Technology-Facilitated Sexual Harassment:

Scale Development and the Role of Self-Objectification in Psychological Functioning

Casey L. Oliver

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Supervisor: Dr. Dwight Mazmanian

Second Reader: Dr. Ron Davis

External Examiner: Dr. Aislin Mushquash

Abstract

The evolution of technology and emergence of technology giants, like Activision Blizzard, Tinder, Facebook, and Instagram, has created an entirely new world for social interaction. Many of the pervasive problems that women historically faced with in-person situations, such as sexual harassment, can now follow them everywhere. Indeed, technology-facilitated sexual harassment (TFSH) is more prevalent in female than male populations (e.g., Cripps & Stermac, 2018; Douglass et al., 2018; Henry & Powell, 2018; Snaychuk & O'Neill, 2020). The purpose of this study was to create comprehensive scales specific to TFSH behaviours and examine psychological symptoms, such as eating pathology, substance use, and sexual function that may be associated with TFSH. This study also tested the mediating role of self-objectification, as posited by objectification theory (Fredrickson & Roberts, 1997), in the relationships between TFSH and these psychological symptoms in a sample of women ($N = 481$). These women were recruited through a course credit system at Lakehead University, as well as through online advertisements. The SurveyMonkey platform was used for online data collection. Results indicated that TFSH, specifically frequency of these incidents, was associated with eating pathology, alcohol use, and sexual function. Furthermore, self-objectification was supported as a potential mediator in the relationships between frequency of TFSH and eating pathology and alcohol use, in addition to the relationships between distress from TFSH and these measures of psychological function. This research may help shed light on the role of objectification processes in the context of TFSH, as well as inform prevention strategies and mental health interventions for victims of TFSH.

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Technology-Facilitated Sexual Harassment and Psychological Functioning: The Role of Self-Objectification

The explosion of technology has created novel means of virtual communication for individuals of all ages. For those who were born during the advent of today's technological revolution and are coined the millennial and Z generations, the use of these communication methods is second nature. Beyond regular methods of communication like email and SMS text messaging, social media platforms, such as Instagram, Facebook, Snapchat, and Twitter, are popular among these age groups (i.e., ages 6 to 40). For instance, eMarketer (2018) reported that an estimated 58.5 million millennials in 2018 were expected to use Facebook within the United States alone. Dating applications, like Bumble, Grindr, and Tinder, which enable users to make romantic or sexual connections with others, also tend to be heavily used by these age groups, with the Pew Research Center reporting that Americans aged 18 to 29 make up the largest demographic of dating application users in the United States (Vogels, 2020).

The video game industry is another area of the vast technological world that is popular and ever evolving. In 2018 the Entertainment Association of Canada reported that 61% of Canadians referred to themselves as "gamers", with "gaming" being popular across the lifespan including within young adult populations. Gaming giants, like Activision Blizzard, Ubisoft, and Electronic Arts provide gaming opportunities for their users across a diversity of devices, including on personal computers, PlayStation, and Xbox. Social media platforms, like Facebook, have also capitalized on the interest in gaming by creating games for their social media users to play directly on their platforms. Within many of these games there is the option to invite friends or use a chat feature to enhance interaction with others which highlights the social aspects of these games.

Although technology allows for much enjoyment and connection, due to its rapid evolution, research in this area is soon rendered obsolete. Research questions that may have been relevant only a decade ago may be considered outdated in a very short timeframe. For example, research questions involving communication via telephone calling have decreased in relevance over the past decades, due to increased use of other modalities. Even the World Health Organization (WHO, 2020) addresses the struggle that organizations, like themselves, face to keep abreast of technological developments. Therefore, it is important that research affords focus to issues that transcend any one technological platform. Psychological research is especially important in this area because the consequences of technology use tend to permeate across technological and in-person contexts. One such area that has major consequences for young adult users, occurs across platforms, and thrives in the communication features of the technological world is sexual harassment.

Technology-Facilitated Sexual Harassment (TFSH)

Compared to sexual harassment that transpires in-person, sexual harassment through technology, herein referred to as technology-facilitated sexual harassment (TFSH) is a relatively new addition to the literature. It has been coined different terms by different authors, including cyber sexual harassment (e.g., Reed, Salazar, et al., 2019) and online sexual victimization (e.g., Gámez-Guadix et al., 2015; see Henry & Powell, 2018 for more terms), and has been used to describe numerous behaviours. For instance, in their study, Gámez-Guadix and colleagues (2015) include behaviours like sexual coercion and the dissemination of sexual content without consent under their definition of online sexual victimization. On the other hand, Schenk (2008) includes behaviours like receiving offensive sexual comments and pornographic advertisements

within their definition of cyber sexual harassment. Overall, there is great discord in the literature both on how to term and define sexual harassment that occurs in technological environments.

Henry and Powell (2018) call for a narrower classification of TFSH (which they term "online sexual harassment") so that it can be considered distinct from other forms of technology-facilitated sexual violence (TFSV), such as gender and sexuality-based hate speech, image-based exploitation (e.g., the dissemination of sexual images), cyberstalking, and technology-facilitated sexual assault or coercion of unwanted sexual experiences. These authors created the term TFSV to better fit with legal definitions in Australia (Henry & Powell, 2018). Powell and colleagues (2018) also express the need for research to transition away from using terms like "online" and "cyber" so that focus is maintained on all types of technology including those that are used offline and can still facilitate sexual harassment and violence, such as offline phone calls.

Here the definition of TFSH will refer to unwanted sexual attention, including being asked intimate questions or receiving unwanted sexual material, that is received through any technological means including in online (e.g., social media, game platforms, chat rooms, emails) and offline (e.g., SMS text messaging, phone calls) environments. This definition has been adapted from the definitions of Barak (2005), Cripps and Stermac (2018), and Henry and Powell (2018). TFSH is a type of harassment that would fall under the Ontario Human Rights Commission's definition of harassment. In the Ontario Human Rights Code (1990/2019), the Commission states that harassment is "vexatious comment or conduct that is known or ought reasonably to be known to be unwelcome" (subsection 10(1)). TFSH can encompass other forms of TFSV, like cyberstalking that are, according to Powell and Henry (2019), "unwanted, threatening, and/or surveillance behaviors that are repeated and that cause a person to feel fear" (p. 3641). Hence, a victim of TFSH that is targeted by repeated sexual comments or material that

causes them fear would be experiencing both TFSH and cyberstalking. However, not all TFSH behaviours are repetitive so not all TFSH behaviours would also constitute cyberstalking. TFSH behaviours may also overlap with other related constructs, such as intimate partner violence through the unwanted sexual attention originating from an individual's past or current intimate partner (Henry & Powell, 2018).

Scales for TFSH

To date there have been a few efforts to develop scales that measure both TFSH and TFSV. For example, Powell and Henry (2019) have created the TFSV Victimization Scale that is specific to TFSH (termed "digital sexual harassment" by the authors), gender and sexuality-based hate speech, image-based exploitation, and technology-facilitated unwanted sexual experiences. Within this scale the authors included 21 items and used a dichotomous yes-no response style scale (Powell & Henry, 2019). Schenk (2008) also developed a measure coined the Cyber-Sexual Experiences Questionnaire (CSEQ) that contains 21 items. The authors modeled the CSEQ after the Sexual Experiences Questionnaires that was originally developed by Fitzgerald and colleagues (1988) for in-person contexts. The CSEQ asks about a range of TFSV behaviours, including TFSH behaviours like receiving offensive comments about one's body, and responses are collected on a five-point Likert style scale. Finally, Gamez-Guadix and colleagues (2015) have created a 10-item scale to capture "online sexual harassment" behaviours. However, many of the items in this scale, such as "insisting that you have sexual relations offline against your will" are specific to technology-facilitated unwanted sexual experiences and do not target TFSH behaviours.

In their review on cyber sexual harassment measures, Reed, Wong, and colleagues (2019) call for the development of scales that provide more detailed information on TFSH behaviours.

For instance, the authors recommend that the relationship of the perpetrator to the victim should be captured to identify situations that may lead to more negative consequences for victims. The authors also assert the importance of querying information specific to whether the unwanted attention is private or public, and whether the content is personal (e.g., if the perpetrator is sending a picture of their own personal genitalia—which has been termed "dick pic" in popular culture) (Reed, Wong, et al., 2019). Similarly, it would be valuable if past scales were altered to Likert style responses so that the richness of responses is enhanced. Furthermore, because items can quickly become obsolete with the expansion of technology, past scale items would benefit from being updated to include more relevant content, such as by updating items specific to outdated social media platforms (e.g., updating items that ask about Myspace which is no longer a popular platform). Hence, although a few past scales exist, the research in this area would benefit by enhancing the relevancy and level of detail of these types of scales.

Prevalence of TFSH

Although research has yet to come to a consensus on what constitutes TFSH, early research in this area suggests that women are disproportionately affected (e.g., Douglass et al., 2018; Snaychuk & O'Neill, 2020). For instance, a study by Douglass and colleagues (2018) that examined TFSH over phone calls, dating applications, and social media found that females in their sample were at increased risk of experiencing TFSH. Another study by Arafa and colleagues (2017) showed that over 80% of their sample of 2350 Egyptian female students had experienced gender harassment, sexual attention, or sexual coercion online at least once in the six months prior. In fact, many of these women reported multiple instances of these behaviours (Arafa et al., 2017). However, it is unclear whether these authors collected only reports of sexual attention that were unwanted, which is a key component of TFSH (Henry & Powell, 2018).

Cuenca-Piqueras et al. (2020) also examined TFSH and found that European women under 30 tended to experience a higher frequency of TFSH than older women. Although these studies hint at rates of TFSH in female populations, even fewer research studies examine TFSH in sexual and gender minority populations. Yet, one noteworthy study in this area by Powell and colleagues (2018) found that transgender participants in their sample experienced more TFSV than their cisgender participants which indicates that these populations may also be disproportionately affected. In the literature on in-person sexual harassment, most research has focused on male-to-female sexual harassment, though a few studies do focus on male-to-male, female-to-female, or female-to-male sexual harassment (e.g., Castillo et al., 2011; Jackson & Newman, 2004; Scarduzio, Wehlage, et al., 2018). However, most of the research in this area fails to capture the gender identity (if known) of the perpetrator. Hence, future research on TFSH should aim to collect more information across gender and sexual identity groups, including information about the gender identities and sexual orientations of victims and perpetrators.

In a Canadian context, little work has been done to examine TFSH. Nonetheless, preliminary work examining the broad range of TFSV behaviours in Canadian populations has indicated the presence of TFSV and TFSH. For example, Cripps and Stermac (2018) found that over 50% of their sample of Canadian female university students experienced “online sexual harassment” at least once in the year prior. Only 43% of the women in their sample went on to report their most serious experience of TFSV to someone (Cripps & Stermac, 2018). Other research by Snaychuk and O’Neill (2020) have also examined TFSV in a sample of Canadian students and found that females endorsed a higher number of TFSV behaviours than males. However, these studies were limited by their small sample sizes (i.e., 80 and 127, respectively).

Given the paucity of research that has been performed in Canadian populations, further research in this area would be a welcome addition to the literature.

Understanding the Prevalence of TFSH

Although one could delineate many similarities between in-person sexual harassment, and TFSH and other TFSV behaviours, a multitude of factors likely contribute to the sexual harassment prevalence rates observed in technological settings that are not present in in-person settings (e.g., Barak, 2005). For instance, Barak (2005) writes about a disinhibition effect present in technological environments that tends to promote the expression of hidden personal desires (Suler, 2004). Individuals who desire power can use the anonymity afforded by these settings to commit acts of sexual harassment and violence (Barak, 2005). This disinhibition effect has been revealed in other experimental research (e.g., Zhong et al., 2020). Furthermore, Barak (2005) writes about how, contrary to in-person settings, there is an overall lack of legal ramifications for engaging in sexual harassment and violence through technology. In these environments there are no obvious authorities acting against problematic behaviours, so perpetrators are more easily able to transgress (Barak, 2005). They also discuss the tendency for online environments to promote masculine attitudes which increase the likelihood that women will be victimized. For example, the author suggests that some technological environments, like chat rooms, produce an "antiwomen spirit" (p. 83) through the messages and images that are shared. Although these factors may uniquely contribute to TFSH prevalence rates, there is still a diversity of technological environments where TFSH can occur, each with nuances of their own, which must be considered in this burgeoning area of research.

Technological Environments

As illustrated above, the type of technology that facilitates sexual harassment is an important consideration in TFSH research. For instance, Douglass and colleagues (2018) examined the type of technology that had been used to facilitate sexual harassment. Over 25% of women in their sample experienced TFSH through the phone (such as through SMS text messaging), over 30% experienced TFSH through social media, and over 55% experienced it on dating applications (Douglass et al., 2018). In their review of measures of cyber sexual harassment, Reed, Wong, and colleagues (2019) underscore the need for researchers to capture the technological platforms that are being used in this research, like what was done by Douglass and colleagues (2018). However, research is currently limited in that most studies do not specify which technology facilitated the reported sexual harassment, or they focus on only one type of technological platform. Therefore, for researchers to gain a better understanding of the scope of TFSH and thus make informed recommendations to institutions, policy makers, and other stakeholders based on their findings, the types of technology that are facilitating sexual harassment must be fully explored.

Gaming

An area of TFSH that has received much research attention and is technology specific is in video gaming (i.e., "gaming") contexts. Research in the United States, carried out by the Entertainment Software Association (2019), has shown that equal proportions of male and female Americans play video games, although more female gamers report preferring to play their games with friends. This hints not only to the equal presence of female and male gamers on game platforms, but also to the social interaction that is occurring in these games, and therefore

to the increased possibility that some gamers may experience TFSH. Indeed, TFSH is prevalent within game environments, and specifically, with more female gamers as targets (Duggan, 2014).

Although only 9% of their gamer survey respondents reported having been sexually harassed, further research by the Pew Research Center found that 19% had seen another gamer being sexually harassed (Duggan, 2014). Furthermore, women between the ages of 18 and 24 were overrepresented in these instances of sexual harassment (Duggan, 2014). However, as Henry and Powell (2018) point out, it is possible that some respondents in this survey may not have realized that some of their experiences constituted sexual harassment and underreported these experiences because these authors did not provide a definition of sexual harassment to their respondents. Therefore, experiences of TFSH on gaming platforms may be even higher than what was reported in this survey.

Research by Fox and Tang (2017) highlights different consequences that can result from TFSH in gaming contexts. These authors found that women who experienced TFSH while playing games were more likely to withdraw from the games than women who had experienced more general harassment. Furthermore, a study by Burnay and colleagues (2019) hints at factors that may influence the presence of TFSH, as they found that men in their sample who played with a sexualized female character were more likely to engage in sexual harassment against female players than men who played with a non-sexualized female character. Overall, the literature on gaming lends support to other research showcasing that women are more likely to be targeted by TFSH, but also suggests that there may be negative consequences occurring as a result.

Psychological Functioning and TFSH

Preliminary research on TFSV has indicated some other potential deleterious effects of TFSH. In examining the broader term of TFSV, studies have found it to be related to symptoms of depression, anxiety, and post-traumatic stress (Cripps & Stermac, 2018; Patel & Roesch, 2020; Snaychuk & O'Neill, 2020). In another study examining "sexting", which the authors defined as the receipt of sexually explicit images through text messaging, researchers also found that TFSV was associated with increased symptoms of depression, anxiety, and stress when the "sexts" were unwanted or coerced (Klettke et al., 2019). However, research has yet to examine psychological functioning in the context of TFSH specifically.

Substance Use

Although past research on TFSV has identified associations with depression, anxiety, and post-traumatic stress in adult populations, the relation of TFSH to other psychological symptoms, such as substance use, has not been fully explored. Research on TFSH in adolescent populations, as well as research on in-person sexual harassment in adult populations can therefore inform future research in this area. For instance, a study by Ybarra and colleagues (2007) which surveyed over 1500 youth, found that substance use was associated with unwanted sexual solicitation on the internet. For substance use, these authors examined the frequency that their participants used alcohol, marijuana, inhalants, and other drugs. Likewise, in a study of older female adolescents Reed, Salazar, and colleagues (2019) found an association between substance use and cyber sexual harassment, which encompassed some items specific to TFSH such as receiving unwanted sexual photos or messages. For substance use, these authors also examined the frequency of alcohol, marijuana, and other drug use. However, neither of these studies examined the variables longitudinally, making it uncertain whether TFSH is an antecedent in

these relationships. Nonetheless, given that these studies support the association of substance use to TFSH in adolescent populations, research needs to expand this area through examining TFSH and substance use in adult female populations.

Eating Behaviours

Another aspect of psychological functioning that may be related to TFSH is eating behaviours. Turning to the literature on in-person sexual harassment in adult populations, pathological eating behaviours have been shown to be associated with sexual harassment (e.g., Buchanan et al., 2013; Hayes et al., 2021). In their study of over 2400 undergraduate students, Buchanan and colleagues (2013) found that as reported incidents of in-person sexual harassment increased, so did eating pathology. Here the authors were measuring sexually harassing behaviours such as being told sexual stories or jokes and being repeatedly asked to go on a date, and eating behaviours like food restriction and weight concerns (Buchanan et al., 2013). Another study by Romito and colleagues (2019) also examined eating behaviours and both in-person sexual violence and cyber harassment, which included two items specific to TFSH. These authors found that with more incidents of harassment, the participants had higher frequencies of pathological eating symptoms, like vomiting and laxative use (Romito et al., 2019). However, due to the inclusion of several general harassment and sexual harassment items across both in-person and technological contexts, it is unclear what role the items specific to TFSH played in these results. Furthermore, these findings are derived primarily from student samples. It is unknown whether these associations may also occur in the general population. Therefore, research needs to also expand on the association of TFSH to eating behaviours in adult female populations, including in those in the general public.

Self-Objectification

Although research on objectification theory, as posited by Fredrickson and Roberts (1997), has not yet extended to research on TFSH, work that has been done on in-person contexts can be useful for understanding how it may be related to this new area of research. Following repeated exposure to experiences that treat one as a sexual object rather than a human entity, experiences such as sexual harassment, victims can start to internalize the view that they are an object that exists solely for the pleasure of others (Fredrickson & Roberts, 1997). This process of self-objectification after sexual objectification can be thought of as a cognitive process wherein the victim locks onto the view of outsiders (Riva et al., 2015). The objectification of one's self then leads to behaviours like body surveillance which, according to Fredrickson and Roberts (1997), is the ''habitual monitoring of the body's outward appearance" (p. 180), because an individual's self-concept is centered on their body.

Research on objectification theory showcases the link between experiences of sexual objectification and self-objectification. In their research on unwanted sexual attention and other sexual harassment and violence from strangers in-person, Fairchild and Rudman (2008) found that sexual objectification was associated with self-objectification in their sample of 228 women. These authors noted that women in particular are at-risk for sexual and self-objectification, though research has since supported objectification processes in male, as well as sexual and gender minority populations (e.g., Calogero, 2009; Martins et al., 2007; Register et al., 2015; Velez et al., 2016). A meta-analysis by Karsay and colleagues (2018) also examined self-objectification and sexualizing media use, which they defined as media that focused on sexualizing appearance, appeal, and physical beauty. These authors found a moderate effect of sexualizing media use on self-objectification that was conditional on type of media (Karsay et

al., 2018). Media sources like video games and online media were more strongly associated with self-objectification in their sample than television (Karsay et al., 2018). This research provides support for examining self-objectification in the context of TFSH, because objectification processes have been found in other social and technological contexts, particularly among women.

