted through electronic media. This definition is fairly consistent across studies, with later research also emphasizing that cyberbullying must involve some sort of “power imbalance” between perpetrator and victim (Whittaker & Kowalski, 2015; Wingate et al., 2013).

This broad definition highlights the ubiquitous nature of cyberbullying. Aggressors can harass their victims via text message, email, social media, chat boards, online gaming, or through a variety of information or image sharing apps. Furthermore, aggressors may utilize the inherent anonymity of the internet to avoid identification, and thus decrease the likelihood that they will experience “real world” consequences for their actions (Bartlett, 2015). This means that in today’s technologically saturated world, it can be virtually impossible for victims of cyberbullying to escape their aggressors (Junoven & Gross, 2008).

In spite of the widespread nature of cyberbullying, it has been difficult for researchers to determine accurate prevalence rates of this behaviour due to differences in populations being examined, and methodologies used. However, in spite of the differences, it appears that cyberbullying is a significant problem. Tokunga (2010) conducted a meta-synthesis of seventy-five studies of cyberbullying conducted prior to June 2009. Their analysis determined that across these various studies, approximately 20-40% of youth reported being a victim of cyberbullying. Tokunga (2010) noted that studies which found lower prevalence rates had artificially decreased these rates by limiting the time frame in which cyberbullying occurred (i.e. cyberbullying must have occurred within the last month, last two weeks, etc.).

As with research on traditional bullying, the bulk of cyberbullying research to date has focused on adolescents. However, preliminary research among college students has demonstrated similar trends in prevalence of this behaviour. MacDonald and Roberts-Pittman (2010) surveyed 439 college students about their experiences with both traditional and cyberbullying since attending college. In addition to answering basic demographic questions, students were asked whether they knew someone who had been bullied/cyberbullied, whether they themselves had been bullied/cyberbullied, and whether they had bullied/cyberbullied someone since attending college. Students answered these questions on a four-point Likert type scale ranging from 1=Never to 4=Very Frequently. Results revealed that 38% of the students knew someone who had been cyberbullied, 21.9% had personally experienced cyberbullying, and 8.6% had cyberbullied another individual. The most common forum in which students reported experiencing cyberbullying was on social networking sites (25%), but students also reported receiving threatening texts (21.2%), emails (16.1%) and Instant Messages (13.2%). Students also reported being harassed in chat rooms (9.9%) and having negative information or pictures posted of themselves on a variety of websites (6.8%).

Some later studies, such as the one conducted by Schenk and Fremouw (2012), found lower prevalence rates. They surveyed 856 college students about their experiences as victims, or perpetrators of a variety of forms of cyberbullying since coming to college. Participants were excluded if they did not attend to item content, or completed the series of questionnaires in fewer than ten minutes; results were based on a sample of 799 participants who did not meet these exclusionary criteria. Of these, 8.6% were classified as victims of

cyberbullying. However, it should be noted that to meet criteria to be considered a “victim” of cyberbullying, Schenk and Fremouw (2012) required that students endorse experiencing four or more incidents of cyberbullying since arriving at college, as well as self-identify as a victim. A follow up study by Schenk, Fremouw and Kellan (2013) found that 7.5% of this population endorsed engaging in cyberbullying behaviour at least four times since beginning college. An additional 2.4% of the population met criteria for both cyberbully and cyber-victim status.

Kowalski et al. (2012) surveyed 110 undergraduate students about their experiences with cyberbullying found that 24.1% reported having personally witnessed someone being cyberbullied and almost half (40.7%) had heard of someone being cyberbullied since attending college. Sixty percent of those individuals who endorsed having been cyberbullied in college did not know the identity of their cyber attacker. Of individuals experiencing cyberbullying, 13% said that the most recent incident had occurred within the past year, and 26.1% said that the most recent occurrence had been within the past six months (Kowalski et al., 2012). A striking 43% of students reported that the majority of the cyberbullying they had heard about, witnessed, or experienced had occurred in college. A follow-up study conducted by this same group found that cyberbullying was not merely restricted to the academic or social environment for college students. When they surveyed an additional 107 undergraduate students from the same institution, Kowalski et al. (2012) reported that 30.8% of their sample experienced cyberbullying in the work place at least once per month, 49.5% indicated that they had heard about another individual at work being a victim of

cyberbullying, and 27.1% reported personally witnessing cyberbullying at their place of employment.

Striking as these prevalence rates are, they may actually fail to capture the true extent of cyberbullying among college aged individuals. A series of focus groups conducted by Baldasare et al. (2012) as part of a university sponsored examination of cyber communication determined that many college-aged individuals associated the “bullying” portion of the term cyberbullying with a younger age group. Thus, these individuals were likely to underestimate the prevalence of the behaviour. Francisco et al. (2015) used an Item Response Theory approach to analyse college student responses on an Inventory of Cyberbullying behaviour. They determined that college students may have difficulty responding to questions pertaining to cyberbullying, and thus may under-report their involvement in it, both as victims and as perpetrators.

There are a number of reasons college students may underreport their involvement in cyberbullying, chief of which may have to do with how aggressors perceive their behaviour. For instance, as a result of their focus groups, Baldasare et al. (2012) determined that many college students did not consider their behaviour to be cyberbullying, even when it conformed to the accepted definition, due to the fact that they did not perceive themselves as having negative intentions towards their “victim”. Many students viewed their behaviour as “funny” or stated that they were just “joking” (Baldasare et al., 2012). This concept of cyberbullying as a behaviour engaged in “for fun” has been represented in a growing number of studies of college students. In their survey of cyberbullying of 220 university students, Raffery and Ven (2014) ascertained that 30% of incidents of cyberbullying had some form of



entertainment as a motivation reported by the aggressor. A later study of 519 undergraduates conducted by Francisco et al. (2015) similarly found that 36.4% of students reported that they engaged in cyberbullying “just for fun”. Given these reported motivations, and what they imply about students’ attitudes towards cyberbullying behaviour more broadly, it is apparent that current studies may capture only a fraction of the true prevalence of this behaviour.

### **Consequences of Cyberbullying**

Regardless of the motivations of aggressors, cyberbullying is associated with a variety of negative outcomes. As part of their meta-synthesis, Tokunga (2010) determined that being a victim of cyberbullying was associated with experiencing everything from “trivial levels of distress and frustration to serious psychosocial and life problems.” Problems included, but were not limited to: decreased academic performance, poorer concentration, negative mood, lower self-esteem, increased levels of anxiety, and a number of psychosocial problems, including increased hostility, detachment, and aggressive and risky behavior. Additionally, Tokunga (2010) noted that problems experienced by youth varied across studies, based on length, frequency, and severity of bullying experienced, with more frequent and more severe or “threatening” cyberbullying being associated with outcomes which were increased both in number and severity.

Some of the most concerning issues associated with cyberbullying victimization are those related to mental health. In their survey of 1501 youth (aged 10-17) Mitchell, Ybarra and Finkelhor (2007) found that individuals who experienced any form of online harassment

were two times more likely to report depressive symptoms. This increase in reported symptomology occurred even when offline victimization, such as traditional bullying, or other forms of abuse were controlled. A study of 1454 individuals (ages 12-17) conducted by Junoven and Gross (2008) found that when controlling for gender and age, number of incidents in which an individual experienced cyberbullying increased those individuals' levels of social anxiety independent of number of incidents of traditional bullying they experienced.

Kowalski and Limber (2013) conducted a study of 918 teens (aged 11-19) and found that being involved in cyberbullying was related to higher scores on measures of anxiety (BAI-Y), and depression (BDI-Y); individuals who were involved in cyberbullying were also more likely to report suicidal ideation. Kowalski and Limber (2013) additionally found that high school students who were both victims of cyberbullying and perpetrators had the greatest number of self-reported physical health problems (e.g. headache, poor appetite, fatigue, etc.), as well as the highest scores on a measures of depression and anxiety. These findings are further supported by a study conducted by Campbell et al. (2015). They noted that individuals who had been cyberbullied reported greater social difficulties, both than individuals who had only been traditionally bullied, and students who reported no bullying experiences. Individuals who were victims of cyberbullying had significantly higher scores on the DASS than students who had not been bullied, and were significantly more depressed and anxious than students who had only been traditionally bullied (Campbell et al., 2015).

The psychological toll experienced by victims of cyberbullying also appears to be heightened among individuals who are already dealing with other psychological diagnoses,

such as ADHD. A study of 251 Taiwanese males (aged 11-18) previously diagnosed with ADHD found that individuals who had been cyberbullied reported more severe depression and suicidality than those who were not victims of cyberbullying (Yen et al., 2014). Similar findings have been reported by Heiman, Olenik-Shemesh, and Eden (2015).

One of the most distressing outcomes of cyberbullying is its connection to suicide. As previously stated, being a victim of cyberbullying has been linked to increased suicidal ideation above and beyond simply being a victim of traditional bullying or other “real world” abuse (Kowalski & Limber, 2013; Yen et al., 2014). A large scale meta-analysis conducted by Gini and Esplange (2013) of thirty-four cross sectional studies of bullying, cyberbullying, and suicide (participants aged 9-21 years) determined that being a victim of cyberbullying was more strongly associated with suicidal ideation than being a victim of traditional bullying. More specifically, a large scale survey of 1963 middle schoolers (6<sup>th</sup>-8<sup>th</sup> grade) by Hinduja and Patchin (2010) found that individuals who experienced cyberbullying, either as a victim or an aggressor, scored higher on a scale of suicidal ideation than individuals who had not experienced this behavior. Furthermore, individuals classified as cyberbullies were 1.5 times more likely to have made a suicide attempt than those who had no experience with cyberbullying. Additionally, victims of cyberbullying were 1.9 times more likely to have attempted suicide than individuals who had not experienced cyberbullying.

