The Role of Boredom, Loneliness, and Technology Use as Predictors of Sexual Responsibility among Individuals with Autism Spectrum Disorder

Natalie Drozda

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THE ROLE OF BOREDOM, LONELINESS, AND TECHNOLOGY USE
AS PREDICTORS OF SEXUAL RESPONSIBILITIES
AMONG INDIVIDUALS WITH AUTISM SPECTRUM DISORDER

A Dissertation
Submitted to the School of Education

Duquesne University

In partial fulfillment of the requirements for
the degree of Doctor of Philosophy

By
Natalie Ann Drozda

August 2020
THE ROLE OF BOREDOM, LONELINESS, AND TECHNOLOGY USE
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ABSTRACT

THE ROLE OF BOREDOM, LONELINESS, AND TECHNOLOGY USE
AS PREDICTORS OF SEXUAL RESPONSIBILITIES
AMONG INDIVIDUALS WITH AUTISM SPECTRUM DISORDER

By
Natalie Ann Drozda

August 2020

Dissertation supervised by David Delmonico, Ph.D.

The purpose of this study was to investigate the predictors of sexual responsibilities (i.e., sex positivity and sexual health as well as sexual risk responsibility) for individuals with autism spectrum disorder. The predictors examined included boredom, loneliness, online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance. Gender differences in sexual responsibility subscales were also explored. ANOVAS yielded women with autism exhibited more sexual responsibility on both subscales than men. Multiple regression analyses were used to determine significant predictors of Sex Positivity and Sexual Health as well as Sexual Risk Responsibility for the population of interest. Loneliness significantly predicted Sex Positivity and Sexual Health via an inverse relationship. Online Risk Behavior and Intent to Use Dating Apps for Casual Sex predicted Sexual Risk Responsibility via an inverse relationship. Finally, three significant moderation relationships were found.
Boredom was found to moderate the relationship between Online Risk Behavior and Sexual Risk Responsibility as well as the relationship between Intent to Use Dating Apps/Websites for Romance and Sexual Risk Responsibility. Loneliness also moderated the relationship between Intent to Use Dating Apps/Websites for Romance and Sexual Risk Responsibility. Notably, emotions significantly moderated relationships between technology use variables and Sexual Risk Responsibility only at average and above average levels of emotions. Limitations, implications for counselors, and directions for future research are discussed.
DEDICATION

This dissertation is dedicated to all students and individuals who have felt as though a task was too great to accomplish, but nevertheless continue to persevere.
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First and foremost, I would like to express my deepest gratitude to my dissertation committee for being incredibly supportive throughout this process. All three members are invaluable mentors to me. Dr. Delmonico, you have provided me with academic as well as “life” supervision—teaching me helpful lessons that I will never forget, as well as how to trust myself and my judgement more. You are brilliant and hilarious, which is a great combination. I look forward to continuing to work with you. Dr. Green, you have truly exemplified what it means to be a disability advocate as well as an advocate for women in academia. I aspire to be more like you. Dr. Joseph, I want to thank you for the laughs and for being patient with me as I continue to work to expand my statistical powers. I look forward to continuing a professional and personal connection with all of you.

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My best friend (and boyfriend) Bryon has been a tremendous support to me throughout the dissertation process. Thank you for cooking for me (you know I am not very skilled in that area). Thank you for listening to me rage before things click for me. Thank you for listening even when you may not fully understand. Thank you for not trying to change me or a frustrating situation, but just listening. I don’t know if anyone has believed in me quite like you have.
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CHAPTER ONE

INTRODUCTION

Sexuality is an integral part of being human, and the opportunity to express sexuality is considered a human right (World Health Organization, 2006). However, exercising this right is not equally encouraged across populations. The sexuality of individuals with disabilities has consistently been stifled or overlooked (Ailey, Marks, Crisp, & Hahn, 2003; Richards, Miodrag, & Watson, 2006). Of particular interest to the current study, research regarding the sexuality of individuals with autism spectrum disorder (IASD), is troublingly scarce (Pearlman-Avnion, Cohen, & Eldan, 2017). The Centers for Disease Control and Prevention estimate that one in 59 children have an ASD (Baio et al., 2018). Though there has been a movement toward eradicating the stigma associated with disability and ASD in particular, and interest recently increased in researching the sexuality of IASD, more needs to be done (Corona, Fox, Christodulu, & Worlock, 2016; Dewinter, Vermeiren, Vanwesenbeeck, & van Nieuwenhuizen, 2013; Kellaher, 2015). Literature about ASD is often found in the disability literature base, but it is important to note that some IASD may not necessarily consider ASD a disability. However, for the purposes of this study, the definition of disability from the Americans with Disabilities Act (2008) is used as a guide. This act defines disability as

A person who has a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment, or a person who is perceived by others as having such an impairment. (Americans with Disabilities Act, 2008, p. 7)

IASD are considered to meet the criteria from this definition in the current study, and thus disability and sexuality is considered a relevant intersectionality to be explored. ASD is defined
as a neurodevelopmental disorder by the American Psychiatric Association (2013) and includes the following hallmark symptoms: repetitive behaviors, inflexibility to change, underdeveloped social skills, and difficulties establishing and maintaining relationships with others. Despite the social differences that IASD may experience, many IASD care about sexuality and expressing it (Dewinter, Vermeiren, Vanwesenbeeck, Lobbestael, & van Nieuwenhuizen, 2015).

Sexuality is a normal part of development for IASD, which conflicts with the dominant discourse surrounding disability and sexuality (Dewinter et al., 2013; Dewinter et al., 2015). Even though IASD are reported to have higher rates of asexuality than individuals without ASD (IwoASD; Gilmour, Schalomon, & Smith, 2012), this should not be generalized to all IASD, because many are interested in sex and having sexual relationships (Dewinter et al., 2015). Adolescents with ASD demonstrate interest in romantic and sexual relationships and have a comparable onset of masturbation to their non-ASD counterparts (Dewinter et al., 2013; Dewinter et al., 2015). Specifically, it was found that high-functioning adolescent boys with ASD begin to masturbate around age 13, fall in love around the same period, and experience orgasm around this period (Dewinter et al., 2015). Before the age of 16 they likely have had a relationship with a girl and started kissing/petting behaviors (Dewinter et al., 2015). One limitation of this study however is that the quality, frequency, and context of these sexual experiences was not studied, so some differences may exist between the IASD and those without (Dewinter et al., 2015). Despite these limitations, the evidence from such studies challenges the stereotype that IASD are not sexual beings and do not seek or desire intimate relationships. Furthermore, recent and emerging research indicates that not only do IASD desire and engage in romantic and sexual relationships, but having no relationship experience may not necessarily be related to psychological factors or skill differences related to ASD (Byers, Nichols, & Voyer,
This means that factors associated with ASD may not be to blame for lack of relationship experience. From a public health perspective, the sexuality of IASD needs to be acknowledged, validated, and researched. A recent review of literature yielded no research on sexual responsibility and risk behavior for IASD (e.g., condom use), but sexual offending or problematic behaviors are often a focus in research (Dewinter et al., 2013).

Much existing research on the sexuality of IASD focuses heavily on challenging behaviors and sexual offenses (Langstrom, Grann, Ruchkin, Sjostedt, & Fazel, 2009; Mouridsen, 2012; Sevlever, Roth, & Gillis, 2013). This narrowing of focus can unintentionally contribute to the rhetoric that the sexuality IASD needs to be controlled or that it is somehow deviant. To further illustrate the point that ASD characteristics are not necessarily linked to offending behavior, one study suggested violent offending among IASD is related to co-morbid disorders like substance use or psychotic disorders, similar to non-ASD offenders (Langstrom et al., 2009). This finding indicates that it is not necessarily ASD characteristics that lead to offender behavior. In fact, having ASD does not increase the risk for sexually offending, nor is ASD symptomology reflective of sexual deviance even when some offenses have occurred (Allely & Dublin, 2018; Higgs & Carter, 2015). Researchers point to the need for more sex education (Barnett & Maticka-Tyndale, 2015; Moxon, n.d.). Essentially, the sexuality of IASD needs to be better understood, because it has frequently been labeled as “other” or nonexistent in the literature and mainstream media without much room for expansion. This mischaracterization may at least partly contribute to how IASD have been left out of the sex-seeking online literature base.

The dating scene has gone through tremendous transformations with recent changes in technology and social media, and IASD have largely been left out of that conversation in the sexuality literature. The commercialization of the Internet increases individuals’ access to
sexuality-related materials and eases communication with others (Tolman & McClelland, 2011). Research exists regarding how IASD use social media for social connection (Mazurek, 2013), but less research exists regarding how this population might use technology for sexuality purposes and how that translates to sexual responsibility. However, it has been supported that IASD use dating apps at roughly the same prevalence as individuals without ASD (IwoASD; Roth & Gillis, 2015). According to PEW Research, the use of online dating has almost tripled for 18–24 year-olds between 2013 and 2015, with use doubling for 55–64 year-olds during that same time frame (PEW, 2016b). There is a wealth of information in the research literature regarding online behavior and how it relates to offline sexual behavior for IwoASD, but there is substantially less information on these topics for IASD (Pearlman-Avnion et al., 2017). Despite IASD often getting sexuality-related information from non-social sources (Kellaher, 2015), less information is available on how Internet technology is used for sexuality purposes and how technology use relates to sexual responsibility among these individuals (Ailey et al., 2003; Dewinter et al., 2013; Visser et al., 2017). The current study works to close this gap, as technology use and its relation to sexual responsibility is a unique facet of the current study that does not appear to have been adequately investigated previously for this population.

The influencing factors of sexual responsibility and sexual health for IASD are relevant areas of study. The current study focuses on the healthy sexual development of IASD instead of viewing their sexuality as somehow problematic or nonexistent, because a fair amount of literature already highlights the latter. Better understanding the sexuality of IASD is necessary, not only to acknowledge that IASD do develop sexually, but also because IASD are at increased risk for sexual victimization (Baarsma et al., 2016; Brown-Lavoie, Viecili, & Weiss, 2014; Sevlever et al., 2013). Though the current project is not about sexual violence, it is important to
note that young people with ASD and other disabilities are more likely than their peers without disabilities to receive unwanted sexual contact (K. R. Brown, Pena, & Rankin, 2017). Thus, better understanding what contributes to IASD sexual development and responsibility is crucial and urgent. In the same vein, there is virtually no information about the prevalence of sexually transmitted diseases and infections for the ASD population specifically, so intentionally focusing on their sexual health and sexually responsible practices is warranted.

For the purposes of the current study, sexual responsibility encompasses both physical and psychological sexual safety. It is established in the research literature that boredom, loneliness, and technology use contribute to sexual responsibility among IwoASD (Hubach et al., 2015; Kaufman, Clark, Manzini, & May, 2002; Miller et al., 2014; Morin et al., 2003; Owen, Fincham, & Moore, 2011; Shernoff, 2005; Shilo & Mor, 2015), but the connection among these variables has not been adequately explored or established among IASD. To fill the problematic gaps in the literature, the variables of boredom, loneliness, online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance are being investigated for their predictive value toward sexual responsibilities for IASD.

**Statement of the Problem**

The sexuality of IASD remains disaffirmed and under-researched, yet the research that is available demonstrates that IASD do express sexual interest and display a variety of sexual behaviors, such as establishing intimate relationships, talking about sexuality, and self-pleasure (Dewinter et al., 2013; Hellemans, Colson, Verbraeken, Vermeiren, & Deboutte, 2007; Konstantareas & Lunsky, 1997; Ruble & Dalrymple, 1993). IASD can and do have fulfilling intimate relationships (Renty & Roeyers, 2007). Higher-functioning IASD in particular have comparable capacities for sexual behaviors with IwoASD (Dewinter et al., 2015; Kellaher,
Little is understood about the sexuality of IASD, with information about the influences of boredom, loneliness, and technology use being almost completely absent in the sexuality and online dating literature for this population, even though connections among these variables are established among IwoASD. This problematic gap in the literature is a glaring missed opportunity, because IASD are sexual beings (Dewinter et al., 2013) and are more likely to get their sexual information from non-social sources, such as the Internet (Brown-Lavoie et al., 2014). These individuals are engaging with technology and social media (Mazurek, 2013), and it has been remiss to leave them out of the seeking sex online research base. That is why one of the major focuses of this study is investigating how online behavior may be related to sexual responsibilities (physical and psychological sexual safety) for IASD. More data are needed regarding what contributes to their sexual responsibilities and how technology use may come into play when predicting them.

**Background**

The emotional state of boredom has consistently appeared in the literature to be related to sexual responsibilities among IwoASD. Boredom is linked to risky sexual behavior, especially for males (Kaufman et al., 2002; Miller et al., 2014). For example, young males who score high in leisure boredom are less likely to report using condoms consistently (Miller et al., 2014). Not only is boredom proneness associated with physical sexual safety, but it is associated with psychological sexual risk as well. Increased boredom proneness is associated with lower levels of emotional autonomy (e.g., trusting one’s own emotions and having the ability to voice dissent), instrumental autonomy (e.g., interacting with one’s environment to get needs met), and mature interpersonal relationships (Watt & Vodanovich, 1999), all of which are related to intimacy and sexual relationships. Boredom is also a reason that some individuals use
technology for dating purposes and otherwise (Biolcati, Mancini, & Trombini, 2018; Chaney & Blalock, 2006; Couch & Liamputtong, 2008). The research on boredom’s role in technology use, especially for sexuality purposes, among IASD is lacking. This paucity could be because IASD do not experience boredom the same way as IwoASD, maybe due to having special interests that IASD can use as a coping strategy (Dachez & Ndobo, 2018). More research is needed.

Additionally, loneliness influences sexual responsibility among IwoASD (Morin et al., 2003; Shernoff, 2005). The connection between loneliness and risky sexual behavior is well-documented, especially among the population of men who have sex with men (Hubach et al., 2015; Kott, 2011; Morin et al., 2003; Su et al., 2018). Specifically, a one unit increase in the UCLA Loneliness Scale was associated with a 10% decrease in the odds of using a condom (Hubach et al., 2015). Still, less information is available on how loneliness influences sexual responsibilities for those with disabilities and particularly ASD. Regarding the relationship between loneliness and technology use for sexuality purposes, causality is difficult to determine. This is because loneliness may lead people to use technology, but can subsequently lead to more loneliness for some people, suggesting a possible bidirectional relationship (Morahan-Martin, 1999; Nowland, Necka, & Cacioppo, 2018). In general, loneliness is associated with problematic Internet use (Odaci & Kalkan, 2010). However, technology use, such as gaming, has increased happiness and mitigated loneliness for IASD (M. Sundberg, 2018; Ward, Dill-Shackleford, & Mazurek, 2018). Furthermore, it has been demonstrated that IASD exhibit higher levels of loneliness than the general population (Deckers, Muris, & Roelofs, 2017; Lasgaard, Nielsen, Eriksen, & Goossens, 2010), and thus this emotional state warrants further investigation, especially in relation to sexual responsibilities for this population.
Technology use is a regular part of daily life for many individuals, but that use can come with certain risks. According to PEW Research, 81% of Americans report going online daily, with 28% reporting that they are online nearly constantly (PEW, 2019a). Myriad Internet-related behaviors are linked with risk. For example, seeking sex online is associated with sexual risk behavior, like unprotected anal sex (Kalichman, Cherry, Cain, Pope, & Kalichman, 2005; Shilo & Mor, 2015). When it comes to online dating and seeking sex online, research demonstrates that many people acknowledge there is a risk, but they also take steps to ensure their safety (Bauermeister, Giguere, Carballo-Dieguez, Ventuneac, & Eisenberg, 2010; Couch & Liamputtong, 2007). It is unclear how IASD perceive and mitigate such risks. Research is lacking and conflicting regarding how IASD use Internet-technology for sexuality purposes. However, among this population, potential benefits of communicating online are identified as follows: avoiding face-to-face interactions, having access to a lot of information, and having access to a lot of different people (Roth & Gillis, 2015). At the same time, however, the available literature is mixed on the level of safety and precaution IASD take when using Internet-technology to meet people. Some take precautions, whereas others are quick to meet in person (Roth & Gillis, 2015). The timeline for meeting in person may be especially important. A study on IwoASD yielded that those who are quicker to meet in person are more likely to engage in unsafe sex practices (Hahn, You, Sferra, Hubbard, Thamotharan, & Fields, 2018). Furthermore, it is not known how IASD engage with certain online behaviors, such as sharing personal information, and how that might influence their subsequent sexual responsibilities. This dearth of available research highlights the need for more information on how online behavior variables may influence sexual responsibilities among IASD. Because seeking sex online is associated with risky sexual behavior (Shilo & Mor, 2015), in this study I analyze how risky
online behavior and intent to use technology for casual sex and romantic purposes predict sexual responsibility for IASD.

**Purpose of the Study**

The purpose of this study is to investigate whether boredom, loneliness, online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance reliably predict sexual responsibilities (i.e., physical sexual safety and psychological sexual safety) among IASD. This important data will not only include IASD in the sexuality and sex-seeking online literature, but it will also provide counselors with valuable information when considering points of intervention with this population.

**Research Questions**

The overarching research question of this study is:

How do measures of boredom, loneliness, and technology use predict sexual responsibilities for IASD?

This raises the following sub-questions:

1. Do emotions such as boredom and loneliness predict sexual responsibilities for IASD?
2. Does technology use such as online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance predict sexual responsibilities for IASD?
3. Do sexual responsibilities for IASD differ by sex?
4. Do emotions (such as boredom and loneliness) moderate the relationship between technology use (such as online risk behavior, intent to use dating apps/websites for
casual sex, and intent to use dating apps/websites for romance) and physical sexual safety for IASD?

1. Does boredom moderate the relationship between online risk behavior and physical sexual safety for IASD?

2. Does loneliness moderate the relationship between online risk behavior and physical sexual safety for IASD?

3. Does boredom moderate the relationship between intent to use dating apps/websites for casual sex and physical sexual safety for IASD?

4. Does loneliness moderate the relationship between intent to use dating apps/websites for casual sex and physical sexual safety for IASD?

5. Does boredom moderate the relationship between intent to use dating apps/websites for romance and physical sexual safety for IASD?

6. Does loneliness moderate the relationship between intent to use dating apps/websites for romance and physical sexual safety for IASD?

**Statement of Potential Significance**

The goal of this study is to identify the extent to which boredom, loneliness, online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance reliably predict sexual responsibilities for IASD. The aforementioned predictor variables have been shown to be related to technology use and sexuality expression among IwoASD. The novel contribution of this study is the inclusion of IASD in the sexuality literature as well as the inclusion of IASD in the sex-seeking online literature. It is hoped that mental health professionals will be able to use the information from this study to better understand the sexuality of IASD and thus provide more relevant interventions and psychoeducation when
needed. Results from this study could specifically help when counseling IASD regarding sexuality, relationships, intimacy, and technology use. Information about the sexual responsibilities of IASD may also illuminate points for public health interventions, because safe sex practices, such as consistent condom use and communication with partners, can help to reduce the spread of sexually transmitted infections, unwanted pregnancies, and so forth, while also working to increase the likelihood of having a healthy and satisfying relationship. Additionally, though sexual violence is not a specific focus of the current study, the data yielded from this study will provide more information about the sexual behaviors of IASD, which will hopefully aid in implementing interventions to decrease sexual violence against this population.

Furthermore, with more knowledge on safe sex practices of IASD as well as more information on their use of Internet technology for sex-seeking behavior, counselors will be in a more informed position to provide potentially needed psychoeducation as well as process any misperceptions of risks that come up for clients with ASD regarding using the Internet for dating.

Lastly, one major contribution of this study to the research literature is highlighting the voices of IASD, and allowing them to provide information about their sexuality, which has largely been ignored or deemed deviant. The unique focus of this study will help to dispel some stigma surrounding the intersection of disability and sexuality and provide helpful information so that counselors will be better-equipped in addressing the sexuality of IASD in the age of online dating.

**Theoretical Framework**

The theoretical framework used in the current study draws from two main theories, providing a holistic approach for investigating the sexual responsibilities of IASD. This includes drawing from Cognitive Behavioral Theory (Klodner, 2011) and Uses and Gratifications
Theory (Katz, Blumler, & Gurevitch, 2011; Rubin et al., 2003). Broadly, Cognitive Behavioral Theory encompasses emotions, cognitions, and behaviors and uses these factors to aid in understanding the human condition and human behavior (Kalodner, 2011). In the current study, emotions and behaviors are the major focus, particularly the influence that emotions (boredom and loneliness) can have upon behavior. Uses and Gratifications Theory (UGT) contributes to the foundation of the current study by explaining how social and psychological predispositions mediate media behavior (Rubin et al., 2003). This relates to how the emotional states of interest in this study (i.e., boredom and loneliness) also have value when predicting sexual responsibilities and may be related to Internet behavior. Essentially, UGT is useful, because it accounts for how personal factors may interact with media use to influence sexual responsibilities among IASD. A holistic framework when approaching sexuality is especially needed when studying IASD, because their sexuality has often been narrowed in the literature to solely reproduction or altogether prevented from being expressed.

Summary of Method

This study employs an exploratory, non-experimental research design to examine the predictors of sexual responsibilities among IASD. This was done using a previously collected deidentified dataset. No recruitment of subjects took place and thus no consent process was necessary. Correlations and inferential statistics, such as regression, were used to see whether the predictors of boredom, loneliness, online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance reliably predict sexual responsibilities among IASD.