Self-Objectification and Psychological Functioning

Fredrickson and Roberts' (1997) work on self-objectification outlines how it can play a key role in the development of psychological symptoms, such as anxiety, depression, sexual dysfunction, and eating pathology, after victims experience sexual objectification. Though sexual objectification is undoubtedly a main component of TFSH, research has yet to examine self-objectification in the context of psychological functioning and TFSH.

Substance Use

Though Fredrickson and Roberts (1997) did not provide any commentary on objectification processes and substance use in their development of objectification theory, recent research has highlighted the presence of these associations. For instance, research by Carr and Szymanski (2011) indicates that self-objectification may mediate, or help to explain, the association between various forms of in-person sexually objectifying experiences including sexual harassment and violence, and substance use. Here, the researchers recruited 289 young women to examine whether sexual objectification was associated with substance abuse both directly and indirectly through self-objectification, body shame, and depression. For substance abuse, the researchers examined numerous substances including alcohol, cigarettes, and other drugs to capture overall substance use (Carr & Szymanski, 2011). Their findings indicated support for both direct and indirect associations, with more sexually objectifying experiences

being associated with higher self-objectification, which was associated with higher body shame and depression, and finally with higher substance abuse.

Car and Szymanski (2011) discuss their findings through explaining that after sexual objectification, negative mood states resulting from decreased power and control over one's body may lead victims to abuse substances. Therefore, due to the previously reported associations between substance use and TFSH in adolescent populations (Reed, Salazar, et al., 2019; Ybarra et al., 2007), and given this research by Carr and Szymanski (2011) supporting self-objectification as a mediator between in-person sexual harassment and substance use, it is important that research extends this work through examining the role of self-objectification in the relationship between TFSH and substance use in adult female populations.

Eating Behaviours

In their research on female undergraduate students Tiggemann and Williams (2012) provided support for the association of self-objectification to disordered eating, as mediated by self-surveillance and other factors. Through structural equation modelling, the researchers found an acceptable level of fit of their data to their theorized model, whereby self-objectification was associated with self-surveillance, that was then associated with body shame and appearance anxiety, and these were finally associated with disordered eating. For disordered eating, these authors were examining behaviours like drive for thinness, body dissatisfaction, and bulimic behaviours (Tiggemann & Williams, 2012). Other research by Calogero (2009), and Muehlenkamp and Saris-Baglama (2002) has also shown support for this association. In their work on objectification theory, Fredrickson and Roberts (1997) outline how eating behaviours can result from an individual's attempt to control their body, after it is repeatedly sexualized. Taking past work on the association between in-person sexual harassment and pathological

eating symptoms (Buchanan et al., 2013; Romito et al., 2019), and this work on self-objectification and pathological eating symptoms, it is important that self-objectification is also examined as a potential mediator between TFSH and pathological eating symptoms

Sexual Functioning

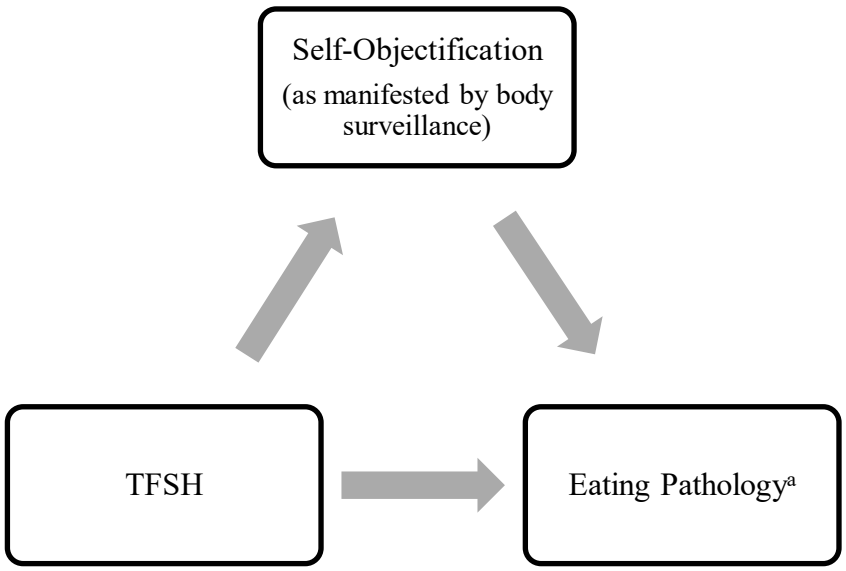
Although research by Tiggemann and Williams (2012) showcased that self-objectification was associated to eating symptoms, it also indicated that self-objectification was associated to sexual functioning, as mediated by self-surveillance and appearance anxiety. To measure sexual function the authors asked their participants about different aspects of sexual desire, arousal, orgasm, and satisfaction (Tiggemann & Williams, 2012). Fredrickson and Roberts (1997) explain this association within their framework for objectification theory. The authors state that experiencing self-objectification leads to increased mental exertion over monitoring one's body that impedes any investment in rewarding or satisfying ventures, like sexual activities. This impairs an individual's ability to be mentally present in sexual activity and thereby enhances the likelihood of sexual dysfunction (Fredrickson & Roberts, 1997). Furthermore, these authors outline how an individual experiencing self-objectification will afford external attention to their body rather than attention to body states like arousal which then hinders their ability to experience orgasm. However, this work by Tiggemann and Williams is limited because a small sample ($N = 127$) was used. With this small sample size, these authors also examined nine variables without any mention of how they controlled for false positives (i.e., type I error). Therefore, it is unclear whether these results could be replicated in larger samples that better represent the general population. Nonetheless, the mediational role of self-objectification should also be explored in research on TFSH and sexual functioning.

Current Study

Given the limited amount of research on TFSH in adult female populations, as well as the paucity of research on TFSV in general, as highlighted by Henry and Powell (2018), this research sought to identify the prevalence of TFSH in a sample of women using a retrospective cross-sectional design. To do so, two TFSH scales were developed and evaluated to collect information on the frequency of TFSH experiences and individual distress ratings. These distress ratings assisted in accounting for individual differences. Further questions were asked about a victim's relationship to the perpetrator and technological setting where TFSH transpired, which past research has not consistently examined. An expansion of the understanding of psychological symptoms that are associated with TFSH was also sought in this study through examining eating pathology, substance use, and sexual function in female-identifying adults. Mediation models were also tested based on objectification theory (Fredrickson & Roberts, 1997), to determine whether there was support for self-objectification as a mediator between TFSH and these psychological symptoms (see Figure 1 for an example). Here parallel analyses were undertaken using both frequency counts and distress ratings of TFSH behaviours.

Figure 1

Hypothesized Mediation Model between TFSH and Eating Pathology



Note. TFSH = technology-facilitated sexual harassment.

[a] Eating pathology was replaced with sexual function and substance use in the other mediation models in this study.

Hypotheses

Based on the past work of Reed, Salazar, and colleagues (2019) and Buchanan and colleagues (2013) on TFSH and substance use, and in-person sexual harassment and eating behaviours, it was predicted that TFSH would be positively associated with both eating pathology and substance use which constituted hypotheses one and two, respectively. Higher frequency of TFSH was predicted to be associated with higher substance use and pathological eating behaviours. Similarly, higher distress ratings of TFSH were also predicted to be associated with higher substance use and pathological eating behaviours. Sexual function was further predicted to be associated with TFSH, as predicted by objectification theory, with higher

frequency and distress ratings of TFSH being related to higher sexual dysfunction which was hypothesis three (Fredrickson & Roberts, 1997).

Furthermore, it was predicted that self-objectification would be supported as a mediator in these associations between TFSH and eating pathology (hypothesis four) (see Figure 1), as well as between TFSH and substance use (hypothesis five) (see Figure 1), based on the tenets of objectification theory (Fredrickson & Roberts, 1997). It was also predicted that self-objectification would be supported as a mediator in the relationship between TFSH and sexual function (hypothesis six) (see Figure 1).

Methodology

Procedure

After approval was obtained from Lakehead University's Research Ethics Board, 852 participants were recruited (see the Information Letters and Consent Form in Appendices A, B and C) from October 2020 to March 2021. Of these participants, 352 participants were recruited through the Sona system at Lakehead University, where participants could receive course credit for participating, and 500 were recruited from the community through advertisements on online platforms (e.g., Facebook, Reddit, Kijiji). Anyone from the community who was residing in Canada or attending a Canadian post-secondary institution was eligible to participate. After completing the study, participants from the community were able to enter a draw for one of ten $25 e-gift cards to either Tim Hortons, Indigo, or Walmart. Upon completion of the study questions, all participants were offered mental health resources (e.g., crisis phone numbers, in-person counselling in Thunder Bay) in case they found that reporting their experiences of TFSH was emotionally taxing (see the Debriefing Forms in Appendices D and E).

Participants

For this study, only the data from 629 female-identifying participants were used. This sample size is above the estimated 558 participants needed, as taken from the simulations performed by Fritz and MacKinnon (2007) that estimated sample sizes for various tests of mediation including the percentile bootstrap approach (further outlined in the section below on statistical analyses) that was used in this study. This estimate reflects a power level of .8 and a small effect size for each path in a mediation analysis. The data from male participants was initially collected so TFSH could be examined in both women and men. Although valuable, these data were not analyzed in this project because a small sample size was obtained, even before exclusions.

Exclusion Criteria

Infrequent responding, as measured by the Personality Research Form Infrequency Scale (see the data collection section for more information; Jackson, 1984), was used as an exclusion criterion in this study. Participants (n = 147) who obtained a score of four or higher, or who did not complete the entire scale were excluded from the study because it indicated possible random or careless responding. One participant was also excluded from the study because they did not complete over 80% of the primary scales. Therefore, the final number of participants in the sample reached 481, 296 of whom were from the student sample and 185 from the community sample (see Appendix F for demographic questions and Table 1 for participant demographic information). In comparing the participant groups, all demographics factors were significantly different. As would be expected, members of the student sample were more likely to be young, single, unemployed, White, exclusively heterosexual, and have some undergraduate training.

However, all participant data were analyzed together due to the large sample size that was needed for study analyses, and to increase the generalizability of the findings.

Table 1

Participant Demographics

Characteristic		Student Sample (n = 296)	Community Sample (n = 185)	Total Sample (N = 481)
Mean Age (SD)		21.4 (5.7)	30.5 (8.9)	24.9 (8.4)
Race/Ethnicity	African	15 (5%)	2 (1%)	17 (4%)
	Caribbean	4 (1%)	3 (2%)	7 (2%)
	East Asian	4 (1%)	13 (7%)	17 (4%)
	Hispanic/Latinx/Latina/Latino	2 (1%)	0 (0%)	2 (0%)
	Indigenous	23 (8%)	2 (1%)	25 (5%)
	Middle Eastern	0 (0%)	3 (2%)	3 (0%)
	Pacific Islander	1 (0%)	1 (1%)	2 (0%)
	South Asian	8 (3%)	12 (7%)	20 (4%)
	White	230 (78%)	135 (73%)	365 (76%)
	Mixed	6 (2%)	9 (5%)	15 (3%)
Sexual Orientation	Exclusively heterosexual	217 (73%)	113 (61%)	330 (69%)
	Predominately heterosexual, only incidentally homosexual	28 (10%)	20 (11%)	48 (10%)

	Predominately heterosexual, but more than incidentally homosexual	15 (5%)	18 (7%)	33 (7%)
	Equally heterosexual and homosexual	17 (6%)	10 (5%)	27 (6%)
	Predominately homosexual, but more than incidentally heterosexual	3 (1%)	3 (2%)	6 (1%)
	Predominately homosexual, only incidentally heterosexual	5 (2%)	0 (0%)	5 (1%)
	Exclusively homosexual	2 (1%)	5 (3%)	7 (2%)
	No socio-sexual contacts or reactions	2 (1%)	4 (2%)	6 (1%)
Highest Education	Elementary school	1 (0%)	0 (0%)	1 (0%)
	Some high school	0 (0%)	5 (3%)	5 (1%)
	High school completed	76 (26%)	23 (12%)	99 (21%)
	Some college or technical school	5 (2%)	20 (11%)	25 (5%)
	College or technical school completed	16 (5%)	29 (16%)	45 (9%)
	Some undergraduate training	175 (59%)	21 (11%)	196 (41%)

	Undergraduate degree completed	19 (6%)	53 (29%)	72 (15%)
	Some graduate or professional training	2 (1%)	11 (6%)	13 (3%)
	Master's degree completed	2 (1%)	17 (9%)	19 (4%)
	Doctoral or professional degree completed	0 (0%)	6 (3%)	6 (1%)
Employment Status	Employed full-time	21 (7%)	94 (51%)	115 (24%)
	Employed part-time	183 (62%)	43 (23%)	226 (47%)
	Unemployed	92 (31%)	48 (26%)	140 (29%)
Marital Status	Single	144 (49%)	61 (33%)	205 (43%)
	Married/common-law	18 (6%)	79 (43%)	97 (20%)
	Separated/divorced	3 (1%)	12 (7%)	15 (3%)
	Widowed	1 (0%)	1 (1%)	2 (0%)
	In a committed relationship	127 (43%)	32 (17%)	159 (33%)
Student Status	Full-time	280 (95%)	39 (21%)	319 (66%)
	Part-time	16 (5%)	10 (5%)	26 (5%)
	Not a student	0 (0%)	136 (74%)	136 (28%)

Data Collection

SurveyMonkey was used to collect data from participants in this study. The community and student samples were both given all the same measures. However, participants in the

community sample were asked two additional questions about whether they lived in an urban or rural part of Canada and about which province or territory they lived (see Appendix F).

Technology Use

Similar to past research on TFSH (e.g., Powell & Henry, 2019) participants were asked questions related to their use of technology (see Appendix G). Questions targeted the types of technological platforms they regularly used (e.g., social media sites, email, phone calling, SMS text messaging, dating applications, game platforms), the daily hourly usage of these types of technological platforms, why they used these platforms (e.g., work, romantic connection), and the people that they usually connected with on these platforms (e.g., strangers, friends, family members). The types of games that participants played were also queried based on the genre categories outlined by Elliott and colleagues (2012).

Technology-Facilitated Sexual Harassment (TFSH)

The development and evaluation of two TFSH scales was a primary component of this project. The aims of the TFSH scales were to measure unwanted sexual attention through technological means.

Item Development. Three primary dimensions of the TFSH domain were identified through a literature review, which included the sending of unwanted sexual material, sending of unwanted sexual comments, remarks, or questions, and sending of unwanted sexual requests. Furthermore, dimensions related to who was identified in the content of the unwanted sexual attention were identified, which included the sender/perpetrator of the TFSH, the victim of the TFSH, or a third party.

To generate items for a TFSH Scale, a deductive method was utilized as outlined by Boateng et al. (2018). Powell and Henry's (2019) TFSV Victimization Scale was used to inform

some of the items. Their seven scale items specific to TFSH were modified for use, such as the item that asks respondents whether they have received “unwanted sexually explicit images, comments, emails, or text messages”. To better capture the dimensions of TFSH behaviours, this item was separated into multiple items. Additional items were added to the scale from other past research on TFSH, such as from Schenk's (2008) work on the Cyber-Sexual Experiences Questionnaire, to target a broad range of TFSH behaviours. For example, the item in the Cyber-Sexual Experiences Questionnaire that asks respondents if someone in the cyber world has ever “tried to get you to talk about personal or sexual things” was added and altered to capture more detail about comments that individuals may receive (Schenk, 2008).

In total, 6 items were included that targeted unwanted sexual material, 5 items were included that targeted unwanted sexual requests, and 16 items were included that targeted unwanted sexual comments or questions (see Appendix H). An additional 2 items were added to include content on unwanted sexual jokes and rumours. All items where an individual who was included in the content of the unwanted sexual attention (i.e., sender, victim, or third party) could be identified, were further separated into additional items to capture these different dimensions, based on the recommendation from Reed, Wong, et al. (2019) to better understand whether content is personal.

Response Scaling. Two TFSH scales were developed in this study: the TFSH Frequency Scale (TFSHf) and the TFSH Distress Scale (TFSHd). Two scales were created to better capture different elements of TFSH, that is the frequency in which it occurs and the distress that participants experience as a result.

TFSH Frequency Scale. Existing scales for TFSH and TFSV currently use dichotomous scaling to capture whether an incident has occurred. To better capture frequency of TFSH,

participants were asked how frequently they experienced each incident of TFSH on a five-point Likert style scale. A five-point Likert style was used instead of a two or three-point scale because past research has indicated that five-point scales tend to have higher reliability (Alwin & Krosnick, 1991). In terms of TFSH experience over a lifetime, these responses ranged from *never*, *rarely*, *sometimes*, *often*, to *almost always*.

TFSH Distress Scale. To capture individual differences, distress ratings of TFSH were also measured by asking participants how distressing they found each incident of TFSH that they experienced, on a five-point Likert style scale (from *not at all* to *extremely*). A total distress score was computed by summing the item scores. To consider participants who had high distress ratings but did not endorse many items, an average distress score was computed by dividing the total distress score by the number of TFSH incidents that were experienced. This average distress score was used in all subsequent analyses.

Additional Items. Although not included in the primary TFSH scales, three items were also included in this study to capture other experiences of TFSH that may not have been targeted in the scale items. Qualitative responses on these three items may be utilized in the future to enhance the scales. Additional items were also used to collect information on the context of TFSH experiences, such as the type of technological platform, the relationship to the perpetrator, whether the content was personal, and whether it transpired in a public or private setting. Further development and evaluative information about the 29-item TFSHf and the 29-item TFSHd is included in the results section.

Psychological Functioning

Eating Behaviours. The Eating Attitudes Test (EAT) was used to collect data on eating behaviours in this study (see Appendix K) (Garner & Garfinkel, 1979). Although the original

version is 40 items in length, the 26-item version of the EAT was used because it has shown comparable psychometric properties to the 40-item version (Garner et al., 1982). The EAT-26 has been shown to measure dieting and avoidance, oral control, and bulimic behaviours (Garner et al., 1982). Its responses are on a six-point Likert style scale and include items such as, "I am terrified about being overweight" and "I aware of the calorie content of foods that I eat." Total scores can range from 0 to 78, with scores above 20 indicating potentially concerning eating behaviours (Garner et al., 1982). To increase variability and low-end sensitivity in responses, the EAT was converted from 0-0-0-1-2-3 scaling to 0-1-2-3-4-5 scaling. In terms of psychometric properties, the EAT-40 achieved an internal consistency coefficient of .94 in the original study group comprised of both Canadian clinical and control subjects (Garner & Garfinkel, 1979). The test has also shown construct validity through its degree of association with the Eating Disorder Inventory (EDI; another widely used eating behaviour instrument), which, for example, was .81 with the EDI's drive for thinness subscale (Gross et al., 1986).

Substance Use. The Alcohol Use Disorders Identification Test (AUDIT) was used to collect information on alcohol use from the participants in this study (see Appendix I) (Babor et al., 2001). This is a 10-item questionnaire that assesses about the frequency, dose, and severity of alcohol use (Babor et al., 2001). For example, item one asks, "How often do you have a drink containing alcohol?" Scores on the AUDIT range from 0 to 40, and scores above 7 are thought to indicate a higher risk of hazardous alcohol consumption (Babor et al., 2001). In their review of studies examining the psychometric properties of the AUDIT, Reinert and Allen (2007) reported a median internal consistency coefficient of .83 demonstrating the reliability of this test. These authors further reported that it is a valid test when used with a variety of populations, including with students (Reinert & Allen, 2007). In addition to the AUDIT, questions on drug use were

also asked in a modified version of the Alcohol, Smoking and Substance Involvement Screening Test (see Appendix J) (WHO, 2010). However, to limit the number of analyses, these questions were not utilized in this study.