In addition to being associated with a number of serious negative mental health outcomes, cyberbullying has been linked to a variety of negative social and behavioural outcomes. Sampling 1501 youth (aged 10-17) Mitchell, Ybarra, and Finkelhor (2007) found that individuals who reported being bullied online were 2.2 times more likely to report

delinquency (e.g. stealing, physically assaulting another individual, being “picked up” by police, or damaging property). These individuals were also 2.0 times more likely to report substance use (e.g. use of marijuana, alcohol, tobacco, inhalants, or any other drugs within the past year) (Mitchell, Ybarra, & Finkelhor, 2007). Similarly, Hinduja and Patchin (2007) found that adolescents who were victims of cyberbullying were significantly more likely to report engaging in “problem behaviours” offline, with older individuals being more likely to report problem behaviours than younger ones. These problem behaviours included engaging in any of the following at least once in the past thirty days: cheating on a test, skipping school, being sent home from school, smoking marijuana, drinking alcohol, assaulting a peer, assaulting an adult, damaging property, shoplifting, carrying a weapon, or running away from home (Hinduja & Patchin, 2007). Similar findings in adolescents have been reported by Patchin and Hinduja (2008) and Pelfrey and Weber (2013).

As with research aiming to capture the prevalence of cyberbullying, the majority of studies seeking to understand the potential effects of cyberbullying have been conducted primarily on adolescents and teens. Preliminary research on college aged populations has revealed similarly distressing trends. A study of 799 college students conducted by Schenk and Fremouw (2012) found that individuals who were victims of cyberbullying scored higher than individuals who had not experienced cyberbullying on the following subscales of the SCL-90-R: anxiety, phobic anxiety, paranoia, and depression. Additionally, victims of cyberbullying reported more frequent suicidal ideation than non-victims, as well as a making a greater number of suicide attempts, and planning/attempting suicide at a greater frequency (Schenk & Fremouw, 2012). A follow up study of 856 university students by Schenk,

Fremouw and Keelan (2013) determined that cyberbullies and cyberbully/victims scored significantly higher than individuals who did not report any involvement in cyberbullying on the following clinical scales of the SCL-90-R: depression, interpersonal sensitivity, hostility, paranoia, psychoticism, and phobic anxiety. Additionally, both cyberbullies and cyberbully/victims were more likely to have told another person that they were thinking about committing suicide than controls, and scored significantly higher than individuals who were uninvolved in cyberbullying on the “total suicide behaviours” scale of the SBQ-R (Schenk, Fremouw, & Keelan, 2013).

In addition to apparently experiencing a similar psychological toll from being involved in cyberbullying, college students also appear to experience similarly negative behavioural outcomes. Schenk, Fremouw, and Keelan (2013) demonstrated that both cyberbullies and cyberbully/victims scored significantly higher on measures of proactive and total aggression than control individuals. Furthermore, both groups were significantly more likely to engage in illegal behaviour than controls. In particular, cyberbully/victims were more likely to engage in violent crimes (42.1%) than cyberbullies (21.7%), or individuals who reported no involvement in cyberbullying (10.1%). Additionally, cyberbully/victims were more likely to endorse involvement in drug related crimes (26.3%) than both cyberbullies (15.0%) and uninvolved persons (19.0%).

### **Cyberbullying a Stranger**

Given the prevalence of cyberbullying, and the potentially serious outcomes involvement in it may have, it is imperative that we develop a better understanding of

cyberbullying in this particular population. Most research on cyberbullying focuses on the peer-relationship aspect of this behaviour, with a particular emphasis on how cyberbullying can be used as a method of “social control” (Fransisco, 2015). Much of the research cite data demonstrating that anywhere from “40-50%” (Kowalski & Limber, 2007) to “two-thirds” of victims of cyber-bullying know their perpetrators (Juvonen & Gross, 2008). However, these figures fail to account for the remaining one-third to half of victims who do not know their attacker(s). Some studies argue that aggressor anonymity exists due to the anonymous nature of interactions on the internet (Patchin & Hinduja, 2006). These same studies posit that victims simply do not know their aggressors because aggressors are more successful at concealing their identities due to being more “Computer-literate” (Hinduja & Patchin, 2007; Patchin & Hinduja, 2006). While this may be true in some cases, this argument falls short in that it fails to take into account a fundamentally unique aspect of the internet: the internet, as a medium enables us to interact with (and possibly subsequently aggress against) individuals with whom we have no “real world” connection (Bartlett, 2015; Runions, 2013). When surveying individuals who had reportedly participated in cyberbullying behavior, Patchin and Hinduja (2006) found that 26% of offenders did not appear to know their victim “in person.” It appears that a good proportion of online aggressors may be cyberbullying a stranger.

This concept is especially interesting when one considers in particular the reported motivations for college students to be involved in cyberbullying. As previously stated, many college students do not consider themselves to be “cyberbullies” and argue that they engage in this behaviour for “fun” or as a “joke” (Baldasare et al., 2012). It appears that this aggression as entertainment construct accounts for 30-40% of cyberbullying cases among college students (Francisco et al., 2015; Rafferty & Ven, 2014). While many individuals

engaging in cyberbullying for purposes of their own amusement may be aggressing against someone they know, a subset of these individuals apparently find it rewarding to use the anonymity of the internet to cyberbully or otherwise harass strangers.

## **Aggression**

Traditionally, aggressive behaviour is described as falling within one of two categories: proactive or reactive (McEllistrem, 2004; Runions, 2013; Weierstall & Elbert, 2011). As these titles would suggest, proactive aggression is internally driven, whereas reactive aggression occurs in response to a trigger (such as a real or perceived threat) (Ching, Daffern & Thomas, 2012).

These two categories have also been given a number of alternate titles, with each alternate title corresponding to a slightly different focus. Proactive aggression has also been called: instrumental, predatory, goal directed, controlled and appetitive aggression; while reactive aggression has been known as: retaliatory, defensive, hostile, impulsive, and affective aggression (Runions, 2013; Weierstall & Elbert, 2011). These various titles differ in whether they focus on impulse control, outcome related, or emotional aspects of the aggressive act. Those titles which focus on the impulse control piece of an aggressive act (i.e. controlled or predatory vs. impulsive) allow for a distinction to be made between planned or calculated aggressive acts versus those which are impulsive (i.e. unplanned) (Runions, 2013). In contrast, titles which focus on outcome related aspects of an aggressive act allow for distinction between acts which are goal directed (i.e. engaged in to achieve some form of tangible reward, such as money) versus retaliatory in nature (i.e. those which are engaged in as a response to the behaviours of others, such as hitting someone who has hit you first) (Ching, Daffern, & Thomas, 2012). Finally, titles which emphasize the emotional

or affective motive allow for the distinction between appetitive aggression, which is engaged in to achieve a desired internal emotional state (such as excitement or entertainment) and reactive, affective, defensive, or hostile aggression which occur to redress an emotional state caused by an outside source (such as the reduction of fear via an aggressive response) (Meloy, 2006; Runions, 2013; Weierstall & Elbert, 2011).

There may be a variety of motivations for the behaviour of individuals who engage in cyberbullying. Cyberbullying may be calculated/predatory aggression (e.g. taking time to create a fake profile with which to bully another individual), impulsive (e.g. posting something cruel or hurtful on social media without consideration of potential consequences). Likewise, cyberbullying can be proactive/goal-directed (e.g. sending out embarrassing photos of another person via text message or image sharing apps in order to publicly shame them) or retaliatory (e.g. revealing private information about an individual online as “payback” for an equivalent behaviour on his/her part). Lastly, it is apparent that cyberbullying can be appetitive (e.g. sending mean text messages for fun, excitement, or as a joke) or defensive (e.g. posting something hurtful about another individual on his/her social media, due to feeling threatened/hurt oneself).

Appetitive aggression may be the most useful framework for understanding the unique form of cyberbullying wherein aggressors target victims with whom they have no real world connection. Appetitive aggression is described as “infliction of harm on a victim for the purpose of experiencing violence-related enjoyment beyond secondary rewards like status or material benefits” (Weierstall et al., 2013). This definition matches exceedingly well with present research on this behaviour among college students, which indicates that



approximately 30-40% of individuals engage in cyberbullying behaviours simply for “fun” (Baldasare et al., 2012; Francisco et al., 2015; Rafferty & Ven, 2014).

### **Sensation Seeking**

In addition to appetitive aggression, there may be additional factors that may play a role in aggressors’ cyberbullying, such as individuals’ level of sensation seeking. Sensation seeking is defined as “a personality trait characterized by the extent of a person’s desire for novelty and intensity of sensory stimulation” (Arnett, 1996). It has long been broadly linked to aggressive behaviour, particularly among youth (Arnett, 1996).

Slater et al. (2004) found that level of sensation seeking served as a significant moderator of the relationship between violent media usage and aggression among middle school students. In particular, when students were surveyed across time and endorsed higher levels of sensation seeking than their norm (e.g. their overall average level of sensation seeking) they also endorsed higher levels of aggression (Slater et al., 2004). Jensen et al. (2011) reported similar findings. Middle schoolers who scored higher on the BSSS-C (an abbreviated measure of the Zuckerman Sensation Seeking Scale normed for children) reported enjoying violent video games more, and were also more likely to engage in rule breaking behaviour at school (Jensen et al., 2011).

This relationship between sensation seeking and aggression appears to be supported among college student populations. Joirman, Anderson and Strathman (2003) found that higher levels of sensation seeking (as determined by scores on the Zuckerman Sensation Seeking Scale- Form V or SSS-V) were associated with a variety of forms of aggression in a sample of college students. In addition, level of sensation seeking predicted students’ reported desire to engage in both verbal and physical aggression (Joirman, Anderson &

Strathman, 2003). In particular, the disinhibition subscale of Zuckerman's Sensation Seeking Scale- Form V appeared to be the best predictor of physical aggression, while the boredom susceptibility subscale was the strongest predictor of verbal aggression (Joirman, Anderson & Strathman, 2003). Similar findings with regard to the relationship between the boredom susceptibility component of sensation seeking (as measured by participants' scores on Zuckerman's SSS-V) and aggression have been demonstrated by Dahlen et al. (2003) and Wilson and Scarpa (2013).

