



Examining the Gendered Impacts of Technology-Facilitated Sexual Violence: A Mixed Methods Approach

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Abstract

Technology-facilitated sexual violence (TFSV) is defined broadly as unwanted or unwelcome sexual behavior involving the use of technology, including online sexual harassment, online gender or sexuality-based harassment, online image-based abuse (colloquially known as "revenge porn"), and online sexual aggression/coercion (colloquially known as "sextortion"). The purpose of this study was to explore the victim impact of TFSV and to critically examine the positioning of TFSV as a gender-based harm; that is, a harm directed primarily towards women. This study employed a mixed methods approach, integrating quantitative online survey data ($N = 333$; $M_{age} = 33.91$ years; 63% women) with qualitative interview data ($N = 10$; $Age_{range} = 24-46$; 50% women) to gain a more comprehensive understanding of TFSV. We found that victims of TFSV experienced anxiety, stress, depression, loss of control, mistrust, multiple victimizations, poor academic/occupation functioning, problematic alcohol consumption, embarrassment, and online behavior changes (e.g., limiting personal information online) due to TFSV victimization. Individuals who experienced online image-based abuse reported greater distress on items of depression, anxiety, and occupational/academic functioning than did victims of other types of TFSV. The current study provides partial support for the gender similarities hypothesis that TFSV is not exclusively a gender-based harm; our findings suggest that women and men's TFSV experiences are similar for most TFSV types. Overall, the present study demonstrates the negative impact TFSV has for both women and men and highlights the need for greater awareness and increased support for all victims of this form of sexual violence.

Keywords Internet abuse · Sexual harassment · Technology-facilitated sexual violence · Sexual aggression · Well-being · Mixed methods

Introduction

In 2018, 24-year-old Army veteran Jared Johns from Greenville, South Carolina, committed suicide after being victimized by two South Carolina prison inmates executing an online sexual coercion scam (i.e., "sextortion"). Johns was

deceived online to produce and send sexually explicit images of himself, resulting in a blackmail ransom demand (Brown, 2021; Farzan, 2019).

Johns' case, and numerous others worldwide (e.g., Amanda Todd, Chrissy Chambers, Brittany Roque), exemplify the devastating effects of the little-understood phenomenon of technology-facilitated sexual violence (TFSV). Henry and Powell (2018) define TFSV as the use of "digital communication technologies for the facilitation of sexual violence and harassment" (p. 3638). There are four main types of TFSV: (1) online sexual harassment—defined as "uninvited behaviors that explicitly communicate sexual desires or attention towards another individual" (Barak, 2005, p. 78) which also includes online harassment by a current or former partner; (2) online image-based abuse—defined as the creation, distribution, and threat of distribution of sexually explicit image(s) of another person without their consent (colloquially referred to as revenge pornography); (3) online sexual aggression/

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coercion—obtaining "sexual cooperation by putting some kind of pressure on a victim" (Barak, 2005, p. 80) or creating, distributing, or threatening to distribute an image/video of a non-consensual sexual experience; and (4) online gender and sexuality-based harassment—defined as harassment (i.e., unwelcome comments that insult or cause discomfort to another individual) on the basis of a person's gender, sexuality, or sexual orientation (Powell & Henry, 2016).

Defining Technology-Facilitated Sexual Violence

Scholars have stated that "researchers studying this topic have not yet reached a consensus on the definition of TFSV despite an increase in the number of empirical studies investigating it" (Patel & Roesch, 2020). Powell and Henry's (2016) conceptualization and operationalization of TFSV using the Technology-Facilitated Sexual Violence Victimization Scale offers a clear, behaviorally-specific, and broad range of online sexually abusive behaviors, which encompass actions such as "sending unsolicited nude pictures, harassing an individual online because of their gender and/or sexuality, and circulating sexually-explicit images of an individual without their consent" (Snaychuk & O'Neill, 2020, p. 984).

Given the lack of conceptual and operational consistency among various studies in the field of technology and sexual violence (Snaychuk & O'Neill, 2020), we elected to use Powell and Henry's (2016) definition of TFSV (see online supplemental materials for the full TFSV Victimization Scale) to facilitate comparisons between studies. However, we note limitations of this operationalization, such as the assumption of mutual exclusivity, as well as the lack of a cyberstalking domain. Further, we acknowledge that scholars debate the inclusion of sexual harassment in the definition of sexual violence; however, we argue that this inclusion is consistent with international norms, such as definitions used by the United Nations, who include sexual harassment as a form of sexual violence (United Nations Human Rights Office of the High Commissioner, 1993). Despite these limitations, we draw upon Powell and Henry's (2016) conceptualization of TFSV to understand victim impacts and examine claims of TFSV as a gender-based harm—indeed, claims of TFSV as a gender-based harm have largely emerged within Powell and Henry's framework, thus we utilize the same framework to scrutinize these claims.