After IRB approval, data analysis began. The retrospective dataset included 1,505 subjects, 234 of which indicated through self-report that they have ASD, with 176 completing
the measures. These 176 cases were included in the analysis for the current study. The cases consisted of males, females, and some individuals who have a minority gender identity. These individuals self-identified as having ASD, self-reported an official diagnosis of ASD, and were between 18 and 30 years of age. They were moderate to high functioning on the autism spectrum, had access to the Internet, were able to read, and were able to provide independent consent.

The measures included in the current analysis from the retrospective dataset include the Short Boredom Proneness Scale (Struk, Carriere, Cheyne, & Danckert, 2017) and an adapted version of the UCLA Loneliness Scale (version three; Russell, 1996). The Risky Online Activities Measure (Livingstone & Gorzig, 2014a) was used to determine online risk behavior in the previous month and the Intent to Use Dating Apps Scale (Chan, 2017a) was used to measure intent to use dating apps and websites in the upcoming week for both casual sex and romantic purposes, including subscales for each. To measure the outcome variable of sexual responsibility, 16 researcher-developed items were analyzed along two subscales of physical sexual safety and psychological sexual safety, with eight items for each subscale. Demographic information was also solicited (See Appendix A for full survey).

**Delimitations**

There are a few known limitations to this study. The first is that I am not currently looking at intersectional identities other than disability, sexuality, and gender. Other such intersectional identities may influence the complex relationship between the predictors in this study and sexual responsibilities. For example, sexual orientation may be important to investigate in the future, because IASD have had a higher than expected sexual minority identification (Barnett & Maticka-Tyndale, 2015; Dewinter et al., 2013). Though that
information was collected in the retrospective dataset, only gender is being analyzed in the current study. Additionally, self-report was used in the provided dataset, with no way to triangulate proof of an ASD diagnosis by a health professional, as to protect anonymity. Individuals were recruited previously who have the functional level to be able to interact with the survey and online technology, meaning this retrospective data does not provide information on individuals’ sexuality who function at lower levels of the ASD spectrum. Additionally, ASD and anxiety frequently co-occur, and anxiety can affect social relationships (Bejerot, Eriksson, & Mortberg, 2014); however, anxiety is not taken into account in the current study. Finally, it could be argued that the people who responded to this previously distributed survey may be part of a subgroup of the ASD population who may have a healthy sexuality and are open with talking about it, which could potentially not be representative of the entire population of IASD.

**Definitions of Terms**

**Boredom:** A transitory state, likely accompanied with negative experiences involving lack of interest or engagement (Struk et al., 2017; Watt & Vodanovich, 1999). Boredom was measured in this study using the Short Boredom Proneness Scale (Struk et al., 2017).

**Loneliness:** The mismatch between desired and actual relationships (Cassidy & Asher, 1992). Loneliness was measured in this study using an adapted version of the UCLA Loneliness Scale (version three; Russell, 1996).

**Moderate to High Functioning ASD:** Individuals who have higher cognitive functioning and do not qualify for an intellectual disability, meaning their IQ is greater than 70 (Mohajer et al., 2019). Additionally, for the current study, these individuals self-reported identifying with ASD as well as self-reported an official diagnosis of ASD. Other inclusion
criteria for the current study include: individuals who live relatively independently, can read, can interact with technology, and can provide independent consent.

**Sexual responsibilities:** For the purposes of this study, sexual responsibilities are defined as both physical and psychological sexual safety. Exercising both leads a person to be sexually responsible. This might entail using condoms (physical sexual safety) and having fulfilling intimate relationships (psychological sexual safety).
CHAPTER TWO

REVIEW OF LITERATURE

Rhetoric in the United States surrounding the sexuality of individuals with autism spectrum disorder (IASD) often includes stifling its expression or outright denial that it exists (Ailey et al., 2003; Richards et al., 2006). Even though IASD often have lower levels of social competence and social skills, and higher levels of social problems (Deckers et al., 2017), they still desire and have relationships. A number of studies investigating the ASD population indicate that the majority of participants have had romantic relationships (Strunz et al., 2017), have sexual interest, and display sexual behavior (Hellemans et al., 2007). While some progress has been made to combat the stigma of ASD in the United States, more needs to be done concerning the sexuality of this population (Kellaher, 2015). Halpern (2010) argued that researchers investigating sexuality need to be more inclusive of diverse populations, asserting that those with disabilities (emotional, cognitive, and physical) have been largely ignored. To illustrate this, the foundational research on the sexuality of IASD often stems not from the IASD themselves, but from parents, professionals, caregivers, or other socializing agents, meaning that IASD are not directly researched (Barnett & Maticka-Tyndale, 2015; Dewinter et al., 2013; Kellaher, 2015). This is problematic, because IASD unique viewpoints may get lost in favor of the viewpoints of people around them. Thus, the data collected about IASD are often saturated by individuals without an autism spectrum disorder (IwoASD). The available literature does not fully capture the topic of study.

Furthermore, the advent of the Internet and related technology has radically shifted how individuals can seek sex and relationships (Kalichman et al., 2005), but there is little to no information on how the sexuality and sexual responsibility of IASD are influenced by Internet
technology use (Dewinter et al., 2013). The current study closes these gaps by directly surveying IASD regarding what influences their sexual responsibleness. For the purposes of the current study, recall that sexual responsibility entails both physical and psychological sexual safety. An especially unique contribution of this study includes how information about IASD sexuality and technology use was analyzed, with the aim of identifying significant predictors of sexual responsibility.

The remainder of Chapter 2 includes a section on individuals with moderate to high functioning autism spectrum disorder, a section detailing the development of sexual responsibility, followed by a section on the intersectionality of disability (ASD in particular) and sexuality. The final sections of Chapter 2 focus on available literature related to the variables explored in this study. These include the predictors of boredom, loneliness, and technology use and how they relate to sexual responsibility. Research related to gender differences are also discussed. The bulk of the research on these variables focuses on individuals without disabilities, or IwoASD. Information is presented linking the predictor variables to sexuality, including the disability or ASD intersectionality when such literature is available. Research has been gathered from multiple databases including Medline, Cinahl, and PsychInfo, focusing primarily on the past 20 years, with some earlier studies being presented when more recent research is scarce (See Appendix B for search term examples). Inferences for the forthcoming study are discussed as well as the theoretical and conceptual foundation for this study.

Notably, much of the available research literature fragments the sexuality of people with disabilities and especially IASD. Their sexuality is often conceptualized as something separate from the norm or something to be controlled (Ailey et al., 2003; Kellaher, 2015). This is why I begin with a section illuminating some of the nuances of moderate to high-functioning ASD as
well as a brief discussion of sexual responsibility development to frame the investigation of the sexuality of IASD in an affirming and normalizing, rather than a disaffirming and pathologizing, literature base.

**Moderate to High-Functioning Individuals with Autism Spectrum Disorder**

According to the current *Diagnostic and Statistical Manual of Mental Health Disorders*, ASD is housed in the neurodevelopmental disorders section and is characterized by deficits in social skills in multiple contexts, including social-emotional reciprocity, nonverbal communication, and developing as well as maintaining relationships (American Psychiatric Association, 2013). Importantly, autism occurs on a spectrum, meaning that there is a wide range of functional levels, interests, and abilities. For example, some IASD do not use much verbal language to communicate and need daily assistance, whereas others function completely independently in the world. Other domains related to an ASD diagnosis include: restrictive or repetitive behaviors, inflexibility to changes in routines, hyper-focus on certain interests, or sensory issues. These symptoms must be present early in the child’s development, cause significant impairment, and not be better explained by an intellectual disability (American Psychiatric Association, 2013). Though ASD and intellectual disability frequently co-occur, not everyone with ASD has an intellectual disability, and again, there is a wide range of severity, functionality, and impairment levels for IASD. Much research literature on ASD focuses on childhood, at least partly because of the diagnostic criteria emphasizing early development and early intervention. This emphasis in the literature intuits, because earlier intervention increases the likelihood of favorable cognitive outcomes (Flanagan, Perry, & Freeman, 2012). While this information may be useful, it is important to note that IASD age out of school-based services and become adults, which requires them to access adult-related services and can pose challenges.
Furthermore, though the American Psychiatric Association (2013) recommends that individuals should be diagnosed with ASD at a young age, this is not always the case. Disparities exist regarding the timing of diagnosis and onset of services. For example, certain groups of people, such as people of color, may receive a diagnosis considerably later than their white counterparts (Zeleke, Hughes, & Drozda, 2019). Black and Latino children in particular also face increased challenges in attaining the quality healthcare needed. Specifically, it was found that black children with ASD are more likely than their white counterparts to not have a personal doctor and not spend enough time with a doctor (Magana, Parish, Rose, Timberlake, & Swaine, 2012). This was found to occur at elevated rates for kids with ASD when compared to kids with other developmental disabilities. Additionally, ASD prevalence increases with socioeconomic status for white, black, and Hispanic children (Durkin et al., 2017). Finally, gender differences exist among IASD. Adult females with ASD tend to camouflage their symptoms more so than adult males with ASD, which may contribute to the disparities in prevalence (Schuck, Flores, & Fung, 2019). Female children with ASD tend to have greater motor difficulties and less communication difficulties than males (Matheis, Matson, Hong, & Cervantes, 2019), and ASD is diagnosed four times as much in boys than girls (Baio et al., 2018). ASD often is accompanied by other conditions as well.

Comorbid diagnoses are common among IASD, and often include anxiety disorders. Though anxiety is not a focus of the current study, some common comorbid diagnoses for IASD include but are not limited to phobias, generalized anxiety disorder (GAD), and social anxiety. The prevalence of this group of disorders varies widely, with percentages ranging between 22% and 84% (Vasa & Mazurek, 2015). One specific study found anxiety disorders to occur in 20.1% of adults with ASD, compared to 8.7% of the controls (IwoASD), with increased risk for
anxiety among IASD without an intellectual disability (Nimmo-Smith et al., 2020). More specifically, phobias among IASD are particularly common and prevalence rates have been reported to be between 30% and 44% (White, Oswald, Ollendick, & Scahill, 2009; Zaboski & Storch, 2018). GAD among IASD was found to occur in 13 to 35% of people (White et al., 2009; Zaboski & Storch, 2018). There is a general trend that as IASD age, social anxiety symptoms tend to become more dominant, with younger individuals expressing more generalized anxiety than social anxiety (Varela et al., 2019). This is notable for the current study, because as people age there is a greater focus on social interaction for the formation of intimate relationships. Finally, social anxiety is not a specific criterion for ASD, but the two often co-occur (Bejerot et al., 2014). For example, high rates of social anxiety have been found among IASD with normal intelligence, with social anxiety occurring at a rate of about 22% for IASD (Bejerot et al., 2014; Lugnegard, Hallerback, & Gillberg, 2011). Such anxiety may lead IASD toward social isolation, because it may be too overwhelming and overstimulating to be around people for prolonged amounts of time (Spain et al., 2017), not to mention that IASD may not always pick up on more nuanced and subtle forms of communication. For example, IASD can have difficulty recognizing emotions in others and differentiating between emotions when compared to IwoASD (Frank, Schulze, Hellweg, Koehne, & Roepke, 2018).

IASD have needs related to their emotional regulation and awareness of others’ emotions in relation to their sense of self. Emotional awareness and regulation issues, such as not feeling able to influence one’s emotional arousal states, are common among IASD and at least partially contribute to worsening psychiatric issues, including aggression, depression, and anxiety (Conner et al., 2019). IASD may have trouble identifying the emotions of others, exhibit flat affect themselves, misread social cues, and have trouble regarding perspective-taking (Conner et
Even among these identified underdeveloped skill areas, some research supports that higher functioning IASD can identify emotions in others, while considering both the literal meaning of words as well as a person’s tone of voice (Ben-David, Ben-Itzchak, Zukerman, Yahav, & Icht, 2019). This points to some contradictions in the literature about the emotional abilities of IASD, and highlights how some higher-functioning IASD are able to navigate some subtleties of communication. It should be noted that there is a difference between identifying emotions in others and perspective-taking in relation to peers.

Although there is debate on the emotional awareness of IASD, research demonstrates IASDs’ abilities to implement coping skills so that they are successful across a variety of environments. Some general coping skills used by IASD include engaging in special interests, seeking support from friends that may be able to relate, seeking support from animals, normalization, intellectualization, and humor (Dachez & Ndobo, 2018). Another notable coping strategy found to be used by moderate to high-functioning adults with ASD includes creating a depathologized view of ASD, which may include viewing it as an altogether separate way of thinking rather than any sort of cognitive deficiency as defined by literature (Dachez & Ndobo, 2018). With this coping process, IASD are navigating with the world around them, while working to destigmatize what society may deem a disability.

Individuals with high functioning autism, previously referred to as Asperger’s, are able to engage in post-secondary activities such as employment, independent living, and post-secondary education. IASD may receive minor accommodations or environmental modifications to be successful. Further, this population of ASD does not have a co-occurring intellectual disability. They generally have the willingness to work, capacity to work, and relevant education, but still
may face barriers to working (Baldwin, Costley, & Warren, 2014). These barriers include being underemployed (e.g., overqualified for their current job), having trouble socially connecting with colleagues, and not receiving needed support in the workplace (Baldwin et al., 2014). Receiving clear directives from the administration at their place of employment is likely essential for many IASD. Work is important to IASD, as they see it as a way to apply their knowledge and interests (Baldwin et al., 2014), just as IwoASD conceptualize work. However, high-functioning IASD have more intense interests than IwoASD, and these passions tend to be less socially-oriented than IwoASD (Anthony et al., 2013). For example, some intense interests for IASD may include factual information, specific objects, or be sensory-oriented (Anthony et al., 2013). Such interests in and of themselves are not problematic, and are sometimes used as coping strategies (Dachez & Ndobo, 2018), but they may end up leading to social isolation (Anthony et al., 2013). Healthy use of technology not only fosters connection between individuals, but is a hallmark of the current school and employment climate.

Social media and related technology use serve a number of purposes for IASD, including decreasing isolation by fostering social connection (Mazurek, 2013). One study found that the majority of participants (adults with ASD) used social networking sites, and those who did were more likely to have close friends (Mazurek, 2013). Social media use was not associated with a decrease in loneliness for this sample. However, it has been supported that social media use among IASD is linked to enhanced wellbeing and can serve as a protective factor against mental health concerns (Ward et al., 2018). Specifically, IASD who use Facebook were found to be happier than those who did not (Ward et al., 2018). Social media use is associated with better friendship quality among adolescents with ASD, with anxiety as moderator (Schalkwyk et al., 2017). No such relationship was found among the control group. Using technology to connect
with others appears to serve helpful and unique purposes for IASD, but less is known about how such technology use may be linked with sexuality, its expression, and sexual relationships.

When it comes to the sexuality of IASD and how technology may be used to explore it, more research is needed (Cheak-Zamora, Teti, Maurer-Batjer, O’Connor, & Randolph, 2019). However, it has been suggested that IASD use online dating at approximately the same rate as the general population (Roth & Gillis, 2015). IASD desire and have sexual relationships, but details surrounding their intimate relationships remain under-researched (Dewinter et al., 2013; Dewinter et al., 2015; Pearlman-Avnion et al., 2017). Communication is a major theme that IASD identify as an enabler of intimacy (Sala, Hooley, & Stokes, 2020), and online communication can enable IASD to thrive in making connections when they may struggle with face-to-face interactions (Brosnan & Gavin, 2015). Some research has suggested that online dating can help to assuage social anxiety and other communication differences among IASD, but that safety and self-misrepresentation was also reportedly a concern (Roth & Gillis, 2015). This is why the current study has a focus on technology use and sexual responsibility (including both physical and psychological sexual safety).

The population of interest for the current study includes IASD (18–30 years old) who are moderate to high-functioning on the autism spectrum and self-report an official diagnosis by an appropriate health provider. For the purposes of this study, this functional level includes the following criteria: ability to read, use technology independently, and provide independent consent. It should be noted that functional labels are not an official diagnosis, but terms that help with clarity on the spectrum. The following section expands upon the development of sexual responsibilities, including the following: influences on sexual development, models explaining healthy sexuality, information about sexual development across the lifespan, sexual agency, and
the sexual development of IASD. Studies are provided with samples including individuals with and without autism, due to the paucity of research investigating sexual responsibilities of IASD.

Developing Sexual Responsibility

Sexuality is one of the many essential domains that contribute to the whole of a human being and has myriad influences (WHO, 2006). The development of sexual responsibility does not start at puberty; rather it begins in infancy and continues to develop throughout the lifespan (Halpern, 2010; Thanasiu, 2004). However, IASD often lack appropriate sex education as parents may feel especially fearful and unprepared in discussing sexuality topics (Nichols & Blakely-Smith, 2010). This discomfort and lack of preparedness may end up being detrimental to young IASD, because early experiences and messages about sexuality pave the way for one’s sexual development and subsequently whether or not one will have a healthy sexuality in adulthood. One major contributing factor to sexuality development includes others’ reactions to sexual exploration, namely whether others respond in a supportive or punitive manner (Mrazek & Mrazek, 1987; Thanasiu, 2004). Responding to the sexuality of children can be uncomfortable for parents and mental health clinicians (Thanasiu, 2004), perhaps at least partly due to not knowing what is considered appropriate. This discomfort may be especially pertinent for parents of children with ASD (Nichols & Blakeley-Smith, 2010). Sparse literature is available on the sexuality of children, but a wide range of behavior was found to be a typical part of sexual development, even in non-clinical samples with no confirmed instances of sexual abuse for both genders. Some of these normative behaviors can include masturbation, wanting to be the opposite sex, using sexual language, showing sexual parts to other children, communicating about sexual topics, non-forcible sexual touching, asking to watch explicit television, rubbing one’s body against other people, and inserting objects into vagina or anus (Kaeser, DiSalvo, &
Typical development of sexuality entails a balanced interest in sex among other aspects of life. Causes for concern might entail when children express sexuality and explore with children not close in age with themselves, with adults, or when the behavior causes emotional or physical pain to self or others (Thanasiu, 2004). Negative sexual behaviors can develop from myriad factors, not limited to abuse. Familial attitudes regarding sexuality and exposure to sexuality-related content from the media or Internet can also contribute to negative sexual behaviors in children and distorted views of sexuality (Thanasiu, 2004). Furthermore, children becoming interested in sexuality earlier and earlier in their development is likely due to having more exposure to sexuality-related material in our media-saturated world (Kaeser et al., 2000). Notably, those with ASD are more likely to get sexual information from non-social sources (Kellaher, 2015). With so many different influences on the development of sexuality, referencing frameworks can aid in comprehending the dynamic and interconnected factors.

Many models exist to aid in the conceptualization of sexual development and responsibility, though disability is often not explicitly explored. Most of the models broadly include similar constructs that fall under the categories of reproduction, interpersonal skills, intrapersonal skills, and social constructs (Arbeit, 2014; Dailey, 1981; Robinson, Bockting, Rosser, Miner, & Coleman, 2002)—with certain categories, such as reproduction, being emphasized more so than others for IASD (Barnett & Maticka-Tyndale, 2015). Developing a healthy sexuality, and thus sexual responsibility, entails much more than avoiding sexually transmitted infections and unwanted pregnancy. For example, the Canadian Guidelines for Sexual Health and Education posit that sex education should include information that helps people attain positive outcomes as well as avoid negative outcomes. This includes fostering self-esteem, respect for self and others, engaging in non-exploitive sexual activities, having
rewarding relationships, and making informed reproductive choices (Health Canada, 2008). Additionally, Arbeit (2014) proposed a skills-based model for promoting adolescent sexuality development. The key elements of developing a positive sexuality are outlined as sexual selfhood, sexual negotiation, and sexual empowerment. Sexual selfhood entails being aware of one’s own desires and adhering to personal ethics; sexual negotiation entails consent, protection, pleasure, and intimacy; and sexual empowerment includes boundaries, advocating for oneself, and being able to analyze messages received regarding sexuality. The processes outlined in this model are personal agency, interpersonal intimacy, and social advocacy. The more abstract social and communicative elements related to sexuality are especially relevant for IASD, as they can have difficulty forging and maintaining connections (American Psychiatric Association, 2013). Further underscoring the notion that a healthy sexuality and the practice of safe sex entail more than biological functions, Dennis Dailey’s Circles of Sexuality Model (1981) provides a holistic view of sexuality that encompasses not only making informed choices about reproduction, but identity, sensuality, sexualization, and intimacy as well. Holistic models of sexual health and responsibility are important, because IASD report inadequate or inappropriate sex education experiences, usually focusing more heavily on reproduction than building relationships (Barnett & Maticka-Tyndale, 2015). The National Autistic Society delineates that the bare minimum of sex education for IASD needs to include “how body parts work and how to stay safe,” (Moxon, n.d.) the latter part likely entailing communication, boundaries, and intimacy-related topics. Both recommendations map nicely onto the construct of sexual responsibility, measured by exploring physical sexual safety and psychological sexual safety in the current study. The major domains of sexuality outlined in the models above are especially relevant during adolescence, as this is a period of self-exploration and growth.
The sexuality of young people is heavily influenced by their surroundings and their sexuality can be seen as a controversial topic. Frequently, adolescent sexuality is viewed as problematic due to assumed immaturity, and research focuses on avoiding harm rather than positive sexual development, even for IwoASD (Halpern, 2010). However, “the artificial separation of sexuality between adolescence and adulthood has always been an untenable model” (Halpern, 2010, p. 6). If this misstep is occurring for young people without disabilities, it is also occurring for young people with disabilities like ASD, and likely also to a greater extent.