Level of sensation seeking also has been demonstrated to serve as a moderator between common physiological correlates of aggression (e.g. low resting heart rate) and reported aggressive behaviour (Wilson & Scarpa, 2013; and Wilson & Scarpa, 2014). Finally, a meta-analysis conducted by Wilson and Scarpa (2011) found that higher levels of sensation seeking were positively related to high levels of aggression ( $p < .001$ ) across forty studies (total of 32,217 participants).

Regarding cyberbullying specifically, a study of 430 undergraduate students conducted by Kokkinos, Antoniadou, and Markos (2014) determined that individuals who endorsed involvement as cyberbullies, or cyberbully/victims scored higher on the Brief Sensation Seeking Scale- 8 (BSS-8, a modified version of Zuckerman's SSS-V) than individuals who were victims, as well as individuals who were uninvolved in cyberbullying.

### **Impulsivity**

Impulsivity has been examined in relation to aggression. Impulsivity is defined as an action "performed without regard for the consequences... based on minimal or automatic cognitive appraisal" (Howard, 2011). Greater levels of impulsivity are related to aggressive behaviour in a variety of populations, including but not limited to: prison inmates, individuals

in inpatient psychiatric facilities, as well as traditional adolescent and college-aged individuals (Fanti & Kimonis, 2013; Ferguson et al., 2005; Garcia-Forero et al., 2009; Holland, Ireland & Muncer, 2009; Krakowski & Czubor, 2014; Low & Esplange, 2014).

The relationship between impulsivity and aggression is well supported in criminal populations. Generally, violent offenders score higher on the Barratt Impulsivity Scale (BIS-Version 11) than individuals convicted of non-violent offenses (Stanford et al., 2009). A number of studies have also demonstrated correlations between higher scores on the BIS-11 and likelihood an individual meets criteria for Antisocial Personality Disorder (Stanford et al., 2009). More specifically, Holland, Ireland and Muncer (2009) determined that impulsivity was related to bullying among inmate populations. In particular, individuals who were categorized as being bullies and victims scored higher on the Barratt Impulsivity Scale: Version 12 (BIS-12). In fact, these individuals were actually more impulsive than individuals who were purely bullies (Holland, Ireland & Muncer, 2009).

The relationship between impulsivity and aggression has also been examined in individuals in inpatient psychiatric facilities. Ferguson et al. (2005) determined that greater impulsivity, as indicated by higher scores on the Barratt Impulsiveness Scale, served as a positive predictor of aggression among individuals in an inpatient psychiatric facility, regardless of pre-existing diagnoses. These findings were supported by Krakowski and Czubor (2014) who determined that higher scores on the Barratt Impulsiveness Scale predicted higher levels of aggression across three groups of individuals with schizophrenia receiving different medications.

Higher levels of impulsivity have also been shown to be related to increased involvement in deviant behaviour among adolescents (specifically bullying and fighting

behaviours) (Fanti & Kimonis, 2013; Low & Esplange, 2014). In a study of 1416 adolescents (mean age= 12.89), Fanti and Kimonis (2013) found that impulsivity, as determined by one's score on the Impulsivity subscale of the Antisocial Process Screening Device- Youth Version (APSD), predicted bullying behaviour above and beyond what was otherwise predicted by students' reported "conduct problems." Impulsivity was also a useful predictor of students' membership in both victim and bully/victim groups, with the bully/victim group scoring significantly higher than all other groups (Fanti & Kimonis, 2013). Additionally, in their survey of 1232 adolescents, Low and Espelage (2014) determined that higher levels of self-reported impulsivity were associated with an increased involvement in deviant behaviour (e.g. bullying, fighting, truancy, law breaking, property damage, and substance use).

Research also has demonstrated a similar relationship between aggression and impulsivity among college students. When they surveyed 768 undergraduates using the Barratt's Impulsiveness Scale (BIS) and Aggression Questionnaire- Refined (AQ-R), Garcia-Forero et al. (2009) determined impulsivity and aggression had a common variance of approximately 42%. Kokkinos, Antoniadou, and Markos (2014) observed that undergraduate students who met criteria for cyberbully/victim status scored higher on the impulsivity subscale of the Youth Psychopathy Inventory (YPI), relative to individuals who were cyberbullies, victims, and individuals who did not report engaging in or experiencing cyberbullying behaviour. Moreover, higher scores on this subscale were predictive of involvement in cyberbullying, accounting for approximately 12% of the variance in this behaviour (Kokkinos, Antoniadou, & Markos, 2014).

## **Empathy**

Empathy is typically defined as “a vicarious emotional response to the perceived emotional experience of others” (Endresen & Olweus, 1998). The relationship between aggressive behaviour and empathy has been extensively examined across a variety of groups. In an examination of 526 adolescents, Kukiainen et al. (1999) determined that participants’ level of empathy was negatively correlated with scores on measures of physical and verbal aggression. This negative relationship between empathy and aggression, particularly among adolescents, has also been demonstrated in a 17 study review conducted by Lovett and Sheffield (2006).

Yeo et al. (2011) surveyed 241 adolescent males and found that lower levels of affective empathy, as determined by participants’ score on the Basic Empathy Scale (BES), was associated with increased physical aggression. Additionally, higher levels of indirect aggression and lower scores of cognitive empathy were also associated (Yeo et al., 2011). This negative relationship between empathy and aggression also appears to exist among older populations. In their survey of college students, Loudin, Loukas and Robinson (2003) determined that lower levels of empathy, as determined by participants’ score on the Perspective Taking and Empathetic Concern subscales of the Interpersonal Reactivity Index (IRI), were associated with higher levels of relational aggression.

The relationship between aggression and low empathy has also been demonstrated in adult inmate populations. In their meta-analysis of thirty-five studies, Jolliffe and Farrington (2004) determined that low scores on the Hogan Empathy Scale (HES) and the Questionnaire Measure of Emotional Empathy (QMEE) were strongly related to criminal offending, particularly for violent offenders. These findings were supported by a later meta-analysis of 38 studies conducted by van Langen et al. (2014) who found that criminal offenders differed

significantly from non-offenders in their levels of both affective and cognitive empathy across different measures.

The low empathy high aggression dynamic appears to play a role in bullying behaviour (Endersen & Olewus, 1998). In a study of 433 middle school students (mean age=13) Mayberry and Espelage (2007) determined that individuals un-involved in any sort of bullying behaviour scored higher on a multidimensional measure of both affective and cognitive empathy (Interpersonal Reactivity Index; IRI), than individuals classified as bullies. Stavrinides, Georgiou and Theofanous (2010) surveyed 205 6<sup>th</sup> graders (mean age 11.7) and found that scores on the Basic Empathy Scale (BES) were negatively related to whether or not they engaged in bullying behaviour. Children with lower affective empathy were more likely to report engaging in bullying behaviour, even when surveyed up to six months later (Stavrinides, Georgiou & Theofanous, 2010). These findings were supported by Jolliffe and Farrington (2011) who determined that lower scores of affective empathy, as measured by the Basic Empathy Scale (BES), were related to bullying behaviour among adolescent males.

This relationship also appears to be consistent with findings related to cyberbullying. A study of 2070 students (mean age=15.9) conducted by Steffgen, Konig, Pfetsch, and Melzer (2011) determined that individuals who reported engaging in cyberbullying behaviour demonstrated “less empathic responsiveness” than individuals who were victims of cyberbullying, as well as those who did not report any experiences with cyberbullying behaviour. These findings were supported by a study of 819 high school students (mean age= 16.08) conducted by Renati, Berrone, and Zanetti (2012), which found that individuals who reported engaging in cyberbullying behaviour scored lower on a measure of affective empathy (the Basic Empathy Scale; BES) than those who did not endorse cyberbullying

behaviour. Lower levels of empathy have also been found to be associated with greater likelihood of negative bystander behaviour among adolescents such as “joining in” or otherwise encouraging the cyberbully in his/her aggressive behaviour (Barlinska, Szuster, & Winiewski, 2013; Van Cleemput, Vandebosch & Pabian, 2014).

Kokkinos, Antoniadou and Markos (2014) additionally found that cyberbullying was associated with lower empathy (as indicated by higher scores on the callous/unemotional subscale of the Youth Psychopathy Inventory) among college students. Conversely, they found that college students who were victims of cyberbullying scored higher on the Eight Item Version of the Empathy Quotient scale (EQ-8) than cyberbullies, and cyberbully/victims (Kokkinos, Antoniadou & Markos, 2014).

## **SUMMARY AND PRESENT STUDY**

To date, there is limited research on cyberbullying behaviour, particularly the act of cyberbullying a stranger. However, given the psychological toll caused by cyberbullying, it is imperative that we develop a greater understanding of this behaviour. In particular, there are three factors which may be most useful in examining cyberbullying: sensation seeking, impulsivity, and empathy. Both sensation seeking and impulsivity have been associated with aggressive and risky behaviour across a variety of settings and populations. Higher levels in both have been correlated with bullying and cyberbullying in youth populations. In contrast, empathy appears to have the opposite effect, with higher levels of empathy being associated with lower levels of aggression and bullying.

The purpose of this study is to determine the relationships among sensation seeking, impulsivity, and empathy in cyberbullying behaviour. Participants will be asked to provide demographic information, complete a measure of their experiences with cyberbullying, as well as measures of sensation seeking, impulsivity, and empathy. It is hypothesized that empathy will serve as a mediator for the relationship between sensation seeking and cyberbullying. It is also hypothesized that impulsivity will moderate this relationship. In addition, in an attempt to determine whether any of the aforementioned factors can be utilized to distinguish between the form of cyberbullying wherein the aggressor personally knows his/her victim, and the form wherein the aggressor chooses to harass a stranger, these two sub-types of cyberbullying will be examined as conditional variables.



## **METHOD**

### **Participants**

Participants were 393 male ( $n=116$ ) and female ( $n=277$ ) undergraduate students ranging in age from 18-30+ years attending the University of Mississippi. 50.9% of students were 18, 34.9% were 19, 9.2% were 20, 2% were 21, 1.8% were 22, .8% were 23, and .3% were 25 and 35 each respectively. 84.5% of participants identified themselves as Caucasian, 8.7% as African American, 1.5% identified as Hispanic/Latino, 2.8% as Asian American, and 2.5% as Other (students who selected this option included those who identified as bi/multi-racial, and Native American) (Table 1).