Sexual Function. The Female Sexual Function Index (FSFI) was used to capture information on sexual function (Kalmbach et al., 2012; Rosen et al., 2000). The FSFI measures desire, arousal, orgasm, lubrication, pain, and satisfaction over the past four weeks, through 19 items (see Appendix L) (Rosen et al., 2000). For example, one item asks, "Over the past 4 weeks, how often did you feel sexually aroused ("turned on") during sexual activity or intercourse?" (Rosen et al., 2000). Responses are on a six-point Likert style scale and weighted total scores range from 2 to 36. The reliability and validity of the FSFI has been supported in a student population, with Cronbach's alphas of .81 and higher, and the scale items also successfully loaded onto their respective factors (Kalmbach et al., 2015).

The FSFI was presented with suggested modifications from Boehmer and colleagues (2012) which included the term "vaginal penetration" rather than "sexual intercourse" to account for a wide range of sexual experiences that female participants might have. An additional option of "does not apply to me" was also added to scale items, where appropriate. In this study, only the desire subscale (i.e., items one and two) was utilized because of uncertainty over participants responses for the other subscales. For instance, most other items on the FSFI included an option for participants to respond that they had not engaged in sexual activity over the past four weeks. However, it is unclear whether these responses reflected typical functioning or dysfunction, as participants could be abstaining from sexual activity because they do not have a sexual partner or because they are experiencing issues with arousal, orgasm, lubrication, pain, or satisfaction. Hence, in this study, it was decided that these items would not be included in subsequent

analyses. Furthermore, although the Male Sexual Function Index was included in this study as a measure of male sexual functioning, it was not used in analyses because only the data of female-identifying participants were analyzed (see Appendix M) (Kalmbach et al., 2012).

Self-Objectification

Because body monitoring is a manifestation of self-objectification (Fredrickson & Roberts, 1997), the Objectified Body Consciousness Scale (OBCS) (McKinley & Hyde, 1996) was used as a measure of self-objectification (see Appendix N). Although this scale contains three subscales (body surveillance, body shame, and appearance control beliefs), participants in this study were only asked about items from the body surveillance and body shame subscales which is consistent with past research (e.g., Fairchild & Rudman, 2008; Muehlenkamp & Saris-Baglama, 2002). However, in analyses only the body surveillance subscale was utilized, which is comprised of items one through eight (see the results section for more information). Nonetheless, these two subscales are thought to be within the construct domain of self-objectification, as outlined by Fredrickson and Roberts (1997) (Muehlenkamp & Saris-Baglama, 2002). The body surveillance subscale contains eight items including the item, “I am more concerned with how my body looks than with what it can do”. The body shame subscale also contains eight items including the item, “I feel like I must be a bad person when I don’t look as good as I could”. The items are all on a seven-point Likert type scale and eight of these are reverse-scored (McKinley & Hyde, 1996). The OBCS was developed in a university population and, for internal consistency, Cronbach’s alphas of .89 and .74 were obtained for the body surveillance and body shame subscales, respectively (McKinley & Hyde, 1996). To demonstrate the validity of these subscales, McKinley and Hyde (1996) showed that they were both negatively correlated with body esteem.

Response Styles

To detect and eliminate potential sources of test-taking error, response bias and non-purposeful responding were examined in this study. The Desirability Scale and the Infrequency Scale developed and used by Jackson (1984) in his Personality Research Form were used to evaluate these response styles (see Appendix O and Appendix P). Both measures contain 16 items on dichotomous true and false scales. The Desirability Scale assesses the degree to which participants are responding to the desirability of item content in items such as, "My life is full of interesting activities." The Infrequency Scale assesses careless or non-purposeful responding by using items that are infrequently endorsed in the general population such as, "I have never bought anything in a store". Initial versions of the Desirability and Infrequency Scales have internal consistencies of .21 and .43, respectively (Helmes & Jackson, 1977). Furthermore, scale items have been found to have mean factor loadings of .50 and .30 for the Infrequency Scale and the Desirability Scale, respectively (Helmes & Jackson, 1977).

Final Questions

During the development of this study, the World Health Organization declared a global pandemic for the Coronavirus (COVID-19) disease. This study incorporated three questions on TFSH, mental health, and COVID-19 to capture data related to this occurrence because of other research that has indicated that TFSH rates might increase during this pandemic (e.g., Jatmiko et al., 2020) (see Appendix Q). An open-ended question was also added to allow participants to provide feedback on the study topics and items (see Appendix Q). These questions were not analyzed or interpreted in this study.

Statistical Analyses

In this study, all the data were screened, and test assumptions were verified prior to hypothesis testing. The data were examined for accuracy, missing entries, and outliers. Visual inspection of means and standard deviations revealed that all responses were plausible and both pairwise (i.e., correlational analyses) and listwise deletion (i.e., mediation analyses) were utilized to account for missing data. Standardized scores were used to detect univariate outliers using a cut-off of 3.29 (Tabachnick & Fidell, 2013). Nine scores were detected as being larger than 3.29; one of these scores was on the EAT and the other eight scores were on the AUDIT. Although these potential outliers were not surprising given the large sample size, the outlier on the EAT was altered to a score that was one unit larger than the next most extreme score in the distribution to reduce its effect on analyses (Tabachnick & Fidell, 2013). The outliers for the AUDIT scale were resolved after a transformation of the scale, the details of which can be found in the bivariate analyses and assumption testing subsection.

Bivariate Analyses and Assumption Testing

Prior to conducting correlational analyses for hypotheses 1 through 3, there were a variety of assumptions that were first tested. In correlational analysis, the primary assumptions include that variables are measured continuously, there is a linear relationship between variables, there are no significant outliers, and that the variables are approximately normally distributed (Tabachnick & Fidell, 2013). All variables were continuous in measurement and the presence of outliers were resolved, as was reported at beginning of the results section. For linearity and normality, residual scatterplots were visually inspected for all the variables, and skewness and kurtosis values were examined. Six residual scatter plots between each predictor and outcome pair were inspected and all provided evidence for linearity. However, the residual scatterplots for

the TFSHf and AUDIT pairing, and the TFSHd and AUDIT pairing indicated non-normal relationships. Unsurprisingly, skewness and kurtosis values for the AUDIT were more than 1, at 1.67 and 2.90, respectively. As a result, the AUDIT scale was transformed, using a square root transformation (Tabachnick & Fidell, 2013). Residual scatterplots for these pairings were then re-run and evidence for linearity and normality was present. Furthermore, skewness and kurtosis values were no longer more than ± 1.

Mediation Analyses and Assumption Testing

To analyze hypotheses 4 through 6, which involved mediation models, the PROCESS macro (model 4) for SPSS, as developed by Hayes (2018), was utilized. According to Hayes and Rockwood (2017), the bootstrap confidence interval approach to mediation analysis is a technique that is both rising in popularity among social scientists and is powerful in its ability to detect indirect effects. Unlike other regression-based approaches, such as Baron and Kenny's (1986) causal steps approach, the bootstrap confidence interval relies on the quantification of the indirect effect rather than carrying out a set of tests to support its existence (Hayes, 2009). Hence, this study used the percentile bootstrapping approach afforded by the PROCESS macro to test the six simple mediation models predicted in this study, with self-objectification as a predicted mediator between TFSH and eating pathology, TFSH and substance use, and TFSH and sexual function, where both TFSHf and TFSHd were used as measures of TFSH. In this approach, PROCESS was used to repeatedly resample (with replacement) the obtained sample size in order to create a representation of the sampling distribution (Hayes, 2018; Hayes & Rockwood, 2017). With every resampling the indirect effect was estimated and these estimates were ultimately used to generate a 95% confidence interval (Hayes, 2018; Hayes & Rockwood, 2017). After lower and upper bounds of the confidence interval were established, self-

objectification was supported as a mediator in each model if zero did not lie within the respective bounds (Hayes, 2018; Hayes & Rockwood, 2017).

In addition to the assumption testing that was conducted prior to the bivariate correlations (as reported on previously), further assumption testing was conducted prior to analyzing the hypothesized mediation models to ensure that the data met the assumptions for regression analysis. For ordinary least squares regression, while variables need to be continuous, have linear relationships, and not contain any significant outliers, there must also be an independence of errors, normally distributed errors, and homoscedasticity demonstrated in the dataset (Hayes, 2018; Tabachnick & Fidell, 2013).

Linearity, Normality, and Homoscedasticity. In addition to the six residual scatterplots that were previously examined, eleven residual scatterplots were visually inspected to determine whether the assumption of linearity between variables was met. Here, residual scatterplots for predictor-mediator, mediator-outcome, and predictor and mediator-outcome pairings were inspected (Kane & Ashbaugh, 2017). Pairings involving the AUDIT utilized the transformed AUDIT. All residual scatterplots provided evidence for linearity. Additionally, all 17 scatterplots provided evidence for homoscedasticity and normally distributed errors.

Independence of Errors. The Durbin-Watson test was used to examine whether errors associated with each data point were independent from the errors of other cases (Tabachnick & Fidell, 2013). The test statistics revealed independence of errors, with values ranging from 1.94 to 2.07.

Results

Measure Characteristics

The scale means, standard deviations, and internal consistencies are presented in Table 2 for the proposed mediator and dependent variables. In Table 2, the psychometric properties of the AUDIT are included based on the subsample of people who endorsed drinking (n = 373) because non-drinkers only had to respond to one item. Although the total score for the OBCS scale was initially going to be used for analyses, visual inspection revealed significant overlap between items included in the Body Shame subscale and the EAT. These scales and subscales were empirically evaluated, and not surprisingly, it was determined that the correlations between the Body Shame subscale and the EAT (r = .62) and between the total OBCS and the EAT (r = .58) were higher than between the Body Surveillance subscale and the EAT (r = .40). In past research, the Body Surveillance subscale has been solely utilized to capture self-objectification (e.g., Hanna et al., 2017), and so, because of this lower degree of overlap with the EAT and its use in past research, the Body Surveillance subscale was used in all analyses as a measure of self-objectification. Finally, for the response style scales, the Desirability Scale achieved a mean of 10.95 (SD = 3.05) and internal consistency of .71 and the Infrequency Scale achieved a mean of 0.37 (SD = 0.61) and internal consistency of .22.

Table 2

Scale Characteristics

Scale	Mean	Standard Deviation	Internal Consistency
Alcohol Use Disorders Identification Test	5.48[a]	4.80[a]	.85[b]
Alcohol Use Disorders Identification Test (transformed)	2.14[c]	0.94[c]	-
Eating Attitudes Test[e]	40.86	20.17	.91
Female Sexual Function Index – Desire Subscale	5.63	2.20	.91
Objectified Body Consciousness Scale – Body Surveillance Subscale	37.44	8.37	.84

Note. The transformed AUDIT was used instead of the original AUDIT in all analyses.

[a] Mean and standard deviation is reported for drinkers only. For all participants ($n = 477$), the mean score was 4.29 and standard deviation was 4.81.

[b]Internal consistency was reported based on standardized items.

[d]Mean and standard deviation is reported for drinkers only. For all participants ($n = 477$), the mean score was 1.68 and the standard deviation was 1.21.

[e]Characteristics for the EAT are reported based on the data that was used in subsequent analyses, which contained a modification of a data point due to an outlier being detected.

TFSH Scales Development and Evaluation

The psychometric properties of the TFSH scales developed in this study were examined as a primary aim of the study. The steps to scale development and evaluation, as outlined by Boateng et al. (2018), were utilized, where possible.

TFSH Frequency Scale (TFSHf)

Item total correlations for all the scale items were initially computed to evaluate whether items should be included or excluded from the TFSHf. Corrected item-total correlations ranged from .54 to .79, which indicated that the items were moderately to strongly correlated with the corrected total score. Results showed that Cronbach's alpha would not increase if any one item was removed so all items were retained for the TFSHf. The internal consistency of the scales showcases their reliability. For the TFSHf, the 29 items obtained excellent internal consistency ($\alpha = .96$).

TFSH Distress Scale (TFSHd)

Item total correlations for all scale items were also computed for the TFSHd to evaluate whether any items should be excluded. Corrected item-total correlations ranged from .48 to .74, which indicated that the items were generally moderately to strongly correlated with the corrected total score. The deletion of only one item (i.e., "…been the victim of a sexual rumour started via technology") increased Cronbach's alpha. However, the deletion of this item would only increase the Cronbach's alpha by .001 so all items were retained. The 29 items obtained excellent internal consistency ($\alpha = .95$).

Additional TFSH Questions

Out of participants who had endorsed an experience of TFSH and went on to answer follow up questions about TFSH, the mean percentage of time that participants ($n = 415$) reported experiencing TFSH (i.e., out of all the time that they used technology) was 21% ($SD = 21.78$). In terms of who the perpetrators of their experiences of TFSH were, strangers ($n = 289$), acquaintances ($n = 200$), and friends ($n = 156$) were the most reported. Other perpetrator types, including formerly intimate persons who were not considered an intimate partner ($n = 121$), past

intimate partners (*n* = 95), school mates (*n* = 83), current intimate partner (*n* = 54), work colleagues (*n* = 38), and family members (*n* = 7) were also selected, but to a lesser extent.

In terms of platform types that were endorsed by participants as being the location of their TFSH experiences, social media (*n* = 311), chat applications (*n* = 183), SMS text messaging (*n* = 136), and dating applications (*n* = 120) were the most endorsed. All other platform types were endorsed, but to a lesser extent, including phone calling (*n* = 45), video conferencing applications (*n* = 29), internet forums (*n* = 29), video game platforms (n = 23), email (*n* = 17), and blogs (*n* = 8). Finally, in terms of how often experiences of TFSH occurred in public versus private settings, most participants reported that it occurred in private (*n* = 140). However, since this rating scale measured responses from 1 (never occurred in private) to 5 (almost always occurred in private), the mean score of 3.39 (SD = 1.42) suggests that, although many participants experienced TFSH in private settings, there were also a number of TFSH experiences that occurred in public.

Bivariate Analyses: Hypotheses 1-3

Bivariate correlations were conducted between TFSH (both TFSHf and TFSHd) and each measure of psychological functioning to determine the associations of TFSH with eating behaviours, substance use, and sexual functioning. To control for type I error, a Bonferroni correction was applied to each correlation. This correction divides the alpha level cut-off by the number of tests performed. For bivariate analyses in this study, 6 separate correlational tests were performed which yielded an alpha level of .008 with the Bonferroni correction (.05/6). As is shown in Tables 3 and 4, all correlations between the measures of psychological functioning and TFSHf were significant at *p* = .008. These correlation coefficients indicate small to moderate

relationships between the variables (Cohen, 1988). However, the 3 correlations between the measures of psychological functioning and TFSHd were not significant at $p = .008$.

These correlational analyses were also repeated with social desirability (i.e., using the Desirability Scale) as a covariate to determine if socially desirable answering styles may account for the presence or absence of these associations (Jackson, 1984). All the correlations were observed to remain in the same positive direction while controlling for social desirability. All three correlations that obtained significant results and all three that obtained non-significant results prior to controlling for social desirability also remained consistent after it was controlled. This suggests that the results of the bivariate correlations were not influenced by socially desirable response styles.

Table 3

Correlations for Psychological Functioning Variables with TFSHf

		95% Confidence Interval	
Scale	*r*	Lower	Upper
Eating Attitudes Test	.30*	.20	.39
Alcohol Use Disorders Identification Test	.22*	.12	.31
Female Sexual Function Index – Desire Subscale	.24*	.14	.33

*$p < .008$

Table 4

Correlations for Psychological Functioning Variables with TFSHd

Scale	*r*	95% Confidence Interval Lower	Upper
Eating Attitudes Test	.12	.02	.22
Alcohol Use Disorders Identification Test	.03	-.07	.13
Female Sexual Function Index – Desire Subscale	.06	-.04	.16

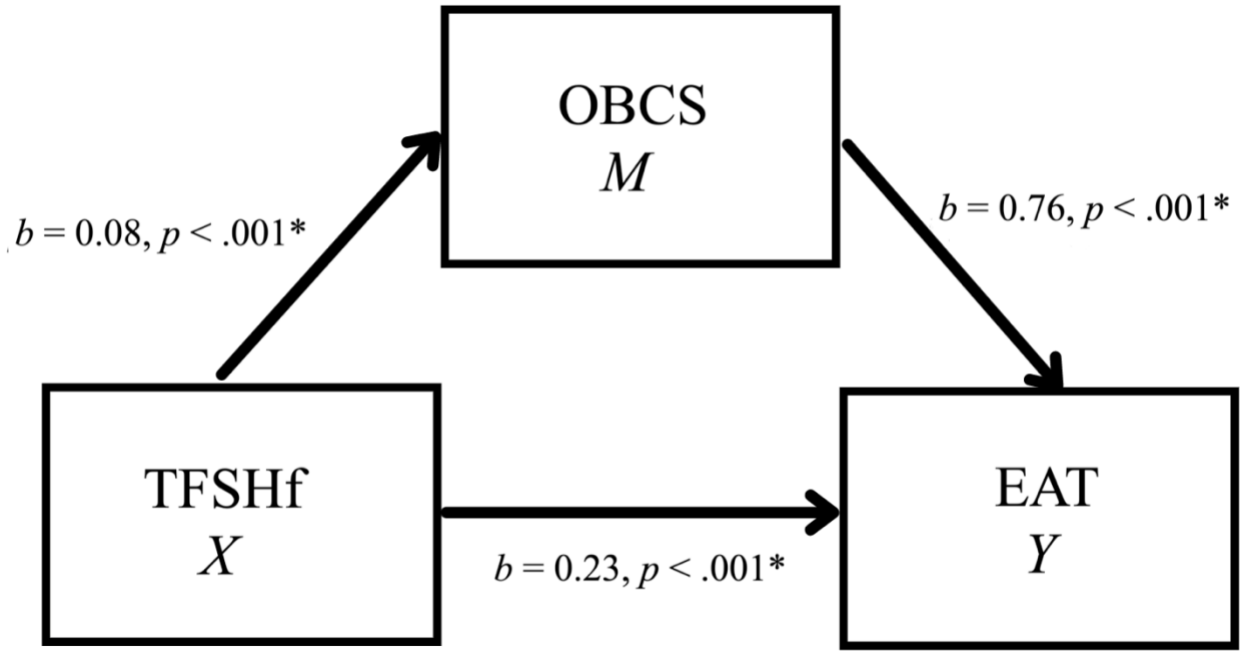
Mediation Analyses

Hypothesis 4: TFSH, OBSC, and EAT

The first mediation model investigated the hypothesis that self-objectification (OBSC – Body Surveillance Subscale) would mediate the relationship between TFSHf and eating symptoms (EAT) (see Figure 2). There was a significant indirect effect of TFSHf on eating symptoms through OBCS, $b = 0.06$, 95% CI [0.03, 0.10] (see Table 5). As a measure of effect size, the partially standardized indirect effect was 0.003, CI [0.001, 0.005]. This result provides evidence of OBCS mediating the relationship between TFSHf and eating symptoms. The second mediation model was a parallel analysis, investigating whether self-objectification would be supported as mediator between TFSHd and eating symptoms (see Figure 3). There was also a significant indirect effect of TFSHd on eating symptoms through OBCS, $b = 1.23$, 95% CI [0.22, 2.29] (see Table 6). As a measure of effect size, the partially standardized indirect effect was 0.06, CI [0.01, 0.11]. This also provided evidence of OBCS functioning as a mediator in the relationship between TFSHd and eating symptoms.

Figure 2

Simple Mediation Model for the Effects of TFSHf on EAT as Mediated by OBCS



Note. X = predictor variable; M = mediator variable; Y = outcome variable. TFSHf = Technology-Facilitated Sexual Harassment Frequency Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; EAT = Eating Attitudes Test.