Sexuality is a normal component of the developing adolescent and should include both managing risk and developing healthy patterns (Tolman & McClelland, 2011). Sexual outcomes for young people are associated with many different factors such as gender, socioeconomic status, peer influence, race, and family processes; however, evidence regarding the influence of the latter is mixed (Meschke, Bartholomae, & Zentall, 2002; Tolman & McClelland, 2011). The complicated relationship between parental influence and sexual responsibility indicates a complex association between parental communication and the subsequent sex behavior of their children. Recall how parents of IASD may feel especially unsure of what information to give, when, and how to go about having those potentially uncomfortable discussions (Nichols & Blakeley-Smith, 2010). Hence, the development of sexual responsibility for IASD is likely to be influenced by the home environment, and more information about IASD sexuality is needed to formulate better and more intentional interventions.

One major construct associated with sexual responsibility that is influenced by parents is the sexual agency of adolescents, which encompasses sexual assertiveness and sexual self-efficacy (Anderson, 2013; Arbeit, 2014; Curtin, Ward, Merriwether, & Caruthers, 2011; Klein, Becker, & Stulhofer, 2018). Sexual agency is the ability to carry out and communicate
one’s own wants, preferences, expectations, and boundaries with a sexual partner (Anderson, 2013). At the core, it is having control over one’s own sex life, which leads to safer sex practices and sexual responsibility (Klein et al., 2018). Parents play a role in the development of sexual agency, but research regarding the specifics of how that relationship manifests and how parental communication translates to subsequent sexual behaviors is mixed, nuanced, and in some cases conflicting. Essentially, parental communication has been shown to influence the sexual behaviors of adolescents, but to different extents under different circumstances (Cha, Kim, & Patrick, 2008; Meschke et al., 2002; Sneed, Tan, & Meyer, 2015). For example, parental communication on sexual topics is associated with increased use of birth control and condoms for adolescents (Buzi, Smith, & Weinman, 2009; Meschke et al., 2002; Weinman, Small, Buzi, & Smith, 2008), but another study yielded that mothers communicating with their adolescents about sexuality was not significantly related to the adolescent’s subsequent sexual behaviors (Meschke et al., 2002). Though research is lacking, it is troubling to think about what effect lack of dialog may have on the sexuality of IASD. D. L. Brown, Rosnick, Web-Bradley, and Kirner (2014) investigated the relationship between a father’s communication about sex with their African American daughters and found that fathers cautioning daughters about the intentions of men was related to women asking about their partner’s sex history, but was inversely related to safer condom practice. In other words, women in this study who reported safer use of condoms were less likely to receive messages from their fathers warning them about the ill intentions of men (D. L. Brown et al., 2014). Parental monitoring and control seem to be a double-edged sword. While more monitoring resulted in later first sexual intercourse experience, daughters who felt controlled and guilted by mothers regarding sexuality were more likely to engage in risky sexual behaviors than those who did not see their mothers as using guilt to control their
sexuality (Meschke et al., 2002). It is unclear how some of these dynamics may play out among IASD. Gender differences also exist. A study of Korean college students found that condom efficacy was predicted by the quality of parent-adolescent communication for males, but not females (Cha et al., 2008). Though parental communication is not being investigated in the current study, sexual agency is part of sexual responsibility. The above information is presented to provide some context as to why the sexual responsibleness of IASD may look different from the general population and needs to be better understood. When moving beyond cultural and gender differences, sexual agency responsibility is often overlooked in the disability population, particularly IASD.

There is a dearth in the literature regarding healthy sexual development of adolescents with ASD and what factors influence sexual responsibility. IASD often do not receive adequate sex education (Barnett & Maticka-Tyndale, 2015), and thus subsequent sexual responsible practices may end up looking different than IwoASD. Despite the conflicting evidence about specific circumstances, generally, the way that a parent responds (or does not respond) to a child’s developing sexuality matters, and has been shown to influence subsequent sexual behavior of the child. Recall that a wide range of behaviors are considered normative in sexual development. However, parents as well as pediatricians may feel ill-equipped and uncomfortable when responding to the sexual development of children with ASD (Holmes et al., 2014; Nichols & Blakeley-Smith, 2010), which may have an effect on their subsequent sexual responsibility. Furthermore, IASD are less likely to obtain sexual information from social sources, including parents (Brown-Lavoie et al., 2014), which is why Internet use is a focus of the current study.
Practicing safe and informed sex is part of developing a healthy sexuality, and definitions of practicing “responsible” and “safer” sex can vary widely. For the purposes of the current study, the definition of sexual responsibility entails both physical (e.g., condom use) and psychological (e.g., communication, relationship satisfaction) safety. Research on responsible sex practices is complex and shaped by myriad identity markers and individual characteristics such as gender (Cha et al., 2008; Curtin et al., 2011), ethnicity and culture (Morales-Aleman & Scarinci, 2016; Warren et al. 2008), among other factors. Women and men tend to differ on some aspects of sexual risk behavior, but results are not always consistent. For example, a nationally representative dataset funded by the CDC reports that between 2011 and 2015, women were less likely (23.8%) to have used a condom at the last sexual intercourse than men (33.7%), with increasing numbers of sexual partners linked with increased condom use for heterosexual people (Copen, 2017). Another study found no difference in the frequency of condom use between genders and noted that men had significantly more sexual partners than women (Romero-Estudillo, Gonzalez-Jimenez, Mesa-Franco, & Garcia-Garcia, 2014). Young males tend to have lower perceptions of sexual risk than young women as well as less positive intentions to use condoms (Rich, Mullan, Sainsbury, & Kuczmierczyk, 2014). Young women tend to demonstrate increased support for sexual responsibility than males, endorsing joint responsibility for contraceptive protection at a higher rate than males (Hooke, Capewell, & Whyte, 2000). Young males did demonstrate some sexual responsibility, but it was not as well developed as it is for young girls (Hooke et al., 2000). Males were more likely to see nothing wrong with casual sex than girls (Hooke et al., 2000). Unsettlingly, it was found that young men may endorse unequal sexual health responsibility, by way of viewing engaging in responsible sex to be determined solely by a female partner’s behavior (Stanley, Kim, & Pitts, 2018). The
construct of and attitudes toward sexual responsibility and sexual responsible behavior are complex, with the views of IASD being mostly overlooked. Regarding culture, some evidence is inconsistent regarding sexual health. Specifically, studies on cultural values and sexual health outcomes did not produce consistent results (Morales-Aleman & Scarinci, 2016). The literature on sexual responsibility for the general population entails complex dynamics and is fraught with nuance and sometimes conflicting information. To date, the disability population, particularly IASD, have been largely left out, with their sexual responsibility practices left relatively unexamined.

**Intersectionality of Sexuality and Disability**

The research literature base on sexuality and related topics is saturated with the non-disabled experience, and those with disabilities are often desexualized (Barnett & Maticka-Tyndale, 2015). In the United States approximately 15% of children, or one in every six, between the ages of 3 and 17 have a developmental disability, which the Centers for Disease Control and Prevention (CDC) define as a condition involving a physical, learning, language, or behavior impairment (Boyle et al., 2011; CDC, 2017). These figures are inclusive of both mild and severe developmental disabilities, with ASD accounting for part of the percentage. ASD falls under the category of developmental disability. ASD often entails social skill underdevelopment, narrow interests, repetitive behaviors, and inflexibility to change (American Psychiatric Association, 2013). For ASD specifically, the CDC’s Autism and Developmental Disabilities Monitoring Network estimates that about 1 in 59 children have an ASD (Baio et al., 2018), with 500,000 youth with ASD reaching adulthood by 2025 (Oss, 2018). Furthermore, it is estimated that the cumulative ASD prevalence among adults may exceed 2.8% (Oss, 2018). Methodological complexities and limitations can influence prevalence estimates in such a way
that differences in methodology versus true differences in population are indistinguishable (Fombonne, 2018). Though definitions of ASD and the methodology used to survey it have evolved and may contribute to conflicting prevalence estimates, the CDC surveys “have been useful in providing the only time series of prevalence estimates that provide some interpretable data on time trends” (Fombonne, 2018, p. 719). The most recent data from the CDC indicates almost five and a half million adults in the United States have ASD, which is about 2.2% of the population (Dietz, Rose, McArthur, & Maenner, 2020). People with disabilities, including IASD represent a fair amount of the population, and their sexuality should be attended to.

The dominant discourse surrounding people with disabilities in the United States paints a narrow picture of vulnerability without a lot of room for variation, as well as a narrow view of sexuality (Alhaboby, al-Khateeb, Barnes, & Short, 2016). As mentioned in the previous section, sexuality is an integral part of a person’s identity and being human. Affirming the sexuality of people with developmental disabilities, including ASD, is particularly important, because they have been “systematically and routinely denied opportunities to develop and express their sexuality” (Ailey et al., 2003, p. 230). The sexual identity of this population appears to be policed and ascribed to them. All too frequently individuals with developmental disabilities are considered to be asexual, threatening, or dangerous, with their sexuality needing to be controlled (Ailey et al., 2003; Kellaher, 2015). Ailey et al. (2003) outlined and explained both structural and attitudinal barriers that prevent those with developmental disabilities from developing their sexual selves and viewing themselves as sexual beings. Some institutional barriers that keep people with developmental disabilities from developing their sexual selves include school systems, parents, residential facilities, and work settings, among others. Many settings that these individuals find themselves within are not conducive to developing intimate relationships, or
sometimes these individuals are outright denied the opportunity to see friends or significant others. These barriers may be enacted by people surrounding the individual with a developmental disability by refusing to talk about sexuality or refusing to acknowledge that their sexuality exists and is valid. This is sometimes a very deliberate and intentional act to prevent the development of intimacy and occurs for a variety of reasons, such as the discomfort of others or the policies of an organization. Attitudinal barriers can lead to practices that impede sexuality development of those with developmental disabilities. This may include parents hindering social interaction outside of school of their child with the disability, nurses avoiding the topic of sexuality altogether for this population, or the general attitude of avoidance that leaves these individuals to receive sex education only formally or through media.

Though stigma and repression are still present, paradigm shifts have occurred regarding the sexuality development of those with developmental disabilities. Ailey and colleagues’ (2003) literature review identified three different approaches to the sexual development of those with developmental disabilities: the stance that sexual expression should be eliminated altogether, expressed but controlled, or the position that “sexuality and sexual gratification are major life resources and individuals with I/DD [intellectual/developmental disabilities] need to be taught” (p. n234). Furthermore, the researchers highlight the need for promoting a healthy sexuality:

If healthy sexuality is not promoted and supported, unhealthy and abusive forms of sexuality may prevail. The inability to develop healthy sexuality can lead to mental disorders such as anxiety, depression, and adjustment disorders, as well as impaired self-esteem; and can put individuals at risk for sexual abuse and exploitation, AIDS and other STDs, and unplanned and unwanted pregnancies. (Ailey et al., 2003, p. 236)
This underscores the need for intentionally affirming the sexuality of IASD.

Though sexual violence is not a focus of the current study, those with developmental disabilities, including ASD, are more susceptible to sexual abuse and exploitation than the general population (Ailey et al., 2003; Baarsma et al., 2016; Brown-Lavoie et al., 2014; Sevlever et al., 2013). Thus, it is especially urgent to better understand the sexual responsibility of IASD, which necessarily includes discussions about bodily autonomy and sexual agency. As described in the previous section, sexual agency and related constructs are related to sexual responsibility. An ASD diagnosis for girls was associated with a near threefold risk of coercive sexual victimization, further analysis yielded for researchers that, in general, neurodevelopmental disorder symptoms moderate vulnerability for coercive sexual victimization (Ohlsson, Lichtenstein, Langstrom, & Pettersson, 2018). Understanding sexual responsibility for IASD will serve to hopefully help decrease the rates of sexual victimization with more informed interventions. While research is lacking regarding sexual abuse occurrence among people with developmental disabilities like ASD, what is available is concerning.

Overall, literature investigating the sexuality of IASD in particular is severely lacking. What is encouraging is that some of what is available helps to dispel stigma and misunderstanding about the sexuality of IASD by challenging the notion they are not sexual individuals and do not have relationships. For example, a study of high functioning IASD yielded that the majority have had at least one romantic relationship lasting three months, have positive sexual functioning, good sexual knowledge, and few sexual problems (Byers et al., 2013). Furthermore, ASD characteristics and symptoms may not always be detrimental to the formation of relationships, as it was found that having no relationship experience was not necessarily related to psychological factors or skill differences for IASD (Byers et al., 2013).
Drawing from what is available, contradictions and conflicting information become readily apparent. Evidence supports both similarities and differences between the IASD and IwoASD regarding sexuality (Kellaher, 2015). Some studies point out sexual similarities between IASD and IwoASD (Barnett & Maticka-Tyndale, 2015). Specifically, research indicates that IASD, particularly high-functioning ASD, are comparable to IwoASD when it comes to sexual interest, depth of sexual experience, comprehension of sexual language, and expression of sexual behaviors, such as the age of onset of masturbation (Dewinter et al., 2015; Gilmour et al., 2012; Kellaher, 2015). Further supporting the similarities between IASD and IwoASD, high functioning IASD were shown to have comparable sexual satisfaction profiles to IwoASD, meaning that factors like the balance of sexual rewards and costs contribute to their sexual satisfaction (Byers & Nichols, 2014). Similarly, there was a high prevalence of solo sexual behaviors in this population, and no differences were found in lifetime sexual experiences between adolescent boys with high functioning ASD than those in the general population (Dewinter et al., 2015). The ASD population starts masturbation around age 13, falls in love, and experiences orgasm all around this time period, just as IwoASD do (Dewinter et al., 2015). Researchers pointed out that though the presence of both solo and partnered sexual experience seems comparable, the “how” of sexual experience needs to be explored further (e.g., the context, quality, potential inappropriate behaviors, etc.; Dewinter et al., 2015). A review of the available research indicates that normative sexual behavior, such as masturbation, occurs in the population of those with ASD and that higher-functioning IASD generally display more appropriate privacy with their sexual behavior (Dewinter et al., 2013).

However, there are some contradictions in the literature regarding similarities in sexuality constructs between IASD and IwoASD. One discrepancy concerns sexual knowledge, and
conclusiveness remains unclear (Dewinter et al., 2013; Kellaher, 2015). Some studies demonstrate that IASD can have similar sexual knowledge to IwoASD, but other studies highlight how IASD get their knowledge from different sources (more so non-social sources, like television and the Internet), and exhibit significantly less sexual knowledge than IwoASD (Kellaher, 2015). At the same time, a study focusing on juvenile sex offenders found that while ASD symptoms were stable across time, ASD symptoms did not influence whether young males talked to peers about sexuality, a social source of information (Baarsma et al., 2016). More information is needed about how sexual responsibility is formed and influenced for IASD. It is also important to remember that simply having sexual knowledge does not equate with putting it into daily practice (Dewinter et al., 2013). Though sexual knowledge is not a focus of the current study, a lack of sexual knowledge likely contributes to sexual responsible practices.

Additionally, IASD may have differing opinions of sexual orientations and differing sexual identities than IwoASD. A higher rate of asexuality was found among IASD (Gilmour et al., 2012), and those with high-functioning ASD with relationship experience were more likely to identify as a sexual minority (Byers et al., 2013). In a study on sexual attitudes and behaviors, it was found that high-functioning adolescent boys with ASD were more tolerant of homosexual identities than IwoASD, but that was actually the only significant difference between them and the control group (Dewinter et al., 2015). The literature remains unclear as to how comparable the ASD population is to the population of IwoASD regarding sexuality. Further investigation is needed to diversify the sexuality literature and simultaneously make it more inclusive, because much of the current literature focuses on problematic aspects of sexuality for this population.

Sometimes the sexuality of IASD is viewed as deviant, or even dangerous, with many articles focusing on inappropriate or offending behaviors. One study indicated that IASD were
more likely to engage in inappropriate courtship behaviors, such as monitoring the person’s activities, touching inappropriately, and persisting in their endeavors longer than IwoASD (Stokes, Newton, & Kaur, 2007). Such behavior, researchers noted, may blur the line between appropriate show of interest and stalking or obsessive behavior. However, when it comes to deviant and offending behavior, true prevalence figures are not known (Baarsma et al., 2016; Sevlever et al., 2013). Perhaps with more appropriate sex education, less of these more challenging behaviors would occur.

Sex education is a necessity for IASD, because characteristics of ASD have been shown to be related to both sexual abuse and offending (Sevlever et al., 2013). However, it is important to view inappropriate and offending behavior in context. Recall how the sex education that IASD receive may be minimal to none. There has been no systematic outcome research on sex education for adolescents with ASD (Dewinter et al., 2013). Providing sex education and health information to IASD will not only affirm their sexuality, but help them to better develop independent living skills (Hellemans et al., 2007). Adolescence is a time period where sex education is especially critical, as this is a formative time of sexual development. IASD typically develop physically and sexually in expected stages, with ASD symptoms not relating to alterations in sexual development or behavior (Baarsma et al., 2016; Koller, 2000; Schroeder, LeBlane, & Mayo, 1996). Inappropriate sexual behavior exhibited by IASD, such as masturbation in a public setting, can be the result of lack of social skills and social-emotional maturity rather than true sexual deviance (Stokes & Kaur, 2005; Koller, 2000), all of which could be included in sex education curricula. It remains unclear in the research whether the individuals are aware of the consequences of inappropriate sexual behavior (Dewinter et al.,
2013). Functional levels are relevant. Differences in sexuality expression may be related to differences in information processing for IASD.

Further underscoring the need for relevant sex education, it was found that when responding to items regarding sexuality, IASD may interpret and respond to things literally and lack awareness (Konstantareas & Lunsky, 1997). Many IASD require concrete information and directives about a topic, as just having the knowledge may not translate into a behavior. Because much of sexuality and its messages are abstract, indirect, or implicit, things can become confusing. For example, some research suggests that IASD may not discover masturbation on their own or figure out proper techniques, and they may not be able to discern between when another person wants their sexual attention and when they do not (Hellemans et al., 2007). The impairments in social skills characteristic of ASD can contribute to a lack in fulfilling relationships (Hellemans et al., 2007; Roth & Gillis, 2015), but that does not mean that these skills cannot be worked on if the individual desires to do so. Increased ASD symptoms regarding social functioning was found to be related to lower sexual satisfaction (Byers & Nichols, 2014). Women with ASD reported less sexual desire, fewer sexual behaviors, and less sexual awareness than those without, but the two groups had similar rates of sexual satisfaction (Bush, 2018). However, sexual satisfaction was the only sexual construct that was similar in this study across groups, suggesting that some differences exist between the groups. The participants with ASD had fewer lifetime sexual experiences than those without, as well as lower levels of sexual consciousness, meaning decreased awareness of sexual thoughts, feelings, and sensations as well as awareness and concern of how they present sexually to others (Bush, 2018). Sexual consciousness can be incorporated into sex education curricula and relates to sexual responsibility and psychological sexual safety. It should be noted that an individual’s functional
level needs to be taken into account when presenting sexual health information and evaluating what interventions are appropriate. Information needs to be presented in such an individualized way that IASD will understand. Such education is invaluable to IASD, because they would not only learn about the functionality of their bodies, but how to handle certain emotions and social situations.

Taken together, the information available on the sexuality of IASD is fraught with contradiction and holes, with not much substantial ground from which to draw even tentative conclusions. Some research suggests that the sexuality of IASD is comparable to IwoASD, while other research highlights differences. All of which emphasizes the need for better understanding what influences sexual responsibility in this population. More information is needed to determine whether the variables that influence IwoASD sexual responsibility remain valuable predictors among IASD. I will now provide an in-depth review of the predictor variables, including their relationship to sexual responsibility as well as their intersection with disability, and in particularly ASD, when available.

**Boredom**

For the purposes of this study, boredom is defined as a transitory state, which likely accompanies a negative experience (Struk et al., 2017; Watt & Vodanovich, 1999). The construct of boredom and its connection to various sexual behaviors, including hypersexuality, have been well established through the research literature (de Oliveira & Carvalho, 2020; Gana, Trouillet, Martin, & Toffart, 2001; Kaufman et al., 2002; Layland, 2018; Miller et al., 2014), but less information exists about the relationship between boredom and sexuality among the disability population. Generally, much of the literature related to boredom and sexuality focuses on sexual addiction, sexual compulsivity, HIV-related issues, and men who have sex with men.
(Chaney & Chang, 2007). Expanding on the last point, men are likely focused on in the literature, because there are gender differences in boredom proneness. Youths and males in particular have been shown to score higher in boredom proneness than women (Chin, Markey, Bhargava, Kassam, & Loewenstein, 2017; McIntosh, 2006; N. D. Sundberg, Latkin, Farmer, & Saoud, 1991; Watt & Vodanovich, 1999). High levels of leisure boredom were found to be associated with subsequent sexual risk behaviors for adolescent males as well as alcohol consumption during their last sexual encounter (Miller et al., 2014). But there are some gaps and nuances in the literature. Researchers call for more diversified samples, inclusion of females, and investigation of boredom beyond online sexual activity (de Oliveira & Carvalho, 2020). It has been found that the association between leisure boredom and number of risks at sexual debut were moderated by gender, with the effects of leisure boredom actually being stronger for females (Layland, 2018). Leisure boredom was found to be associated with the odds of safe sex, sex under the influence of substances, and transactional sex, but not related to casual sex or condom use at sexual debut for adolescents (Layland, 2018). Researchers have also asserted that boredom should be addressed in HIV prevention strategies and is related to sexual risk behavior (German & Latkin, 2012). Furthermore, there are significant negative relationships between boredom proneness and psychosocial development (Watt & Vodanovich, 1999). Boredom is associated with generally risky behavior for young people (Biolcati et al., 2018).