### **Measures**

Participants were asked to provide basic demographic information (age, gender, race/ethnicity, etc.) as well as information regarding what forms of technology/social media they use (smart phone apps, Facebook, Twitter etc.) and the amount of time spent on each item per week.

The Cyberbullying Scale (Stewart, Drescher, Maack, Ebesutani, & Young, 2014) is a 16 item measure of cyberbullying behavior in youth. Two questions are general and assess forms of technology (i.e. text messaging, social media, smart phone apps, etc.) through which participants have been bullied, or had bullied others. Using a five point Likert-type scale, the remaining fourteen questions ask participants to rate how often they have been victims of cyberbullying in the past few months. On this measure, higher scores are indicative of more experiences as a victim of cyberbullying. The measure has demonstrated strong internal

consistency reliability across both high school and middle school students ( $\alpha = .94$ ) and data from the initial instrument development study demonstrated a unitary factor structure.

Since a psychometrically sound measure of cyberbullying among college students did not exist at the outset of the study, the CBS was modified for use with this population. This process involved changing any references to “kids” or “children” into more age appropriate modifiers such as “person”. Additionally, for purposes of this study, the CBS was further modified to focus on acts of aggressors rather than experiences of their victims. Questions 3-16 were altered to ask how often participants engaged in specific cyberbullying behaviors instead of asking how often they’d experienced them. As such, higher scores would be indicative of more experiences as a cyberbully or aggressor. The first two questions, which asks participants to explicitly select the various technological domains (such as Email, Instant Message, Social Media, etc.) where they have experienced or engaged in cyberbullying, were not altered. This final modified version of the CBS measure was entitled the Cyberbullying Scale – Version A (CBS-A). Due to experimenter error, question four from the initial measure was not included in either administration of the CBS-A. Regardless, Cronbach’s alpha for the current study was .767 for the portion of the scale regarding behavior towards known individuals and .831 for the portion of the scale regarding behavior towards unknown individuals.

The Abbreviated Impulsivness Scale (ABIS) (Coutlee et al., 2014) is an abbreviated version of the Barratt Impulsiveness scale version 11 (BIS-11; Patton, Stanford & Barratt, 1995). The BIS- 11 is a psychometrically sound, widely validated measure of impulsive behavior in adults. The ABIS is a thirteen item scale which measures three factors of

impulsivity: attentional impulsivity (5 items), non-planning impulsivity (4 items), and motor impulsivity (4 items). Participants answer questions pertaining to their behavior on a four point scale: 1=*rarely/never*, 2=*occasionally*, 3=*often*, 4=*almost always/always*. Scores are calculated for each subscale by averaging responses on all relevant items after reverse-scored items have been accounted for. Higher scores in each subscale indicate increased levels of that particular factor of impulsivity. The ABAIS has demonstrated strong internal consistency across each factor ( $\alpha$ : attention = .71; non-planning = .69; and motor = .64). Additionally, the motor impulsivity factor demonstrated a significant relationship to a self-report measure of alcohol consumption, a factor typically demonstrated to be positively correlated with other measures of impulsivity ( $r = .44, p < .05, 95\% \text{ CI } [.17, .64]$ ). Motor and non-planning factors demonstrated trend level relationships ( $p < .10$ ) with a measurement of impaired decision making in a delay-discounting task, another method which has been used to measure impulsivity. Cronbach's alpha for the current study was .866 for the overall scale.

The Brief Sensation Seeking Scale-8 (BSSS-8) (Hoyle et al., 2002) is a modified version of Zuckerman's Sensation Seeking Scale Form V. The scale measures thrill and adventure seeking, experience seeking, disinhibition, and susceptibility to boredom. There are eight items on the measure, two for each of the aforementioned components. Participants respond on a five-point Likert type scale with answer options ranging from 1= *strongly disagree* to 5= *strongly agree*. Scores can then be computed for each of the four components and for a combined total with higher scores indicating higher levels of sensation seeking. This measure has demonstrated strong internal consistency ( $\alpha = .76$ ). Cronbach's alpha for the present study was .81 for the overall scale.

The Eight Question Empathy scale or EQ-8 (Lawrence, et al., 2004; Lowen, Lyle, & Nachshen, 2010) is a psychometrically sound, eight item version of the Empathizing Quotient. This measure assesses social skills, cognitive empathy and emotional reactivity. Participants respond to eight questions on a four point Likert type scale (1=*strongly agree* to 4=*strongly disagree*). The total score for each factor (social skills, empathy and emotional reactivity) is derived from the mean from the matched item scores, and higher scores indicate a greater capacity for empathy. Scores on the EQ-8 have been found to be normally distributed (Skewness = -.13; Kurtosis = -.60) and have demonstrated moderately strong internal reliability ( $\alpha = .76$ ). As with previous versions of the EQ, the EQ-8 demonstrated a significant mean score difference between men and women, with women displaying higher scores of empathy ( $t = -16.35$ ,  $df = 4680$ ,  $p = .00$ ). Cronbach's alpha for the present study was .701 for the overall scale.

The Instructional Manipulation Check or IMC (Oppenheimer, Meyvis, & Davidenko, 2010) is a relatively new tool designed to determine whether or not survey participants read instructions. This tool, and others like it have been demonstrated to increase the reliability and statistical power of a dataset collected via online methods. There are a number of ways to shape an IMC, however the one most appropriate for this study is the Blue Dot Task. This IMC resembles a Likert type scale (1= *very rarely* to 9=*very frequently*). Above the scale there are instructions informing participants to ignore the scale itself and instead "...click on the little blue circle at the bottom of the screen." (Oppenheimer, Meyvis & Davidenko; 2010). Failing to correctly complete this task indicates a lack of attention on the part of the

participant, thus allowing for the IMC to be used to exclude participants who were likely to have failed to attend to survey item content.

## **Procedures**

Participants were recruited through the University's online system (*SONA*). Students received .5 research credit hours for participating. From *SONA*, participants were re-directed via a link to Qualtrics (Enterprise Service Tools; Provo, UT). On Qualtrics, participants were presented with a consent form detailing the voluntary and anonymous nature of their participation. Participants indicated their consent to participate by selecting a box. They then completed demographic questions, as well as questions pertaining to their internet and social media usage. Following demographic questions they completed the first two questions of the CBS-A, which ask explicitly about participant's experiences with both cyberbullying perpetration and victimization via various technological means (e.g. Email, Instant Messaging, Cell phone apps, etc.). Students were then asked to consider their usual online interactions with individuals they know personally and to keep these interactions in mind while completing the remaining questions (3 and 5-16) on the CBS-A. Following this step students were asked to consider their usual online interactions with individuals whom they did not know personally (and to keep these interactions in mind) while completing questions 3 and 5-16 of CBS-A again. Following the two completions of the CBS-A, participants completed the BSSS-8, ABIS, and EQ-8. All participants received measures in this order to prevent the possibility that participants would receive the EQ-8 before either administration of the CBS-A, as it was suspected that doing so would prime participants to answer in a socially desirable fashion. Upon completion of the survey participants were thanked for their

participation and provided with a list of psychological services available to them locally should they need them.

## RESULTS

Six-hundred and five individuals completed the survey on Qualtrics. Fifty-nine participants were identified as duplicates by their IP address, and were removed from the analysis. Eight individuals were removed from the analysis due to failure to consent to participate, and three participants were excluded due to the fact that they did not meet the age requirement (i.e. reported being less than 18 years old). Additionally, 124 were removed due to failing the Instructional Manipulation Check (or Blue Dot Task). Mahalanobis distance identified 18 multivariate outliers; these were removed from analysis resulting in a final sample of  $N = 393$ .

Little's MCAR was calculated for each measure in order to determine whether data were missing completely at random. All scales were non-significant (i.e. missing completely at random) indicating that there was no evidence to suggest that data were not missing completely at random, and consequently missingness was not a concern. The one exception to this finding was the second administered CBS-A (where individuals were asked to consider their interactions with individuals they did not know personally). Little's MCAR was significant for this measure, indicating that data had a pattern of missingness which was not completely random. As such, results from the subsequent model containing this scale (henceforth referred to as CBS-A Unknown) should be interpreted with caution. Furthermore, the high degree of missingness on this particular scale prohibits us from comparing it directly with the CBS-A where individuals were asked to consider their interactions with individuals they knew personally (henceforth referred to as CBS-A known). Potential explanations for this missingness and implications for future research will be discussed.

In order to account for participants missing an item on a particular scale, converted mean scores were used for each participant. The creation of this value involved calculating the mean score for each participant on each scale. Mean scores were multiplied by the number of items in that particular scale to create the converted mean “Total score”. This method of scoring prevents participants from having artificially lower scores for each subscale due to missing data. This method essentially allows for imputation of missing data in a way that imputed values reflect each participant’s mean response on all other items. This is a standard method of dealing with missing data when Little’s MCAR is not significant and missingness is relatively infrequent (Downey and King, 1998).

Prior to analyses, descriptive statistics were conducted on demographic variables, and distributions of the remaining variables were examined for skewness and kurtosis. The BSSS8, ABIS and EQ-8 were normally distributed. However, CBS-A known and unknown converted mean total scores were highly skewed and kurtotic. Given the low base rate of this behavior, and the potential effect of social desirability on participant’s responses, this pattern is unsurprising. Furthermore, as stated previously, plans were made to conduct necessary transformations in the event of this sort of non-normality. As such, in keeping with conventions, a logarithmic transformation was conducted in order to correct for non-normality of data. A  $\log_{10}(\text{total score} + 1)$  transformation was used in order to preserve the hierarchy of the data, as a traditional  $\log_{10}$  regards values of zero (which are necessary and present on our scales) as undefined (Tabachnick and Fidel, 2001). Upon completing this transformation, skew and kurtosis were normalized for the CBS-A known converted mean total scores. However, skew and kurtosis remained non-normal for the CBS-A unknown converted mean total scores; though these values were significantly less skewed and kurtotic



than before the transformation. As such, models including the values from the CBS-A unknown should yet again be interpreted with caution and are merely exploratory in nature.