*$p < .008$ as per the Bonferroni correction.

Table 5

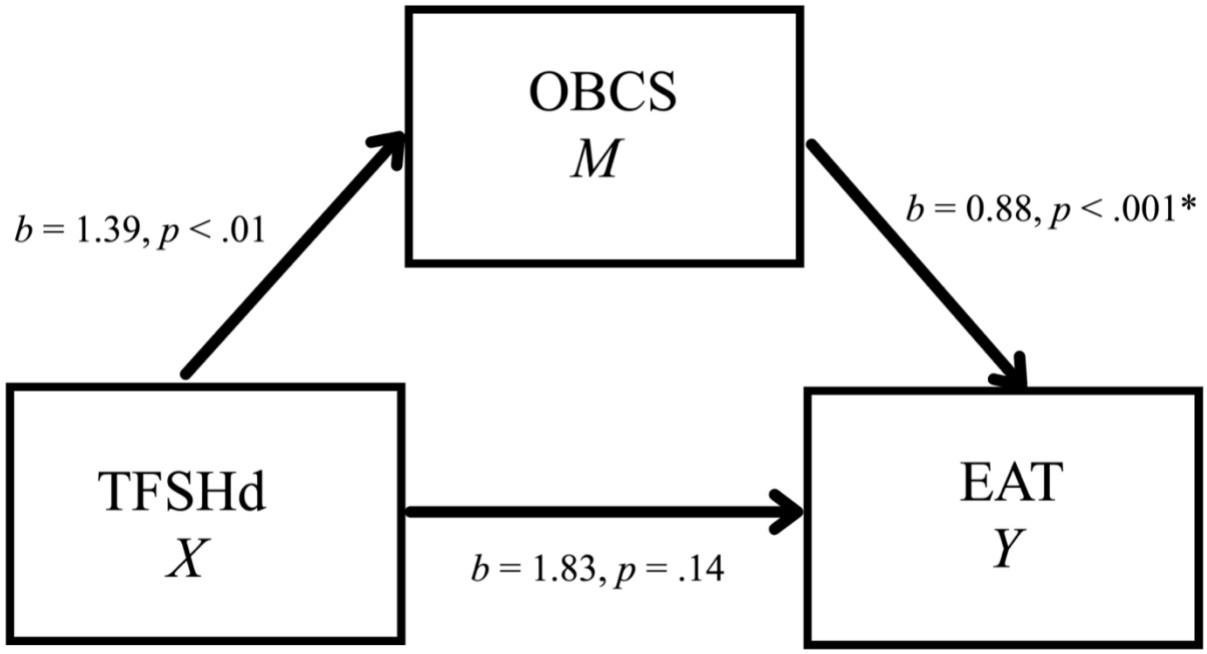
Model Coefficients for the Effects of TFSHf on EAT as Mediated by OBCS

		M (OBCS)				*Y* (EAT)		
		b	*SE*	*p*		*b*	*SE*	*p*
X (TFSHf)	*a*	0.08	0.02	< .001	*c*’	0.23	0.04	< .001
M (OBCS)		_	_	_	*b*	0.76	0.11	< .001
		R^2 = .04				R^2 = .19		
		$F(1, 383) = 17.04$, $p = < .001$				$F(2, 382) = 45.11$, $p = < .001$		

Note. N = 385. TFSHf = Technology-Facilitated Sexual Harassment Frequency Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; EAT = Eating Attitudes Test.

Figure 3

Simple Mediation Model for the Effects of TFSHd on EAT as Mediated by OBCS



Note. X = predictor variable; M = mediator variable; Y = outcome variable. TFSHd = Technology-Facilitated Sexual Harassment Distress Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; EAT = Eating Attitudes Test.

*$p < .008$ as per the Bonferroni correction.

Table 6

Model Coefficients for the Effects of TFSHd on EAT as Mediated by OBCS

		M (OBCS)				*Y* (EAT)		
		b	*SE*	*p*		*b*	*SE*	*p*
X (TFSHd)	*a*	1.39	0.54	< .01	*c*’	1.83	1.22	.14
M (OBCS)		_	_	_	*b*	0.88	0.12	< .001
		R^2 = .02				R^2 = .15		
		$F(1, 367) = 6.74$, $p < .01$				$F(2, 366) = 31.14$, $p = < .001$		

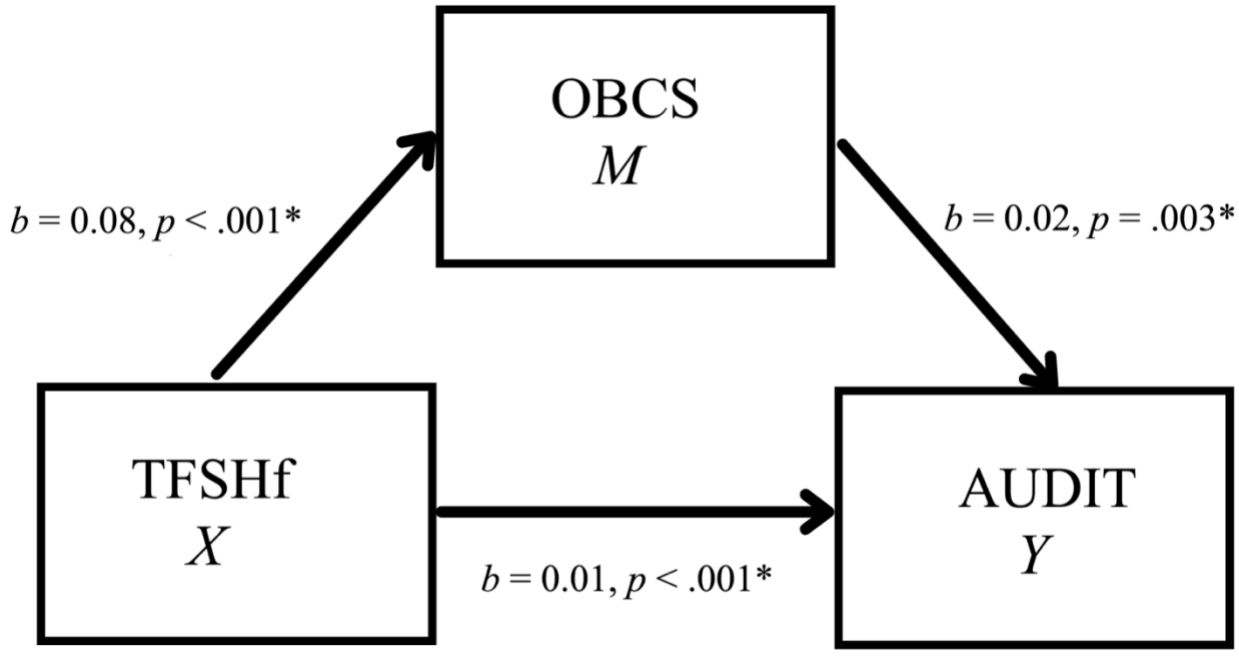
Note. N = 369. TFSHd = Technology-Facilitated Sexual Harassment Distress Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; EAT = Eating Attitudes Test.

Hypothesis 5: TFSH, OBSC, and AUDIT

The third and fourth mediation models examined whether self-objectification (OBSC-Body Surveillance Subscale) would be supported as a mediator between TFSHf and TFSHd, respectively, and alcohol use (AUDIT) (see Figures 4 & 5). There was a significant indirect effect of TFSHf on alcohol use through OBCS, $b = 0.002$, 95% CI [0.0004, 0.003] (see Table 7). As a measure of effect size, the partially standardized indirect effect was 0.001, CI [0.0003, 0.003]. There was also a significant indirect effect of TFSHd on alcohol use through OBCS, $b = 0.03$, 95% CI [0.01, 0.08] (see Table 8). As a measure of effect size, the partially standardized indirect effect was 0.03, CI [0.005, 0.06]. Both these results provide evidence for self-objectification functioning as a mediator in these relationships.

Figure 4

Simple Mediation Model for the Effects of TFSHf on AUDIT as Mediated by OBCS



Note. X = predictor variable; M = mediator variable; Y = outcome variable. TFSHf = Technology-Facilitated Sexual Harassment Frequency Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; AUDIT = Alcohol Use Disorders Identification Test.

*$p < .008$ as per the Bonferroni correction.

Table 7

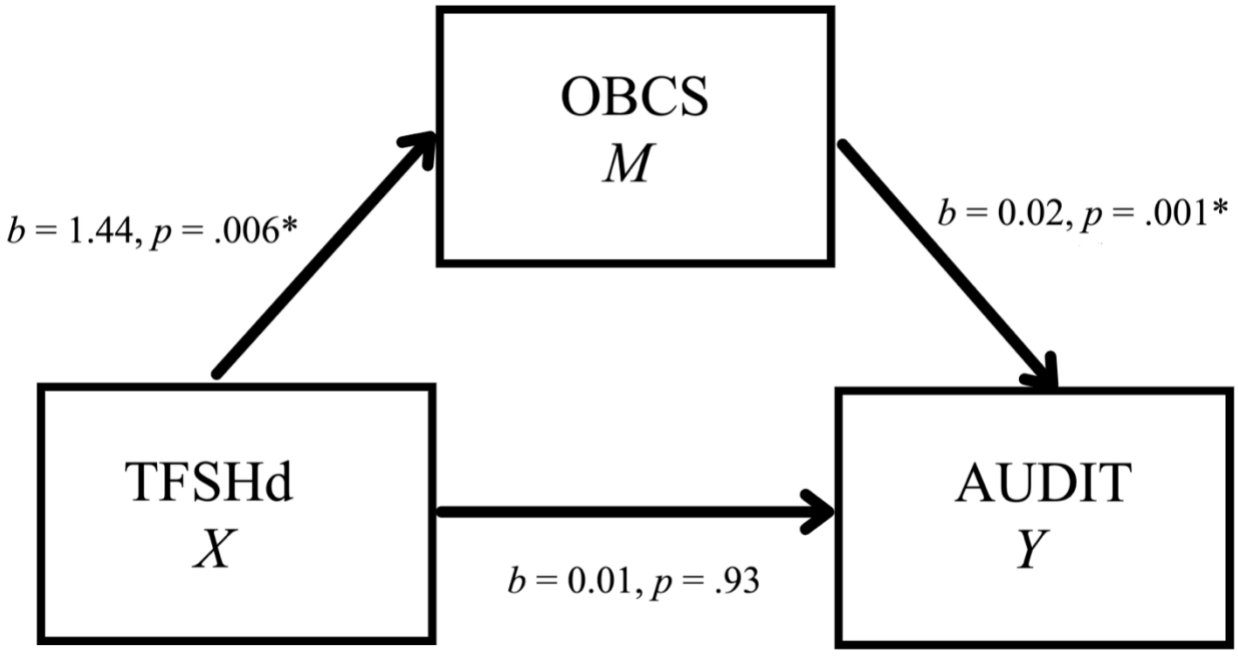
Model Coefficients for the Effects of TFSHf on AUDIT as Mediated by OBCS

		M (OBCS)				*Y* (AUDIT)		
		b	*SE*	*p*		*b*	*SE*	*p*
X (TFSHf)	*a*	0.08	0.02	< .001	*c*’	0.01	0.003	< .001
M (OBCS)		_	_	_	*B*	0.02	0.01	.003
		R^2 = .04				R^2 = .07		
		$F(1, 397) = 16.14$, $p = < .001$				$F(2, 396) = 14.79$, $p = < .001$		

Note. N = 399. TFSHf = Technology-Facilitated Sexual Harassment Frequency Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; AUDIT = Alcohol Use Disorders Identification Test.

Figure 5

Simple Mediation Model for the Effects of TFSHd on AUDIT as Mediated by OBCS



Note. X = predictor variable; M = mediator variable; Y = outcome variable.

TFSHd = Technology-Facilitated Sexual Harassment Distress Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; AUDIT = Alcohol Use Disorders Identification Test.

*$p < .008$ as per the Bonferroni correction.

Table 8

Model Coefficients for the Effects of TFSHd on AUDIT as Mediated by OBCS

		M (OBCS)				*Y* (AUDIT)		
		b	*SE*	*p*		*b*	*SE*	*p*
X (TFSHd)	*a*	1.44	0.53	.006	*c*’	0.01	0.08	.93
M (OBCS)		_	_	_	*b*	0.02	0.01	.001
		$R^2 = .02$				$R^2 = .03$		
		$F(1, 380) = 7.53$, $p = .006$				$F(2, 379) = 5.35$, $p = .005$		

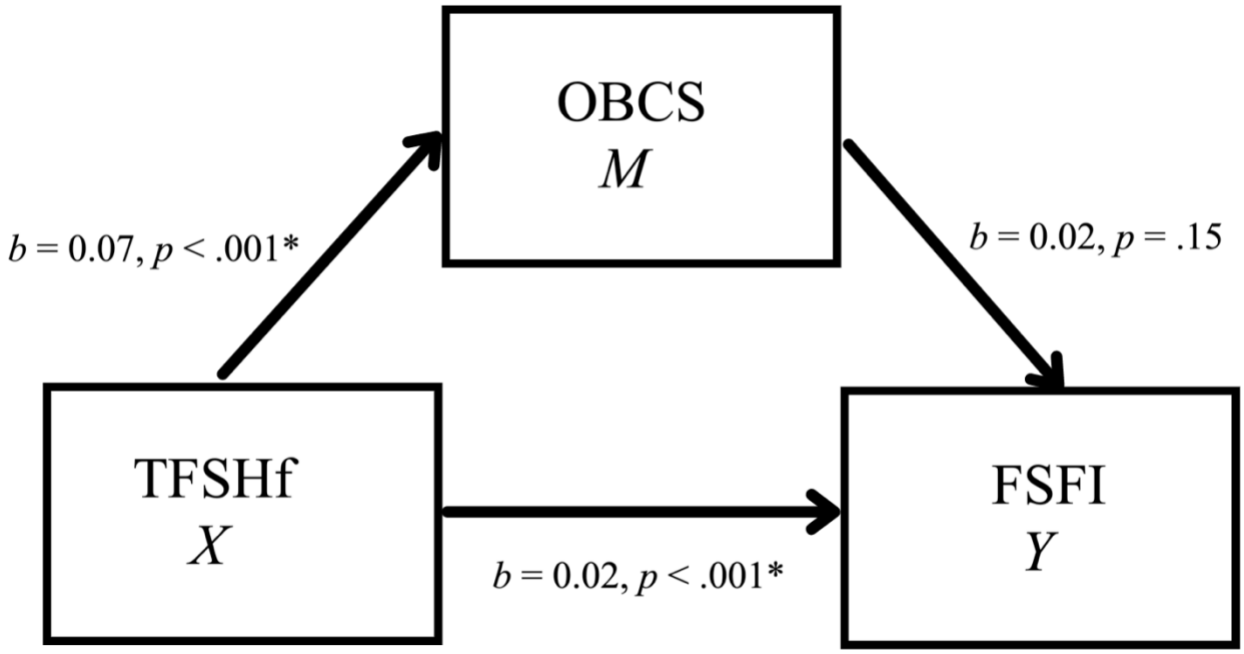
Note. $N = 382$. TFSHd = Technology-Facilitated Sexual Harassment Distress Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; AUDIT = Alcohol Use Disorders Identification Test.

Hypothesis 6: TFSH, OBSC, and FSFI

The fifth mediation model investigated whether self-objectification (OBCS- Body Surveillance Subscale) functioned as a mediator in the relationship between TFSHf and sexual functioning (FSFI- Desire Subscale) (see Figure 6). There was no significant indirect effect of TFSHf on sexual functioning through self-objectification, $b = 0.001$, 95% CI [-0.0006, 0.004]. However, TFSHf was a significant predictor of both OBCS ($b = 0.07$, $p < .001$) and FSFI ($b = 0.02$, $p < .001$). The sixth mediation model also investigated self-objectification as a mediator, except this time between TFSHd and sexual functioning. There was no significant indirect effect of TFSHd on sexual functioning through self-objectification, $b = 0.03$, 95% CI [-0.008, 0.09]. However, TFSHd did yield significant results as a predictor of OBCS ($b = 1.44$, $p < .01$). Hence, self-objectification was not supported as a mediator in either of these relationships.

Figure 6

Simple Mediation Model for the Effects of TFSHf on FSFI as Mediated by OBCS



Note. X = predictor variable; M = mediator variable; Y = outcome variable. TFSHf = Technology-Facilitated Sexual Harassment Frequency Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; FSFI = Female Sexual Function Index – Desire Subscale.

*$p < .008$ as per the Bonferroni correction.

Table 9

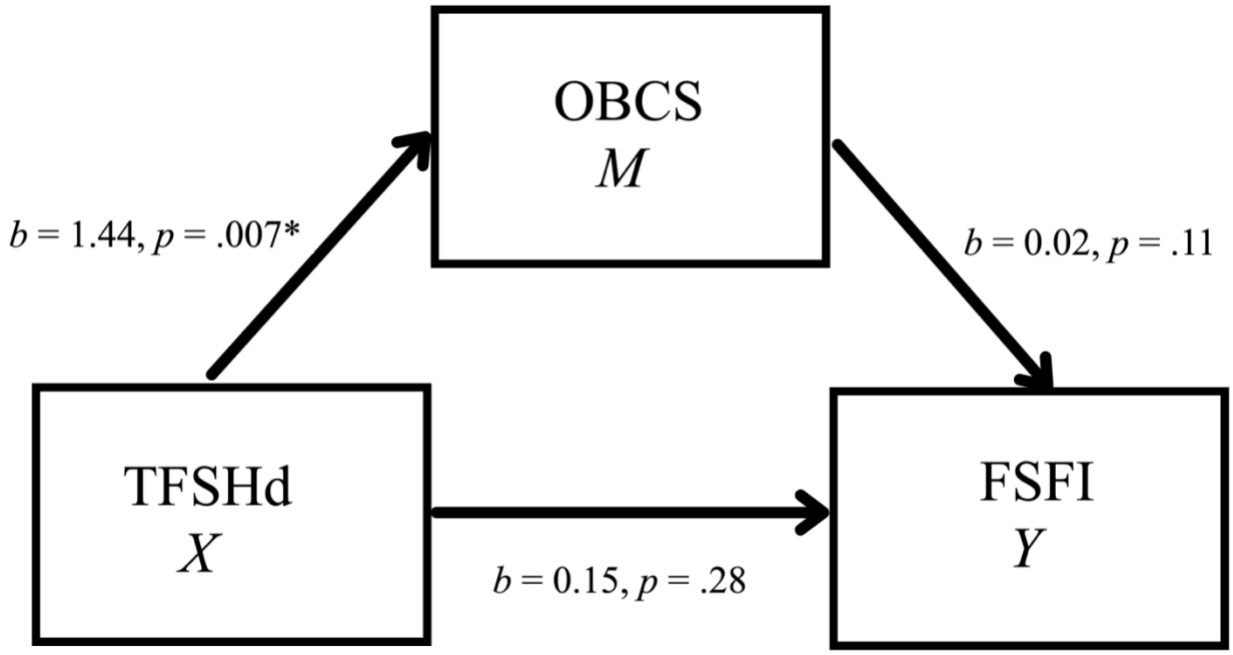
Model Coefficients for the Effects of TFSHf on FSFI as Mediated by OBCS

		M (OBCS)				*Y* (FSFI)		
		b	*SE*	*p*		*b*	*SE*	*p*
X (TFSHf)	*a*	0.07	0.02	< .001	*c*’	0.02	0.01	< .001
Y (OBCS)		_	_	_	*b*	0.02	0.01	.15
		R^2 = .03				R^2 = .06		
		$F(1, 393) = 13.91$, $p = < .001$				$F(2, 392) = 12.66$, $p = < .001$		

Note. N = 395. TFSHf = Technology-Facilitated Sexual Harassment Frequency Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; FSFI = Female Sexual Function Index – Desire Subscale.