In relation to the outcome variable of sexual responsibility (including both physical and psychological safety), boredom is associated with hypersexuality in general as well as risky sexual behavior, especially for males (de Oliveira & Carvalho, 2020; Kaufman et al., 2002; Miller et al., 2014). Specifically, it was found that young males who scored high in leisure boredom were less likely to report using condoms consistently (Miller et al., 2014). However, it
is worth noting that this study was conducted outside of the United States, and only about 10% of
the sample scored high in leisure boredom, thus it may not be generalizable. Other evidence that
links boredom to risky sexual behavior includes how young people hanging out with each other
(unstructured and unsupervised activities) is associated with having sex in the last year, and the
number of hours spent just hanging out is negatively associated with condom use (Kaufman et
al., 2002). Gender differences were apparent in this study, because having structured time, such
as participating in sports, was associated with a lower likelihood of having sex in adolescent
girls, but structured time did not function in the same way as a protective factor for young boys.
Participation in sports actually decreased the likelihood of using condoms for males in this
particular study (Kaufman et al., 2002). Boredom is associated with other sexuality-related
behaviors. For instance, boredom proneness was found to be a strong predictor of masturbation
and viewing porn (Gana et al., 2001). Thus, boredom-prone individuals were more likely to
engage in self-pleasure behaviors than those less prone to boredom. Despite some having
evidence, researchers continue to call for more research regarding the link between boredom and
specific potentially hypersexual behaviors such as viewing porn, cybersex, sex between
consenting adults, telephone sex, strip clubs, and masturbation (de Oliveira & Carvalho, 2020).
In regard to psychological safety, there is less information about how boredom correlates.
However, increased boredom proneness was found to be associated with lower levels of
emotional autonomy (e.g., trusting one’s own emotions and having the ability to voice dissent),
instrumental autonomy (e.g., interacting with one’s environment to get needs met), and mature
interpersonal relationships (Watt & Vodanovich, 1999). All of these variables could have an
influence on psychological safety related to sexuality for IASD.
There are cultural differences when it comes to boredom as well, with individuals in the United States scoring significantly higher in boredom proneness than German counterparts (Vodanovich, Kass, Andrasik, Gerber, Niederberger, & Breaux, 2011). The United States and Australia were found to have similar boredom proneness profiles, whereas Lebanese and Hong Kong participants exhibited more boredom proneness than the more western countries (N. D. Sundberg et al., 1991). Thus, one’s cultural context comes into play when measuring boredom. Though regional differences in boredom are not being assessed in this study, it is important to note that geographical and cultural differences could influence the results as it is possible that participants reside outside of the United States.

There is a remarkable dearth in the literature regarding the measurement of boredom in the population of IASD, especially in relation to sexuality. The available literature on boredom and disability focuses more on deficits rather than the predictive value of boredom. For example, a study on college students with disabilities (physical, sensory, learning, etc.) found a positive correlation between aggressive behavioral tendencies and free-time boredom (Yang & Yoh, 2005). Additionally, it was found that those with Asperger’s, now called high-functioning ASD, have difficulty identifying boredom in others (Doody & Bull, 2011), but no known research exists to the researcher’s knowledge surrounding how boredom may predict sexual responsibility in IASD.

One common limitation of boredom research is that the measures are often self-reported, may not be generalizable due to sample selection, and do not examine causal relationships (Gana et al., 2001; Kaufman et al., 2002; Miller et al., 2014). Lastly, the predictive value of boredom related to sexuality behaviors has not been explored for IASD, but some educated inferences can
be made from the available research on IwoASD: boredom proneness likely plays some part in sexual behaviors of IASD.

**Loneliness**

Loneliness, or the mismatch between desired and actual relationships (Cassidy & Asher, 1992), is associated with decreased physical and mental health as well as unhealthy lifestyle (Meltzer et al., 2013; Richard et al., 2017). Loneliness can influence people’s choices about sex (Shernoff, 2005). For example, loneliness is associated with hooking up among college students (Owen et al., 2011). The link between loneliness and risky sexual behavior is well documented in the literature focusing on men who have sex with men (MSM) and HIV/AIDs transmission (Hubach et al., 2015; Kott, 2011; Morin et al., 2003; Semple, Patterson, & Grant, 2000; Su et al., 2018). Less information is available on how loneliness influences sexual responsibility for those with disabilities and particularly IASD. What literature is available in the MSM population supports that loneliness is associated with risky behavior and inversely associated with condom use (Hubach et al., 2015; Morin et al., 2003). Remarkably, a one unit increase in the UCLA Loneliness Scale was associated with a 10% decrease in the odds of using a condom (Hubach et al., 2015). Morin and colleagues (2003) found loneliness and isolation may lead people to connect with others sexually, while not taking necessary precautions, such as negotiating condom use. Additionally, a study of sexually active HIV-positive older adults in New York yielded that loneliness was associated with increased odds of having unprotected sex (Kott, 2011). This trend also appears to be true in some cross-cultural studies. Research conducted in China found that lonely MSM were more likely to have had receptive condomless anal sex in the past six months (Su et al., 2018).
Additionally, the construct of loneliness is consistently linked in the research literature to aspects of psychological sexual safety. For example, patterns of self-disclosure may look different for lonely people versus non-lonely people, and self-disclosure has a negative relationship with loneliness (Linying & Huichang, 2003). It was found that lonely people may tend to limit their self-disclosure and thus interrupt the development or intimacy and relationships (Solano, Batten, & Parish, 1982). Loneliness is associated with decreased sexual satisfaction (Koc & Saglam, 2013). Specifically, this includes loneliness being significantly associated with sexual communication, sexual satisfaction, and sexual avoidance and sensuality (Koc & Saglam, 2013). Loneliness has also been linked to emotional regulation abilities, indicating that the more an individual can regulate their own emotions, the less lonely they are likely to be, with experience avoidance (such as the unwillingness to be present with emotions) mediating this relationship (Shi, Zhang, Zhang, Fu, & Wang, 2016).

Loneliness is of particular interest in this study as it has been shown to occur in higher levels among IASD than the general population (Deckers et al., 2017; Lasgaard et al., 2010; Locke, Ishijima, Kasari, & London, 2010; M. Sundberg, 2018; Whitehouse, Durkin, Jaquet, & Zitas, 2009), with more ASD symptoms being linked to increased loneliness (Hedley Uljarevic, Wilmot, Richdale, & Dissanayake, 2018; Reed, Giles, Gavin, Carter, & Osborne, 2016). Though IASD may not always desire social interaction as much as IwoASD and use isolation as a coping strategy, young people with ASD exhibit the desire to belong to a group (Deckers et al., 2017). Loneliness is linked to depression, self-harm, decreased life satisfaction, quality of life, and self-esteem in IASD (Hedley et al., 2018; Mazurek, 2014; Reed et al., 2016). To illustrate this among the ASD community, students with ASD were able to identify a best friend, but the majority with ASD were still isolated from their classmates and not recognized as part of the
group (Locke et al., 2010). Loneliness was also found to occur at significantly higher levels in those with mild cognitive impairments than those without (Yu, Lam, & Lee, 2016). These findings refute the notion that IASD do not care about social connections or meaningful relationships. IASD do not necessarily just want to be alone all of the time. What can be inferred from the research literature is that loneliness is associated with risky sexual behavior, is a relevant characteristic for the ASD community, and research needs to be done regarding its relationship to sexual responsibility for IASD.

**Internet and Sexual Responsibility**

Media use and sexual socialization have changed over the last few decades. This shift occurred primarily because media evolved from being consumer-oriented to more interactive, meaning that individuals can more readily interact with others through the use of media (Tolman & McClelland, 2011). According to PEW Research, 81% of Americans report going online daily, and 28% say that they are almost always online (PEW, 2019a). This constant availability of apps, for example, may be especially appealing and hold predictive value of app use (Haught, Wei, & Karlis, 2016). The Internet and related technologies, such as social media and apps, provide a fast and convenient way to search for and communicate with potential sexual partners, which has influenced relationships (Kalichman et al., 2005). Creating a space between fantasy and action, the Internet can be deemed a “sexual marketplace” that influences individual’s sexuality and has the potential to accelerate and decelerate intimacy, depending on the user (Ross, 2005). People reported using dating apps for the following motives in rank order: fun, finding relationships, and finding hook-ups, with websites used for more “serious” relationship inquiries and apps for more casual inquiries or hook-ups (Bryant & Sheldon, 2017). Some other reasons for using online dating technology include: looking for a soul mate, sex, or easing
boredom (Couch & Liamputtong, 2008; Ligtenberg, 2015). Additionally, there are often steps and processes that most people follow to ascertain whether or not they would like to progress their relationship from online to in-person. Triggers to meet in person can vary between being attracted to the person physically, mentally, or simply the ability to have sex quickly (Couch & Liamputtong, 2008). Timelines regarding choosing to meet a potential sex partner in person matter. Though sexual risk behaviors were found to be similar between geosocial networking app users and non-app users, app users who spent a few days or less talking before meeting the person engaged in more unsafe sexual practices than those who do not use apps or spent a longer time talking to their potential partner before meeting (Hahn et al., 2018). In other words, those who spent only a few days or less talking with a potential partner before meeting were significantly more likely to engage in sexual risk behavior than those who waited longer to meet in person (Hahn et al., 2018). Generally, men are more inclined to use technology to aid in hooking up (casual sex), whereas women are more interested in building relationships (Bryant & Sheldon, 2017; Ligtenberg, 2015).

Technology use is on the rise, but it may come with some risk. According to Pew Research Center (2016a) online dating sites or app usage among young adults has almost tripled since 2013 and lost much of its initial stigma. However, using the Internet for sexual communication purposes is not without its risks, and there is an overlap between online and offline behaviors, as it was found that offline and online sexual risk behaviors were related (Baumgartner, Sumter, Peter, & Valkenburg, 2012). Risks associated with using Internet technology include, but are not limited, to sharing personal information, engaging in risky behavior (sexual and otherwise), and problematic use (Elhai, Vasquez, Lustgarten, Levine, & Hall, 2018; Kalichman et al., 2005; Shilo & Mor, 2015; Wang, Jackson, & Zhang, 2011; Zhang,
Expanding on the latter, the advent of the Internet has made it more convenient to engage in compulsive sexual behaviors (Chaney & Blalock, 2006). Moreover, evidence supports that seeking sex online is associated with sexual risk behavior, such as unprotected anal sex (Shilo & Mor, 2015). In a study of HIV positive men, those who sought sex partners online in the last three months were significantly more likely to have had unprotected sex with partners of unknown HIV status and unprotected sex across partners (Kalichman et al., 2005). Furthermore, dating app use is associated with sexual risk among college students, including having unprotected sex (Choi et al., 2016; Sawyer, Smith, & Benotsch, 2017).

The population of men who have sex with men is once again very prevalent and even dominant in the literature related to sexual behaviors and the Internet. Common variables associated with technology use, online dating, or seeking sex online include loneliness and boredom (Couch & Liamputtong, 2008; Horvath, Beadnell, & Bowen, 2006). In terms of boredom, it was found that while people may use technology to assuage boredom (Biolcati et al., 2018; Chaney & Blalock, 2006; Couch & Liamputtong, 2008), boredom proneness predicts problematic smartphone use among American college students, but not smart phone use frequency (Elhai et al., 2018). Boredom proneness is a risk factor for Internet communication disorder, which is related to the addictive use of the Internet (Wegmann, Ostendorf, & Brand, 2018). Boredom proneness had significant direct effects on Internet communication disorder symptoms. Though boredom was not found to be associated with problematic Tinder (hook-up app) use, it was found to be negatively associated with conscientiousness, and less conscientiousness is related to motivation for finding casual sex partners (Orosz et al., 2018).
Loneliness may also have an influence on technology use and sexual behavior. Regarding loneliness, “the extent to which people want to communicate with other people is more strongly linked to their usage of cell phones than their in-person contact or loneliness” (Jin & Park, 2010, p. 616). Problematic Internet use is significantly correlated with loneliness, and researchers interpret this to mean that loneliness may contribute to why people turn to the Internet to seek connections with others (Odaci & Kalkan, 2010). However, other research has indicated that for adolescents, loneliness is related to Internet use more so for entertainment reasons than for social communication reasons, but online and offline coping strategies are related (Seepersad, 2004). Loneliness avoidance is positively associated with Internet addiction and partially mediates the relationship between shyness and Internet addiction (Ang, Chan, & Lee, 2018). Loneliness may lead people to use technology, but can subsequently also lead to more loneliness for some people, suggesting a possible bidirectional relationship (Morahan-Martin, 1999; Nowland et al., 2018). Taken together, these findings in the boredom and loneliness literature point to the strong relationship between emotional states and technology use, as well as how that relationship has the potential to influence subsequent sexual responsibility for both individuals with and without ASD.

There is a lack of research regarding how those with disabilities use various forms of Internet technology for sexual purposes, with a tremendous lack in the ASD population. IASD do use social media to make connections with others (Mazurek, 2013), but it is not clear how the technology is used for sexual purposes for this group. It has been demonstrated that IASD who play online games have more friends than those who do not, with low to moderate online gaming linked to less loneliness but not friendship quality (M. Sundberg, 2018). While some IASD may find it appealing to seek sexual partners online, there may also be room for miscommunication
and safety concerns. Some advantages of communicating with potential sex partners online include not having to interact face to face, having access to a lot of different people, and the convenience of available information (Roth & Gillis, 2015). Some drawbacks reported about online dating by IASD include reservations about safety and concerns about other people misrepresenting themselves as well as the transition from online to in person interaction (Roth & Gillis, 2015). Specifically, it is not currently well-researched how IASD discern who is safe and who is not or how they use safety precautions while using the Internet to meet people, like meeting people in public for the first encounter (Roth & Gillis, 2015). Some IASD use safety precautions while engaging in online dating, while others do not exercise the same protective strategies and try to meet people as soon as possible (Roth & Gillis, 2015). This is true for IwoASD as well, but it is unclear whether the behavior profiles significantly differ between the two. More research is needed concerning how this population engages with such technology and how boredom and loneliness may enhance the relationship between technology use and subsequent sexual responsibility. The majority of the research literature available regarding the use of Internet technology for dating purposes comes from studies of IwoASD, or studies that do not specifically mention disability or ASD status. This omission is unfortunate, because IASD are more likely to obtain sexual information from non-social sources, meaning that they are less likely than their non-ASD counterparts to obtain sexuality-related information and knowledge from peers and parents and more likely to obtain information via the internet or trial by error, leaving them more susceptible to victimization (Brown-Lavoie et al., 2014). IASD have less access to peers and friends as sources of learning about social and romantic skills and knowledge (Stokes et al., 2007). However, there are no extensive studies on how the Internet influences the sexual development of adolescents with ASD (Dewinter et al., 2013). Given that IASD sexual
development may be comparable in some ways to the sexual development of IwoASD (Dewinter et al., 2013), there is no reason to believe that IASD do not use Internet technology for sexuality purposes like IwoASD do. This study purports to start to fill in that gap in the literature.

**Inferences for Forthcoming Study**

Though some attention has been given to investigating relationships in the population of people with developmental disabilities (inclusive of ASD), less information is available regarding sexual responsibility in this population. In particular, literature related to the influence of the Internet and related technologies as a means to find dating or sexual partners is nearly absent for IASD (Roth & Gillis, 2015). Results are variable in the population of IwoASD regarding what contributes to sexual responsibility, with mediators existing in some situations, and it would be helpful to see if these same variations and nuances exist in the ASD population. The current exploratory study fills some very problematic gaps in not only the sexuality literature base, but the technology literature base. This helps to dispel the common assumption that IASD are asexual and therefore would not use the Internet to assist in sexual connection with others, or that the Internet would not influence their sexual development and sexual responsibility. Such information is of immense value from a public health perspective and to challenge the overall stigma surrounding disability and sexuality.

It remains especially unclear how certain variables will influence each other and the outcome variable of sexual responsibility in the ASD population. Because the sexual development of IASD does not consistently differ from IwoASD, hypothesizing that the major predictors of sexual responsibility for IASD are similar to IwoASD is warranted with the limited information currently available. A synthesis of available literature highlights how the transient emotional states of boredom and loneliness are associated with and sometimes predict sexual
responsibility. These same emotional states also influence technology use at times, which may in turn affect sexual responsibility. Separately and together, emotional states and technology use are related to sexual responsibilities. When placed together, emotional states and technology use variables may work together to influence sexual responsibility. Thus, a moderation effect might be found in which loneliness as well as boredom moderate the relationship between technology use and sexual responsibility, specifically physical sexual safety. Given that non-social sources may be particularly relevant for IASD when it comes to sexuality, and that boredom and loneliness are related to sexual responsibility and technology use, there may be a unique interaction among these variables in terms of how they significantly influence the outcome variable of sexual responsibility.

Specifically, this study aimed to answer the general question of: How do measures of boredom, loneliness, and technology use predict sexual responsibilities for IASD? Given the available literature in the population of IwoASD, I expected to find that boredom, loneliness, and technology use would all significantly contribute to the variance in sexual responsibility and that loneliness and boredom would serve as moderators for the relationship between technology use and the sexual responsibility subscale of physical sexual safety. Given that little to no research exists on this topic for the ASD population, these hypotheses were tentative and drew form the literature available from both populations of IASD and IwoASD. An exploratory non-experimental research design was used to investigate the overarching research question. Stigma regarding disability and ASD has persisted in United States culture, and hopefully studies such as the current one will help to eradicate some of that stigma by increasing the general knowledge on such important and timely topics as sexuality and technology use for diverse
populations. The current study is unique in that it is among the very few empirical studies that investigate sexual responsibility and technology use among IASD.

The conceptual frameworks that have been synthesized and applied to the current study include Cognitive Behavioral Theory (Klodner, 2011) and Uses and Gratifications Theory (Rubin et al., 2003). These have been selected because they include psychological, emotional, and behavioral factors, and allow for the interaction among them when attempting to understand how humans function. Additionally, the theories highlight how all individuals, including IASD, have emotional states that contribute to behaviors and they are not robotic beings without an inner world. Together, these theories provide a holistic foundation to help explain what constructs and behaviors contribute to the sexual responsibility of IASD, which include: boredom, loneliness, and technology use behaviors. The theories will be expanded on below.

**Theoretical Framework**

Given that the sexuality of IASD has been narrowly defined or altogether ignored, a more holistic conceptualization was used for this project that takes the emotions and behaviors of IASD directly into account. To do this, the current study includes Cognitive Behavioral Theory (Klodner, 2011) and the Uses and Gratifications Theory (Rubin et al., 2003) in its conceptual framework.

**Cognitive Behavioral Theory (CBT)**

Cognitive Behavioral Theory is the overarching conceptual framework that guides the current study. Broadly, CBT encompasses the interplay of emotions, cognitions, and behaviors when trying to better understand people and how they function and experience their lives (Klodner, 2011). This theory has been widely researched in the psychology and counseling literature and is useful in treating myriad conditions, including working to decrease sexual risk
behavior (Jaffe, Shoptaw, Stein, Reback, & Rotheram-Fuller, 2007; Schnurr, 2017). Two of the aforementioned factors are being focused on in the current study and they include emotional states (boredom and loneliness) as well as behaviors (technology use).

**Uses and Gratifications Theory (UGT)**

This theory also aids in guiding the current study, because it explains how individuals interact with media in a goal-directed manner (Rubin et al., 2003; Wimmer & Dominick, 1994). In this case, connecting with other humans and the potential of sexual connection is of particular interest. The theory also outlines how social and psychological predispositions mediate media behavior (Rubin et al., 2003). The current study includes the following psychological characteristics or predispositions: boredom proneness and loneliness, both of which have been demonstrated to be related to sexual behavior and likely contribute to media use as per UGT. The Internet has allowed for more research on UGT and demonstrates how interpersonal utility is a motivating factor for Internet use (Papacharissi & Rubin, 2000). Furthermore, social interaction is a main motive for using social media and mobile devices, including affection and sociability as strong predictors of mobile phone use (Haridakis & Hanson, 2009; Leung & Wei, 2000). And because IASD may view not having face-to-face interaction as a positive, Internet use may be a particularly attractive means of communicating and connecting for them (Roth & Gillis, 2015). Thus, technology use is one of the hallmarks of the current study.
CHAPTER THREE

METHOD

There is a paucity of research on how boredom, loneliness, and the use of technology relates to sexual responsibilities for individuals with autism spectrum disorder (IASD). This is a glaring missed opportunity, because technology has revolutionized how people communicate with others (Tolman & McClelland, 2011), and subsequently how people can find sex partners. Furthermore, research shows that many IASD are as interested in romantic relationships and sexual behaviors as individuals without ASD (IwoASD; Dewinter et al., 2013; Hellemans et al., 2007; Konstantareas & Lunsky, 1997; Ruble & Dalrymple, 1993). Thus, how IASD may use technology to assist in finding relationships and sex partners is a relevant area of study. To help bridge this gap, variables related to technology use and sexual responsibilities were analyzed from a previously collected dataset. Five predictors of sexual responsibility were examined: boredom proneness, loneliness, online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance. These five variables were analyzed for their predictive value regarding the outcome variable of sexual responsibilities, including physical and psychological measures of sexual safety for IASD. A moderation relationship was also tested to see if boredom and loneliness, separately, moderate the relationship between the technology use variables (separately) and physical sexual safety for IASD. This specific moderation relationship which focuses on physical sexual safety instead of psychological sexual safety was investigated because there is more basis for this relationship in the literature (e.g., how emotions influence technology use and how emotions and technology both influence physical sexual behavior).
This study contributes to much needed research that is essential in advocating for the ASD population and providing relevant interventions in health settings. Research on the sexuality of IASD not only acknowledges and affirms their sexuality, but also provides valuable information that can be used to combat potential public health issues, such as unwanted pregnancies, sexual violence, and the spread of sexually transmitted infections. This quantitative study analyzed retrospective data that used surveys to directly solicit responses from IASD so their voices are heard, instead of soliciting data about them from teachers or caregivers. This type of data is essential, because having direct responses from IASD instead of their parents or caregivers incorporates information directly from the population of interest in an authentic way. Such information aids in investigating whether the targeted five variables reliably predict sexual responsibilities for IASD. Numerous unique contributions emerged from this study, including data on technology use for IASD, which has been neglected in the sexuality and mental health research literature, especially when it comes to how technology use relates to sexual responsibilities for this population.