Percentages of student internet and social media use were as follows: students reported spending an average of 3.14 hours a day online, of which an average of 2.86 hours were devoted to Social media. An overwhelming 99.5% of students reported using at least one form of social media. On average, students used at least five social media sites (mean=5.2) with some students reporting use of as many as eight or nine sites. The most often used form of social media in descending order were as follows: Instagram (37.9%), Snapchat (27.0%), Facebook (12%), Twitter (9.4%), GroupMe (4.8%), Online Gaming (2.8%) Tumblr (2.3%), Reddit (1.5%) Yik-Yak (.8%), Other (.8%), None or missing (.5%), and Flickr (.3%) (Table 2).

Percentages of student cyberbullying and victimization were as follows (Table 3). 12.2% of students reported experiencing some form of cyberbullying, and 4.6% openly admitted to engaging in some form of cyberbullying. However, a striking 60.3% of participants indicated that they had engaged in some form of cyberbullying behavior. Interestingly, 59.3% and 32.8% of participants reported engaging in cyberbullying behaviors towards known and unknown persons respectively. Of those individuals, 31.8% qualify as engaging in some form of cyberbullying towards both groups. It appears that individuals who engage in cyberbullying tend to aggress against both known and unknown persons. A correlation matrix was computed for all variables (Table 4).

Conditional process modeling was conducted to examine the proposed model (Figure 1) and to determine whether empathy mediates the relationship between sensation seeking and cyberbullying behavior, as well as whether impulsivity moderates this mediated

relationship. Impulsivity did not serve as a moderator in any aspect of the model (neither the direct or indirect effect); furthermore empathy did not function as a mediator. The key aspect of mediation is that the proposed mediator must demonstrate a conditional indirect effect of the predictor variable on the outcome variable (commonly known as the  $c'_3$  path). In the case of our model, the predictor variable was sensation seeking, the mediator was empathy and the outcome variable was cyberbullying behavior (both known and unknown respectively).

Furthermore, one expects that the mediator (empathy) variable will demonstrate a relationship with the predictor (sensation seeking) variable (commonly known as the  $a_1$  path) as well as with the outcome variable (cyberbullying behavior) (commonly known as the  $b_1$  path). However, these relationships were not statistically significant in either model (i.e. when the outcome variable was cyberbullying engaged in towards either known or unknown persons). As such, despite the extensive literature linking empathy to aggressive behavior, it did not appear to function as a mediator within this model, for the tested population.

Furthermore, other than a weak positive correlation between impulsivity and empathy, empathy did not appear related to any of the key variables within the model. Although unexpected, the data indicated that empathy did not contribute to the model and was therefore unlikely to yield useful information in future analyses exploring cyberbullying behavior. For all of these reasons, additional models were explored that did not include empathy, but for which theoretical arguments could be made.

Given the similarity between the constructs of impulsivity and sensation seeking and the fact that both have been linked to aggressive behavior in previous literature, both sensation seeking and impulsivity were investigated as mediators. Conditional process modeling was first used to examine a simple mediation model, investigating the relationship

between impulsivity and cyberbullying with sensation seeking serving as a mediator. Results will be described consistent with the Baron and Kenny Method for ease of understanding, however it should be noted that all variables were tested in the model at once, using bias-corrected bootstrapping procedures. Two separate models were tested, one using cyberbullying of known persons as the outcome variable, the other using cyberbullying of unknown persons.

In the model examining sensation seeking as a mediator between impulsivity and cyberbullying behavior towards known persons (Figure 2), a significant indirect path emerged, indicating mediation. The initial direct relationship between impulsivity and cyberbullying (the total effect) was significant ( $c$  path;  $b = .0055, p = .0474$ ). There was also a significant relationship between impulsivity and sensation seeking ( $a$  path;  $b = .4072, p < .001$ ). When testing sensation seeking acting as a predictor of cyberbullying (when controlling for impulsivity), evidence was found of a significant relationship ( $b$  path;  $b = .0117, p = .0003$ ). For the crucial test of mediation, the indirect path between impulsivity and cyberbullying towards known persons was no longer significant ( $p = .8181$ ) indicating an indirect relationship between impulsivity and cyberbullying known persons as moderated through sensation seeking ( $a_1b_1$  path;  $b = .0048, p = .0007$ ). These effects were significantly different from zero by bias-corrected bootstrap confidence interval (.0023-.0076) based on 20,000 bootstrap samples. In short, for cyberbullying behavior towards known persons, when the influence of level of Sensation Seeking was accounted for, there was not a significant effect of Impulsivity on participants' tendency to engage in cyberbullying ( $c'$ ;  $b = .0007, p = .8181$ ). This finding suggests that level of sensation seeking mediates the relationship between level of impulsivity and participant's tendency to engage in cyberbullying against

known persons. It should be noted that the beta of the overall model (.0430) was rather small.

Although these results should be interpreted with caution, an indirect effect was observed in the model examining the relationship between impulsivity and cyberbullying behavior towards unknown persons with sensation seeking serving as a mediator. In this model, when influence of level of Sensation Seeking was accounted for there was not a significant effect of Impulsivity on participants' tendency to engage in cyberbullying ( $c$  path;  $b=.0028, p=.2218$ ). However, there was a significant relationship between impulsivity and sensation seeking ( $a$  path;  $b=.4072, p < .001$ ). Furthermore, when testing for full mediation with sensation seeking acting as mediator, evidence was found of a significant indirect relationship such that sensation seeking predicted cyberbullying against unknown persons ( $b$  path;  $b=.0066, p=.0147$ ). In the final model, the path between impulsivity and cyberbullying towards unknown persons continued to be non-significant ( $c'$  path;  $b= .0001, p=.9633$ ) indicating an indirect relationship between impulsivity and cyberbullying known persons as moderated through sensation seeking ( $a_1b_1$  path;  $b=.0027, p=.0183$ ). These effects were significantly different from zero by bias-corrected bootstrap confidence interval (.0008-.0049) based on 20,000 bootstrap samples. This finding suggests that level of sensation seeking may have an indirect relationship between level of impulsivity and participant's tendency to engage in cyberbullying against unknown persons. In short, as level of impulsivity increases, level of sensation seeking increases, and subsequently cyberbullying of unknown persons' increases. This relationship is in the expected direction, and mirrors that of the model of cyberbullying behavior in known persons'. Finally, it should be noted that the r-squared of the overall model (.0189) was extremely small.

While Sensation Seeking appeared to be a successful mediator between Impulsivity and Cyberbullying behavior, Impulsivity failed to function as a mediator. This occurred in both models including cyberbullying behavior engaged in towards known and unknown persons. In both models, when Impulsivity was accounted for, there was a significant effect of Sensation Seeking on participants' tendency to engage in cyberbullying (*c* path known;  $b=.0121, p < .001$ ; *c* path unknown;  $b=.0067, p=.0063$ ). Additionally, there was a significant relationship between Sensation Seeking and Impulsivity for both models (*a* path known;  $b=.4628, p < .0001$ ; *a* path unknown;  $b=.4628, p < .0001$ ). However, when testing for full mediation with Impulsivity acting as mediator, evidence was not found for a significant relationship such that Impulsivity predicted cyberbullying against either known or unknown persons (*b* path known;  $b=.0007, p= .8181$ ; *b* path unknown;  $b=.0001, p=.9633$ ). This relationship between the proposed mediator and outcome variable is an essential part of a mediation model. Given that both models failed to demonstrate this relationship between the proposed mediator (impulsivity) and the outcome variables (cyberbullying behavior engaged in towards both known and unknown persons), no evidence suggests that Impulsivity mediates the relationship between Sensation Seeking and Cyberbullying either known or unknown persons for our particular population.

## **DISCUSSION**

Cyberbullying is a relatively new domain of study, and to date, has been little examined in college students. However, the current study found that at least 12.2% of college students had been recent victims of some form of cyberbullying, and a striking 60.3% of participants reported engaging in some form of cyberbullying behavior towards either known or unknown persons. Previous studies of cyberbullying reported relatively low rates of this behavior, with approximately 4.6% of respondents openly admitting to engaging in cyberbullying (MacDonald and Roberts, 2010; Schenk, Fremouw and Kellan, 2013). Unlike prior investigations where participants were only directly asked whether they had engaged in cyberbullying, the current investigation also assessed frequency of specific cyberbullying behaviors. Baldasare et al. (2012) suggested that college students may under-report their cyberbullying behavior because they do not consider themselves “cyberbullies” as they do not explicitly intend to harm those they aggress against. Present findings indicate that cyberbullying behavior appears to be more prevalent among college aged individuals than was previously thought, and that more accurate perpetration and victimization rates may be obtained by asking about specific cyberbullying behaviors or experiences, rather than asking participants more generally about their involvement in cyberbullying as either a victim or perpetrator.

Cyberbullying is typically framed within the context of peer relationships. However, 32.8% of our sample reported engaging in cyberbullying behaviors towards individuals they did not know personally. Furthermore, 1% of our sample exclusively engaged in cyberbullying towards unknown persons. It appears that, at least among our population of college students, a significant portion of individuals are engaging in cyberbullying outside of

their peer networks. This mirrors findings from a study in youth ages 12-18 conducted by Patchin and Hinduja (2006) which found that approximately 26% of cyberbullies did not know their victim “in person”. Further study is warranted to better distinguish between these two populations (i.e. individuals who cyberbully known persons versus those who cyberbully unknown persons), as well as between individuals who engage in any kind of cyberbullying and those who do not.