Figure 7

Simple Mediation Model for the Effects of TFSHd on FSFI as Mediated by OBCS



Note. X = predictor variable; M = mediator variable; Y = outcome variable. TFSHd = Technology-Facilitated Sexual Harassment Distress Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; FSFI = Female Sexual Function Index – Desire Subscale.

*$p < .008$ as per the Bonferroni correction.

Table 10

Model Coefficients for the Effects of TFSHd on FSFI as Mediated by OBCS

		M (OBCS)				*Y* (FSFI)		
		b	*SE*	*p*		*b*	*SE*	*p*
X (TFSHd)	*a*	1.44	0.53	.007	*c'*	0.15	0.14	.28
M (OBCS)		_	_	_	*b*	0.02	0.01	.11
		$R^2 = .02$				$R^2 = .01$		
		$F(1, 378) = 7.32$, $p = .007$				$F(2, 377) = 2.14$, $p = .12$		

Note. $N = 380$. TFSHd = Technology-Facilitated Sexual Harassment Distress Scale; OBCS = Objectified Body Consciousness Scale – Body Surveillance Subscale; FSFI = Female Sexual Function Index – Desire Subscale.

Discussion

TFSH is a problematic consequence of increasing social connection through technology, particularly for young women, though it is a relatively new topic in the literature (Henry & Powell, 2018). In the current study, TFSH was explored through a cross-sectional design involving female participants living in Canada. To do so, two TFSH scales were created: one that assessed the frequency of TFSH behaviours (TFSHf) and another that assessed distress caused by TFSH (TFHSd). It was hypothesized that TFSH would have positive associations with measures of psychological dysfunction and indeed, there were positive associations between frequency of TFSH and pathological eating behaviours and alcohol use. In regard to sexual functioning, it was hypothesized that frequency of TFSH would have a negative association however, a positive association was obtained. These effect sizes were also all small with only 5% to 9% of the variance being explained by TFSHf. There were no associations between levels of distress caused by TFSH and these psychological variables. To better understand these

relationships, self-objectification was included as a potential mediator, where objectification theory suggested that TFSH would increase the likelihood that individuals would view themselves as an object and as a result, individuals would start to experience symptoms of psychological dysfunction (Fredrickson & Roberts, 1997). In these mediation models, self-objectification was supported as a mediator between frequency and distress ratings of TFSH and both pathological eating symptoms and alcohol use. However, these effect sizes were also small and ranged from 0.001 to 0.06. Self-objectification was not supported as a mediator in the relationships between frequency of TFSH and sexual function nor between distress ratings of TFSH and sexual function. Further interesting results related to perpetrator type and location of TFSH were also reported. These findings can help to shed light on a common phenomenon that little is known about (Henry & Powell, 2018).

TFSH Scales

The TFSH scales developed in this study were an attempt to build on past research that had developed scales for the broader umbrella term, TFSV. Although past scales had utilized dichotomous response types and encompassed a broader domain of content (Gámez-Guadix et al., 2015; Powell & Henry, 2019; Schenk, 2008), the TFSHf and TFSHd scales in this study expanded response options to collect more information on a range of TFSH experiences, while also narrowing item content to only include content specific to TFSH. This was useful so that experiences of TFSH could be better captured and not saturated with responses that fell within the broader TFSV domain. These scales achieved an excellent degree of internal consistency, indicating that they may be reliable for use with other female samples. However, there are several avenues that could be explored in future research to better understand the psychometric properties of these scales. Firstly, to evaluate content validity, expert judges and female victims

of TFSH could be interviewed to assess the degree to which each item is high in quality, representativeness, and relevance (Boateng et al., 2018). For example, to assess the TFSHd scale, female victims could be asked how distressing they believe the TFSH-related content of each scale item to be and then these ratings could be compared with the scores that are achieved from a large sample. If any items are rated as more distressing than others, but this is not showcased in data from a large sample, then this may suggest that the items are not actually capturing participant distress. This could possibly indicate an issue with item wording, clarity, relevance, or otherwise. However, one problem with this approach is that it assumes that distress is an absolute entity that is rated the same by everyone.

The evaluation of feedback that was given by participants in this study could also be used in the future for the addition or paring of items. Factor analysis may be another technique that could reduce items through assessing the degree to which items are related (Boateng et al., 2018). To assess concurrent validity, other scales, such as Powell and Henry's (2019) TFSV Victimization Scale, could be administered at the same time as the TFSH scales to establish if there are high associations between these related scales, as would be hypothesized. Use of the scales in future research will also give a better understanding of their psychometric properties through their relation to theoretically related and unrelated constructs (Boateng et al., 2018). In future, the TFSHf and TFSHd could also be used to inform a TFSH scale that is focused on perpetration. Nonetheless, in this study, these scales were useful in examining TFSH victimization and its association to psychological dysfunction, as can be observed in the next sections.

TFSH and Psychological Dysfunction

Past research on TFSH and TFSV had not yet explored its relation to aspects of psychological functioning like pathological eating symptoms, alcohol use, or sexual functioning which have been explored in the literature on sexual harassment in-person. However, several studies have shown that TFSV is associated with mood disorders (Cripps & Stermac, 2018; Patel & Roesch, 2020; Snaychuk & O'Neill, 2020). In the current study, TFSHf also had positive correlations with pathological eating symptoms and alcohol use. Hence, as frequencies of TFSH experiences were higher, so were these symptoms of psychological dysfunction, which is in line with past research on in-person sexual harassment (Buchanan et al., 2013; Hayes et al., 2021; Reed, Salazar, et al., 2019; Romito et al., 2019; Ybarra et al., 2007). There are a few explanations for these results. Although the cross-sectional nature of the current study prevents the results from being inferred as causal, there may indeed be a causal relationship between TFSH and these symptoms of psychological dysfunction. For instance, a longitudinal relationship between in-personal sexual harassment and eating pathology has been demonstrated in work with adolescents, with sexual harassment being the predictor variable (Petersen & Hyde, 2013). However, it is also possible that these symptoms of psychological dysfunction make women more vulnerable to TFSH, as past research has also shown that variables like substance use may increase one's vulnerability to sexual violence (Basile & Smith, 2011). The execution of longitudinal research could provide clarity on whether there are causal relationships between these variables and if so, the directionality of these relationships.

Another explanation for these results is that other factors are involved. For instance, individuals who have more frequent experiences of TFSH may use technology more often and technology use might cause symptoms of psychological dysfunction. Indeed, increased use of

social media has been correlated with symptoms of psychological dysfunction in past research (e.g., Keles et al., 2020). Although the associations between TFSHf and these symptoms of psychological dysfunction were significant in this study, they were only small to moderate, indicating that this may also constitute a spurious result because of large sample size. Studies with large sample sizes are known to have higher chances of achieving significant results (Tabachnick & Fidell, 2013).

Although results were in line with hypothesized associations between TFSHf and eating pathology and substance use, a positive association between sexual functioning and TFSHf was in opposition to what was hypothesized. Here, as sexual desire was higher so was the frequency of incidents of TFSH. These results do not reflect what is hypothesized by objectification theory (Fredrickson & Roberts, 1997). This might suggest that the upper end of sexual desire also constitutes sexual dysfunction, which might mirror results that have been obtained in the sexual violence literature that showcases its association to risky sexual behaviour (Walsh et al., 2012). However, a third variable may also be involved. For instance, women who are high in sexual desire may be more likely to seek out romantic and/or sexual connections through dating applications and other technological platforms which might increase the likelihood that they experience TFSH. It is also possible that this result was spurious because of large sample size, as mentioned previously. These explanations could certainly be explored more in future research.

This study is one of the first to measure distress ratings for TFSH, rather than purely frequency of TFSH incidents. The absence of significant correlations between TFSHd and measures of psychological dysfunction was a surprising result and was in opposition to hypotheses. To quantify distress, an average distress score was taken from participants across all incidents of TFSH that they reported. Hence, because TFSHf achieved significant correlations

with the psychological functioning variables whereas TFSHd did not, this may showcase that the number of incidents of TFSH is more important to consider than distress which would go against what would be hypothesized. Another explanation for these results is that the measurement of psychological distress in this study was flawed, and that distress was not truly captured. For instance, the use of an average score may have diluted the distress scores for participants who reported more incidents of TFSH, especially if they had a large range of distress ratings.

The disinhibition effect, as posited by Barak (2005), could also provide a rationale for the lack of significant results achieved for TFSHd. Technological environments may increase the likelihood that perpetrators will transgress because their desire for power is disinhibited (Barak, 2005). This may lead to an increased frequency of TFSH and psychological dysfunction in victims, with women who have more experiences of TFSH experiencing more dysfunction. However, the medium of these technological platforms may reduce the distress that women experience as a result of TFSH, thereby causing there to be no significant relationships between TFSHd and psychological dysfunction. Perhaps technological mediums (e.g., phone, computer) allow victims to disconnect from or cope with these experiences in real-time, thereby reducing distress that occurs as a result, which could differ from in-person sexual harassment. This theory could be further explored in future research.

The Role of Self-Objectification

This is the first study to examine self-objectification as a mediator in the relationships between TFSH and measures of psychological functioning. Simple mediation was used to model these relationships and although these models tend to oversimplify complex processes, they can be useful in examining relationships for new phenomenon, like TFSH (Hayes, 2018).

Self-Objectification and Eating Pathology

The relationship between self-objectification and eating pathology has been well-documented in past research (Calogero, 2009; Muehlenkamp & Saris-Baglama, 2002; Tiggemann & Williams, 2012). In the current study, in the relationships between TFSH (both frequency and distress) and pathological eating symptoms, self-objectification, as measured by body surveillance, was supported as a mediator, indicating that self-objectification may help to explain these relationships. All path coefficients in the models were also in the hypothesized positive direction, meaning that as frequency of and distress from TFSH was higher, so were self-objectification and eating pathology. Both of these models provide support for objectification theory, as outlined by Fredrickson and Roberts (1997), whereby individuals whose bodies are sexualized may attempt to exert control over their bodies through developing pathological eating behaviours. Although this result for TFSHd may seem inconsistent with the bivariate results yielding a non-significant association between TFSHd and eating pathology, the inclusion of self-objectification into the model may have helped to detect this relationship through its potential explaining power. Furthermore, this relationship would not have been explored under Baron and Kenny's (1986) causal sequence approach to mediation analysis because of the precondition of having evidence of an association between these predictor and outcome variables, which showcases the value of the approach taken in the current study.

Though self-objectification was supported as a mediator in both models, these results do not warrant the exclusion of other explanations for the role that self-objectification may play in these relationships. Due to the cross-sectional nature of this study, which prevents any inference about causality, it is completely plausible that self-objectification does not function as a mediator in these relationships, but instead functions as the predictor or outcome variable. It is also

possible that other variables may affect TFSH that might instead be related to self-objectification and eating pathology. For example, as was proposed earlier in the discussion, it could be that time spent on technology, which could affect the likelihood of TFSH occurring, causes self-objectification, which then leads to eating pathology. Furthermore, because the effect sizes of these models were small, the clinical significance of these findings are uncertain. Large sample size can also lead to the detection of indirect effects in mediation analysis so this should be a further consideration when interpreting these potentially spurious results (Rucker et al., 2011).

In the proposed mediation model involving TFSHf, a direct effect of TFSHf on eating pathology was also supported suggesting that there is a portion of the relationship between TFSHf and eating pathology that is not explained by self-objectification (Zhao et al., 2010). This may signal that another mediating factor is involved, like lack of awareness of one's body which has been investigated in other research (Tiggemann & Williams, 2012). The absence of a significant direct effect for TFSHd, indicates that the variables fit well in the hypothesized model involving self-objectification and that there may not be another mediator (Zhao et al., 2010). However, although past researchers have termed this model fit "complete mediation", this is no longer thought to be appropriate an term because the existence of other mediators, as well as other intervening variables, is still possible (Hayes, 2018).

Why this difference in direct effects occurred for the models involving TFSHf and TFSHd is unclear. It may suggest that the relationship between TFSH and eating pathology is best explained by self-objectification when distress for the TFSH events (i.e., TFSHd) is considered rather than the number of times TFSH occurs (i.e., TFSHf) because there was no direct effect in the former model. Hence, the objectification process might play more of a primary role when distress from TFSH is considered. It also indicates that there are likely

different variables involved in the relationship between TFSHd and eating pathology than in the relationship between TFSHf and eating pathology, that are not accounted for in these models. For instance, past research has examined individual factors such as coping strategies, resilience, and social support in the context of sexual violence which all may play a moderating role (i.e., role in changing the size of the effect) in the relationship between TFSHd and eating pathology (Scarduzio, Sheff, et al., 2018; Skoog & Kapetanovic, 2020; Snaychuk & O'Neill, 2020). These factors may serve as buffers against the distressing effects of TFSH, and thereby decrease an individual's experience of self-objectification and eating pathology (Scarduzio, Sheff, et al., 2018; Skoog & Kapetanovic, 2020; Snaychuk & O'Neill, 2020). Therefore, due to their power to decrease symptoms of psychological dysfunction, these variables could also explain why no relationship was detected in the bivariate correlations between TFSHd and eating pathology, as well as with the other measures of psychological dysfunction. Although these results may suggest a mediating role of self-objectification in the relationship between TFSH and eating pathology, future research is warranted to better understand the relationships between these variables and to clarify the role that self-objectification may play.

Self-Objectification and Alcohol Use

Self-objectification was also supported as a mediator in the relationships between TFSH (both frequency and distress) and alcohol use. Furthermore, like the mediation models involving eating pathology, these path coefficients were all in the hypothesized positive direction. These results provide support to the extension of objectification theory proposed by Carr and Szymanski's (2011), that sexualizing events, like TFSH, can cause individuals to internalize these experiences and then to cope by engaging in alcohol use (Fredrickson & Roberts, 1997). Like the past mediation results for eating pathology, there are also alternate explanations for the

role that self-objectification and other variables may play in these models, whether through a different place in the causal sequence or through confounding effects. For instance, as stated previously, past research has indicated that alcohol and drug use may increase one's vulnerability to sexual violence (Basile & Smith, 2011). It could be that alcohol use leads to TFSH, which then leads to self-objectification. It should also be noted that the effect sizes were relatively small in these models as well, meaning that the clinical significance of these findings are unclear and likely require more attention in future research.

A direct effect of TFSHf on alcohol use was also significant in this study suggesting that some portion of this relationship is not explained by self-objectification (Zhao et al., 2010). This may signal that other potential mediating variables, like depressive symptoms, which has been investigated in work by Carr and Szymanski (2011), may also be involved. Although it is unclear why there was no direct effect for TFSHd, it does indicate a good model fit, and that the likelihood of other mediators in the relationship is decreased, though not impossible. As was suggested for the models involving eating pathology, these differences between TFSHf and TFSHd may hint that different variables are involved in these relationships, such as resiliency factors (Snaychuk & O'Neill, 2020). Indeed, social support, perceived control, and self-esteem moderate the relationship between TFSV and depressive symptoms in past research, which may translate to work on TFSH and alcohol use given the connection between depressive symptoms and increased alcohol use (Carr & Szymanski, 2011; Snaychuk & O'Neill, 2020). Future research could help to explain these differences between TFSHf and TFSHd. Nonetheless, the consistency of these results with the results obtained for TFSH and eating pathology, provides more support to objectification theory and the role of objectification processes in TFSH.

Self-Objectification and Sexual Function

The final mediation models examined self-objectification as a mediator in the relationships between TFSH (both frequency and distress) and sexual functioning. Here, sexual desire was used as the measure of sexual function. However, self-objectification was not supported as a mediator in these models, which goes against what was hypothesized. Furthermore, self-objectification was not a significant predictor of sexual functioning in either model. This suggests that self-objectification may not help to explain a potential relationship between TFSH and sexual functioning, which is also in opposition to what has been theorized by Fredrickson and Roberts (1997). The use of sexual desire as the measure of sexual function in this study may have prevented these mediation models from being supported. For instance, other measures of sexual function, such as arousal and orgasm, have been suggested by Fredrickson and Roberts (1997) to be involved in objectification processes. Furthermore, in Tiggemann and Williams' (2012) study on self-objectification, eating pathology, and sexual functioning, the researchers found that, although their model had a good fit for eating pathology, it had a poor fit for sexual functioning, which they measured using desire, arousal, orgasm, and sexual satisfaction. They recommended that researchers examine other aspects of sexual function, such as relationship satisfaction, in future research (Tiggemann & Williams, 2012). However, it is not clear how this might be a better measure of sexual functioning.

In these mediation models, all path coefficients were in a positive direction, meaning that as TFSH frequency and distress ratings were higher, so were self-objectification and sexual functioning scores. Similar to the correlational results, this is in opposition to what was hypothesized because TFSH and self-objectification were hypothesized to be negative predictors of sexual function. Although the relationship between TFSHd and sexual function did not yield a

significant direct effect, a direct effect was supported in the relationship between TFSHf and sexual function. This might indicate that a mediator other than self-objectification exists that helps to explain this specific relationship (Zhao et al., 2010). For instance, in the literature on hypersexuality, emotion dysregulation has been theorized as a causal factor (Garofalo et al., 2016). Perhaps emotion regulation may help to explain the relationship between TFSH and sexual desire, or even function as a moderating variable. Other components of the objectification process, such as appearance anxiety, should also be examined in this relationship, which has been discussed by Fredrickson and Roberts (1997) and examined in other research, because they may serve as better measures of self-objectification (Tiggemann & Williams, 2012). It is also unclear why this result occurred for TFSHf and not TFSHd. It may signal that distress was not fully captured in this study, such as through measurement error. These results may also provide evidence for differences between the event itself (TFSHf) and an individual's experience of the event (TFSHd) and each of their relations to sexual functioning. This suggests that researchers should heavily consider how they are measuring TFSH in future research because frequency and distress ratings could lead researchers to different conclusions. It would be useful if these relationships between TFSH, self-objectification, and sexual functioning were further explored to deduce whether TFSH is related to this aspect of psychological functioning, and with the investigations of other components (e.g., relationship satisfaction) of sexual functioning, whether this relationship might be explained by self-objectification.

Overall, this study provides preliminary evidence of relationships between TFSH and eating pathology, alcohol use, and sexual function. Furthermore, mediation models investigating the role of objectification processes in these relationships were further supported, specifically in the cases of eating pathology and alcohol use. However, the clinical significance of these

findings is uncertain. The role of other variables, as well as the way in which researchers are measuring both TFSH and sexual functioning, are likely important considerations in future research. Although, these results can help us to better understand the relationship between TFSH and psychological dysfunction, there was also additional information collected in this study that sheds light on the phenomenon of TFSH itself.

Understanding TFSH

In this study, additional questions were posed to participants who reported that they had experienced at least one incident of TFSH. In terms of perpetrators of TFSH, strangers, acquaintances, and friends were the most often identified. These findings highlight how perpetrators of TFSH have differing relationships with the victim, including individuals who are known and unknown to them. In the literature on in-person sexual harassment, researchers typically examine sexual harassment by context, so it is unclear whether these types of perpetrators are most common. However, sexual harassment by strangers has been studied a great deal (e.g., Bastomski & Smith, 2017; Fairchild, 2010; Fairchild & Rudman, 2008; McCarty et al., 2014). Acquaintances and friends as perpetrators of sexual harassment have been less studied. Other types of perpetrators of TFSH were also identified in this study, including past and current intimate partners, which showcases the overlap that TFSH has with a related phenomenon, intimate partner violence (IPV). In the literature, there has been much research on technological abuse that is perpetrated in the context of IPV (e.g., Duerksen & Woodin, 2019; Fissel et al., 2021). However, its presence in the sample makes it important to re-emphasize that more needs to be done to keep women safe from violence, including at the hands of their intimate partners which has been a topic of recent interest for decades and has known psychological consequences (Lagdon et al., 2014). Furthermore, it supports the need for research

on IPV to examine TFSH, in addition to other forms of TFSV. For example, future work using the Intimate Partner Cyber Abuse Scale created by Fissel and colleagues (2021), could include elements of TFSH because a TFSH domain is not currently a component of this scale.