**Research Questions**

The overarching research question of this study was: How do measures of boredom, loneliness, and technology use predict sexual responsibilities for IASD?

This raised the following sub-questions:

1. Do emotions such as boredom and loneliness predict sexual responsibilities for IASD?

2. Does technology use such as online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance predict sexual responsibilities for IASD?
3. Do sexual responsibilities for IASD differ by sex?

4. Do emotions (such as boredom and loneliness) moderate the relationship between technology use (such as online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance) and physical sexual safety for IASD?

1. Does boredom moderate the relationship between online risk behavior and physical sexual safety for IASD?

2. Does loneliness moderate the relationship between online risk behavior and physical sexual safety for IASD?

3. Does boredom moderate the relationship between intent to use dating apps/websites for casual sex and physical sexual safety for IASD?

4. Does loneliness moderate the relationship between intent to use dating apps/websites for casual sex and physical sexual safety for IASD?

5. Does boredom moderate the relationship between intent to use dating apps/websites for romance and physical sexual safety for IASD?

6. Does loneliness moderate the relationship between intent to use dating apps/websites for romance and physical sexual safety for IASD?

The hypotheses were generated to address the research questions of this study:

H1. Emotions (i.e., boredom and loneliness) significantly predict sexual responsibilities for IASD via an inverse relationship.

H2. Technology use (i.e., online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance) significantly predicts sexual responsibilities for IASD via an inverse relationship.
H3. Sexual responsibilities for IASD significantly differ by sex, with males being less sexually responsible than females on both subscales.

H4. Emotions such as boredom and loneliness significantly moderate the relationship between technology use and physical sexual safety for IASD, such that higher emotion scores result in a stronger relationship between technology use variables and physical sexual safety.

H4a. Boredom moderates the relationship between online risk behavior and physical sexual safety for IASD, such that increased boredom indicates a stronger relationship between online risk behavior and physical sexual safety for IASD.

H4b. Loneliness moderates the relationship between online risk behavior and physical sexual safety for IASD, such that increased loneliness indicates a stronger relationship between online risk behavior and physical sexual safety for IASD.

H4c. Boredom moderates the relationship between intent to use dating apps/websites for casual sex and physical sexual safety for IASD, such that increased boredom indicates a stronger relationship between intent to use dating apps/websites for casual sex and physical sexual safety for IASD.

H4d. Loneliness moderates the relationship between intent to use dating apps/websites for casual sex and physical sexual safety for IASD, such that increased loneliness indicates a stronger relationship between intent to use dating apps/websites for casual sex and physical sexual safety for IASD.
H4e. Boredom moderates the relationship between intent to use dating apps/websites for romance and physical sexual safety for IASD, such that increased boredom indicates a stronger relationship between intent to use dating apps/websites for romance and physical sexual safety for IASD.

H4f. Loneliness moderates the relationship between intent to use dating apps/websites for romance and physical sexual safety for IASD, such that increased loneliness indicates a stronger relationship intent to use dating apps/websites for romance and physical sexual safety for IASD.

Participants and Recruitment

No participants were recruited in the current study, as a previously collected dataset was used to answer the research questions. These participants were recruited via online platforms (e.g., social media) like Reddit as well as through physical flyers. The original retrospective dataset had approximately 1,500 participants who self-reported a disability of any kind, with 234 of the cases indicating an autism spectrum disorder. Those indicating an ASD were included in analysis in the current study. The targeted cases included individuals between the ages of 18 and 30 with ASD. They were moderate to high-functioning on the autism spectrum, were able to access the Internet, had reading skills, and had the ability to provide independent consent. A survey item solicited whether ASD was officially diagnosed by a doctor or other mental health professional; however, all items were self-reported and the ASD diagnoses were not triangulated with any medical record, as the survey was anonymous. The rationale for using data from this particular age range is that developmentally, these individuals are interested in exploring and expressing sexuality and also may be transitioning out of services related to ASD and into adulthood (more independent living). No recruitment process was conducted for the current
study as data were previously collected. Thus, no informed consent procedures were necessarily. The data were collected anonymously and thus are already de-identified. No contact with participants occurred, nor was possible.

To estimate the effect size for the current study in order to determine an acceptable sample size, an average effect size from multiple studies involving similar sexuality constructs was computed for a reference. One study found an effect size for communication about condom use to be \( r = .34 \) (Widman, Noar, Choukas-Bradley, & Francis, 2014). That same study was a meta-analysis and found an effect size of \( r = .28 \) regarding self-efficacy and condom use (Widman et al., 2014). Lastly, another study found an effect size of communication about condom use to be \( r = .25 \) (Noar, Carlyle, & Cole, 2006). These three effect sizes were averaged together for an \( r \) of .29 that was then used in computation to determine the \( f^2 \) because regressions are the primary analysis in the current study. The resulting \( f^2 \) of .09 was used in the G*Power program (Faul, Erdfelder, Buchner & Lang, 2009; Faul, Erdfelder, Lang, & Buchner, 2007) to determine the sample size needed to detect the minimum effect. Three predictors were used in the G*Power analyses, as the most conservative analyses used in the study was the moderation analyses, which included three predictors. The sample size needed to conduct a regression with three predictors is 126 participants, calculated by taking power, alpha level, and effect size into account (Tabachnick & Fidell, 2007). This was determined using the 0.80 standard desired level of power to reject the null hypothesis when it is indeed false (Aron, Aron, & Coups, 2006). An a priori analysis was conducted using G Power to determine the needed sample size for multiple regression. The moderation analysis includes three predictors, including the emotion centered variable, the technology used centered variable, and the interaction term.
In order to detect significance, a sample of 126 is needed for a medium effect size \((f^2 = .09)\) at an alpha level of .05 with .80 power, \(F(3, 122) = 2.68\). See Appendix C for G Power results.

**Research Design**

This study used an exploratory non-experimental design to quantitatively investigate how boredom, loneliness, and technology use contribute to sexual responsibilities of IASD. Retrospective data from an online anonymous survey were used. The dataset provided for this project has all subjects de-identified. The data used in this study were pre-existing data collected with Duquesne University’s IRB approval (protocol #2019/05/8, see Appendix D for IRB approval documentation of retrospective dataset). The data were quantitative. Correlations, descriptive, and inferential statistics (such as multiple regression and ANOVA) were employed to answer the research questions. The predictors examined were emotions (boredom proneness and loneliness), and technology use (i.e., online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance), in their relation to the outcome variable of sexual responsibilities (measures of physical and psychological sexual safety).

**Instrumentation**

The retrospective data entailed a survey method of data collection, but no data collection was conducted for the current study. The full survey and all of the included measures took approximately 20 minutes to complete. Demographic information such as gender, relationship status, race, age, number of lifetime sex partners, sexual orientation, disability status, and whether a professional has made that disability diagnosis were solicited. The survey included several established measures as well as some measures that were developed by researchers. The researcher-developed measure includes 16 items that measure physical and psychological sexual
safety. The following sections describe the instruments included in the previously-collected dataset that were analyzed in the current study. Please see Appendix A for a full list of the measures included in the current study with their respective items.

**Short Boredom Proneness Scale (SBPS)**

Many scales exist that measure boredom and boredom proneness; however, this particular measure is useful because of its brevity (eight items) and the fact that research suggests that it is more reliable than the full boredom proneness scale (Struk et al., 2017). The SBPS is on a 5-point Likert scale with variability between 8 and 40. Response options span from *Strongly Disagree* to *Strongly Agree*. Researchers comment on the evidence for the measure’s unidimensionality, high reliability, and high validity. Specifically, previously studies conducted a confirmatory factor analysis, which indicated a good fit for a single factor model. Previously studies yielded a Cronbach’s alpha for the measure of 0.88, indicating good internal consistency (Lee & Zelman, 2019; Struk et al., 2017). Construct validity was determined in previous studies by finding appropriate correlations between the SBPS and other measures such as depression, anxiety, aggression, ADHD symptoms, and stress, meaning that the SBPS was not measuring these other constructs (Struck et al., 2017). Furthermore, Lee and Zelman (2019) also supported this measure’s validity as it was significantly correlated with measures of mind wandering and boredom susceptibility.

**UCLA Loneliness Scale Version Three (Adapted)**

The original UCLA Loneliness Scale (version three) has 20 items on a four-point Likert scale, with options spanning from *never* to *often* but it was determined that to keep the length of the total survey manageable for participants, the items would be pared down to five. The new total possible variability is between five and 20. Based on previous research, the full original
measure appears reliable and has a coefficient alpha between .89 and .94, with a test retest correlation of .73 after a one-year period, indicating stability over time (Russell, 1996). Additionally, previous research indicates that convergent validity is demonstrated due to the original measure correlating with other measures of loneliness (Russell, 1996) and discriminant validity is demonstrated through confirmatory factor analysis yielding that loneliness and social supports are two distinct factors (Russell, Kao, & Cutrona, 1987).

**Risky Online Activities Measure (ROA)**

This measure is a checklist of online risk behavior engaged in during the previous month (Livingstone & Gorzig, 2014a). There are five items to place a check next to if the participants engaged in the behavior; one such example is: “Sent personal information to someone that I have never met face-to-face.” Previous research demonstrated that the measure has acceptable internal consistency with a Cronbach’s alpha of 0.72 (Livingstone & Gorzig, 2014b).

**Intent to Use Dating Apps Scale (IUDA)**

This measure gauges participant’s behavioral intent to use dating apps and websites. “Websites” was added by researchers to the original measure so as not to exclude those who may be using dating programs not located on their phones. A sample item includes: “In the next week how likely are you to use a dating/hook-up app or website to look for a casual sex partner?” Item responses are along a seven-point Likert scale and range from very unlikely to very likely. There are two subscales in this measure, one for casual sex intent and one for romance intent. The total variability range for each subscale is four to 28. Though the measure has slightly altered wording to be more inclusive of the technology that participants might be using, the internal consistency of the original subscales were supported in previous research. Internal consistency for the two components indicates good reliability, with the component of “Intent to
Use Dating Apps/Websites for Romance” having a Cronbach’s alpha of 0.86 and the “Intent to Use Dating Apps/Websites for Casual Sex” having a Cronbach’s alpha of 0.90 (Chan, 2017b).

**Sexual Responsibility Measure (Developed by Researchers)**

The final items on the measure solicit more personal information about sexual responsibility, including both physical and psychological sexual safety. Researchers who collected the data used for the current study developed this measure. Items were developed by disability and sexuality content experts. The measure originally had 20 items, which were then pared down to 16 after pilot testing the measure to five individuals outside of the research team. These individuals gave feedback about comfortability and clarity of the items. The final measure consists of 16 items measuring sexual responsibility tendencies—with eight items intended to measure physical sexual safety and eight items intended to measure psychological sexual safety—all on a seven-point Likert scale with response options ranging from *strongly disagree* to *strongly agree* or from *never* to *all the time* depending on the temporal component of the item. Total possible range for this sexual responsibility scale is from 16 to 112. A sample item intended to measure physical sexual safety is: “I engage in sexual self-pleasure (e.g., masturbation) . . .” A sample item intended to measure psychological sexual safety is: “I am a trusting person that gives out personal information to others frequently (my last name, phone number, address) . . .” Not all 16 items were retained in the current study after factor analyses were conducted, which is described in Chapter 4.

**Procedures**

After approval from the Duquesne IRB, analyses of the retrospective data began. The cases of those with ASD were selected out. Frequencies were run, followed by data cleaning and analysis. Missing data were handled using a common convention of replacing the missing data.
points with the mean score for that item (Mertler & Vannatta, 2013). Nineteen data points were replaced in this fashion across 10 different cases. Though the retrospective data were collected anonymously, the dataset is still stored on flash drives and password protected computers in order to further maintain confidentiality. The data were destroyed five years after the completion of the study.

**Data Analysis**

The data were analyzed using SPSS Package 26. Descriptive statistics, correlations, and inferential statistics, such as multiple regression and ANOVA, were used to answer the research questions. Specifically, multiple regression was used to determine how much emotions and technology use predict sexual responsibility (physical and psychological sexual safety) for IASD. The moderation relationships were also tested using regressions. Specific analyses for each research question are outlined below.

Multiple regression entails investigating multiple predictor variables (Aron et al., 2006). In this study, five predictors were included in the multiple regression to assess which ones are significant. These include the Short Boredom Proneness Scale, adapted UCLA Loneliness Scale, Risky Online Activities Measure, Intent to Use Dating Apps/Websites for Casual Sex, and Intent to Use Dating Apps/Websites for Romance. Following the results of the factor analysis, the outcome variable of sexual responsibility was further divided into two subscales that (roughly) operationalize physical sexual safety (e.g., condom use) and psychological sexual safety (e.g., ability to communicate wants, having fulfilling relationships); these subscales are described in Chapter 4. I worked with an expert to ensure that the assumptions for all statistical tests were adequately met. No open-ended responses were solicited in previously collected data, thus no coding system was developed for the current project. No multicollinearity was found to exist.
among the variables as all VIF figures were less than 10. When multiple analyses were conducted to answer a research question, the Bonferonni correction procedure was used to help protect against the risk of Type I error. This is done by using a stricter \( p \) value criteria for determining significance (Aron et al., 2006). Please see Figure 1 for visual depiction of the analyses.

**Final Analysis Chart**

**Outcome (2)**

[Sexual Responsibility 7 pt scales]

**Sexual Responsibility: Physical**
1. I use internet technology to learn about my sexual health. (dis-agree)
2. When I have sex I use condoms. (freq)
3. When I have sex and choose to use condoms they are NEW condoms. (freq)
4. I view pornography for sexual gratification. (freq)
5. I hook up with others for casual sex. (freq)
6. I prefer to be intoxicated when I have sex. (freq)
7. I don’t need to use protection when I have oral sex. (dis-agree)
8. I engage in sexual self-pleasure (e.g., masturbation). (freq)

**Sexual Responsibility: Psychological**
1. I have fulfilling intimate relationships. (dis-agree)
2. I am able to say no and stop a sexual activity if I don’t like something. (dis-agree)
3. It is fun for me to explore my sexuality. (dis-agree)
4. I am ok with being alone with someone I don’t know well. (dis-agree)
5. People pressure or force me to have sex when I don’t want to. (dis-agree)
6. When I have sex, I climax/feel satisfied. (freq)
7. I like being sexual. (dis-agree)
8. I am a trusting person that gives out personal information to others frequently (last name, phone number, address). (dis-agree)

***Note: moderation relationships only include the physical subscale of sexual responsibility as outcome variables (see green arrows and reference research questions for more information for the six moderation research questions tested.

**Figure 1. Variable Analysis Chart**

Please see below for a more detailed description of the analysis that was done to investigate each specific research question.
1. Do emotions such as boredom and loneliness predict sexual responsibilities for IASD?

A hierarchical multiple regression was used to ascertain whether boredom and loneliness predict the two subscales of sexual responsibilities for IASD.

2. Does technology use such as online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance predict sexual responsibilities for IASD?

A hierarchical multiple regression was used to ascertain whether previous online behavior and intent to use dating apps predict the two subscales of sexual responsibilities for IASD.

3. Do sexual responsibilities for IASD differ by sex?

An ANOVA was used to determine whether there are significant sex differences in sexual responsibilities.

4. Do emotions (such as boredom and loneliness) moderate the relationship between technology use (such as online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance) and physical sexual safety for IASD?

To answer the six questions below, the moderation effect of emotions on the relationship between technology use variables and physical sexual safety was investigated. This was done by first centering all variables and creating an interaction term for the variables of interest in the analyses (e.g., boredom and online risk behavior). These centered variables and interaction term were then entered into a regression and the interaction significance was interpreted to see if there was a moderating relationship present.
1. Does boredom moderate the relationship between online risk behavior and physical sexual safety for IASD?

2. Does loneliness moderate the relationship between online risk behavior and physical sexual safety for IASD?

3. Does boredom moderate the relationship between intent to use dating apps/websites for casual sex and physical sexual safety for IASD?

4. Does loneliness moderate the relationship between intent to use dating apps/websites for casual sex and physical sexual safety for IASD?

5. Does boredom moderate the relationship between intent to use dating apps/websites for romance and physical sexual safety for IASD?

6. Does loneliness moderate the relationship between intent to use dating apps/websites for romance and physical sexual safety for IASD?

**Human Participants and Ethical Precautions**

There are no participants in the current study, but participant confidentiality was maintained in the retrospective dataset as there were no identifying information stored (name, address, geographical coordinates email, IP addresses, etc.) when the survey was taken via Qualtrics. Consent was obtained and the indication that consent was given is confirmed in the dataset. The dataset used was collected from a study approved by the IRB at Duquesne University, thus the ethical treatment of subjects was already evaluated and supported.
CHAPTER FOUR

RESULTS

The aim of this study was to explore predictors of sexual responsibility for IASD, including both physical sexual safety and psychological sexual safety. The predictors examined encompassed emotions and technology use, specifically including boredom, loneliness, online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance. Gender differences in sexual responsibility were also investigated. A summary of results and statistical analyses used to answer the research questions are provided in this section as well as the relevant statistical output.

Analysis of the Sample

Pre-existing de-identified data were used in the current study to investigate sexual responsibilities for IASD. No recruitment was done for the current study. Data were collected in the Fall of 2019 using Qualtrics. The original pre-existing dataset consisted of 1,505 subjects between the ages of 18 and 30 with some type of disability, 234 of which identified as having ASD and self-reported an official diagnosis by a physician or other qualified mental health professional. Of the 234, 176 completed the survey, and thus 176 is the final sample number. Not completing the survey was used as indication of the subject withdrawing their consent and such data were not included in the analysis, meaning 58 withdrew their consent. This yields a 75.21% completion rate for IASD. Missing data were handled using a common convention of replacing the missing data points with the mean score for that item (Mertler & Vannatta, 2013). Nineteen data points were replaced in this fashion across 10 different cases. It took participants an average of 18.28 minutes (SD = 48.68 minutes) to complete the entire survey, with a survey completion range including a minimum and maximum time of 4.13 minutes and 9.40 hours,
respectively. Please note that this measure of survey duration encompasses the entire survey. In other words, the time it took to complete the survey is not representative of the time it took to complete only the measures of interest in the current study, but includes the time it took to take other measures in the previously collected dataset.

Data were cleaned and analyzed for normality. All measures had some amount of skewness or kurtosis, with the majority of composite measures having a skewness or kurtosis statistic of less than 1. In conferring with an expert, it was determined that though some skewness and kurtosis existed among some of the measures, no one transformation would be appropriate to normalize the data, as different items exemplified different types of abnormalities. Furthermore, it was determined to be unlikely that the skewness would drastically sway the results of the data. However, this circumstance indicates the need for interpreting results with caution. One example of an item with a negative skew was “I often find myself at ‘loose ends’ (not knowing what to do)” on the Short Boredom Proneness Scale (SBPS). Another item on the dependent variable related to psychological sexual safety had a positive skew. This item was “I am a trusting person that gives out personal information to others frequently (my last name, phone number, address).” And some items appeared to be bimodal, such as “I find it hard to entertain myself” on the SBPS. One alteration that was made to the data entailed the Intent to Use Dating Apps (IUDA) subscales. Analysis of raw data yielded little to no variance in responses for the two subscales of casual sex and romantic intent, with a large positive skew for both. An option when extreme skewness is present in a distribution is to dichotomize the variable (MacCallum, Zhang, Preacher, & Rucker, 2002). Thus, both of the subscales were converted into dichotomous scales, with zero representing individuals selecting extremely unlikely for each item on the scale (composite score of four) and one representing individuals
who selected moderately unlikely all the way up to extremely likely (yielding a composite score greater than four). This was determined to be a means of yielding more meaningful and interpretable results.