According to present research, sensation seeking, impulsivity and empathy have all been related broadly to aggressive behavior (Arnett, 1996; Joirman, Anderson & Strathman, 2003; Garcia-Forero et al., 2009; Stavrinides, Georgiou & Theofanous, 2010). Typically impulsivity and sensation seeking have been positively correlated with aggressive behavior, while empathy is negatively correlated. This pattern has been replicated in some preliminary research on cyberbullying. Kokkinos, Antoniadou, and Markos (2014) determined that college aged individuals with higher levels of Sensation Seeking (as determined by their score on the BSSS-8) were more likely to report involvement as both a cyberbully and cyberbully/victim. Kokkinos, Antoniadou, and Markos (2014) also found that higher impulsivity (as determined by the impulsivity subscale of the Youth Psychopathy Inventory) was predictive of involvement in cyberbullying for college aged individuals. In terms of empathy, Renati, Berrone, and Zanetti (2012) found that high schoolers with lower empathy (as determined by lower scores on the Basic Empathy Scale) were more likely to report engaging in cyberbullying behavior. Furthermore, Kokkinos, Antoniadou, and Markos (2014) determined that cyberbullying was associated with lower empathy (as indicated by higher scores on the callous/unemotional subscale of the Youth Psychopathy Inventory).

Individuals who were victims of cyberbullying had higher empathy (as determined by their scores on the EQ-8) than individuals who were cyberbullies or cyberbullies/victims.

Interestingly, our findings did not completely mirror these relationships. For instance, in our initial model (Figure 1), empathy did not demonstrate a relationship to either our predictor variable of sensation seeking, or our outcome variable of cyberbullying for either known or unknown persons. In short, no evidence was found within our model for empathy to be related to cyberbullying behavior towards either known or unknown persons. In fact, other than a weak positive correlation between impulsivity and empathy, empathy was not found to be related to any of the key variables in the model. There are a number of possible explanations for this discrepancy between our findings and previous research. The EQ-8 is largely a measure of cognitive empathy, whereas the scales used in previous research were largely affective in their measurement of empathy (Kokkinos, Antoniadou, & Markos 2014; Renati, Berrone, & Zanetti, 2012). It may be that one's capacity to feel the emotions of others, rather than one's ability to cognitively process how others might feel in a particular situation that might serve as a protective factor for cyberbullying. Also, as was demonstrated by Kokkinos, Antoniadou, & Markos (2014) it is possible that empathy is more closely related to victimization rather than perpetration. Finally, it is possible that empathy plays a smaller role in cyberbullying than in more traditional forms of aggression due to the contextual differences between the environments in which these both occur (i.e. with the victim and consequences related to aggressing against him or her being distal rather than proximal).

In addition to empathy's failure to conform to the expected relationship within our model, impulsivity also did not behave as was expected. When conditional process modeling



was used to examine a simple mediation model with impulsivity functioning as a mediator between sensation seeking and cyberbullying, impulsivity failed to function as a mediator. In short, our findings did not demonstrate a predictive relationship between impulsivity and cyberbullying for either known or unknown persons. It is possible that differences between present findings and previous research are due to differences in scales used. Kokkinos, Antoniadou, and Markos (2014) used a five item subscale of the YPI to measure impulsivity; this scale largely asks about specific impulsive behaviors. In contrast, the present study used the thirteen item ABIS, which asks about participant's ability to successfully control and moderate their behavior; items are then reversed scored to ascertain level of impulsivity. This difference in how questions are framed could contribute to a slightly different response pattern among participants. Furthermore it is also possible that impulsivity simply does not play as large a role in cyberbullying as it does in traditional forms of aggression, such as reactive aggression. While the ubiquity of technology does enable a prompt response, it also may be possible that cyberbullying behavior more closely resembles relational aggression as opposed to traditional school yard bullying which is more physical and immediate in nature.

Furthermore, it is also possible that as previous research did not examine the interactive effects between impulsivity and sensation seeking, that sensation seeking is actually a more robust predictor of cyberbullying behavior. This was supported by the present findings which indicated that participant's level of sensation seeking mediated the relationship between their level of impulsivity and tendency to engage in cyberbullying. Individuals high in sensation seeking, were more likely to report engaging in cyberbullying behaviors towards known persons. Additionally, this factor better explained cyberbullying behavior than level of impulsivity alone. A similar trend relationship was demonstrated for

individuals engaging in cyberbullying behavior towards unknown persons. As participants' level of impulsivity increased, their level of sensation seeking also increased, and in turn increased the likelihood that they reported engaging in cyberbullying behavior towards unknown persons. This pattern fits with the model of appetitive aggression, as well as previous research among college aged individuals who report engaging in cyberbullying behavior for "fun". In short, if cyberbullying is conceptualized as entertainment and one has a high need for entertainment (i.e. high levels of sensation seeking) this may affect one's tendency to engage in cyberbullying more than one's tendency to act without considering consequences. This appetitive framework is especially interesting considering the differing findings of the present research on cyberbullying against known versus unknown persons. In short, if one is willing to aggress against strangers simply to fill an appetitive desire (i.e. because it's fun) one might expect to see the indirect relationship between impulsivity and sensation seeking that was demonstrated within our model. Given the high degree of missingness within our sample, this warrants future examination. Obtaining more data on this potential difference could be useful in terms of both predicting cyberbullying behavior and designing an effective intervention to target cyberbullies and reduce their aggressive behavior.

There were several limitations to the present study. First, as previously stated, the CBS-A was modified from its initial version and due to experimenter error a question was excluded from both the CBS-A known and unknown scales. As such, further experimentation is needed to confirm the validity and accuracy of this newly transformed measure. However, even with these various modifications, the Cronbach's alpha for the current study was .767 and .831 for cyberbullying known and unknown persons respectively,

indicating that it is likely a reliable and sound measure. An additional limitation of the present research is that the CBS-A unknown scale failed to satisfy Little's MCAR. Consequently, missingness on this particular scale was not completely at random. There are a number of possible explanations which could account for this pattern of missingness. It is possibly due to the transformation of the CBS-A mentioned previously. Additionally, it is possible that administering the CBS-A unknown scale directly following the CBS-A known scale, induced order effects, or participants who did attend to the instructions answered in a more socially desirable fashion. This pattern of consistent answers on the CBS-A known, but missingness on the CBSA-unknown could potentially reflect that many college aged individuals consider cyberbullying behavior within peer groups to be normative, but do not consider engaging in the same behavior towards strangers to be acceptable. Further work should potentially include a measure of participants' tendency to answer in a socially desirable fashion. This distinction would be a potentially interesting social discrimination between these two similar subsets of behavior and would consequently be worth examining in future research.

Though this study did have the aforementioned limitations, there are a number of intriguing potential implications of the findings. To begin with, the present study indicates that measures of cyberbullying in college aged individuals' likely need to be reconstructed to better ascertain accurate perpetration and victimization rates. Furthermore, the data demonstrate that cyberbullying may not be exclusively confined to peer relationships, at least among college aged individuals, as was previously believed. In particular this finding seems to call in to question the notion that conventional explanations for behavior can simply be extended to cyber-behavior without modification. It is possible that the contingencies which

may be altered by technology (i.e. increased availability of easily accessible victims, decreased experience of negative consequences due to anonymity, increased reinforcement and acceptance of acts of appetitive aggression, etc.) may have created a fundamentally different niche in which aggressive behavior can occur. This would in turn potentially require that future researchers create altered or novel models of human interaction via cyber-networks. Ultimately, the present study indicates that further research is warranted to ascertain to what extent changes in technology have and continue to have an effect on the expression of human aggression.



Figure 1. Conditional Process Modelling: Initially proposed model

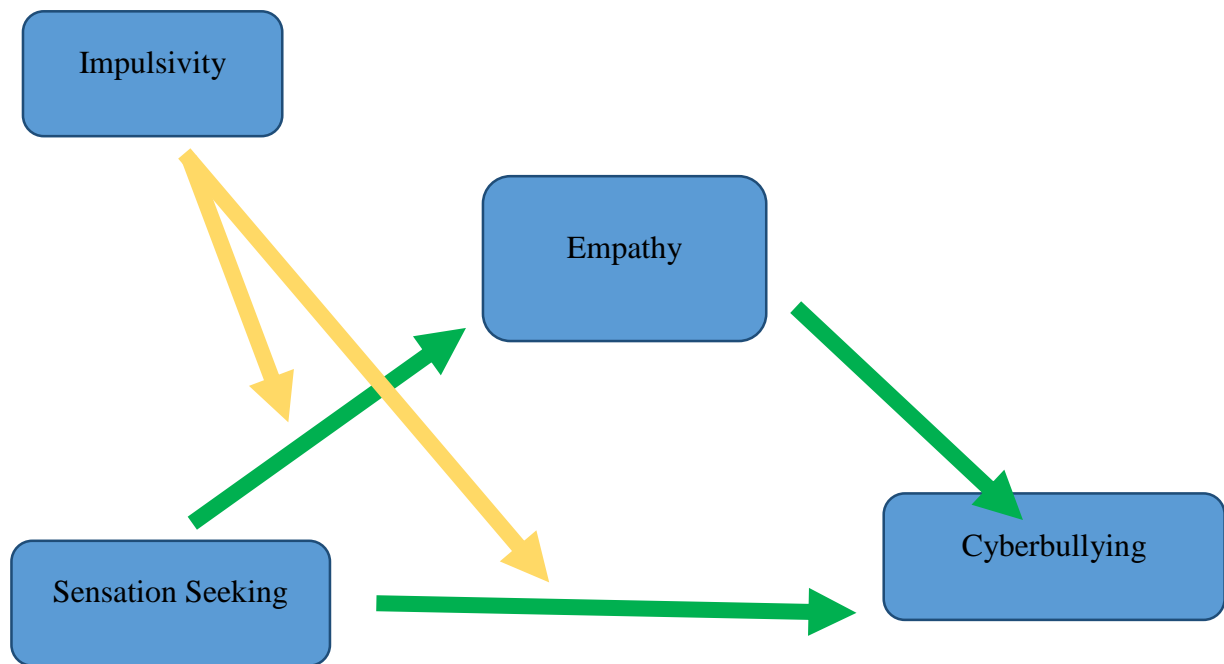
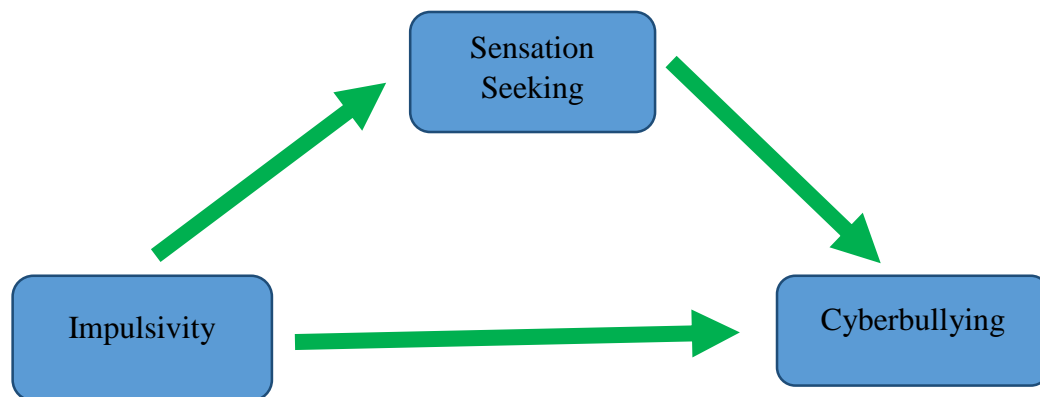