The context of TFSH was argued by past authors to be an important factor to consider because of its ability to focus prevention initiatives (Reed, Wong, et al., 2019). In our sample, social media, dating applications, chat applications, and text messaging were the most common avenues of TFSH. These results were not surprising, given past research that has highlighted its increased presence on both social media and dating applications (Douglass et al., 2018). The dating website Bumble has a comprehensive policy on TFSV where they outline their stance against unwanted sexual advances, unwanted sexual content, and non-consensual virtual sex (Bumble, n.d.). However, other dating websites have less comprehensive policies that tend to include TFSV within a number of other guidelines, which obfuscates what behaviours are tolerated on their platform (e.g., Tinder, n.d.). Given the role of these platforms in TFSH as showcased in the results of this study, social media and dating applications may consider creating comprehensive policies, so that behaviours that constitute TFSH are clearly not tolerated.

One surprising result, in terms of location of TFSH, was that few participants reported experiencing TFSH through gaming platforms. There have been several studies that have indicated that TFSH is quite prevalent on gaming platforms (Duggan, 2014; Fox & Tang, 2017). Although our findings do not support a high prevalence rate, they do support its presence on these platforms. These findings may also reflect that only roughly 35% of the current sample reported that they gamed which is well below the national average of 61% (Entertainment Software Association of Canada, 2018). Future research may assist in elucidating these results,

especially with the intentional sampling of female gamers. Furthermore, future research may illustrate how best to target these behaviours, such as through gaming developers and influencers being explicit about not tolerating sexual harassment in their games, as has been advised elsewhere (Tang et al., 2020).

Although many participants reported that they had experienced TFSH in private settings, there were also a substantial number who reported that they also experienced it in public. The presence of TFSH in both types of locations likely means that prevention methods for both locales require different approaches. For example, public TFSH might be combatted through the assistance of third parties who are witness to the behaviours, which means that prevention initiatives might focus on third party awareness. However, in private settings, victims may be isolated and left to deal with the TFSH on their own. These types of prevention initiatives might focus on the education and empowerment of women so that they feel a sense of safety in coming forward with their experiences.

Finally, participants in our sample reported that they experienced TFSH, on average, 20% of the total time that they used technology. However, this number ranged, and some participants reported that they experienced it up to 100% of the time. These figures attest to the sometimes chronic and sustained nature of TFSH (Henry & Powell, 2018). Yet, there may be a variety of factors that make women more vulnerable to TFSH, and hence explain why some women experience it more often than others. Consulting with the literature on sexual violence, some of these factors may include: young age, minority status, past victimization, and substance use (Basile & Smith, 2011). The use of the intersectionality framework can help illustrate why a factor like minority status may increase vulnerability to TFSV (Crenshaw, 1990). This framework outlines how different social identities come together to create differing positions of

power and privilege. Individuals who are both female and from minority groups (e.g., racial, sexual orientation) tend to experience reduced power compared to others who are both female and apart of dominant groups. This ties in with Barak's (2005) view that technological environments allow for individuals to exert their power and dominance over others. Perpetrators may specifically target individuals with decreased power, which helps to explain why minority status might create specific vulnerability to TFSV. However, in addition to vulnerability factors, there may be factors that serve a protecting role for women. These factors may include resilience, coping strategies, and social support, as has been previously illustrated (Bryant-Davis et al., 2011; Fedina et al., 2021; Scarduzio, Sheff, et al., 2018; Skoog & Kapetanovic, 2020; Snaychuk & O'Neill, 2020). From a perpetration stand point, there also may be a number of risk factors for the perpetration of these behaviours (e.g., Tharp et al., 2013), including factors that are unique to the technological environment like the disinhibition effect (Barak, 2005), as well as protective factors, such as empathy (Tharp et al., 2013). These factors could all be explored in future research.

Limitations

Although this research provides good insights into the relatively new phenomenon of TFSH, it does come with its limitations. The use of a cross-sectional design allowed for a large sample size to be collected however, it prevents any conclusions from being made about the causal relationships between TFSH and psychological functioning. Furthermore, the use of convenience sampling in this project, comprised of both students and members of the public, prevents the findings from being generalizable to all women. Missing data from participants in this study were treated with a deletion strategy, and as a result, participants who were not retained in analyses due to missing data may have constituted a specific group of women who are

no longer accounted for in the results. For instance, individuals who had missing data may have had less desire to report on their experiences of TFSH because of a higher degree of distress that they experienced. Consequently, this would mean that the study did not capture experiences at the upper end of distress level and therefore, would not be applicable to women who experience a higher degree of distress from incidents of TFSH. Furthermore, the inclusion of primarily young, White, heterosexual, and educated participants prevents the results from being applicable to minority groups and individuals who are older and less educated.

Self-report was a method of data collection that was relied upon in this study because of ease and convenience. It also allowed for women to speak on their own experiences of TFSH, which female participants may have found empowering. However, to combat some of the limitations that occur from self-report, such as response bias and error, social desirability was controlled for in this study. Participant data that captured information pertaining to drug use and other elements of sexual function (e.g., arousal) was also not used in this project. Though this decreased the potential for type 1 errors through the reduction of analyses, it also prevents a more fulsome understanding of substance use and sexual functioning in the context of TFSH. Furthermore, time did not allow for a thorough content validity assessment of the TFSH scales through expert judges or independent raters, or for the pre-testing of items, which means that the validity of the TFSHf and TFSHd scales as measures of TFSH frequency and distress are relatively unknown (Boateng et al., 2018). Finally, the retrospective nature of the study caused participants to report on experiences of TFSH that occurred in both the recent and distant past. Although this approach was useful in collecting information on a range of TFSH experiences, the large timeframe may have confounded results, as not all experiences may have carried the same saliency.

Future Directions

Cross-sectional designs and convenience samples have been oversaturating the research on TFSV (Henry & Powell, 2018). Therefore, future research might benefit from using longitudinal designs to examine both TFSH and TFSV. For instance, a study that examined psychological symptoms over time as individuals experience TFSH would provide a better understanding as to whether these experiences do affect one's psychological health. There is also an abundance of quantitative research on TFSH, signalling that more qualitative scholarship on the topic might help to better understand individual experiences. Furthermore, qualitative research could assist in the modification of the TFSH scales created in this study so that TFSH experiences are better captured. Similarly, more research using the TFSH scales created in the this study will clarify their utility with diverse and different populations. Data collection methods other than self-report would also be useful to capture more information about TFSH like methods that examine TFSH occurring in real-time in the public domain (e.g., on social media). Future research could also seek to disentangle the differences that were noted in this study between TFSHf and TFSHd, such as through the inclusion of resiliency factors in future models. Other aspects of sexual functioning and substance use could also be explored in future research. Finally, future research focused on minority groups would be extremely important to deduce whether experiences of TFSH are different based on factors like race and sexual orientation.

Once a better understanding of TFSH and TFSV is obtained, prevention initiatives, mental health efforts, and policy implications will undoubtedly be an area of future research that could assist in combatting TFSH against women in Canada and globally. Research in this area could guide education practices for perpetrators of TFSH and the public so that they are made aware of the range of behaviours that constitutes TFSH, as well as the range of perpetrator and

platform types (Szymanski et al., 2011). For example, this research, along with other past research indicates that social media and dating applications are among the top sites where TFSH occurred (Douglass et al., 2018). This knowledge could help individuals to keep themselves safe when using these platforms. In terms of mental health efforts, Szymanski and colleagues (2011) speak to the need for providers to assess for sexually objectifying experiences, like TFSH, in their clients. In fact, Szymanski and colleagues (2011) state that research that examines mediators (such as self-objectification) between sexual objectifying experiences and psychological functioning can influence mental health intervention efforts. For instance, this research can help inform work by researchers like Liss and Erchull (2015) which supports the use of self-compassion with clients experiencing self-objectification. If future research supports self-objectification as a mediator in the relationships that were indicated in the current study, that is between TFSH and eating pathology and alcohol use, then these might specifically be the focus of these sorts of mental health intervention efforts. Thus, the acquisition of more research knowledge on TFSH can assist in improving mental health interventions for victims of TFSH.

Future research on TFSH could also help to inform legal guidelines and policies to aid in the prevention and prosecution of TFSH. As it currently stands, TFSH is difficult to prosecute because of a lack of authority over technology, as well as a lack of consensus on legal boundaries (Barak, 2005). It is challenging to locate perpetrators of TFSH because of the vast technological world and because of the involvement of many different parties (e.g., perpetrator, owners of a platform, owners of a server) (Barak, 2005). However, legal ramifications for TFSH are necessary to instill societal boundaries toward unacceptable behaviours so it is important for research to progress knowledge in this area (Barak, 2005). This policy research could also inform education and prevention strategies that institutions in particular take toward TFSH, such as post-

secondary institutions which has individuals (i.e., post-secondary students), who are more at-risk for TFSH victimization because of increased exposure to technology. Therefore, future research can add to our understanding of and guide responses to TFSH behaviours across a variety of sectors.

Conclusions

Although a relatively new area of research interest, TFSH is one of many forms of gender-based violence that occur globally and that have been topics of research interest for decades (Henry & Powell, 2018). In a Canadian context, the current study reported on the development and evaluation of two TFSH scales that had excellent reliability. The study also showcased a range of perpetrator types and technological locations that were involved in the perpetration of these behaviours. As one of the first studies to examine psychological functioning and TFSH, this study also indicated that TFSH, specifically the frequency of these behaviours, was associated with eating pathology and alcohol use, which is consistent with its association to other aspects of psychological dysfunction (e.g., Cripps & Stermac, 2018), although the clinical significance and causal nature of these findings are unknown. Furthermore, in opposition to what was hypothesized, frequency of TFSH was positively associated with sexual functioning, which could be an area of future exploration. Finally, this study sheds light on the role of self-objectification as a potential mediator in these relationships, particularly between TFSH and eating pathology, and TFSH and alcohol use, which could provide mental health researchers and clinicians with a gateway in providing mental health support to survivors and victims. Though technology is ever evolving, it is likely that the enhancement of social interaction will continue to be a primary objective of these future advancements. As such, TFSH is likely to remain a serious consequence of this increased connectedness and therefore, further research and clinical

interest in this area is likely to greatly assist society in its fight against TFSH, TFSV, and other forms of gender-based violence.

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Appendix A

Information Letter– Student Sample

Dear Potential Participant:

Thank you for your interest in the "Technology, Social Experiences, and Mental Health" study. You have been invited to participate in this study so that we can better understand people's experiences on technological platforms.

Taking part in this study is voluntary. Before you decide whether or not you would like to take part in this study, please read this information carefully to understand what is involved. If you have any questions, please ask one of the research team members (see the contact information at the end of this letter).

PURPOSE

The main purpose of this study is to assess participants' use of technology and experiences on technological platforms, and how these may relate to psychological factors like substance use and sexual functioning. In particular, we are interested in incidents involving unwanted sexual attention that some individuals might experience on these platforms. In the present study, we also aim to develop and evaluate a scale that measures unwanted sexual attention.

WHAT INFORMATION WILL BE COLLECTED?

In the present study participants will be asked some general questions, such as information about their demographics. They will also be asked questions about their use of and experiences with technology, including experiences involving unwanted sexual attention. Participants will further be asked questions about their sexual functioning, substance use, and eating behaviours.

WHAT IS REQUESTED OF ME AS A PARTICIPANT?

The present study is an online survey study that will be hosted on the SurveyMonkey platform (i.e., an online survey developer). The study may be completed at a time and location of your choosing. It is anticipated that the session will not last longer than 1 hour.

WHAT ARE MY RIGHTS AS A PARTICIPANT?

You are under no obligation to participate, and are free to withdraw at any time without prejudice to pre-existing entitlements. Your decision to participate will also not affect your academic status. You may also refuse to answer any question or questions while partaking in this

study.

WHAT ARE THE RISKS AND BENEFITS?

There are no known physical risks associated with participating in the current study. However, some of the material in the questionnaires contains sensitive subject matter that might result in minor psychological discomfort for some people. If this occurs and you would like some extra support, you may contact Student Health and Wellness at Lakehead University. If you are at Thunder Bay campus, you may contact 1-807-343-8361, and if you are at Orillia campus, you may contact 1-705-330-4008 ext. 2116. For the Thunder Bay Crisis Response Service, through the Canadian Mental Health Association, you may also contact 1-807-346-8282, or for the Ontario Mental Health Helpline, please contact 1-866-531-2600.

As a token of our gratitude for participating in this research, you may elect to receive one bonus mark towards an eligible Lakehead University psychology course. If you elect to receive a bonus mark, you must access this survey through the Sona system (http://lupsych.sona-systems.com).

HOW WILL MY CONFIDENTIALITY BE MAINTAINED?

Your anonymity and confidentiality will be maintained throughout this study and the faculty research investigator (Dr. Dwight Mazmanian) will not know which students have participated in this study. All data will be coded with a number and no identifying information will be associated with responses or research results. Only Dr. Mazmanian (principal investigator), Casey Oliver (student investigator), Erika Puiras (student research team member), and Shayna Cummings (student research team member) will have access to the anonymized data. Please note, however, that the online survey tool used in the study (SurveyMonkey.com) is hosted by a server located in the USA. The US Patriot Act permits US law enforcement officials, for the purpose of anti-terrorism investigation, to seek a court order that allows access to the personal records of any person without the person's knowledge. In view of this we cannot absolutely guarantee the full confidentiality and anonymity of your data. With your consent to participate in this study, you acknowledge this.

WHAT WILL MY DATA BE USED FOR?

The data obtained in this research will be used for the Master's thesis of the student investigator, Casey Oliver, and the findings will also be used for research publications and/or presentations at scholarly conferences. Your identity will remain anonymous throughout these processes.

WHERE WILL MY DATA BE STORED?

All data will be securely stored at Lakehead University for five years.

HOW CAN I RECEIVE A COPY OF THE RESEARCH RESULTS?

A summary of the results can be made available to you by email once the study has been completed. If you are interested in receiving these research results, please email the researcher at [coliver3@lakeheadu.ca] with the subject heading "Results Summary Request - Technology, Social Experiences, and Mental Health Study". We will email you a copy of the Results Summary once it is made available which may take up to one year after you complete the survey.

WHAT IF I WANT TO WITHDRAW FROM THE STUDY?

Your participation in this research is completely voluntary, and should you choose not to participate, you may do so without consequence or the need for justification. Similarly, you may also discontinue your participation at any time without explanation or penalty. However, once you submit your data it cannot be withdrawn due to its anonymity. If you wish to withdraw from the study please exit the SurveyMonkey platform.

RESEARCH TEAM CONTACT INFORMATION:

If you have any further questions regarding this study, you may contact:

Casey Oliver, MA, Clinical Psychology Graduate Student: coliver3@lakeheadu.ca

Dwight Mazmanian, PhD, Professor, Department of Psychology: dmazmani@lakeheadu.ca

RESEARCH ETHICS BOARD REVIEW AND APPROVAL:

This research study has been reviewed and approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca.

Thank you for your interest and participation. It is greatly appreciated!

Appendix B

Information Letter– Community Sample

Dear Potential Participant:

Thank you for your interest in the "Technology, Social Experiences, and Mental Health" study. You have been invited to participate in this study so that we can better understand people's experiences on technological platforms.

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PURPOSE

The main purpose of this study is to assess participants' use of technology and experiences on technological platforms, and how these may relate to psychological factors like substance use and sexual functioning. In particular, we are interested in incidents involving unwanted sexual attention that some individuals might experience on these platforms. In the present study, we also aim to develop and evaluate a scale that measures unwanted sexual attention.

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study.

WHAT ARE THE RISKS AND BENEFITS?

There are no known physical risks associated with participating in the current study. However, some of the material in the questionnaires contains sensitive subject matter that might result in minor psychological discomfort for some people. If this occurs and you would like some extra support, you may contact Crisis Services Canada at 1-833-456-4566. For Indigenous participants, you may also contact the Hope for Wellness Helpline at 1-855-242-3310.

As a token of our gratitude for participating in this research, you may elect to be entered into a draw to win one of ten $25 (CAD) electronic gift cards from a place of your choosing out of Indigo, Tim Hortons, or Walmart. In order to be entered into the draw, we ask that you provide your email address at the end of the survey so that you can be contacted if you win. This email will not be associated with your responses.

HOW WILL MY CONFIDENTIALITY BE MAINTAINED?

Your anonymity and confidentiality will be maintained throughout this study and the faculty research investigator (Dr. Dwight Mazmanian) will not know which students have participated in this study. All data will be coded with a number and no identifying information will be associated with responses or research results. Only Dr. Mazmanian (principal investigator), Casey Oliver (student investigator), Erika Puiras (student research team member), and Shayna Cummings (student research team member) will have access to the anonymized data. Please note, however, that the online survey tool used in the study (SurveyMonkey.com) is hosted by a server located in the USA. The US Patriot Act permits US law enforcement officials, for the purpose of anti-terrorism investigation, to seek a court order that allows access to the personal records of any person without the person's knowledge. In view of this we cannot absolutely guarantee the full confidentiality and anonymity of your data. With your consent to participate in this study, you acknowledge this.

WHAT WILL MY DATA BE USED FOR?

The data obtained in this research will be used for the Master's thesis of the student investigator, Casey Oliver, and the findings will also be used for research publications and/or presentations at scholarly conferences. Your identity will remain anonymous throughout these processes.

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All data will be securely stored at Lakehead University for five years.

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A summary of the results can be made available to you by email once the study has been completed. If you are interested in receiving these research results, please email the researcher at [hhab.laboratory@gmail.com] with the subject heading "Results Summary Request - Technology, Social Experiences, and Mental Health Study". We will email you a copy of the Results Summary once it is made available which may take up to one year after you complete the survey.

WHAT IF I WANT TO WITHDRAW FROM THE STUDY?

Your participation in this research is completely voluntary, and should you choose not to participate, you may do so without consequence or the need for justification. Similarly, you may also discontinue your participation at any time without explanation or penalty. However, once you submit your data it cannot be withdrawn due to its anonymity. If you wish to withdraw from the study please exit the SurveyMonkey platform.

RESEARCH TEAM CONTACT INFORMATION:

If you have any further questions regarding this study, you may contact:

Casey Oliver, MA, Clinical Psychology Graduate Student: hhab.laboratory@gmail.com

Dwight Mazmanian, PhD, Professor, Department of Psychology: dmazmani@lakeheadu.ca

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This research study has been reviewed and approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca.

Thank you for your interest and participation. It is greatly appreciated!

Appendix C

Consent Form

MY CONSENT:

I agree to the following:

- ✓ I have read and understand the information contained in the Information Letter
- ✓ I agree to participate
- ✓ I understand the risks and benefits to the study
- ✓ That I am a volunteer and can withdraw from the study up until the data is submitted, and may choose not to answer any question
- ✓ That the data will be securely stored at Lakehead University for 5 years following completion of the research project
- ✓ I understand that the research findings will be made available to me once the study is completed, if I have requested it
- ✓ I will remain anonymous
- ✓ All of my questions have been answered

By consenting to participate, I have not waived any rights to legal recourse in the event of research-related harm.

I have read and agree to the above information and, by completing and submitting this survey, agree to participate.