The sample \((N = 176)\) in this study consisted of IASD ranging from 18-30 years of age, with a mean age of 23.69 years and median of 23 years. Lifetime sex partners \(n = 174\) ranged from 0 to 50 or over, with a median of 2, mean of 5.71, and standard deviation of 9.71. Identity markers such as gender identity, race, sexual orientation, relationships status, lifetime sex partners, and disability status were also available in the pre-existing dataset and a summary of the sample demographics for IASD is summarized in Table 1. Please note that for race and disability status, participants could select more than one response.
Table 1

Sample Demographics \((N = 176)\)

<table>
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<tr>
<th></th>
<th>Frequencies = n</th>
<th>Percent = %</th>
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</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
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<td></td>
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<tr>
<td>Woman</td>
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<tr>
<td>Man</td>
<td>61</td>
<td>34.7</td>
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<td>14.3</td>
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<td>5.1</td>
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<td>Black or African American</td>
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<td>89.8</td>
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<td>Native American or American Indian</td>
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<td>5.1</td>
</tr>
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<td>4.0</td>
</tr>
<tr>
<td>Other</td>
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<td><strong>Sexual Orientation</strong></td>
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<tr>
<td>Bisexual</td>
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<td>Other</td>
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<td>Not currently in a sexual relationship</td>
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</tr>
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<td>Currently in a sexual relationship with one person</td>
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<td>49.4</td>
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<tr>
<td>Currently in a sexual relationship with multiple people</td>
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<td><strong>Disability Status</strong></td>
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<tr>
<td>Identify as having a learning disability</td>
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</tr>
<tr>
<td>Reported diagnosis</td>
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<td>13.6</td>
</tr>
<tr>
<td>Identify as having ADHD or ADD</td>
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<td>39.2</td>
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<tr>
<td>Reported diagnosis</td>
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<td>38.6</td>
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<tr>
<td>Identify as having a mental health/psychological disability</td>
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<td>Reported diagnosis</td>
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<tr>
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</tbody>
</table>
Because the outcome measure for sexual responsibilities, both physical and psychological, was developed by researchers, a factor analyses was conducted to ascertain the underlying meaningful structure of the items when attempting to answer the research questions for the current project. The KMO test yielded .735 and the Bartlett’s Test of sphericity was significant, $\chi^2 (36) = 377.29, p < .001$, indicating that factor analyses was appropriate for this set of data. Principal axis factoring was used with a direct oblimin rotation due to factors likely being correlated. After multiple iterations of factor analyses and investigating the reliabilities, a two-factor solution was reached, explaining 52.19% of the variance. Nine of the original 16 items were retained, with six on factor one and three on factor two. Items were dropped based on low factor loadings, being detrimental to the factor reliability, and not conceptually fitting with the underlying factor category. The two-factor solution can be mapped onto the constructs of interest for the outcome variable of this study (sexual responsibility and subscales). New labels were generated for the subscales of sexual responsibility. Based on the content of the items comprising the factors, these include further narrowing physical sexual safety to “Sexual Risk Responsibility” and narrowing psychological sexual safety to “Sex Positivity and Sexual Health.” For the remainder of the paper, the outcome variables are discussed with these new labels: Sexual Risk Responsibility and Sex Positivity and Sexual Health. See Table 2 for the factor loadings (rotated solution) for each item. Factor one of Sex Positivity and Sexual Health demonstrated acceptable internal consistency with a Cronbach’s alpha of .78. The Sexual Risk Responsibility factor has a Cronbach’s alpha slightly below the acceptable standard of .70. Internal consistency for this factor was .60, thus the results including this scale should be interpreted with caution.
Table 2

Summary of Exploratory Factor Analysis Results for Sexual Responsibilities (N = 176)

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>I hookup with others to have casual sex</td>
<td></td>
</tr>
<tr>
<td>When I have sex and choose to use condoms</td>
<td>.625</td>
</tr>
<tr>
<td>When I have sex I climax/feel satisfied</td>
<td>.415</td>
</tr>
<tr>
<td>I am a trusting person that gives out personal information to others frequently</td>
<td>.754</td>
</tr>
<tr>
<td>I am ok with being alone with someone I don’t know well</td>
<td>.477</td>
</tr>
<tr>
<td>I like being sexual</td>
<td>.634</td>
</tr>
<tr>
<td>It is fun for me to explore my sexuality</td>
<td></td>
</tr>
<tr>
<td>I am able to say “no” and stop a sexual activity if I don’t like something</td>
<td>.745</td>
</tr>
<tr>
<td>I have fulfilling intimate relationships</td>
<td>.670</td>
</tr>
<tr>
<td>% of variance</td>
<td>32.496</td>
</tr>
</tbody>
</table>

Note. Factor loadings suppressed below .32.

Correlations

Pearson correlations were conducted and examined, which helps to ascertain the relationship between two variables (Mertler & Vannatta, 2013). For regression analyses, predictors ideally would be significantly correlated with the outcome variable and not each other. However, this is not always the case, as many variables are interrelated in social sciences. The relationships of interest in this study are the five predictors and their relation to the outcome variables of sexual responsibilities as measured through the Sexual Risk Responsibility subscale and the Sex Positivity and Sexual Health subscale. Because investigating these relationships entails multiple tests, a Bonferroni correction was used to protect against Type I error (Aron et al., 2006). This was done by taking the conventional p value of .05 and dividing it by 10, as that is the number of tests done that are of interest. Please see Table 3 for the reported correlations.
The bolded figures are significant correlations after the Bonferroni correction. All of the technology use variables (ROA, IUDA for Casual Sex, and IUDA for Romance) significantly correlate with the outcome variable of Sexual Risk Responsibility. Only loneliness, as measured by the adapted UCLA Loneliness scale, significantly correlated with the outcome variable of Sex Positivity and Sexual Health after the Bonferroni correction. Notably, boredom as measured by the SBPS was also significantly correlated with Sex Positivity and Sexual Health before the correction was applied.

Table 3

**Summary of Intercorrelations and Significance**

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sexual Risk Responsibility (DV 1)</td>
<td>16.32</td>
<td>3.74</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sex Positivity &amp; Sexual Health (DV 2)</td>
<td>31.02</td>
<td>7.53</td>
<td>-0.057</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Boredom</td>
<td>26.91</td>
<td>7.06</td>
<td>-0.081</td>
<td>-0.168</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Loneliness</td>
<td>15.78</td>
<td>2.81</td>
<td>0.003</td>
<td>-0.294</td>
<td>0.516</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Online Risk Behavior</td>
<td>1.48</td>
<td>1.46</td>
<td>-0.338*</td>
<td>-0.072</td>
<td>0.344</td>
<td>0.216</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Intent to Use Dating Apps/Websites for Casual Sex</td>
<td>0.24</td>
<td>0.43</td>
<td>-0.378*</td>
<td>-0.071</td>
<td>0.071</td>
<td>0.254</td>
<td>0.376</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7. Intent to use Dating Apps/Websites for Romance</td>
<td>0.36</td>
<td>0.48</td>
<td>-0.238*</td>
<td>-0.075</td>
<td>-0.071</td>
<td>0.115</td>
<td>0.272</td>
<td>0.741</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note.* Correlations are bolded and * if significant after the Bonferroni correction of $p < .005$.  

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Research Questions and Hypotheses

The current study investigated sexual responsibilities for IASD, which includes the subscales of Sexual Risk Responsibility and Sex Positivity and Sexual Health. The following research questions and hypotheses were generated to examine which of the following five variables were predictors of the two subscales of sexual responsibility for IASD: SBPS, adapted UCLA Loneliness Scale, ROA, IUDA for Casual Sex, and IUDA for Romance.

Research Question and Hypothesis #1

The first research question addressed in this study was:

1. Do emotions such as boredom and loneliness predict sexual responsibilities for IASD?

The following hypothesis was generated for this research question.

H1. Emotions (i.e., boredom and loneliness) significantly predict sexual responsibilities for IASD via an inverse relationship.

Hierarchical multiple regression analyses were conducted to predict the overall levels of sexual responsibility (both Sexual Risk Responsibility and Sex Positivity and Sexual Health) in IASD from multiple predictors, including boredom and loneliness, as measured by the SBPS and an adapted UCLA Loneliness Scale, respectively. Beginning with the outcome variable of Sexual Risk Responsibility, neither boredom, $\beta = -.113$, $t(176) = -1.277$, $p = .203$. nor loneliness, $\beta = -.061$, $t(176) = .696$, $p = .488$ were significant predictors when only emotions were taken into account in the first model. Though, when controlling for technology use variables, loneliness was shown to be a significant predictor of Sexual Risk Responsibility for IASD, $\beta = .173$, $t(176) = 2.102$, $p = .037$, with higher loneliness actually predicting higher sexual responsibility (decreased risk). See Table 4 for relevant results.
Next, when investigating the predictive value of emotions for the second outcome variable of Sex Positivity and Sexual Health, a significant relationship was found. When controlling for loneliness as well as all of the technology use variables, boredom was not a significant predictor of Sex Positivity and Sexual Health for IASD, $\beta = .033$, $t(176) = .362$, $p = .718$. However, loneliness was found to be a significant predictor of Sex Positivity and Sexual Health for IASD when controlling for boredom and all technology use variables, via an inverse relationship, $\beta = -.286$, $t(176) = -3.234$, $p = .001$. This relationship suggests that loneliness has an inverse predictive relationship with Sex Positivity and Sexual Health, such that as loneliness increases, Sex Positivity and Sexual Health decreases for IASD. Please see Table 5 for relevant results. Overall, research hypotheses were partially supported in that emotions predict sexual responsibility for IASD under certain circumstances, but boredom did not appear to serve much predictive value.
Table 5

Coefficients for Model for Sex Positivity and Sexual Health

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables</th>
<th>B</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Boredom</td>
<td>-.023</td>
<td>-.022</td>
<td>-.253</td>
<td>.800</td>
</tr>
<tr>
<td></td>
<td>Loneliness</td>
<td>-.760</td>
<td>-.283</td>
<td>-3.339</td>
<td>.001</td>
</tr>
<tr>
<td>2</td>
<td>Boredom</td>
<td>-.035</td>
<td>-.033</td>
<td>-.362</td>
<td>.718</td>
</tr>
<tr>
<td></td>
<td>Loneliness</td>
<td>-.767</td>
<td>-.286</td>
<td>-3.234</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Online Risk Behavior</td>
<td>-.005</td>
<td>-.001</td>
<td>-.011</td>
<td>.991</td>
</tr>
<tr>
<td></td>
<td>Intent to Use Dating Apps for Casual Sex</td>
<td>1.441</td>
<td>.082</td>
<td>.707</td>
<td>.480</td>
</tr>
<tr>
<td></td>
<td>Intent to use Dating Apps for Romance</td>
<td>-1.632</td>
<td>-.105</td>
<td>-.942</td>
<td>.347</td>
</tr>
</tbody>
</table>

Note. B indicates unstandardized coefficients and β indicates standardized coefficients.

Research Question and Hypothesis #2

2. Does technology use such as online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance predict sexual responsibilities for IASD?

The following hypothesis was generated for this research question.

H2: Technology use (i.e., online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance) significantly predicts sexual responsibilities for IASD via an inverse relationship.

Hierarchical multiple regression analyses were conducted to predict the overall levels of sexual responsibility (both Sexual Risk and Sex Positivity and Sexual Health) in IASD from multiple predictors, including previous the technology use variables measured by ROA, IUDA for Casual Sex, and IUDA for Romance. Beginning with the outcome variable of Sexual Risk Responsibility, both IUDA for Casual Sex, $\beta = -.408$, $t(176) = -3.790$, $p < .001$ as well as ROA,
\[ \beta = -0.232, \ t(176) = -2.955, \ p = .004 \] significantly predicted Sexual Risk Responsibility for IASD when controlling for emotions and IUDA for Romance. This suggests that as IASD engage with more online risk behaviors, their Sexual Risk Responsibility decreases (sexual risk increases), and that as their Intent to Use Dating Apps for Casual Sex increases, their Sexual Risk Responsibility decreases (sexual risk increases). See Table 4 for relevant results.

Next, for the outcome variable of Sex Positivity and Sexual Health, none of the technology use variables were significant predictors for IASD (see Table 5). The hypothesis related to technology use was partially supported in that two of the three technology use variables from the current study were shown to be significantly related to one of the outcome variables (Sexual Risk Responsibility only) for IASD.

**Research Question and Hypothesis #3**

2. Do sexual responsibilities for IASD differ by sex?

The following hypothesis was generated for this research question.

H3. Sexual responsibilities for IASD significantly differ by sex, with males being less sexually responsible than females.

Two separate ANOVAs were run to determine whether the two subscales of sexual responsibilities differ by sex. To do this, the gender categories of “gender fluid” and “other” were collapsed into a single “other” category for the ANOVA. Three gender categories were included, women, men, and other. See Table 6 for descriptive statistics of sexual responsibilities by gender.
Table 6

ANOVA Comparisons of Sexual Responsibility Composite Scores by Gender Groupings

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Tukey’s HSD Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Women</td>
</tr>
<tr>
<td>Sexual Risk Responsibility</td>
<td>Women</td>
<td>90</td>
<td>17.09</td>
<td>3.44</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Men</td>
<td>61</td>
<td>15.51</td>
<td>3.66</td>
<td>.028</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>25</td>
<td>15.60</td>
<td>4.51</td>
<td>.176</td>
</tr>
<tr>
<td>Sex Positivity &amp; Sexual Health</td>
<td>Women</td>
<td>90</td>
<td>32.78</td>
<td>6.98</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Men</td>
<td>61</td>
<td>29.21</td>
<td>7.56</td>
<td>.011</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>25</td>
<td>29.12</td>
<td>8.15</td>
<td>.074</td>
</tr>
</tbody>
</table>

*Note.* Tukey’s HSD comparisons show the exact \( p \) value

There was a significant effect of gender on sexual responsibilities. A significant difference was found between the gender groups for both sexual responsibility outcome variables, with \( F(2, 173) = 3.92, p = .022 \) for the Sexual Risk Responsibility composite score and \( F(2, 173) = 5.24, p = .006 \) for the Sex Positivity and Sexual Health composite score. See Tables 7 and 8 for respective ANOVA results. To determine which specific groups significantly differed from each other, post hoc analyses were done, using Tukey’s HSD. It was found that women with ASD significantly differ from men with ASD in terms of their sexual responsibility. For both of the subscales of sexual responsibility (Sex Positivity and Sexual Health as well as Sexual Risk Responsibility), women scored significantly higher than men, but there was no significant difference between women and the “other” gender category. It may be that the other gender category is very similar in sexual responsibility to men, as their means were close for both subscales. Hypothesis three was supported by the findings.
Table 7

**One-Way Analysis of Variance of Sexual Risk Responsibility by Gender**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2</td>
<td>106.35</td>
<td>53.18</td>
<td>3.92</td>
<td>.022</td>
</tr>
<tr>
<td>Within groups</td>
<td>173</td>
<td>2344.54</td>
<td>13.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>175</td>
<td>2450.89</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8

**One-Way Analysis of Variance of Sex Positivity and Sexual Health by Gender**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2</td>
<td>567.48</td>
<td>283.74</td>
<td>5.24</td>
<td>.006</td>
</tr>
<tr>
<td>Within groups</td>
<td>173</td>
<td>9362.43</td>
<td>54.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>175</td>
<td>9929.91</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Research Question and Hypothesis #4**

3. Do emotions (such as boredom and loneliness) moderate the relationship between technology use (such as online risk behavior, intent to use dating apps/websites for casual sex, and intent to use dating apps/websites for romance) and physical sexual safety for IASD?

The following hypothesis was generated to address this question.

H4. Emotions such as boredom and loneliness significantly moderate the relationship between technology use and physical sexual safety for IASD, such that higher emotion scores result in a stronger relationship between technology use and physical sexual safety.
To test this hypothesis a series of multiple regressions were run to test each of the six possible moderation relationships. The bootstrapping method was used, because it yields more precise results (Aiken & West, 1991; Hayes, 2013). Three of the six tested moderation relationships were found to be significant. The default significance cutoff of .1 using the PROCESS method developed by Hayes (2013) was used to determine which moderation relationships would be interpreted as meaningful.

Boredom was found to moderate the relationship between online risk behavior (measured by ROA) and Sexual Risk Responsibility significantly. The interaction term was interpreted and was significant, $\beta = -0.046$ $t(176) = -1.770, p = .079, f^2 = .15$. Upon further investigation, comparing those one standard deviation below, at, and above the mean, the moderation relationship was found to be significant for those who scored near the mean for boredom ($p < .001$) or higher ($p < .001$), but not for those low in boredom ($p = .147$). This indicates that the relationship between ROA and Sexual Risk Responsibility is stronger for those who score average or higher in boredom. Put another way, at average or above average levels of boredom, there is a significant relationship between ROA and Sexual Risk Responsibility; at below average levels of boredom, there is not a significant relationship between ROA and Sexual Risk Responsibility. Please see Figure 2 for a visual depiction of the moderation relationship.
Boredom was also found to moderate the relationship between Intent to Use Dating Apps/ Websites (IUDA) for Romance and Sexual Risk Responsibility significantly. The interaction term was interpreted and was significant, $\beta = -.146$, $t(176) = -1.854$, $p = .066$, $f^2 = .09$. Upon further investigation, comparing those one standard deviation below, at, and above the mean, the moderation relationship was found to be significant for those who scored near the mean for boredom ($p < .001$) or higher ($p < .001$), but not for those low in boredom ($p = .251$). This indicates that the relationship between IUDA for Romance and Sexual Risk Responsibility is stronger for those who score average or higher in boredom. Put another way, at average or above average levels of boredom, there is a significant relationship between IUDA for Romance and Sexual Risk Responsibility; at below average levels of boredom, there is not a significant

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Figure 2. Moderation Effect of Boredom on Online Risk Behavior and Sexual Risk Responsibility
relationship between IUDA for Romance and Sexual Risk Responsibility. Please see Figure 3 for a visual depiction of the moderation relationship.

![Figure 3. Moderation Effect of Boredom on Intent to Use Dating Apps/Websites for Romance and Sexual Risk Responsibility](image)

**Figure 3.** Moderation Effect of Boredom on Intent to Use Dating Apps/Websites for Romance and Sexual Risk Responsibility

Lastly, loneliness was found to moderate the relationship between IUDA for Romance and Sexual Risk Responsibility significantly. The interaction term was interpreted and was significant, $\beta = -.431 \, t(176) = -2.149, \, p = .033, \, f^2 = .09$. Upon further investigation, comparing those one standard deviation below, at, and above the mean, the moderation relationship was found to be significant for those who scored near the mean for boredom ($p = .002$) or higher ($p < .001$), but not for those low in loneliness ($p = .473$). This indicates that the relationship between IUDA for Romance and Sexual Risk Responsibility is stronger for those who score average or higher in loneliness. Put another way, at average or above average levels of loneliness, there is a
significant relationship between IUDA for Romance and Sexual Risk Responsibility; at below average levels of loneliness, there is not a significant relationship between IUDA and Sexual Risk Responsibility. Please see Figure 4 for a visual depiction of the moderation relationship.

Figure 4. Moderation Effect of Loneliness on Intent to Use Dating Apps/Websites for Romance and Sexual Risk Responsibility

Summary

Overall, hypotheses in the current study were partially supported by the data. Boredom on its own did not seem to hold much predictive value for either sexual responsibility outcome variable of Sexual Risk Responsibility or Sex Positivity and Sexual Health for IASD. Loneliness however did significantly predict Sex Positivity and Sexual Health via an inverse relationship and surprisingly, loneliness predicted Sexual Risk Responsibility via a positive relationship (higher loneliness indicating less Sexual Risk Responsibility and more sexual risk) only when the technology variables were controlled for. Two of the three technology use variables (IUDA for Causal Sex and ROA) significantly predicted Sexual Risk Responsibility, but not Sex Positivity and Sexual Health for IASD. Women and men were found to differ on both sexual
responsibility subscales, with women exhibiting more sexual responsibility via the Sexual Risk Responsibility subscale and the Sex Positivity and Sexual Health subscale. The “other” gender variable did not significantly differ from men or women, though the means from this group were closer to that of men. Boredom appeared to have the most influence in the moderation relationships, moderating the relationship between ROA and Sexual Risk Responsibility as well as moderating the relationship between IUDA for Romance and Sexual Risk Responsibility. These moderation relationships were only significant at average and above average levels of boredom. Similarly, loneliness significantly moderated the relationship between IUDA for Romance and Sexual Risk Responsibility, such that this relationship was only significant at average and above average levels of loneliness.
CHAPTER FIVE
DISCUSSION

The purpose of this study was to investigate the predictors of sexual responsibility for IASD, including the two sexual responsibility subscales of Sex Positivity and Sexual Health as well as Sexual Risk Responsibility. The specific predictors investigated included the emotions of boredom and loneliness as well as technology use variables including ROA, IUDA for Casual Sex, and IUDA for Romance. This chapter includes a summary of the study results, connections to previous literature, limitations of the study, recommendations for future research, implications for counselors, and conclusions.