Figure 2. Conditional Process Modelling: Sensation Seeking as a Mediator between Impulsivity and Cyberbullying



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## **APPENDIX**

Table 1. Descriptive Statistics of Participants (n=393)

Gender	Frequency	Percentage
Female	277	70.5%
Male	116	29.5%
Age	Frequency	Percentage
18 years old	200	50.9%
19 years old	137	34.9%
20 years old	36	9.2%
21 years old	8	2.0%
22 years old	7	1.8%
23 years old	3	.8%
25 years old	1	.3%
35 years old	1	.3%
Ethnicity	Frequency	Percentage
Caucasian	332	84.5%
African American	34	8.7%
Hispanic/Latino	6	1.5%
Asian American	11	2.8%
Other Ethnicity	10	2.5%





Table 2. Descriptive Statistics of Participants' Internet and Social Media Usage

Number of hours online per day	Frequency	Percentage
0-1 hours	20	5.1%
2-3 hours	144	36.6%
3-4 hours	47	12.0%
4-5 hours	143	36.4%
5-6 hours	39	9.9%

Number of hours on social media per day		
	Frequency	Percentage
0-1 hours	44	11.2%
1-2 hours	140	35.6%
2-3 hours	106	27.0%
3-4 hours	52	13.2%
4-5 hours	21	5.3%
5-6 hours	26	6.6%
Missing	4	1.0%

Total number of social media sites used		
	Frequency	Percentage
0 sites	1	.3%
1 site	9	2.3%
2 sites	8	2.0%
3 sites	35	8.9%
4 sites	70	17.8%
5 sites	100	25.4%
6 sites	82	20.9%
7 sites	56	14.2%
8 sites	28	7.1%
9 sites	4	1.0%

Form of social media used most often		
	Frequency	Percentage
Facebook	47	12.0%
Twitter	37	9.4%
Instagram	149	37.9%
Yik-Yak	3	.8%
Snapchat	106	27.0%
Tumblr	9	2.3%
Reddit	6	1.5%
GroupMe	19	4.8%
Flickr	1	.3%
Online Gaming	11	2.8%
Other	3	.8%
Missing	2	.5%



Table 3. Descriptive Statistic of Cyberbullying and Victimization

Explicitly Admitted Bullying	Frequency	Percentage
Any Admitted Bullying	18	4.6%
No Admitted Bullying	375	95.4%
Explicitly Admitted Victimization	Frequency	Percentage
Any Admitted Victimization	48	12.2%
No Admitted Victimization	345	87.8%
Cyberbullying Behavior vs Known	Frequency	Percentage
Any Cyberbullying Known	233	59.3%
No Cyberbullying Known	160	40.7%
Cyberbullying Behavior vs Unknown	Frequency	Percentage
Any Cyberbullying Unknown	129	32.8%
No Cyberbullying Unknown	264	67.2%
Cyberbullying Behavior vs Both Known and Unknown	Frequency	Percentage
Any Cyberbullying Both	125	31.8%
No Cyberbullying Both	268	68.2%
Cyberbullying Behavior by type	Frequency	Percentage
No Cyberbullying Behavior	156	39.7%
Cyberbullied only Known	108	27.5%
Cyberbullied only Unknown	4	1.0%
Cyberbullied Both	125	31.8%

Table 4. Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>Age</b>														
Pearson Corr.	1	-.110 <sup>*</sup>	.092	-.066	-.130 <sup>*</sup>	-.266 <sup>**</sup>	-.012	-.026	-.050	.072	.035	.106 <sup>*</sup>	-.064	-.016
Sig (2t)		.029	.069	.194	.010	.000	.816	.602	.322	.155	.492	.035	.203	.745
N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>Gender</b>														
Pearson Corr.	-.110 <sup>*</sup>	1	-.052	.048	.177 <sup>**</sup>	.158 <sup>**</sup>	-.062	.029	-.145 <sup>**</sup>	-.180 <sup>**</sup>	-.131 <sup>**</sup>	-.200 <sup>**</sup>	.122 <sup>*</sup>	-.045
Sig (2t)	.029		.304	.344	.000	.002	.220	.572	.004	.000	.009	.000	.015	.373
N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>Ethnicity</b>														
Pearson Corr.	.092	-.052	1	.114 <sup>*</sup>	-.007	-.064	-.083	.020	.083	.027	.002	.038	-.042	-.021
Sig (2t)	.069	.304		.024	.892	.204	.100	.699	.100	.596	.975	.456	.410	.680
N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>Number of hours per day online</b>														
Pearson Corr.	-.066	.048	.114 <sup>*</sup>	1	.421 <sup>**</sup>	.160 <sup>**</sup>	-.027	.032	.047	.101 <sup>*</sup>	.190 <sup>**</sup>	.097	.097	.101 <sup>*</sup>
Sig (2t)	.194	.344	.024		.000	.001	.600	.526	.348	.045	.000	.054	.054	.046
N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>Number of hours per day on Social Media</b>														
Pearson Corr.	-.130 <sup>*</sup>	.177 <sup>**</sup>	-.007	.421 <sup>**</sup>	1	.198 <sup>**</sup>	-.045	.119 <sup>*</sup>	-.006	.006	.048	.011	.035	.005
Sig (2t)	.010	.000	.892	.000		.000	.380	.019	.911	.912	.348	.831	.491	.914
N	389	389	389	389	389	389	389	389	389	389	389	389	389	389
<b>Total number of social media sites used</b>														
Pearson Corr.	-.266 <sup>**</sup>	.158 <sup>**</sup>	-.064	.160 <sup>**</sup>	.198 <sup>**</sup>	1	.172 <sup>**</sup>	.106 <sup>*</sup>	-.039	.113 <sup>*</sup>	.089	.088	.077	.037
Sig (2t)	.000	.002	.204	.001	.000		.001	.036	.435	.024	.078	.082	.130	.469

N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>BSSS-8</b>														
Pearson Corr.	-.012	-.062	-.083	-.027	-.045	.172**	1	.434**	.037	.178**	.207**	.137**	.091	.086
Sig (2t)	.816	.220	.100	.600	.380	.001		.000	.469	.000	.000	.006	.072	.089
N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>ABIS</b>														
Pearson Corr.	-.026	.029	.020	.032	.119*	.106*	.434**	1	.214**	.094	.100*	.062	.052	.014
Sig (2t)	.602	.572	.699	.526	.019	.036	.000		.000	.063	.047	.222	.305	.783
N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>EQ-8</b>														
Pearson Corr.	-.050	-.145**	.083	.047	-.006	-.039	.037	.214**	1	.031	.023	.017	-.021	-.003
Sig (2t)	.322	.004	.100	.348	.911	.435	.469	.000		.545	.649	.734	.681	.948
N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>Cyberbullying Type</b>														
Pearson Corr.	.072	-.180**	.027	.101*	.006	.113*	.178**	.094	.031	1	.759**	.826**	.184**	.139**
Sig (2t)	.155	.000	.596	.045	.912	.024	.000	.063	.545		.000	.000	.000	.006
N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>Cyberbullying Known</b>														
Pearson Corr.	.035	-.131**	.002	.190**	.048	.089	.207**	.100*	.023	.759**	1	.636**	.248**	.269**
Sig (2t)	.492	.009	.975	.000	.348	.078	.000	.047	.649	.000		.000	.000	.000
N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>Cyberbullying Unknown</b>														
Pearson Corr.	.106*	-.200**	.038	.097	.011	.088	.137**	.062	.017	.826**	.636**	1	.131**	.163**
Sig (2t)	.035	.000	.456	.054	.831	.082	.006	.222	.734	.000	.000		.009	.001
N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>Admitted Victimization</b>														
Pearson Corr.	-.064	.122*	-.042	.097	.035	.077	.091	.052	-.021	.184**	.248**	.131**	1	.402**
Sig (2t)	.203	.015	.410	.054	.491	.130	.072	.305	.681	.000	.000	.009		.000

N	393	393	393	393	389	393	393	393	393	393	393	393	393	393
<b>Admitted Cyberbullying</b>														
Pearson Corr.	-.016	-.045	-.021	.101*	.005	.037	.086	.014	-.003	.139**	.269**	.163**	.402**	1
Sig (2t)	.745	.373	.680	.046	.914	.469	.089	.783	.948	.006	.000	.001	.000	
N	393	393	393	393	389	393	393	393	393	393	393	393	393	393

1=Age, 2=Gender, 3=Ethnicity,4=Number of hours per day online,5=Number of hours per day on social media,6=Total number of social media sites used,7=BSSS-8,8=ABIS,9=EQ-8,10=Cyberbullying Type,11=Cyberbullying Known,12=Cyberbullying Unknown,13=Admitted Victimization,14=Admitted Cyberbullying

\*Correlation is significant at the .05 level (2 tailed)

\*\*Correlation is significant at the .01 level (2 tailed)



### **The Brief Sensation Seeking Scale (BSSS-8)**

1. I would like to explore strange places

Strongly Disagree    Disagree    Neither Agree nor Disagree    Agree    Strongly Agree

2. I get restless when I spend too much time at home

Strongly Disagree    Disagree    Neither Agree nor Disagree    Agree    Strongly Agree

3. I like to do frightening things

Strongly Disagree    Disagree    Neither Agree nor Disagree    Agree    Strongly Agree

4. I like wild parties

Strongly Disagree    Disagree    Neither Agree nor Disagree    Agree    Strongly Agree

5. I would like to take off on a trip with no pre-planned routes or timetables

Strongly Disagree    Disagree    Neither Agree nor Disagree    Agree    Strongly Agree

6. I prefer friends who are excitingly unpredictable

Strongly Disagree    Disagree    Neither Agree nor Disagree    Agree    Strongly Agree

7. I would like to try bungee jumping

Strongly Disagree    Disagree    Neither Agree nor Disagree    Agree    Strongly Agree

8. I would love to have new and exciting experiences, even if they are illegal

Strongly Disagree    Disagree    Neither Agree nor Disagree    Agree    Strongly Agree





### The Abbreviated Barratt Impulsivity Scale (ABIS)

**DIRECTIONS:** People differ in the ways they act and think in different situations. This is a test to measure some of the ways in which you act and think. Read each statement and put an X on the appropriate circle on the right side of this page. Do not spend too much time on any statement. Answer quickly and honestly.