If you consent to participate in the study, please click the "Next" button at the bottom of the page to continue.

Appendix D

Thank You and Debriefing Form – Student Sample

Thank you for your participation in this research project on technology, social experiences, and mental health. We hope that this study will help to provide information on young adults' mental health and their experiences with others on technological platforms. Past research has indicated that experiences, like unwanted sexual attention, are related to psychological factors like substance use, sexual functioning, and eating behaviours. Hence, this research project hopes to expand information in this area by examining participants' social experiences on technological platforms, and the associated psychological factors. This information can then be used to inform prevention and treatment strategies for perpetrators and victims of negative technological encounters.

Information about Study Results
A summary of the results can be made available to you by email once the study has been completed. If you are interested in receiving these research results, please email the researcher at [coliver3@lakeheadu.ca] with the subject heading "Results Summary Request -Technology, Social Experiences, and Mental Health Study". We will email you a copy of the Results Summary once it is made available which may take up to one year after you complete the survey.

Bonus Credit
As a token of our gratitude for participating in this research, you may elect to receive one bonus credit on Sona to be used towards an eligible Lakehead University psychology course. If you elect to receive this credit, you must have signed up for this survey through the Sona system and your course instructor must allow for bonus marks. Once the survey has been completed, you will be granted the credits within 48 hours.

If you have specific questions about the survey you may contact the student investigator, Casey Oliver, M.A. [coliver3@lakeheadu.ca] or the principal investigator, Dwight Mazmanian, Ph.D., C.Psych [dmazmani@lakeheadu.ca, 807-343-8257].

If completing this survey has raised any mental health concerns that you would like to discuss, you may contact Student Health and Wellness at Lakehead University. If you are at Thunder Bay campus, please contact 1-807-343-8361, and if you are at Orillia campus, please contact 1-705-330-4008 ext. 2116. For the Thunder Bay Crisis Response Service, you may also contact 1-807-346-8282 or for the Ontario Mental Health Helpline please contact 1-866-531-2600.

Please print or save a copy of this letter for your records.

With sincere thanks,
Casey Oliver and Dr. Dwight Mazmanian, Health, Hormones, & Behaviour Lab, Department of Psychology

Appendix E

Thank You and Debriefing Form – Community Sample

Thank you for your participation in this research project on technology, social experiences, and mental health. We hope that this study will help to provide information on young adults' mental health and their experiences with others on technological platforms. Past research has indicated that experiences, like unwanted sexual attention, are related to psychological factors like substance use, sexual functioning, and eating behaviours. Hence, this research project hopes to expand information in this area by examining participants' social experiences on technological platforms, and the associated psychological factors. This information can then be used to inform prevention and treatment strategies for perpetrators and victims of negative technological encounters.

Information about Study Results
A summary of the results can be made available to you by email once the study has been completed. If you are interested in receiving these research results, please email the researcher at [hhab.laboratory@gmail.com] with the subject heading "Results Summary Request -Technology, Social Experiences, and Mental Health Study". We will email you a copy of the Results Summary once it is made available which may take up to one year after you complete the survey.

Gift Card Draw
As a token of our gratitude for participating in this research, you may elect to be entered into a draw to win one of ten $25 (CAD) electronic gift cards from a place of your choosing out of Indigo, Tim Hortons, or Walmart. In order to be entered into the draw, we ask that you provide your email address at the end of the survey so that you can be contacted if you win. This email will not be associated with your responses.

If you have specific questions about the survey you may contact the student investigator, Casey Oliver, M.A. [hhab.laboratory@gmail.com] or the principal investigator, Dwight Mazmanian, Ph.D., C.Psych [dmazmani@lakeheadu.ca, 807-343-8257].

If completing this survey has raised any mental health concerns that you would like to discuss, you may contact Crisis Services Canada at 1-833-456-4566. For Indigenous participants, you may also contact the Hope for Wellness Helpline at 1-855-242-3310.

Please print or save a copy of this letter for your records.

With sincere thanks,
Casey Oliver and Dr. Dwight Mazmanian, Health, Hormones, & Behaviour Lab, Department of Psychology

Click **HERE** to enter your email for the e-gift card draw.
Please note that clicking on the above link will bring you to a new page that is not connected to the survey results. Therefore, if you choose to add your email for the e-gift card draw, it will not be associated with your previous responses, which will remain anonymous.

(On a separate page).

E-Gift Card Draw:

If you would like to be entered into the draw for an electronic gift card, please include your email address below in order to be informed and sent the e-gift card should you win.

Email:

Thank you for participating in this study!

Appendix F

Demographic Questionnaire

1. What is your age?
    a. Open response (numerical)

2. What was your biological sex at birth?
    a. Female
    b. Male
    c. I do not identify with the options listed
    d. Prefer not to say

3. What is your gender?
    a. Female
    b. Male
    c. Non-binary
    d. I do not identify with the options listed
    e. Prefer not to say

4. What is your race/ethnicity?
    a. African
    b. Caribbean
    c. East Asian
    d. Hispanic/Latinx/Latina/Latino
    e. Indigenous (First Nations, Metis, or Inuit)
    f. Middle Eastern
    g. Pacific Islander
    h. South Asian
    i. White (Caucasian)
    j. Mixed
    k. I don't identify with the options listed
    l. Prefer not to say

5. What is your sexual orientation?
    a. Exclusively heterosexual
    b. Predominantly heterosexual, only incidentally homosexual
    c. Predominately heterosexual, but more than incidentally homosexual
    d. Equally heterosexual and homosexual
    e. Predominately homosexual, but more than incidentally heterosexual
    f. Predominately homosexual, only incidentally heterosexual
    g. Exclusively homosexual
    h. No socio-sexual contacts or reactions (e.g., asexual)
    i. I do not identify with the options listed
    j. Prefer not to say

6. What is the highest level of education you have completed?

a. None
b. Elementary school
c. Some high school
d. High school completed
e. Some college or technical school
f. College or technical school completed
g. Some undergraduate training
h. Undergraduate degree completed
i. Some graduate training (e.g., Masters, Doctoral)
j. Master's degree completed
k. Doctoral or professional degree completed

7. What is your current cumulative grade point average (0-100)? If this is your first semester at Lakehead, please use/estimate your exiting grade point average from the last educational institution you attended (e.g., high school, college).
    a. Numerical response

8. What is your work/employment status?
    a. Employed full-time
    b. Employed part-time
    c. Unemployed

9. Are you currently a student at a university or college?
    a. Yes – full time
    b. Yes – part time
    c. No

10. If yes, are you a domestic or international student?
    a. Domestic (Canadian/permanent resident)
    b. International

11. What is your marital status?
    a. Single
    b. Married/common-law
    c. Separated/divorced
    d. Widowed
    e. In a committed relationship (not married or common law)
    f. Prefer not to say

12. What Canadian province or territory do you currently reside in?
    a. British Columbia
    b. Alberta
    c. Saskatchewan
    d. Manitoba
    e. Ontario
    f. Quebec

g. New Brunswick
h. Nova Scotia
i. Prince Edward Island
j. Newfoundland and Labrador
k. Yukon
l. Northwest Territories
m. Nunavut
n. I do not currently reside in Canada

13. If you currently reside in Canada, do you currently live in an urban or rural area? *Here, urban refers to places with a population over 100,000 people and rural refers to places with a population under 100,000 people.*

a. Urban
b. Rural

Appendix G

Technology Questionnaire

For the next questions please respond on the basis of what is normal for you.

1. What technological platforms/functions do you regularly use? (select all that apply)
    a. Social Media/News (e.g., Instagram, Snapchat, Facebook, Twitter, TikTok, Pinterest, YouTube)
    b. Dating Applications (e.g., Bumble, eHarmony, Grindr, Hinge, Plenty of Fish, Tinder)
    c. Video Game Platforms (e.g., Xbox, PlayStation, Nintendo Switch, Personal computer games, Phone application games, social media games)
    d. Chat Applications (e.g., WeChat, WhatsApp, iMessage)
    e. Video Conferencing Applications (e.g., Facetime, Zoom, Skype)
    f. Internet forums (e.g., Reddit)
    g. Blog websites
    h. Email
    i. Phone calling
    j. SMS text messaging
    k. Other

2. If you selected any video game platforms in question 1c, what type of games do you typically play? (select all that apply)
    a. Action-Adventure (i.e., a broad category of games oriented toward action and exploration, mostly in third person perspective)
    b. Massively multiplayer online role-playing games (MMORPG) and other role-playing games (RPG) (i.e., massively multiplayer online role-playing games in which players develop a character and interact collaboratively and competitively with other players in a shared online world)
    c. First/third-person/other shooter (i.e., kill-or-be-killed in fast, violent action, usually with military or sci-fi themes)
    d. Gambling (i.e., primarily simulations of poker, black jack, and slot machine gambling)
    e. Real-Time and other strategy (i.e., strategic combat oriented games from an aerial perspective with no wait between moves or turn-based, and other forms of strategic simulation)

f. Board/card games (i.e., simulations of primarily classic games without gambling)
g. Sports (i.e., realistic simulations, primarily of team sports)
h. Puzzle (i.e., games involving matching, logic, deductive reasoning, and other puzzles)
i. Rhythm (i.e., music and dance themed games often involving a unique controller like a guitar or dance pad)
j. Driving (i.e., primarily car racing games)
k. Platformer (i.e., games in two or three dimension in which players contend with enemies in an environment requiring precise movement and jumping to achieve objectives)
l. Other

3. How many hours per day, on average, would you estimate that you use the technological platforms/functions that you selected in question 1? (best estimate)
a. Numerical response

4. Why do you use each of the platforms/functions that you selected above? (select all that apply)
For:
a. Fun
b. Creativity
c. Job
d. Gambling
e. School
f. Volunteering
g. Information and news
h. Socialization
i. Romantic connections
j. Sexual connections
k. To escape from and cope with reality
l. To escape to a fantasy or imaginary experience
m. Other

5. Who do you typically connect with on the platforms/functions that you selected above? (select all that apply)
a. Friends (including online friends that you have not have met in-person)
b. Family
c. Acquaintances (i.e., someone who you know but not on a personal level, not including school mates or work associates)
d. Person I have been intimate with in conversation and/or physically, but would not consider a past or current partner (e.g., "friend with benefits", "hookup buddy", person who has been on dates with you)
e. Intimate partner(s)
    i. Past
    ii. Current
f. School mates (e.g., classmates, lab mates)

g. Work associates (i.e., colleagues, supervisors, managers)
h. Strangers
i. Other

Appendix H

The Technology-Facilitated Sexual Harassment Scales

The next questions ask about some experiences that you may have had while using technology. Please remember that you may decline to answer any of them.

In your lifetime, how often have you had the following experiences <u>via technology</u> *(e.g., social media/news, dating applications, video game platforms, chat applications, video conferencing, text messaging, email, phone call)*?

Please rate these experiences on a five-point scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Almost Always; Prefer not to say/I don't know

Note: sender refers to an individual who sent you sexual content via technology

1. Received <u>unwanted</u> pictures or videos of a sender's sexual organs (e.g., "dick pics", breasts)
2. Received <u>unwanted</u> pictures or videos of a third party's sexual organs (i.e., not the sexual organs of the sender of the pictures/videos)
3. Received <u>unwanted</u> pictures or videos of a sender's body, not focused on sexual organs (e.g., "nudes")
4. Received <u>unwanted</u> pictures or videos of a third party's body, not focused on sexual organs (i.e., not the body of the sender of the pictures/videos)
5. Received <u>unwanted</u> pictures or videos of a sender engaging in sexual acts (e.g., masturbation, sexual intercourse)
6. Received <u>unwanted</u> pictures or videos of a third party engaging in sexual acts (e.g., pictures or videos of masturbation and/or sexual intercourse that does not involve the sender of the pictures/videos)
7. Received <u>unwanted</u> requests to send sexual photos or videos of your sexual organs (e.g., "dick pics", breasts)
8. Received <u>unwanted</u> requests to send sexual photos or videos of your body, not focused on sexual organs (e.g., "nudes")
9. Received <u>unwanted</u> requests to send sexual photos or videos of you engaging in sexual acts (e.g., masturbation, sexual intercourse)
10. Received <u>unwanted</u> requests to talk about sexual acts (e.g., engage in "sexting")
11. Received <u>unwanted</u> requests to engage in a dating or romantic relationship
12. Received <u>unwanted</u> comments, questions, or requests about sexually touching or engaging in sexual acts with you
13. Received <u>unwanted</u> comments or questions about your physical appearance
14. Received <u>unwanted</u> comments or questions about a sender's physical appearance
15. Received <u>unwanted</u> comments or questions about a third party's physical appearance (i.e., not your physical appearance or the physical appearance of the sender of the comments/questions)
16. Received <u>unwanted</u> comments or questions about your sexual organs (e.g., genitals, breasts)
17. Received <u>unwanted</u> comments or questions about a sender's sexual organs (e.g., genitals, breasts)

18. Received unwanted comments or questions about a third party's sexual organs (e.g., genitals, breasts) (i.e., not your sexual organs or the sexual organs of the sender of the comments/questions)
19. Received unwanted comments or questions about your body, not focused on sexual organs
20. Received unwanted comments or questions about a sender's body, not focused on sexual organs
21. Received unwanted comments or questions about a third party's body, not focused on sexual organs (i.e., not your body or the body of the sender of the comments/questions)
22. Received unwanted comments or questions about your sex life
23. Received unwanted comments or questions about a sender's sex life (e.g., bragging about sexual prowess)
24. Received unwanted comments or questions about a third party's sex life (i.e., not your sex life or the sex life of the sender of the comments/questions)
25. Received unwanted comments or questions about other intimate personal topics about you (e.g., your fertility, menstrual cycle, personal hygiene habits)
26. Received unwanted comments or questions about other intimate personal topics about a sender (e.g., their fertility, menstrual cycle, personal hygiene habits)
27. Received unwanted comments or questions about other intimate personal topics about a third party (i.e., not intimate personal topics about you or the sender of the comments/questions)
28. Received unwanted sexual stories or jokes
29. Been the victim of a sexual rumour started via technology (e.g., that you are available to have sex)

Please answer the following three questions, also on a five-point scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Almost Always; Prefer not to say/I don't know
How often have you:

30. Received any other unwanted pictures or videos of a sexual nature that was/were not captured in any of the previous items (please specify)
31. Received any other unwanted comments or questions of a sexual nature that was/were not captured in any of the previous items (please specify)
32. Received any other unwanted requests of a sexual nature that was/were not captured in any of the previous items (please specify)

Please answer the following question for questions 1 to 32 that were selected (i.e., rating of 2 or higher)**:**

33. How much were you bothered by or distressed by this/these experience(s)?
    a. Not at all
    b. A little bit
    c. Moderately
    d. Quite a lot
    e. Extremely

Please also answer the following questions about the experiences that you selected above:

34. Of what you have experienced above, how many such incidents in total have you experienced in your lifetime? (please provide your best estimate)
    a. Numerical answer

35. Who did this/these experience(s) come from (i.e., who was the sender)? (select all that apply)
    a. Strangers
    b. Friends (including online friends that you have not have met in-person)
    c. Family members
    d. Acquaintances (i.e., someone who you know but not on a personal level, not including school mates or work associates)
    e. Person I have been intimate with in conversation and/or physically, but would not consider a past or current partner (e.g., "friend with benefits", "hookup buddy", person who has been on a date(s) with you)
    f. Intimate partner(s)
        I. Past (i.e., when the incident happened they were no longer your intimate partner)
        II. Current (i.e., when the incident happened they were your intimate partner)
    g. Work associates (e.g., colleagues, supervisors, managers)
    h. School mates (e.g., classmates, lab mates)
    i. Other (please specify)

36. On what technological platforms did this/these experience(s) occur? (select all that apply)
    a. Social media/news (e.g., Facebook, Pinterest, Instagram)
    b. Dating applications (e.g., eHarmony, Grindr, Tinder)
    c. Video game platforms (personal computer, console, handheld)
    d. Chat applications (e.g., WhatsApp, WeChat, iMessage)
    e. Video conferencing applications (e.g., Zoom, Skype, FaceTime)
    f. Internet forums (e.g., Reddit)
    g. Blog websites
    h. Email
    i. Phone calling
    j. SMS text messaging
    k. Other (please specify)

37. How often did this/these experience(s) occur in private settings (i.e., not in public forums; e.g., direct messages on social media, SMS text messages)?
    a. Almost Always
    b. Often
    c. Sometimes
    d. Rarely
    e. Never

38. If you are comfortable providing an answer, please describe in your own words your most recent experience of any of the incidents that you selected above.
    a. Open response

Appendix I

The Alcohol Use Disorders Identification Test (Babor et al., 2001)

The following questions will ask about your use of alcohol in the past year. Please remember that you may decline to answer any of them.

1. How often do you have a drink containing alcohol?
    a. Never
    b. Monthly or less
    c. 2-4 times a month
    d. 2-3 times a week
    e. 4 or more times a week

2. How many drinks containing alcohol do you have on a typical day when you are drinking?
    a. 1 or 2
    b. 3 or 4
    c. 5 or 6
    d. 7 to 9
    e. 10 or more

3. How often do you have six or more drinks on one occasion?
    a. Never
    b. Less than monthly
    c. Monthly
    d. Weekly
    e. Daily or almost daily

4. How often during the last year have you found that you were not able to stop drinking once you had started?
    a. Never
    b. Less than monthly
    c. Monthly
    d. Weekly
    e. Daily or almost daily

5. How often during the last year have you failed to do what was normally expected of you because of drinking?
    a. Never
    b. Less than monthly
    c. Monthly
    d. Weekly
    e. Daily or almost daily

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
    a. Never

b. Less than monthly
c. Monthly
d. Weekly
e. Daily or almost daily

7. How often during the last year have you had a feeling of guilt or remorse after drinking?
   a. Never
   b. Less than monthly
   c. Monthly
   d. Weekly
   e. Daily or almost daily

8. How often during the last year have you been unable to remember what happened the night before because of drinking?
   a. Never
   b. Less than monthly
   c. Monthly
   d. Weekly
   e. Daily or almost daily

9. Have you or someone else been injured because of your drinking?
   a. No
   b. Yes, but not in the last year
   c. Yes, during the last year

10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?
   a. No
   b. Yes, but not in the last year
   c. Yes, during the last year

Appendix J

Nicotine, Marijuana, and Other Drugs Questionnaire (Adapted from WHO, 2010)

The following questions will ask about your use of tobacco, cannabis, and other drugs in the past year. Please remember that you may decline to answer any of them.

1. In your life, which of the following substances have you ever used (non-medical use only)?
    a. Tobacco products (cigarettes, chewing tobacco, cigars, e-cigarettes, etc.)
    b. Cannabis (marijuana, pot, weed, grass, hash etc.)
    c. Cocaine (coke, crack, etc.)
    d. Amphetamine-type stimulants (speed, meth, ecstasy, etc.)
    e. Inhalants (nitrous, glue, petrol, paint thinner, etc.)
    f. Sedatives or sleeping pills (diazepam, etc.)
    g. Hallucinogens (LSD, acid, mushrooms, trips, ketamine, etc.)
    h. Opioids (heroin, morphine, methadone, buprenorphine, codeine, etc.)
    i. Other

2. If yes to any of the above, in the past year, how often have you used the substance you mentioned (first drug, second drug, etc.)?
    a. Never
    b. Once or twice
    c. Monthly
    d. Weekly
    e. Daily or almost daily

3. During the past year, how often have you had a strong desire or urge to use (first drug, second drug, etc.)?
    a. Never
    b. Once or twice
    c. Monthly
    d. Weekly
    e. Daily or almost daily

4. During the past year, how often has your use of (first drug, second drug, etc.) led to health, social, legal, or financial problems?
    a. Never
    b. Once or twice
    c. Monthly
    d. Weekly
    e. Daily or almost daily

5. During the past year, how often have you failed to do what was normally expected of you because of your use of (first drug, second drug, etc.)?
    a. Never
    b. Once or twice
    c. Monthly

    d. Weekly
    e. Daily or almost daily
6. Has a friend or relative or anyone else ever expressed concern over your use of (first drug, second drug, etc.)?
    a. No, never
    b. Yes, in the past year
    c. Yes, but not in the past year

7. Have you ever tried to cut down on using (first drug, second drug, etc.) but failed?
    a. No, never
    b. Yes, in the past year
    c. Yes, but not in the past year

Appendix K

The Eating Attitudes Test-26 (Garner & Garfinkel, 1979)

Please rate your agreement with each of the following statements on a scale from “Always”, “Usually”, “Often”, “Sometimes”, “Rarely”, to “Never”. Please remember that you may decline to answer any of them.