Summary of the Study

Multiple regressions were run to determine significant predictors of Sex Positivity and Sexual Health as well as Sexual Risk Responsibility for IASD, with the following predictors being investigated: boredom, loneliness, ROA, IUDA for Casual Sex, and IUDA for Romance. Overall, models were found to predict the sexual responsibility subscales, but not with all predictors significantly contributing. For example, boredom did not significantly predict Sex Positivity and Sexual Health or Sexual Risk Responsibility, but loneliness did significantly predict Sex Positivity and Sexual Health via an inverse relationship. Technology use variables were found to significantly predict Sexual Risk Responsibility, but not Sex Positivity and Sexual Health. For example, ROA and IUDA for Casual Sex significantly predicted Sexual Risk Responsibility via an inverse relationship. Significant gender differences were found among sexual responsibility subscales, with women exhibiting significantly higher sexual responsibility on both subscales than men, and the “other” gender category not significantly differing from women or men on either of the sexual responsibility subscales.
Moderation relationships were also tested. Specifically, moderation effects of emotions were investigated regarding their influence on the relationship between technology use variables and Sexual Risk Responsibility. It was found that boredom moderated the relationship between ROA and Sexual Risk Responsibility for IASD. Both boredom and loneliness were found to moderate the relationship between IUDA for Romance and Sexual Risk Responsibility. This moderation relationships were only significant at average and above average levels of the emotion.

**Analysis of the Sample**

For IASD, there was a 75.21% completion rate of the survey in the previously collected dataset. Two hundred and thirty-four individuals indicated identifying as having an ASD as well as having ASD officially diagnosed by a qualified healthcare professional, 176 of whom completed the entire survey. Thus, 176 is the final sample number. Some individuals appeared to stop completing the survey items around the more personal question section near the end of the entire survey, which included the researcher-developed sexual responsibility subscale items. It is impossible to determine what prompted participants withdrawing at this juncture, but reasons for not completing the survey may include fatigue or discomfort with the sexual responsibility items. As noted in the results section, there was a wide range of completion times for the survey. It should also be noted that a large proportion of participants supplying responses for the previously collected dataset were likely recruited from Reddit, which may or may not have some influence on the results. There may be some qualities about Reddit users that could influence the results, considering that the majority of Reddit users tend to be young males who self-identify as liberal at increased rates when compared to the general population (Barthel, Stocking, Holcomb, & Mitchell, 2016). This liberal stance may also translate into liberal views
of sexuality and its expression, which could influence results. Furthermore, PEW Research (2019b) found only 15% of Reddit users to be a college graduate, which could also affect the ways in which Reddit users think about and express sexual responsibility. While there was no item in the dataset soliciting where participants discovered the survey, different websites may attract different types of users. It may be helpful to note this in future research.

**Research Question and Hypothesis 1**

This study investigated whether emotions are significant predictors of sexual responsibility for IASD, including the subscales of Sex Positivity and Sexual Health as well as Sexual Risk Responsibility. The hypothesis that emotions would significantly predict sexual responsibility via an inverse relationship was partially supported. Though boredom was not found to be a significant predictor of sexual responsibility for either subscale, loneliness was found to be a significant predictor for both subscales in varying circumstances. It was found that as loneliness increases Sex Positivity and Sexual Health decreases. This means that IASD who are lonely may be less likely to use new condoms when they have sex, have fulfilling relationships, and view sexuality positively. Results pertaining to the first research question are further examined and interpreted below.

Though boredom has been well-researched among IwoASD for its relation to sexual responsibility and its positive association with risk behavior (Kaufman et al., 2002; Miller et al., 2014), less information is available on how boredom contributes to sexual responsibility and related behaviors for IASD. Though a systematic review of literature links boredom to hypersexuality for IwoASD, many studies focus on males and do not necessarily take disability into account (de Oliveira & Carvalho, 2020). This erasure speaks to the lack of inclusivity in the literature base. The current study addresses the need for diversifying samples when studying
how boredom relates to sexual behavior (de Oliveira & Carvalho, 2020). The lack of significant result for boredom in the current study does not necessarily signal that boredom is not a relevant construct to explore for IASD and its relation to sexuality, because it is possible that the Short Boredom Proneness Scale is not the best measure of boredom for IASD. Even though the instrument did seem to provide a reliable measurement with a Cronbach’s alpha of .85 in the current study, it was not developed or normed with taking disability status into account (Struk et al., 2017). Furthermore, when this measure was taken by disability experts and laypersons with disabilities for comprehension testing during the measure selection process for the previously collected dataset, researchers received feedback that people with disabilities may have difficulty interpreting certain items on this measure. For example, participants may not know what finding oneself at “loose ends” means, which is item one on the boredom measure. Some individuals with ASD may interpret items literally (Konstantareas & Lunsky, 1997) and thus not provide a response that pertains to what the research is investigating. This literal interpretation likely also depends upon an individual’s functional level at the time of taking the measure, which can fluctuate. The lack of significant result in the current study may also point to the possibility that IASD experience boredom differently than IwoASD, or maybe boredom is actually less of a relevant construct when it comes to sexual behaviors for IASD. It would be helpful for boredom to be defined by IASD in the future to help ensure the meaningful measurement of this construct for the ASD population. More investigation is needed regarding boredom’s utility in predicting and influencing sexual responsibilities for IASD. For example, because IASD sometimes use their special interest as a general coping strategy (Dachez & Ndobo, 2018), it may be the case that they handle boredom in different ways than IwoASD. Such coping may include the use of special interests instead of engaging in sexual behavior. While boredom may be defined,
experienced, and coped with in differing ways for IASD and IwoASD, loneliness has been explored to a greater degree among the ASD population than boredom at this point in time. Loneliness is common among IASD (Smith & Sharp, 2013), but prior to the current study, this emotion has not been explored in relation to sexual responsibility for this population. Loneliness was found in the current study to be a significant predictor of the sexual responsibility subscale Sex Positivity and Sexual Health for IASD, via an inverse relationship. To restate the findings, an increase in loneliness predicted a decrease in Sex Positivity and Sexual Health for IASD. This relationship mirrors the relationship that loneliness has with sexual responsibility among IwoASD (Hubach et al., 2015). Though it has been supported that IASD are lonelier than the general population (Deckers et al., 2017; Lasgaard et al., 2010), this is the first study that is known to the researcher that investigated whether loneliness predicts sexual responsibility for IASD, as it does in IwoASD. Some of the items on the Sex Positivity and Sexual Health subscale entail having fulfilling relationships, fulfilling sex, negotiating preferences during sex, and using new condoms. It seems as though these Sex Positive and Sexual Health related responsibilities are affected by loneliness for IASD, such that if IASD are lonelier, they may not negotiate their preferences, be fulfilled, or take care of themselves to the extent that they would if they were not lonely. This supports previous literature among IwoASD regarding how sexual responsibility decreases as loneliness increases. Furthermore, loneliness for IASD is related to dissatisfaction with social support (Ee et al., 2019). Perhaps IASD make allowances, even to their own detriment (e.g., not using new condoms) due to being lonely. This appears to be the case among IowASD, as research has supported the sexual health behaviors decrease when loneliness increases (Morin et al., 2003; Shernoff, 2005). Notably, IASD who are high-functioning often report unusual sensory experiences, which are major contributing factors
to isolation (Smith & Sharp, 2013). These experiences can be pleasurable or distressing, and they can lead IASD to isolate in order to cope (Smith & Sharp, 2013). An example of an overwhelming sensory situation may entail being unable to attend to a conversation in a loud area, such as a bar or restaurant, and wanting to leave. To put it into an IASD’s own words: “I would make excuses to go outside . . . it was too painful to stay” (Smith & Sharp, 2013, p. 898). Thus, it is imperative for future research to decipher if loneliness for IASD is due to an overall perception of lack of connection, or if it may be a more temporary experience, such as self-imposed isolation by the IASD in order to cope or self-soothe. More information is needed on whether there may be differing types of loneliness and differing contributing factors to loneliness for IASD, because perhaps these nuances may affect sexual responsibility differently.

Overall, results from the current analysis underscore some similarities between the sexuality of IASD and IwoASD, namely how loneliness influences Sex Positivity and Sexual Health via an inverse relationship, but more information is needed about the potential nuances of loneliness and its relationship to sexual responsibility for IASD.

Loneliness became a significant predictor of Sexual Risk Responsibility only when the technology use variables were controlled for, which was an unexpected finding. This result indicated a positive relationship, such that when technology use is held constant, as loneliness increases so too does Sexual Risk Responsibility. Put another way, this would suggest that as IASD increase in loneliness, so too does their Sexual Risk Responsibility (e.g., not engaging in hook-up behavior and not being too trusting) when controlling for technology use. It is difficult to decipher the meaning of this result. After conferring with an expert, it was determined that this significant result was likely a function of how the technology use variables—which represent a form of sexual risk—partly overlap with the outcome variable of Sexual Risk
Responsibility. This may restrict the variance remaining in the Sexual Risk Responsibility variable for the loneliness variable to explain, and thereby potentially muddles the statistical meaning of the relationship; thus, this may not actually be an interpretable result. Nonetheless, this unexpected result warrants future research on how loneliness and technology use may relate to Sexual Risk Responsibility for IASD as well as for further refining of the Sexual Risk Responsibility measure and ensuring the appropriateness of loneliness measures for IASD.

**Research Question and Hypothesis 2**

The current study investigated whether different measures of technology use (i.e., ROA, IUDA for Casual Sex, and IUDA for Romance) significantly predicted sexual responsibilities (i.e., Sex Positivity and Sexual Health and Sexual Risk Responsibility) for IASD. This was a major focus of the current study to help fill the gap in the literature on how technology use relates to sexual responsibilities among IASD. The hypothesis that technology use variables would significantly predict both subscales of sexual responsibility was partially supported. Subsequent results and interpretations are expounded on below.

It was found that no technology use variable significantly predicted the sexual responsibility subscale of Sex Positivity and Sexual Health for IASD. This means that online behavior and dating app/website usage (regardless of intent) did not seem to influence whether IASD use new condoms when they have sex, have fulfilling relationships, negotiate their wants, and view sexuality positively. This finding is a little surprising, given that dating app use is associated with sexual risk (e.g., not using condoms at all; Choi et al., 2016; Sawyer et al., 2017). It could be that sex positivity and the more psychological aspects of this scale (e.g., negotiating wants and having fulfilling relationships/sex) are what really holds it together, and the item about new condoms does not conceptually fit well with the others. Maybe technology use for IASD
does not reflect how sex positive they are or how fulfilled they are in relationships. This interpretation slightly contradicts previous literature that suggests a bidirectional relationship with social media use and loneliness (Nowland et al., 2018) as well as literature supporting that technology use, such as gaming, has increased happiness and mitigated loneliness for IASD (M. Sundberg, 2018; Ward et al., 2018). At the same time, it was found that while IASD who gamed had more friends, friendship quality was not influenced (M. Sundberg, 2018). This may offer a possible explanation for the results of the current study, namely, technology use may be related to quantity of relationships, but not fulfillment in relationships, thus the insignificant finding in the current study. More research is needed on how IASD find fulfillment in their intimate relationships, particularly if they tend to feel overstimulated and need a lot of alone time, and how technology may be related or integrated into those relationship-seeking behaviors. Though technology use was not related to Sex Positivity and Sexual Health in the current study, two of the three technology use variables studied were significantly related to the Sexual Risk Responsibility outcome variable.

ROA and IUDA for Casual Sex significantly predicted Sexual Risk Responsibility via an inverse relationship. In other words, the more a participant endorsed online risk behavior in the previous month, such as connecting with people they do not know online and sending pictures of themselves, the less Sexual Risk Responsibility (i.e., higher risk) they endorsed. Additionally, the greater the IUDA for Casual Sex in the upcoming week, the less Sexual Risk Responsibility (i.e., higher risk) was endorsed. However, using dating apps/websites with romantic intent was not significantly related to Sexual Risk Responsibility. Thus, it appears that the intention behind using technology for sexuality purposes matters for IASD, because that intention, especially if it is for casual sex, relates to their Sexual Risk Responsibility (i.e., hook-up behavior, being too
trusting, and being alone with people they do not know), but there is no linkage between Sexual Risk Responsibility and romantic intent behind dating app/website usage as per the current study. The discussion of these results surrounding Sexual Risk Responsibility and technology use for IASD should be prefaced with a reiteration of the lack of comprehensive literature about technology use for sexuality purposes among this population. It should also be noted that the measures of intent to use dating apps/websites exhibited a large positive skew, meaning that a vast majority of the participants generally indicated that they did not intend to use a dating app or website in the upcoming week. This was unexpected, given that there was some support that IASD use dating apps as frequently as IwoASD (Roth & Gillis, 2015). More variability was expected. The results could be related to the current relationship status of the participants while taking the survey, though that was not included in the research questions or analyses. However, there was variability in relationship status, with about half of the sample in a sexual relationship with one person, 42.6% not in a sexual relationship, and 8.0% in a sexual relationship with multiple people. Perhaps the single individuals were not interested in pursuing sexual connection at this time. It is also possible that the established measures related to dating apps were not appropriate for this population or perhaps the specification of “in the next week” was too narrow of a time frame of intention, and could have been expanded to within the next six months to potentially be more inclusive. Maybe it would have been useful to measure previous dating app/website behavior instead. Despite these potential limitations, some of the results from the current study support previous research (on IwoASD), in that sex-seeking online is related to offline sexual risk behavior (Baumgartner et al., 2012). Indeed, much research among IwoASD links seeking sex online to offline sexual risk behavior, such as unprotected sex (Choi et al., 2016; Kalichman, 2005; Sawyer et al., 2017; Shilo & Mor, 2015). The Sexual Risk
Responsibility scale entails three items endorsing hooking up behavior, being too trusting and giving out personal information, and being okay with being alone with someone one does not know well. It is possible that there is a conceptual overlap between the predictor and outcome variables, in that both entail some risk behavior, but the outcome variable of Sexual Risk Responsibility does not entail items specifically about technology use, rendering some difference between the two. Given that IASD are, on average, lonelier than the general population (Deckers et al., 2017; Lasgaard et al., 2010), context is provided for the results for this particular research question. IASD may be using technology to aid in social (Mazurek, 2013) and sexual connection, which in turn can decrease Sexual Risk Responsibility for some. More research is needed regarding the context and intent of interactions online, but the current study provides some support that seeking sex online as well as ROA are linked with decreased Sexual Risk Responsibility for IASD. This result also provides some general support that some IASD do use technology to communicate with others for various reasons, which challenges the commonly held stereotypes that these individuals are asexual and do not desire connection (Kellaher, 2015). One study did find that IASD find it easier to communicate via dating apps, because they do not have to contend with as many sensory issues as they would if they were in a bar (Roth & Gillis, 2015). Specifically, a participant noted: “social anxiety and sensory sensitivities are huge barriers to meeting people in person” (Roth & Gillis, 2015, p.138). Online dating seems to be attractive to this population, despite the reported low intentions in the current study to engage in this activity in the next week. It is also possible that this population turns to technology use for social connection, but these individuals may not set out with the intent of meeting a sexual or romantic partner. It would also be especially helpful to gather more information about IASD understanding of appropriate technology use and how issues of physical and emotional safety are
related to online behavior. Technology use etiquette may not be at the forefront of education for IASD. Such knowledge is a necessity, as the Internet has become a part of daily life and has shown to be of value for IASD in forging connections with others to ward off isolation (Mazurek, 2013).

**Research Question and Hypothesis 3**

The third research question of this study investigated whether sexual responsibility for IASD varied by sex. It was found that for both subscales of sexual responsibility, women with ASD scored significantly higher than men, supporting the hypothesis that women with ASD (ages 18–30) are generally more sexually responsible than men with ASD (ages 18–30). Generally, this supports previous research in that women (without ASD) are more aware of sexual risk than men (Rich et al., 2014). In the current study, women with ASD reported significantly higher Sex Positive and Sexual Health scores than men as well as significantly higher Sexual Risk Responsibility scores than men. This indicates that, in general, women with ASD tend to have more fulfilling relationships, feel more positive about sexuality, take care of their sexual health, and communicate about sex more so than men with ASD (as indicated by the Sex Positivity and Sexual Health subscale). Additionally as supported by the current study, women with ASD are also less likely to engage in hookup behavior, be too trusting, or be okay with being alone with someone they do not know well when compared to men with ASD (as indicated by the Sexual Risk Responsibility subscale). This supports previous literature in that females (without ASD) tend to be more interested in building relationships and tend to see casual sex as less favorable than males (Bryant & Sheldon, 2017; Hooke et al., 2000; Ligtenberg, 2015). The sex differences in the current study may be further explained by gender differences in the ASD population, particularly regarding how females tend to camouflage their ASD symptoms.
more so than men, which can potentially even affect diagnosis (Schuck et al., 2019). Much of
the autism screening and research are based off males, and females often need to exhibit greater
symptomology in order to be diagnosed (Kreiser & White, 2014). Notably, much of the gender
differences among adults with autism show contradictory or inconsistent findings, with some
studies indicating males exhibit more social skill development than females, while others
indicate the opposite (Lai et al., 2011; Schuck et al., 2019), all of which is likely muddied by
how females seem to be more adept at camouflaging symptoms. Due to these inconsistencies,
the interpretations presented for the current study should be received with caution. Because of
unique pressure for females to conform to gender roles, it is possible that their socialization
process has lead females with ASD to be more socially aware (Schuck et al., 2019), which in
turn could later affect their romantic relationships and awareness of sexual responsibility. This
may mean that women in the current study exhibited more sexually responsibility than man
because they were socialized to be more communicative and aware of their feelings as well as
sexual risks. It may be especially important to explore further how masking behavior could
influence intimate relationships for IASD and how gender differences may be apparent.

There was no significant difference between the “other” gender category and men and
women for either sexual responsibility subscale, but the mean score for the “other” category was
closer to that of men than women. While these results support previous research suggesting
young women generally tend to be more sexually responsible than men outside of the disability
literature base (Hooke et al., 2000), more research is needed on how these gender differences
specifically play out in terms of sexual responsibility for IASD. Future research should also
include more information about IASD who identify as a gender minority and how they rate their
sexual responsibilities.
Research Question and Hypothesis 4 Including Moderation Analyses Subquestions

The fourth and final research hypotheses of emotions moderating the relationships between technology use variables and Sexual Risk Responsibility were partially supported by study results. Boredom was found to significantly moderate the relationship between ROA and Sexual Risk Responsibility among IASD; specifically, the relationship was significant at average or above average levels of boredom, but non-significant at below average levels. Boredom also was found to significantly moderate the relationship between IUDA for Romance and Sexual Risk Responsibility among IASD; specifically, the relationship was significant at average or above average levels of boredom, but non-significant at below average levels. This suggests that average and high levels of boredom influence the relationship between technology use and sexual risk for IASD. These findings align with previous literature in that boredom has been frequently linked with hypersexuality (de Oliveira & Carvalho, 2020), which can include casual sex and sex-seeking online. What is novel about this finding is that for IASD in the current sample, it does not seem as though boredom alone relates to Sexual Risk Responsibility, but its relevance becomes apparent when the relationship between technology use and Sexual Risk Responsibility is examined. For IASD with average or above average scores of boredom, the relationship between ROA and Sexual Risk Responsibility is strengthened, and this is also the case for relationship between IUDA for Romance and Sexual Risk Responsibility. This means that for the IASD in the current study, average or above average levels of boredom may enhance the relationship between sharing pictures of themselves online and endorsing hookup behavior, for example. Additionally, this finding supports how if an IASD is bored and using dating apps for romance, they are more likely to engage in sexual risk behavior. This finding underscores how essential it is to understand boredom in the ASD population, because while it has not been
shown to directly relate to Sexual Risk Responsibility in the current study, it enhances how technology use is related to sexual risk. Furthermore, though the IUDA for Romance scale was not alone significantly related to Sexual Risk Responsibility, this current finding indicates how this relationship becomes significant when boredom is experienced for IASD. This could mean that even if IASD do not set out to have casual sex (risk behavior), if they are bored, the likelihood of risk may increase.

Finally, loneliness was found to significantly moderate the relationship between IUDA for Romance and Sexual Risk Responsibility among IASD; specifically, the relationship was significant at average or above average levels of loneliness, but non-significant at below average levels. This points to how when IASD reported average or above average loneliness, the relationship between IUDA for Romance and Sexual Risk Responsibility was strengthened. This aligns with previous research because both loneliness and using technology for sexuality purposes are related to sexual risk behavior (Hubach et al., 2015; Kalichman et al., 2005; Kott, 2011; Morin et al., 2003; Shilo & Mor, 2015; Su et al., 2018). However, what is novel about this finding is that little previous research exists regarding the use of technology and its relationship to sexual outcomes for IASD. This finding indicates that at higher levels of loneliness, the relationship between dating app use for romance and Sexual Risk Responsibility is strengthened. This is especially important, because IASD tend to be lonelier than the general population (Deckers et al., 2017; Lasgaard et al., 2010), and loneliness appears to influence the relationship between IASD sexual risk behavior and technology use as per the current study. Essentially, emotional states when coupled with technology use appear to strengthen the relationship between IUDA for Romance and Sexual Risk Responsibility, when IUDA for Romance was not significantly related to Sexual Risk Responsibility without the inclusion of emotions. This again
underscores how emotions such as boredom and loneliness are especially relevant for IASD, as they can manifest as linking technology use to sexual risk. Thus, getting social and stimulation needs met may be an essential protective factor for IASD when looking to mitigate sexual risk behavior.