Impacts of Technology-Facilitated Sexual Violence

Several highly publicized cases of TFSV have incited concern regarding this growing criminal phenomenon (Diebelius, 2017; Kaye, 2010; Mungin, 2012; Zeidler, 2014). A substantial body of academic literature exists on cyberbullying, cyberstalking, and cyberpornography (Henry & Powell, 2015). Although there is a developing research base for TFSV

perpetrated against children and adolescents, there remains a lack of research regarding the impacts associated with TFSV victimization among adults (Henry & Powell, 2018); accordingly, experts have called for increased research on adult TFSV victimization (e.g., Powell & Henry, 2016).

Understanding the impact of TFSV victimization is complicated by this lack of literature and by the broad nature of TFSV, which encompasses many forms of digital violence which have been variously studied and defined (see Henry & Powell, 2015; Powell & Henry, 2016). Among the few studies available on adult psychosocial outcomes, victimization has negative impacts on a broad range of well-being measures. For example, in a sample of adult women victims of online image-based abuse, Bates (2017) found victimization to be associated with detrimental mental health outcomes, including depression, anxiety, post-traumatic stress disorder, suicidal ideation, substance use issues, and negative interpersonal impacts. Cripps (2016) similarly found TFSV victimization (broadly defined and encompassing all types of TFSV outlined above) to be associated with depression, anxiety, stress, and symptoms of post-traumatic stress disorder among adult women. Finally, Champion et al. (2021) found that broadly defined TFSV victimization increased suicidality serially through bullying, depression, and perceived burdensomeness—suggesting a cascade of victimization experiences among adult women and men. Though these works provide a foundation for understanding the psychological and interpersonal impact of TFSV victimization, there remains a lack of comprehensive research on the experiences of men who are victims of TFSV.

The Focus on Women in Technology-Facilitated Sexual Violence Victimization Research

A feminist perspective has driven the few studies available on adult victims of TFSV (see Bates, 2015; Henry & Powell, 2015) and has centred around two interrelated explanations of TFSV as a gendered harm: (1) women are disproportionately victims of TFSV compared to men, and (2) the negative impacts associated with TFSV are gendered, such that women experience greater harm associated with TFSV due to antiquated sexual roles and myths embedded within society (i.e., the sexual double standard, Bates, 2015; Henry & Powell, 2015; Powell & Henry, 2016). Overall, researchers have suggested that "TFSV is fundamentally an issue of gender" (Henry & Powell, 2016, p. 399) primarily perpetrated against women within a broader societal context of rape culture, victim-blaming, and hegemonic masculinity (Bates, 2015).

While feminist TFSV work explicitly acknowledges that this gendered nature can extend to male victims—for example, through denigration of masculinity in male TFSV victimization (e.g., Powell & Henry, 2016)—existing research has focused predominately on women's victimization experiences.

It has been suggested that this bias is due to women's overrepresentation as victims of TFSV (Henry & Powell, 2015), however, victimization rates remain unclear. Some literature suggests that women are indeed overrepresented among TFSV victims; for example, the non-profit organization Without My Consent (WMC) released preliminary survey data on the prevalence of various forms of online harassment and reported that approximately 83% of victims of online harassment are women (Taube et al., 2014). Likewise, a 2013 report by Working to Halt Online Abuse (WHOA, 2013) revealed that 80% of online harassment and stalking victims were women.¹ In an online survey of 1272 Australian young adults, women were 3.5 times more likely to experience technology-facilitated sexual harassment than men (Douglass et al., 2018).

Other work, however, suggests a more complex relationship between gender and TFSV. Updated WHOA statistics from 2013 show that 60% of women and 40% of men reported being victims of online harassment. In an online survey of 2956 Australian adults, women and men reported similar lifetime TFSV victimization (Powell & Henry, 2016). Together these findings suggest a relatively high degree of similarity in rates of TFSV experiences by gender. Possible explanations for inconsistent results regarding gendered victimization across studies include differences in a volunteer bias, response bias between women and men, sampling procedures, and definitions of TFSV or online harassment; generally, women may be more willing than men to participate in victimization research or disclose victimization status (e.g., Helgeson, 2012).