①                                      ②                                      ③                                      ④  
 Rarely/Never    Occasionally                      Often                      Almost Always/Always

I am a careful thinker.	①	②	③	④
I plan trips well ahead of time.	①	②	③	④
I do things without thinking.	①	②	③	④
I concentrate easily.	①	②	③	④
I plan for job security.	①	②	③	④
I act "on impulse."	①	②	③	④
I am self controlled.	①	②	③	④
I say things without thinking.	①	②	③	④
I don't "pay attention."	①	②	③	④
I act on the spur of the moment.	①	②	③	④
I plan tasks carefully.	①	②	③	④
I am a steady thinker.	①	②	③	④
I am future oriented.	①	②	③	④



## The EQ-8

### How to fill out the questionnaire:

Below are a list of statements. Please read each statement very carefully and rate how strongly you agree or disagree with it by circling your answer. There are no right or wrong answers, or trick questions.

### IN ORDER FOR THE SCALE TO BE VALID, YOU MUST ANSWER EVERY QUESTION.

1. I find it easy to put myself in somebody else's shoes.

Strongly Agree      Slightly Agree      Slightly Disagree      Strongly Disagree

2. I am good at predicting how someone will feel.

Strongly Agree      Slightly Agree      Slightly Disagree      Strongly Disagree

3. I am quick to spot when someone in a group is feeling awkward or uncomfortable.

Strongly Agree      Slightly Agree      Slightly Disagree      Strongly Disagree

4. Other people tell me I am good at understanding how they are feeling and what they are thinking.

Strongly Agree      Slightly Agree      Slightly Disagree      Strongly Disagree

5. I find it hard to know what to do in a social situation.

Strongly Agree      Slightly Agree      Slightly Disagree      Strongly Disagree

6. I often find it hard to judge if something is rude or polite.

Strongly Agree      Slightly Agree      Slightly Disagree      Strongly Disagree

7. It is hard for me to see why some things upset people so much.

Strongly Agree      Slightly Agree      Slightly Disagree      Strongly Disagree

8. Other people often say that I am insensitive, though I don't always see why.

Strongly Agree      Slightly Agree      Slightly Disagree      Strongly Disagree



### **The Cyberbullying Scale – Aggressor Form (Known)**

The following questions ask about your life in the **PAST FEW MONTHS**. Please circle the best answer. For all questions, answer regarding your behavior towards individuals you know personally (i.e. individuals with whom you have regular face to face contact).

1. Do others use any of the following to bully you? (Circle all that have happened to you)

- |   |  |
|---|--|
| Email   | Online video clips of you                    |
| Text messages/Twitter                               | Social networking site (like Facebook)       |
| Picture messages                                    | Chatroom                                     |
| Instant messaging                                   | Virtual world (like Second Life or the Sims) |
| Developed a mean website or message board about you |  |

2. Do you use any of the following to bully people? (Circle all that you have used to bully)

- |   |  |
|---|--|
| Email   | Online video clips                           |
| Text messages/Twitter                                       | Social networking site (e.g. Facebook)       |
| Picture messages  | Chatroom                                     |
| Instant messaging   | Virtual world (like Second Life or the Sims) |
| Developed a mean website or message board about another kid |  |

3. How often do you send online or text messages to someone threatening to beat them up or hurt them physically?

<b>Never</b>	<b>Almost Never</b>	<b>Sometimes</b>	<b>Almost all the time</b>	<b>All the time</b>
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4. How often do you leave others out of your online groups on purpose?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the time**

5. How often do you do something mean to another person (like calling them names or making fun of them) in a text message or online?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the time**

6. How often do you try to get back at someone you are mad at by not letting them be in your online group anymore?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the time**

7. How often do send get text or online messages that make others afraid for their safety?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the time**

8. How often do you tell lies about another person in texts or online to make others not like that person anymore?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the time**

9. How often do you say online that you won't like another person unless they do what you want them to do?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the time**

10. How often do you try to keep others from liking a person by texting or posting mean things about them?

**Never              Almost Never              Sometimes              Almost all the time      All the time**

11. How often do you send a message to another person saying you will beat them up if they don't do what you want them to do?

**Never              Almost Never              Sometimes              Almost all the time      All the time**

12. How often do you get in online fights?

**Never              Almost Never              Sometimes              Almost all the time      All the time**

13. How often do you put down another person online by sending or posting cruel gossip, rumors, or something else hurtful?

**Never              Almost Never              Sometimes              Almost all the time      All the time**

14. How often do you pretend to be another person online and send or post something that damages their reputation or friendships?

**Never              Almost Never              Sometimes              Almost all the time      All the time**

15. How often do you share another person's secrets or images online without their permission?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the  
time**

16. How often has someone confronted you about something you posted online (like a mean picture you posted, when you called someone names, or you threatened someone)?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the  
time**





### **The Cyberbullying Scale – Aggressor form (Unknown)**

The following questions ask about your life in the **PAST FEW MONTHS**. Please circle the best answer. For all questions, answer regarding your behavior towards individuals you **DO NOT KNOW** (e.g. strangers).

1. Do others use any of the following to bully you? (Circle all that have happened to you)

Email	Online video clips of you
Text messages/Twitter	Social networking site (like Facebook)
Picture messages	Chatroom
Instant messaging	Virtual world (like Second Life or the Sims)
Developed a mean website or message board about you	

2. Do you use any of the following to bully people? (Circle all that you have used to bully)

Email	Online video clips
Text messages/Twitter	Social networking site (e.g. Facebook)
Picture messages	Chatroom
Instant messaging	Virtual world (like Second Life or the Sims)
Developed a mean website or message board about another kid	

3. How often do you send online or text messages to someone threatening to beat them up or hurt them physically?

<b>Never</b>	<b>Almost Never</b>	<b>Sometimes</b>	<b>Almost all the time</b>	<b>All the time</b>
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4. How often do you leave others out of your online groups on purpose?

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5. How often do you do something mean to another person (like calling them names or making fun of them) in a text message or online?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the time**

6. How often do you try to get back at someone you are mad at by not letting them be in your online group anymore?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the time**

7. How often do send get text or online messages that make others afraid for their safety?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the time**

8. How often do you tell lies about another person in texts or online to make others not like that person anymore?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the time**

9. How often do you say online that you won't like another person unless they do what you want them to do?

**Never                  Almost Never                  Sometimes                  Almost all the time    All the time**

10. How often do you try to keep others from liking a person by texting or posting mean things about them?

**Never**                      **Almost Never**                      **Sometimes**                      **Almost all the time**    **All the time**

11. How often do you send a message to another person saying you will beat them up if they don't do what you want them to do?

**Never**                      **Almost Never**                      **Sometimes**                      **Almost all the time**    **All the time**

12. How often do you get in online fights?

**Never**                      **Almost Never**                      **Sometimes**                      **Almost all the time**    **All the time**

13. How often do you put down another person online by sending or posting cruel gossip, rumors, or something else hurtful?

**Never**                      **Almost Never**                      **Sometimes**                      **Almost all the time**    **All the time**

14. How often do you pretend to be another person online and send or post something that damages their reputation or friendships?

**Never**                      **Almost Never**                      **Sometimes**                      **Almost all the time**    **All the time**

15. How often do you share another person's secrets or images online without their permission?

<b>Never</b>	<b>Almost Never</b>	<b>Sometimes</b>	<b>Almost all the time</b>	<b>All the time</b>
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16. How often has someone confronted you about something you posted online (like a mean picture you posted, when you called someone names, or you threatened someone)?

<b>Never</b>	<b>Almost Never</b>	<b>Sometimes</b>	<b>Almost all the time</b>	<b>All the time</b>
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## VITA

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### Education

M.A., Psychology, University of Mississippi, April 2016

Thesis: SOME MEN JUST WANT TO WATCH THE WORLD BURN: THE  
ROLE OF IMPULSIVITY, SENSATION SEEKING, AND EMPATHY IN  
CYBERBULLYING

B.A., *Summa cum Laude*, Psychology, Florida Gulf Coast University, December 2013

### Teaching Experiences

Research Assistant, 2014-2015

University of Mississippi,  
Psychology Department

Guest Lecturer, Spring 2016

General Psychology and Social Psychology  
University of Mississippi  
Psychology Department

### Publications and Presentations

Kimble, K. J., & Ehman, A. C. (2015). Gerontology and Youth-Focused Service Learning:

The Relation Between Service Recipient Age and Student Responses. *Gerontology & geriatrics education*, 36(4), 384-395.

Kimbler, K. J., & Ehman, A. (2013, November). Student Responses To Service Learning:  
Unique Learning And Attitude Benefits From Working With Older Adults.  
In *Gerontologist* (Vol. 53, pp. 280-280).