**Limitations**

There are several known limitations to the current study. The first entails the instrumentation. The instrumentation used for the outcome variables of Sex Positivity and Sexual Health as well as Sexual Risk Responsibility were developed by researchers involved in the project with the previously-collected dataset. The measures were pilot tested, but not completely refined. One measure, Sexual Risk Responsibility, fell below the conventional cutoff of .70 for the Cronbach’s alpha reliability figure, thus results from this study that included that measure should be interpreted with caution. It is also possible that a method effect was occurring regarding the outcome variable measures in that some items solicited frequency responses whereas others solicited agree/disagree responses. This may have influenced the results due to those scales not necessarily being one-to-one comparable. These outcome measures need further refining. Though it was determined by an expert that the somewhat elevated skewness and kurtosis in most measures would not drastically influence the results, results should still be interpreted with caution.

Simply the lack of available previous research on sexuality and technology use for sexual purposes among IASD is a limitation. I had to rely on a lot of research from the general population to guide this research project that may or may not have been completely translatable or relevant. Educated approximations and synthesizing were used when developing this study, which is never perfect. However, it has been supported that IASD have similar sexual
development milestones as IwoASD (Dewinter et al., 2015). Thus, sexuality research on
IwoASD was thought to be relevant to help form the foundation of the current project in order to
investigate whether the sexuality of IASD is influenced by the same variables as the general
population (e.g., emotions and technology use).

Other limitations involve the sampling. The previously collected dataset used self-report.
Thus, it is impossible to determine whether the individuals who responded to the survey are truly
diagnosed with ASD or are accurately reporting on their beliefs and behaviors related to
sexuality. It is possible that the measures used in this study were not the best for this population,
because they were not normed with IASD. Additionally, a large proportion of the sample likely
was recruited from Reddit, so that may or may not have biased the results in some way. For
example, it could be that people who frequent Reddit are somehow different from users of other
social media. It has been found that they tend to be more liberal in their views and less likely to
have a college education (Barthel et al., 2016; PEW, 2019b), which could potentially influence
their perceptions and beliefs about sexuality and technology use, particularly if they learned
about technology themselves. Previous research supports that IASD use dating apps at the same
rate as IwoASD (Roth & Gillis, 2015), but that does not seem to have been supported in the
current study. Though the two populations were not compared in the current study, the majority
of participants indicated it to be extremely unlikely that they will use dating apps/website in the
upcoming week. It could be a coincidence that the participants happened to not be interested in
using dating apps/website, or this may be related to a third variable affecting the sampling and
thus the finding is not necessarily generalizable to the entire population of IASD. For example,
it could be possible that because about 40 percent of the participants were in an exclusive
relationship, they were not interested in using dating apps/websites. This is important to investigate, but was not included in the current analyses.

Lastly, some potentially important influences on the sexuality of IASD were not analyzed in the current study. IASD frequently identify as a sexual minority (Barnett & Maticka-Tyndale, 2015; Dewinter et al., 2013), but that was not analyzed. Furthermore, ASD and some type of anxiety disorder frequently co-occur (Bejerot et al., 2014), but anxiety was not part of the previously collected dataset and was not a focal point of the current study. However, sexual orientation and anxiety may influence technology use and subsequent sexual behaviors of IASD. For instance, though there are many different types of anxiety, one study found attachment anxiety to be associated with a higher ratio of technology mediated communication, and this technology mediated communication to be related to poorer relationship quality among IwoASD (Goodcase, Nalbone, Hecker, & Latty, 2018). This is important because IASD often experience anxiety (Bejerot et al., 2014) and prefer to communicate with potential dating partners online (Roth & Gillis, 2015). Furthermore, some research does suggest a link between attachment anxiety and sexual risk behavior, including unprotected sex, in some cases (Turner, 2015). For example, women with anxiety symptoms were found to exhibit lower condom self-efficacy and were more likely to report condomless sex with two or more partners (Coyle et al., 2019). Thus, anxiety warrants further investigation regarding how it pertains to relationships and sexual behavior for IASD.

**Recommendations for Future Research**

Sexuality and sexual behavior are complex. Understanding sexual responsibility necessitates looking at numerous variables, including emotions. This is true for all humans, including IASD and IwoASD. It is possible that many variables influence sexual responsibility
for IASD, and thus it may be hard to meaningfully discern relative importance. Such important variables likely include: boredom, loneliness, anxiety, sexual orientation, current relationship status, and technology use. It will be helpful for future research to continue to focus on the sexuality of IASD and their sexual responsibility, namely, how they conceptualize sexual responsibility and their subsequent sexual behaviors. Sexual responsibility entails not only physical and psychological sexual safety, but it can be further broken down into sex positivity and sexual health as well as sexual risk responsibility. Getting a more detailed understanding of how IASD conceptualize and apply these constructs to their lives will be of immense value. This focus should entail ensuring that the measures used are relevant, valid, and easily understandable for this population. For example, maybe the Short Boredom Proneness Scale was not the best to use for this population, due to some of the items not being explicitly clear (e.g., possible misinterpretation of “at loose ends,” by IASD). Future research should ensure an accurate measurement of emotions by IASD by first soliciting from them directly how they experience them. This may look like conducting a qualitative study where IASD speak about their experiences with boredom, loneliness, and anxiety, and how they believe each may contribute to their technology use and sexual responsibility. Emotions should still be a focus in the sexuality literature on IASD, but it may be especially helpful for future studies to compare the scores of variables measured in this study for IASD with IwoASD. It may be particularly helpful to see if sexual responsibility (both Sex Positivity and Sexual Health as well as Sexual Risk Responsibility) significantly differs between IASD and IwoASD. It is also possible that boredom is simply not as useful of a construct for IASD when looking at its effects on sexual responsibility when technology use is not considered. However, continuing to investigate how emotions and technology use influence sexual responsibility is essential, as it has been supported
in this study that in some instances emotions strengthen the relationship between technology use and sexual responsibility. Future research should also entail creating and refining measures of emotion and sexual responsibility for this population.

Though it has been established through the current study and previous research that IASD use technology to connect with people with various intents (Mazurek, 2013), more research is needed on how technology use specifically relates to sexuality and sexual responsibility for this population. With the use of more relevant and refined measures of emotions and sexual responsibilities for IASD, there will be a more robust, data-driven foundation for the preliminary claims in the current study. This way, not only will IASD voices be heard, but they will be a more integral part of the research process by having measures developed in closer alignment with how they view and experience the world.

Though it has been supported that IASD use social media to foster social connection (Mazurek, 2013), still more information is needed on how technology is used for establishing and maintaining more intimate relationships. Almost half of the participants in the current study indicated that they used the Internet to meet new friends in the previous month, but it is possible that IASD do not necessarily set out to have sexual relationships when using the Internet. Some may prefer things to develop gradually while having no expectation. However, as we have seen in the current study, even in the case of using technology with romantic intentions, when boredom and loneliness are at average or above average levels, Sexual Risk Responsibility decreases (but not at below average levels of these emotions). More information about their intention with technology use and correlates with sexual responsibility is needed. This might entail doing a qualitative study to find out in more detail how dating app/websites are used and their conceptualizations of sexual responsibility. About 20% of participants from the current
dataset indicated pretending to be different from who they really are on the Internet, which also warrants further exploration. This deception may or may not have to do with masking ASD, but likely affects intimate relationship development as they are not necessarily portraying their authentic selves. This is a major area for future research to explore: How IASD engage in masking behaviors online and their perceptions of how that affects intimate relationship development.

Finally, because IASD more frequently identify with sexual orientations that are not heterosexual than IwoASD (Barnett & Maticka-Tyndale, 2015; Dewinter et al., 2013), sexual orientation should be included in future statistical analyses in future research to determine whether this difference in self-identification has any effect on sexual responsibilities for this population.

**Implications for Counselors**

Increased knowledge about the sexuality of the ASD population is invaluable for counselors. IASD have unique needs and unique risks. For example, IASD on average have lower sexual satisfaction and exhibit lower sexual consciousness and are more likely to get sexual information from non-social sources (Brown-Lavoie et al., 2014; Bush, 2018; Byers & Nichols, 2014), which could potentially be rife with misinformation. Results from the current study indicate that dating app/website use with romantic rather than casual sex intent can still be linked to increased sexual risk when coupled with average or above average levels of boredom and loneliness. Thus, counselors may find themselves in a position to provide needed psychoeducation about sexuality as well as technology use and how it relates to sexuality. This likely includes direct and explicit communication about what is safe and what is not as well as pertinent information regarding sexual health, such as how sexually transmitted diseases may
spread. IwoASD are affected by their emotions in such a way that their decision-making is affected and subsequent sexual responsibility may decrease (Hubach et al., 2015; Kaufman et al., 2002; Miller et al., 2014; Shernoff, 2005), this also needs to be attended to among IASD as per the results of the current study. This may be particularly pertinent, because IASD may have differing executive functioning and social competency than IwoASD (Freeman, Locke, Rotheram-Fuller, & Mandell, 2017; Strichter, Christ, Herzog, O’Donnell, & O’Connor, 2016), with lower executive functioning correlating with more social problems for IASD (Van Eylen, Boets, Steyaert, Wagemans, & Noens, 2015). In the same vein, lower executive functioning skills have been hypothesized as an explanation for some ASD symptoms including narrow interests and social isolation (Freeman et al., 2017; Lopez, Lincoln, Ozonoff, & Lai, 2005).

Executive functioning is a complex construct, but is relevant for counselors to consider when working with IASD. There are gender differences in executive functioning for IASD and IwoASD, which are also influenced by overall cognitive ability (Kiep & Spek, 2017), underscoring the need for individualized treatment plans for IASD. Older adult males with autism have displayed more executive functioning challenges than males without ASD (Geurts, Pol, Lobbelstael, & Simons, 2020). In a study of children with ASD it was found that metacognitive skills are related to social functioning (Freeman et al., 2017). Part of the counseling process is guiding the client to increased self-insight, and this goal may be particularly relevant for IASD as some may have trouble being aware of their own thinking processes and how it affects their behavior. Monitoring one’s own actions as well as increasing the capacity to hold information and apply it can affect social competency (Strichter et al., 2016), which could also influence how IASD communicate with and make decisions about potential sex partners. Counselors should prepare to facilitate increased executive functioning skills by aiding
IASD in self-monitoring thoughts and behaviors. This might look like providing constructive feedback regularly during session to cultivate self-insight and growth within the client. This will likely support them in manifesting healthy relationships for themselves and maintaining sexual responsibility.

Evidence from the current study suggests that the emotions of boredom and loneliness are relevant regarding technology use and sexual responsibility for IASD. In particular, counselors should be aware that if their clients with ASD exhibit average or above average boredom or loneliness, the relationship between sexual responsibility may be influenced. Being bored and lonely appear to strengthen relationships between technology use and Sexual Risk Responsibility for IASD in some cases, so counselors may be in a unique position to process with IASD—especially those who are bored and/or lonely—how to get their social, emotional, and sexual needs met in safe ways, as well as social media and dating app use etiquette. A study on IwoASD yielded that those who were quicker to meet someone from the Internet in person were less likely to engage in sexually responsible behavior (Hahn et al., 2018). Because some IASD may want to meet in person as soon as possible (Roth & Gillis, 2015)—counselors need to be prepared to broach topics surrounding safety and decision-making.

Other evidence from the current study suggests that loneliness has an inverse relationship with sexual responsibility for IASD. In particular, the subscale Sex Positivity and Sexual Health decreased as loneliness increased. Thus, self-esteem, interpersonal connection, sex positivity, and healthy sexual practices may be useful focuses in counseling for IASD who exhibit loneliness. This might look like focusing on reciprocal communication in session as well as processing how relationship dynamics work to get each partner’s needs met. Furthermore, loneliness has been linked to less self-disclosure among IwoASD (Linying & Huichang, 2003).
This may be relevant for lonely IASD. About 20% of participants in the current study said that they pretended to be someone that they are not online in the past month (an item on the ROA measure). This can have big implications for Sex Positivity and Sexual Health—if one is not being authentic, the potential to develop true intimacy is limited. A counselor may need to explore why an IASD may be misrepresenting themselves online, or masking, and explain how that may hinder the development or relationships while maintaining loneliness. Though not a significant finding in the study, it is still possible that technology use affects Sex Positivity and Sexual Health, so counselors may want to be particularly aware of where IASD are getting their sexuality information, how technology is being used for sexual and social purposes, and whether they are able to read social cues via text-based communication.

Summary

In the current study it was hypothesized that the emotions of boredom and loneliness would have predictive value toward the sexual responsibility of IASD. Results from the previously collected dataset yielded that overall hypotheses were partially supported. Significant findings from the study include loneliness significantly predicting Sex Positivity and Sexual Health via an inverse relationship. Additionally, ROA as well as IUDA for Casual Sex significantly predicted Sexual Risk Responsibility via a negative relationship. Boredom significantly moderated the relationship between ROA and Sexual Risk Responsibility at average or above average levels of boredom, and boredom significantly moderated the relationship between IUDA for Romance and Sexual Risk Responsibility at average or above average levels of boredom. Finally, loneliness significantly moderated the relationship between IUDA for Romance and Sexual Risk Responsibility at average or above average levels of loneliness. Boredom, not coupled with technology use, did not appear to be significantly related to sexual
responsibilities for IASD. This could be for a variety of reasons, including but not limited to the possibility that the instrument used to measure boredom was not very useful for the ASD population or maybe that boredom is not as related to sexual responsibility for IASD as it is for the general population, but instead boredom has more utility when coupled with technology use for IASD.

Previous research has demonstrated a strong inverse relationship between some emotions such as boredom and loneliness and sexual risk responsibility (de Oliveira & Carvalho, 2020; Kaufman et al., 2002; Miller et al., 2014; Owen et al., 2011), but these relationships may not be consistent between IwoASD and IASD, as per the current study compared to previous literature. Particularly, boredom appears to be one of the major differences between IASD and IwoASD in terms of its relationship to Sexual Risk Responsibility. Despite tentative support for the previous statement, more research is needed on the variables of interest in this study and how they relate to each other. Technology use separate from and coupled with some emotions appears to be related to Sexual Risk Responsibility for IASD, which has been supported in the previous literature regarding IwoASD.

The current study contributed some novel findings to the sexuality, technology, and disability research literature base. These include highlighting the importance of the emotions of boredom and loneliness and how they strengthen the relationship between technology use and Sexual Risk Responsibility in some cases. Simply incorporating IASD into the sex-seeking online literature is also a cornerstone of this study. Hopefully these findings will stimulate future research to be done in this area, because IASD are using technology to connect with other people, but it remains unclear as to their intentions for such communication: they may not set out for it to be related to sex. Technology use behavior is related to sexual responsibility for IASD
in some cases, which provides invaluable information for clinicians and helps to combat the stigmatic idea in society that IASD do not desire or have sexual desires, needs, and relationships. The current study aids in dismantling this dismissive and harmful rhetoric while also providing a foundation for future inquiries about the sexuality of this unique population.
REFERENCES


Barthel, M., Stocking, G., Holcomb, J., & Mitchell, A. (2016). Reddit news users more likely to be male, young and digital in their news preferences. PEW Research Journalism &


Cheak-Zamora, N. C., Teti, M., Maurer-Batjer, A., O’Connor, K. V., & Randolph, J. K. (2019). Sexual and relationship interest, knowledge, and experiences among adolescents and...
young adults with autism spectrum disorder. *Archives of Sexual Behavior, 48*(8), 2605-2615.


women and heterosexual men attending sexual health clinics: A cross-sectional study.


Kott, A. (2011). Drug use and loneliness are linked to unprotected sex in older adults with HIV. *Perspectives on Sexual and Reproductive Health, 43*(1), 69.


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PEW Research Center (2016a). 15% of American adults have used online dating sites or mobile dating apps. Retrieved from: https://www.pewresearch.org/internet/2016/02/11/15-percent-of-american-adults-have-used-online-dating-sites-or-mobile-dating-apps/


APPENDIX A

INSTRUMENTATION

Demographic information solicited
- Gender identification
- Relationship status
- Race/ethnicity
- Age
- Number of lifetime sex partners
- Sexual orientation
- Disability status
- Whether disability was diagnosed by a professional

Emotions Measures

Short Boredom Proneness Scale (Struk et al., 2017): 8 items, 5 pt. scale, 8-40 variability, alpha .88. Response options range from strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, to strongly agree.

1. I often find myself at “loose ends,” not knowing what to do.
2. I find it hard to entertain myself.
3. Many things I have to do are repetitive and monotonous.
4. It takes more stimulation to get me going than most people.
5. I don’t feel motivated by most things that I do.
6. In most situations, it is hard for me to find something to do or see to keep me interested.
7. Much of the time, I just sit around doing nothing.
8. Unless I am doing something exciting, even dangerous, I feel half-dead and dull.

UCLA Loneliness Scale 5 items selected from measure/adapted (Russell, 1996): 5 items, 4 pt. scale, 5-20 variability, alpha between .89 and .94 in original measure. Response options range from never, rarely, sometimes, to often.

1. How often do you feel alone?
2. How often do you feel that your interests and ideas are not shared by those around you?
3. How often do you feel left out?
4. How often do you feel that your relationships with others are not meaningful?
5. How often do you feel that no one really knows you well?
Internet Behaviors Measures

The Risky Online Activities Measure (Livingstone & Gorzig, 2014a): 5 item checklist, variability 0-5, .72 alpha.
1. Looked for new friends on the internet.
2. Added people to my friends list or address book that I have never met face-to-face.
3. Pretended to be a different kind of person on the internet from what I really am.
4. Sent personal information to someone that I have never met face-to-face.
5. Sent a photo or video of myself to someone that I have never met face-to-face.

Intent to Use Dating Apps (Chan, 2017): Romantic relationships alpha, .86, Casual Sex alpha, .90, 4 items per scale, 8-56 variability, response options ranging from extremely unlikely, moderately unlikely, slightly unlikely, neither likely nor unlikely, slightly likely, moderately likely, to extremely likely.

Sexual Responsibility (original research-developed measure)

Physical Sexual Safety (8 items 8-56 variability)
I use internet technology to learn more about my sexual health
When I have sex I use condoms
When I have sex and choose to use condoms, they are NEW condoms
I view pornography for sexual gratification
I hookup with others to have casual sex
I prefer to be intoxicated when I have sex
I don’t need to use protection when I have oral sex
I engage in sexual self-pleasure (e.g., masturbation)

Psychological Sexual Safety (8 items 8-56 variability)
I have fulfilling intimate relationships
I am able to say “no” and stop a sexual activity if I don’t like something
It is fun for me to explore my sexuality
I am ok with being alone with someone I don’t know well
People pressure or force me to have sex when I don't want to
When I have sex I climax/feel satisfied
I like being sexual
I am a trusting person that gives out personal information to others frequently (my last name, phone number, address)
APPENDIX B

SEARCH TERMS EXAMPLES

- Psychinfo autism and social media, autism and boredom, autism and loneliness
- Autism and safe sex, autism and sex*, Autism and condom use
- 11.18.18 “healthy” and “sexuality development” in EbscoHost all databases, scholarly peer reviewed 143 hits.
- Disability and sexuality
- 12.3.18 Search CINAHL “predictors” and “safe sex” scholarly peer reviewed 110 hits. NOT HIV, 38 hits academic journals
- 12.13.18 Search MEDLINE through ebscohost search “predict*” “safe sex” academic journals = 397 adding NOT HIV = 100.
- 3.25.19 bored* sex* psych info: = 328 academic journals, sex* in the TITLE = 81. Title for both bored* and sex* CINAHL and MED = 14.
- 4.17.19 lonel* AND risky sexual behavior or risky sex or unsafe sex 30 results on PSYCHINFO, 66 with CINAHL, MEDLINE and PSYCH articles. and 776 with lonel* AND sex. Academic journals 682 lonel* AND autism or asd or autism spectrum disorder, academic journals 57
- Psychinfo CINALH, MEDLINE 8.13.19 safe sex, self-efficacy AND US academic journal 125. and ASD NONE
- Psychinfo autism and sex*, autism and online dating
APPENDIX C

G POWER ANALYSIS
APPENDIX D

IRB APPROVAL FOR RETROSPECTIVE DATASET

To: Bridget Green
From: David DeLimonico, IRB Chair
Subject: Protocol #2019/05/8 - Approval Notification
Date: 09/05/2019

The protocol Predictors of Safe Sex for College Aged Individuals with Disabilities has been approved by the IRB Chair under the rules for expedited review on 08/05/2019.

The consent form is stamped with IRB approval and a three-year expiration date. You should use the stamped forms as originals for copies that you distribute or display.

The approval of your study is valid through 09/01/2022, by which time you must submit an annual report either closing the protocol or requesting permission to continue the protocol for another year. Please submit your report by 08/04/2022 so that the IRB has time to review and approve your report if you wish to continue it for another year.

If, prior to the next review, you propose any changes in your procedure or consent process, you must complete an amendment form of those changes and submit it to the IRB Chair for approval. Please wait for the approval before implementing any changes to the original protocol. In addition, if any unanticipated problems or adverse effects on subjects are discovered before the annual review, you must immediately report them to the IRB Chair before proceeding with the study.

When the study is complete, please terminate the study via Mentor by completing the form under the Continual Renewal tab at the bottom of your protocol page and clicking on terminate. Please keep a copy of your research records, other than those you have agreed to destroy for confidentiality, over a period of five years after the study's completion.

If you have any questions, feel free to contact me.

David DeLimonico, Ph.D.
Institutional Review Board, Chair
irb@duq.edu

Attachments:
- 2019-05-08 Consent Stamped.pdf
- 2019-05-08 Flier Stamped.pdf