Pathways to Extending Technology-Facilitated Sexual Violence Research

Research evaluating sex differences in traumatic experiences (e.g., Tolin & Foa, 2006) demonstrates that it is imperative to factor in variations in the types of TFSV victimizations of women and men. Although some research suggests that women and men report comparable lifetime experiences with TFSV, Powell and Henry (2016) report that a higher proportion of women indicate their TFSV experiences as moderately to extremely upsetting, interpreting this to suggest that women's experiences are more distressing due to their relative position in society. However, Powell and Henry's measurement terminology may pose a gender bias in and of itself; participants were asked to indicate, regarding their TFSV victimization experience, "how upsetting was the TFSV experience?" on a 5-point response scale ranging from *not at all upsetting* to *extremely upsetting* (Powell & Henry, 2016, p. 17). It remains unclear whether the term "upsetting" is itself gender neutral.

¹ Statistics were based on completed demographic questionnaires. Victims provided this information voluntarily to WHOA when reporting a complaint.

Men in the study may have been less likely to admit being extremely "upset" by their TFSV experience, as this emotion runs contrary to traditional gender-role norms, which often position masculinity as stoic (Schippers, 2007). Further, this question assumes that the TFSV harm experienced by women and men manifests in the same singular emotion, that of being "upset." Although women in Powell and Henry's (2016) study reported feeling more upset after a TFSV experience, men may attribute different emotions to their experience, such as anger or embarrassment, which were not assessed.

Using a single general question to represent the total harm associated with a TFSV experience for both women and men reflects a methodological limitation; to use this one question as support for the claim that TFSV is more distressing for women is problematic. In sum, results indicating that men are less "upset" by their TFSV experience should not be used to conclude that men experience no or lesser harm due to TFSV. Comparable methodological criticisms have been levelled regarding gender differences in rates of depression, as the manifestation of depressive symptoms vary between women and men (Bennett et al., 2005; Khan et al., 2002), leading to an underrepresentation of rates of depression among men (Helgeson, 2012). Research on gender differences between victims of online image-based abuse (i.e., non-consensual pornography) indicates significant differences in somatic symptoms; women experience greater adverse impacts than men, yet no differences are found on measures of psychological well-being (see Ruvalcaba & Eaton, 2020).

Likewise, the presentation of emotion in the aftermath of TFSV victimization may vary between women and men, potentially leading to an underrepresentation of the negative impacts associated with TFSV in men. Further, Powell and Henry (2016) found that a greater proportion of men experienced sexuality or gender-based online harassment, while a greater proportion of women experienced online sexual harassment related to unsolicited sexual images, comments, or messages. Psychosocial outcomes of these different forms of TFSV may account for differing findings in reported upset following victimization. Accordingly, we considered a broad range of questions for women and men that hopefully encompassed a more diverse range of negative impacts associated with TFSV victimization.

Overall, existing literature has failed to comprehensively capture the psychosocial impacts of TFSV victimization, particularly concerning men's victimization experiences. Further, the inconsistent operationalizations of TFSV in prior literature render the nature and extent of harm associated with victimization challenging to understand. The impact of the various primary forms of TFSV, as defined by Henry and Powell (2018), remains unclear. However, given the dire outcomes associated with TFSV victimization, including suicidality (see Champion et al., 2021), it is crucial to develop an in-depth

understanding of the impact of TFSV victimization to inform potential interventions.

Provided our argument set out above, in the current work we hold a different perspective, conducive with the gender similarities hypothesis that posits “that males and females are similar on most, but not all psychological variables” (Hyde, 2005, p. 581). Like Hyde, we support the argument “that over-inflated claims of gender difference carry substantial costs” (p. 581). In the present context of TFSV victimization, the “cost” or consequence of this overinflated claim of gender difference includes the reinforcement of essentialized gender stereotypes that women are psychologically vulnerable and that men are not; additionally, this claim may render men unable to receive appropriate support following victimization experiences. In tune with contemporary feminist theorizing, we posit that assessing gender similarities, rather than differences, can promote representation and inclusion, and have positive downstream translational impacts (see Cole, 2009; Matsick et al., 2021; Wyer, 2018).

The Current Study

The purpose of the present exploratory investigation was to determine the impacts associated with four main types of TFSV and to determine the extent to which TFSV is primarily gendered (i.e., a crime that targets women). Impacts were assessed across various life domains, including mental health, interpersonal, and occupational/academic functioning. This primarily descriptive study provides insight into the lived experiences and negative impacts associated with TFSV in addition to exploring the feminist assumption that TFSV is primarily a gender-specific experience. Three main research questions guided this mixed methods investigation. First, are there differences among the types of TFSV experienced (i.e., online sexual harassment, online image-based sexual abuse, online sexual aggression/coercion, or online gender and sexuality-based harassment) in terms of level of distress (RQ1a) and their associated impacts (RQ1b)? Second, do women experience more negative psychological, interpersonal, or occupational impacts from TFSV than men? Put differently, is TFSV a gender-based harm against women (RQ2)? Finally, how does TFSV experience impact the lives of victims? What are their lived emotional, psychological, and social experiences after a TFSV event(s) (RQ3)?