1. I am terrified about being overweight.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

2. I avoid eating when I am hungry.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

3. I find myself preoccupied with food.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

4. I have gone on eating binges where I feel that I may not be able to stop.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

5. I cut my food into small pieces.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

6. I am aware of the calorie content of foods that I eat.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

7. I particularly avoid food with a high carbohydrate content (i.e. bread, rice, potatoes, etc.).
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

8. I feel that others would prefer if I ate more.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

9. I vomit after I have eaten.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

10. I feel extremely guilty after eating.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

11. I am preoccupied with a desire to be thinner.
    a. Always
    b. Usually
    c. Often
    d. Sometimes

e. Rarely
f. Never

12. I think about burning calories when I exercise.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

13. Other people think that I am too thin.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

14. I am preoccupied with the thought of having fat on my body.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

15. I take longer than others to eat my meals.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

16. I avoid foods with sugar in them.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

17. I eat diet foods.
    a. Always
    b. Usually

c. Often
d. Sometimes
e. Rarely
f. Never

18. I feel that food controls my life.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

19. I display self-control around food.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

20. I feel that others pressure me to eat.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

21. I give too much time and thought to food.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

22. I feel uncomfortable after eating sweets.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

23. I engage in dieting behavior.

a. Always
b. Usually
c. Often
d. Sometimes
e. Rarely
f. Never

24. I like my stomach to be empty.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

25. I have the impulse to vomit after meals.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

26. I enjoy trying rich new foods.
    a. Always
    b. Usually
    c. Often
    d. Sometimes
    e. Rarely
    f. Never

Appendix L

The Female Sexual Function Index (Rosen et al., 2000)

INSTRUCTIONS: These questions ask about your sexual feelings and responses **during the past 4 weeks**. Please answer the following questions as honestly and clearly as possible. Your responses will be kept completely anonymous. Also remember that you may decline to answer any of them. In answering these questions the following definitions apply:

Sexual activity can include caressing, foreplay, masturbation, anal sex, and vaginal penetration.

Vaginal penetration is defined as penetration (entry) of the vagina with any object (fingers, sex toys, penis)

Sexual stimulation includes situations like foreplay with a partner, self-stimulation (masturbation), or sexual fantasy.

Sexual desire or interest is a feeling that includes wanting to have a sexual experience, feeling receptive to a partner's sexual initiation, and thinking or fantasizing about having sex.

1. Over the past 4 weeks, how **often** did you feel sexual desire or interest?
   5 = Almost always or always
   4 = Most times (more than half the time)
   3 = Sometimes (about half the time)
   2 = A few times (less than half the time)
   1 = Almost never or never

2. Over the past 4 weeks, how would you rate your **level** (degree) of sexual desire or interest?
   5 = Very high
   4 = High
   3 = Moderate
   2 = Low
   1 = Very low or none at all

Sexual arousal is a feeling that includes both physical and mental aspects of sexual excitement. It may include feelings of warmth or tingling in the genitals, lubrication (wetness), or muscle contractions.

3. Over the past 4 weeks, how **often** did you feel sexually aroused (“turned on”) during sexual activity or intercourse?
   0 = No sexual activity
   5 = Almost always or always
   4 = Most times (more than half the time)
   3 = Sometimes (about half the time)
   2 = A few times (less than half the time)
   1 = Almost never or never

4. Over the past 4 weeks, how would you rate your **level** of sexual arousal ("turn on") during sexual activity or intercourse?
   0 = No sexual activity
   5 = Very high
   4 = High
   3 = Moderate
   2 = Low
   1 = Very low or none at all

5. Over the past 4 weeks, how **confident** were you about becoming sexually aroused during sexual activity or intercourse?
   0 = No sexual activity
   5 = Very high confidence
   4 = High confidence
   3 = Moderate confidence
   2 = Low confidence
   1 = Very low or no confidence

6. Over the past 4 weeks, how **often** have you been satisfied with your arousal (excitement) during sexual activity or intercourse?
   0 = No sexual activity
   5 = Almost always or always
   4 = Most times (more than half the time)
   3 = Sometimes (about half the time)
   2 = A few times (less than half the time)
   1 = Almost never or never

7. Over the past 4 weeks, how **often** did you become lubricated ("wet") during sexual activity or intercourse?
   999 = Does not apply to me
   0 = No sexual activity
   5 = Almost always or always
   4 = Most times (more than half the time)
   3 = Sometimes (about half the time)
   2 = A few times (less than half the time)
   1 = Almost never or never

8. Over the past 4 weeks, how **difficult** was it to become lubricated ("wet") during sexual activity or intercourse?
   999 = Does not apply to me
   0 = No sexual activity
   1 = Extremely difficult or impossible
   2 = Very difficult
   3 = Difficult
   4 = Slightly difficult

5 = Not difficult

9. Over the past 4 weeks, how often did you **maintain** your lubrication ("wetness") until completion of sexual activity or intercourse?
   999 = Does not apply to me
   0 = No sexual activity
   5 = Almost always or always
   4 = Most times (more than half the time)
   3 = Sometimes (about half the time)
   2 = A few times (less than half the time)
   1 = Almost never or never

10. Over the past 4 weeks, how **difficult** was it to maintain your lubrication ("wetness") until completion of sexual activity or intercourse?
   999 = Does not apply to me
   0 = No sexual activity
   1 = Extremely difficult or impossible
   2 = Very difficult
   3 = Difficult
   4 = Slightly difficult
   5 = Not difficult

11. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **often** did you reach orgasm (climax)?
   0 = No sexual activity
   5 = Almost always or always
   4 = Most times (more than half the time)
   3 = Sometimes (about half the time)
   2 = A few times (less than half the time)
   1 = Almost never or never

12. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **difficult** was it for you to reach orgasm (climax)?
   0 = No sexual activity
   1 = Extremely difficult or impossible
   2 = Very difficult
   3 = Difficult
   4 = Slightly difficult
   5 = Not difficult

13. Over the past 4 weeks, how **satisfied** were you with your ability to reach orgasm (climax) during sexual activity or intercourse?
   0 = No sexual activity
   5 = Very satisfied
   4 = Moderately satisfied
   3 = About equally satisfied and dissatisfied

2 = Moderately dissatisfied
1 = Very dissatisfied

14. Over the past 4 weeks, how **satisfied** have you been with the amount of emotional closeness during sexual activity between you and your partner?
    0 = No sexual activity and/or I have not had a sexual partner in the past 30 days
    5 = Very satisfied
    4 = Moderately satisfied
    3 = About equally satisfied and dissatisfied
    2 = Moderately dissatisfied
    1 = Very dissatisfied

15. Over the past 4 weeks, how **satisfied** have you been with your sexual relationship with your partner?
    0 = I have not had a sexual partner in the past 30 days
    5 = Very satisfied
    4 = Moderately satisfied
    3 = About equally satisfied and dissatisfied
    2 = Moderately dissatisfied
    1 = Very dissatisfied

16. Over the past 4 weeks, how **satisfied** have you been with your overall sexual life?
    5 = Very satisfied
    4 = Moderately satisfied
    3 = About equally satisfied and dissatisfied
    2 = Moderately dissatisfied
    1 = Very dissatisfied

17. Over the past 4 weeks, how **often** did you experience discomfort or pain during vaginal penetration?
    999 = Does not apply to me
    0 = Did not attempt vaginal penetration
    1 = Almost always or always
    2 = Most times (more than half the time)
    3 = Sometimes (about half the time)
    4 = A few times (less than half the time)
    5 = Almost never or never

18. Over the past 4 weeks, how **often** did you experience discomfort or pain following vaginal penetration?
    999 = Does not apply to me
    0 = Did not attempt vaginal penetration
    1 = Almost always or always
    2 = Most times (more than half the time)
    3 = Sometimes (about half the time)
    4 = A few times (less than half the time)

5 = Almost never or never

19. Over the past 4 weeks, how would you rate your **level** (degree) of discomfort or pain during or following vaginal penetration?
    999 = Does not apply to me
    0 = Did not attempt vaginal penetration
    1 = Very high
    2 = High
    3 = Moderate
    4 = Low
    5 = Very low or none at all

Appendix M

The Male Sexual Function Index (Kalmbach et al., 2012)

INSTRUCTIONS: These questions ask about your sexual feelings and responses **during the past 4 weeks**. Please answer the following questions as honestly and clearly as possible. Your responses will be kept completely anonymous. Also remember that you may decline to answer any of them. In answering these questions the following definitions apply:

Sexual activity can include caressing, foreplay, masturbation, anal sex, and vaginal penetration.

Sexual intercourse is defined as penile penetration (entry) of the vagina

Sexual stimulation includes situations like foreplay with a partner, self-stimulation (masturbation), or sexual fantasy.

Sexual desire or interest is a feeling that includes wanting to have a sexual experience, feeling receptive to a partner's sexual initiation, and thinking or fantasizing about having sex.

1. Over the past 4 weeks, how **often** did you feel sexual desire or interest?
   5 = Almost always or always
   4 = Most times (more than half the time)
   3 = Sometimes (about half the time)
   2 = A few times (less than half the time)
   1 = Almost never or never

2. Over the past 4 weeks, how would you rate your **level** (degree) of sexual desire or interest?
   5 = Very high
   4 = High
   3 = Moderate
   2 = Low
   1 = Very low or none at all

Sexual arousal is a feeling that includes both physical and mental aspects of sexual excitement. It may include feelings of warmth or tingling in the genitals, lubrication (wetness), or muscle contractions.

3. Over the past 4 weeks, how **often** did you feel sexually aroused (“turned on”) during sexual activity or intercourse?
   0 = No sexual activity
   5 = Almost always or always
   4 = Most times (more than half the time)
   3 = Sometimes (about half the time)
   2 = A few times (less than half the time)
   1 = Almost never or never

4. Over the past 4 weeks, how would you rate your **level** of sexual arousal ("turn on") during sexual activity or intercourse?
   0 = No sexual activity
   5 = Very high
   4 = High
   3 = Moderate
   2 = Low
   1 = Very low or none at all

5. Over the past 4 weeks, how **confident** were you about becoming sexually aroused during sexual activity or intercourse?
   0 = No sexual activity
   5 = Very high confidence
   4 = High confidence
   3 = Moderate confidence
   2 = Low confidence
   1 = Very low or no confidence

6. Over the past 4 weeks, how **often** have you been satisfied with your arousal (excitement) during sexual activity or intercourse?
   0 = No sexual activity
   5 = Almost always or always
   4 = Most times (more than half the time)
   3 = Sometimes (about half the time)
   2 = A few times (less than half the time)
   1 = Almost never or never

7. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **often** did you reach orgasm (climax)?
   0 = No sexual activity
   5 = Almost always or always
   4 = Most times (more than half the time)
   3 = Sometimes (about half the time)
   2 = A few times (less than half the time)
   1 = Almost never or never

8. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **difficult** was it for you to reach orgasm (climax)?
   0 = No sexual activity
   1 = Extremely difficult or impossible
   2 = Very difficult
   3 = Difficult
   4 = Slightly difficult
   5 = Not difficult

9. Over the past 4 weeks, how **satisfied** were you with your ability to reach orgasm (climax) during sexual activity or intercourse?
   0 = No sexual activity
   5 = Very satisfied
   4 = Moderately satisfied
   3 = About equally satisfied and dissatisfied
   2 = Moderately dissatisfied
   1 = Very dissatisfied

10. Over the past 4 weeks, how **satisfied** have you been with the amount of emotional closeness during sexual activity between you and your partner?
    0 = No sexual activity and/or I have not had a sexual partner in the past 30 days
    5 = Very satisfied
    4 = Moderately satisfied
    3 = About equally satisfied and dissatisfied
    2 = Moderately dissatisfied
    1 = Very dissatisfied

11. Over the past 4 weeks, how **satisfied** have you been with your sexual relationship with your partner?
    0 = I have not had a sexual partner in the past 30 days
    5 = Very satisfied
    4 = Moderately satisfied
    3 = About equally satisfied and dissatisfied
    2 = Moderately dissatisfied
    1 = Very dissatisfied

12. Over the past 4 weeks, how **satisfied** have you been with your overall sexual life?
    5 = Very satisfied
    4 = Moderately satisfied
    3 = About equally satisfied and dissatisfied
    2 = Moderately dissatisfied
    1 = Very dissatisfied

13. Over the past 30 days, how **often** did your penis become erect when trying to engage in sexual activity or intercourse?
    999 = Does not apply to me
    0 = No sexual activity
    5 = Almost always or always
    4 = Most times (more than half the time)
    3 = Sometimes (about half the time)
    2 = A few times (less than half the time)
    1 = Almost never or never

14. How **difficult** was it to produce an erection during sexual activity or intercourse?
    999 = Does not apply to me

0 = No sexual activity
1 = Extremely difficult or impossible
2 = Very difficult
3 = Difficult
4 = Slightly difficult
5 = Not difficult

15. How often did you **maintain** your erection for the desired length of time?
    999 = Does not apply to me
    0 = No sexual activity
    5 = Almost always or always
    4 = Most times (more than half the time)
    3 = Sometimes (about half the time)
    2 = A few times (less than half the time)
    1 = Almost never or never

16. How **difficult** was it to maintain your erection for the desired length of time?
    999 = Does not apply to me
    0 = No sexual activity
    1 = Extremely difficult or impossible
    2 = Very difficult
    3 = Difficult
    4 = Slightly difficult
    5 = Not difficult

Appendix N

The Objectified Body Consciousness Scale (McKinley & Hyde, 1996)

For the next questions please respond on the basis of what is normal for you

1. I rarely think about how I look.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

2. I think it is more important that my clothes are comfortable than whether they look good on me.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

3. I think more about how my body feels than how my body looks.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

4. I rarely compare how I look with how other people look.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

5. During the day, I think about whether the clothes I am wearing make me look good.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree

d. Neither agree nor disagree
e. Somewhat agree
f. Agree
g. Strongly agree

6. I often worry about whether the clothes I am wearing make me look good.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

7. I rarely worry about how I look to other people.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

8. I am more concerned with what my body can do than how it looks.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

9. When I can't control my weight, I feel like something must be wrong with me.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

10. I feel ashamed of myself when I haven't made the effort to look my best.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree

e. Somewhat agree
f. Agree
g. Strongly agree

11. I feel like I must be a bad person when I don't look as good as I could.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

12. I would be ashamed for people to know what I really weigh.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

13. I never worry that something is wrong with me when I am exercising as much as I should.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

14. When I'm not exercising enough, I question whether I am a good enough person.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

15. Even when I can't control my weight, I think I'm an okay person.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree

e. Somewhat agree
f. Agree
g. Strongly agree

16. When I'm not the size I think I should be, I feel ashamed.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

Appendix O

Personality Research Form - Desirability Scale (Jackson, 1984)

Read each statement and decide whether or not it describes you. If you agree with the statement or decide that it does describe you, answer TRUE. If you disagree with a statement or feel that it is not descriptive of you, answer FALSE. Answer every item either true or false, even if you are not completely sure of your answer.

0 = False; 1 = True

1. I am quite able to make correct decisions on difficult questions. _____
2. I am never able to do things as well as I should. _____
3. My life is full of interesting activities. _____
4. I believe people tell lies any time it is to their advantage. _____
5. If someone gave me too much change, I would tell him (them) _____
6. I would be willing to do something a little unfair to get something that was important to me. _____
7. I get along with people at parties quite well. _____
8. I did many very bad things as a child. _____
9. I am glad I grew up the way I did. _____
10. I often question whether life is worthwhile. _____
11. I am always prepared to do what is expected of me. _____
12. My daily life includes many activities I dislike. _____
13. I am one of the lucky people who could talk with my parents about my problems. _____
14. Many things make me feel uneasy. _____
15. I am careful to plan for my distant goals. _____
16. I find it very difficult to concentrate. _____

Appendix P

Personality Research Form - Infrequency Scale (Jackson, 1984)

Read each statement and decide whether or not it describes you. If you agree with the statement or decide that it does describe you, answer TRUE. If you disagree with a statement or feel that it is not descriptive of you, answer FALSE. Answer every item either true or false, even if you are not completely sure of your answer.

0 = False; 1 = True

1. I have never bought anything in a store. _____
2. I could easily count from one to twenty-five. _____
3. I can run a mile (1.6 kilometres) in less than four minutes. _____
4. I have never talked to anyone by telephone. _____
5. I usually wear something warm when I go outside on a very cold day. _____
6. I make all my own clothes and shoes. _____
7. I have never brushed or cleaned my teeth. _____
8. Things with sugar in them usually taste sweet to me. _____
9. Sometimes I see cars near my home. _____
10. I have never had any hair on my head. _____
11. I have traveled away from my home town. _____
12. I have never ridden in an automobile. _____
13. I have never felt sad. _____
14. I try to get at least some sleep every night. _____
15. Sometimes I feel thirsty or hungry. _____
16. I have attended school at some time during my life. _____

Appendix Q

Technology-Facilitated Sexual Harassment, Mental Health, and COVID-19

The following questions are related to your experiences during the COVID-19 pandemic.

1. Have you experienced a lockdown, or other similar type of government-imposed restriction, during the COVID-19 pandemic? *Note: this refers to the measures set in place (e.g., physical distancing, travel bans, closed borders, lockdowns) to restrict human contact because of the Coronavirus (COVID-19) disease which was upgraded to pandemic status on March 11th, 2020 by the World Health Organization (WHO).*
    1. Yes
    2. No

Technology-facilitated sexual harassment refers to unwanted sexual attention, including being asked intimate questions or receiving unwanted sexual material, that is experienced through any technological means including in online (e.g., video conferencing, social media, video game platforms, chat rooms, emails) and offline (e.g., audio/video conferencing, text messaging, phone calls) environments.

2. During the COVID-19 restrictions, how would you describe the *frequency* (i.e., incidents) of your personal experience with technology-facilitated sexual harassment (please refer to the definition above)?
    a. I have experienced an increase in frequency of technology-facilitated sexual harassment during the COVID-19 restrictions.
    b. I have experienced a decrease in frequency of technology-facilitated sexual harassment during the COVID-19 restrictions.
    c. The frequency of my personal experience with technology-facilitated sexual harassment did/has not changed during the COVID-19 restrictions.
    d. Prefer not to say/ I don't know

3. During the COVID-19 restrictions, how would you describe your mental health overall, compared to before the restrictions?
    a. I have experienced an improvement in my mental health during the COVID-19 restrictions.
    b. I have experienced a decline in my mental health during the COVID-19 restrictions.
    c. My mental health has not changed during the COVID-19 restrictions.
    d. Prefer not to say/I don't know

Open Response Question

1. Do you have any comments about any of the topics or questions covered in the present study?