Method

Participants and Procedure

This study utilized a sequential mixed methods approach with two segments. The first segment required participants to complete a 15-min online survey through the survey platform

Qualtrics, which consisted of both closed and open-ended questions. At the end of the survey, participants were provided the option to submit their email address if they were interested in contributing to the study's second segment. This second segment involved a 30- to 60-min semi-structured interview conducted in-person or over the phone. The survey was used to understand general aggregate patterns, while the purpose of the interview was to go beyond the survey responses to gain a more in-depth and contextualized understanding of the psychosocial impacts of TFSV victimization.

Participants were recruited via criterion sampling through adverts posted on various online platforms such as Facebook, Instagram, Mechanical Turk, and Reddit (e.g., r/SampleSize). Snowball sampling techniques were also employed at the end of each interview. Participants were required to be at least 18 years of age; the legal age at which “adulthood” begins in terms of federal law (Department of Justice, 2017). In addition, we required adults to have personally experienced TFSV to understand the impacts associated with this type of victimization.

Measures

Demographics

Participants provided information regarding their age, gender, sexual orientation, education, relationship status, and ethnicity.² Participants were asked three questions regarding the frequency and usage of social media and technology use (Rosen et al., 2013).

Modified Version of The Technology-Facilitated Sexual Violence Victimization Scale

(TFSV-V; Powell & Henry, 2016). This 21-item questionnaire measures the prevalence of four main TFSV victimization experiences: online sexual harassment, online image-based sexual abuse, online sexual aggression/coercion, and online gender/sexuality-based harassment. Examples were provided to ensure that definitions were clear (see online supplemental materials for all items). Participants responded, *yes* or *no* to the following TFSV types:

1. Have you experienced online sexual harassment? For example: (a) someone sent you an unwanted sexually explicit image, comment, email, or text message, (b) your partner checked up on your location or activities multiple times a day, (c) you received repeated

² The gender demographic question included the following response options: men, women, and non-binary. We had no participants who identified as non-binary in our sample.

- unwanted sexual requests online or via email or text message, (d) your partner gained access to your emails or other online accounts without permission, or (e) someone publicly posted an offensive sexual comment about you online.
2. Have you experienced online image-based abuse? For example: (a) someone has taken a nude or semi-nude image of you without your permission, (b) someone posted a nude or semi-nude image of you online without your permission, or (c) someone threatened to post online or send to others a nude or semi-nude image of you.
 3. Have you experienced online sexual aggression or coercion? For example: (a) someone has taken an image or a video of an unwanted sexual experience you had, (b) someone posted online an image or video of an unwanted sexual experience you had, or (c) someone threatened to post online or send to others an image or video of an unwanted sexual experience you had.
 4. Have you experienced online gender/sexuality-based harassment? For example: (a) someone sent you gender-based offensive or degrading messages, comments, or other content, or (b) someone sent you sexual identity-based offensive or degrading messages, comments, or other content.

Open-Ended Questions

Participants who responded affirmatively to at least one of the TFSV victimization questions were directed to answer two open-ended questions: (1) "Please describe an experience you had with online sexual harassment and/or abuse. If you experienced more than one event, please describe the one experience that has had the most significant impact on your life" and (2) "Still thinking of this one event, please describe the impact this experience has had on your life." Based on the TFSV event described, the first author used a deductive qualitative approach to categorize participants' experiences into four TFSV types; Powell and Henry's (2016) 21-item TFSV Victimization Scale was used as the pre-determined coding framework. Participant experiences were thus coded as one of the following: (1) online sexual harassment, (2) online image-based abuse, (3) online sexual aggression/coercion, or (4) online gender or sexuality-based harassment. We assessed the reliability of the first author's coding into the TFSV pre-determined framework by randomly selecting twenty open-ended TFSV participants for two additional trained coders to verify. The inter-rater coder agreement was substantial (Cohen's kappa = 0.93; McHugh, 2012). The additional open-ended responses, questions 2 and 3, were coded along with the interviews for themes.

Follow-Up Questions

After presentation of the open-ended questions, participants were prompted to answer three follow-up questions regarding the TFSV event described: (1) "Who was the perpetrator?" Responses included friend, stranger, acquaintance, romantic partner, and other; (2) "In which online environment did the event happen?" Responses included social media, email, texting, posted on a website, and other; and (3) "How old were you when this experience happened?"

Technology-Facilitated Sexual Violence Experience Impact Scale

To understand the negative impacts of TFSV, a 9-item measure was developed for the current study to measure negative mental health outcomes, coping strategies, and social or occupational consequences. These questions were devised by the researchers based on negative impact themes that emerged through a review of the TFSV academic literature (e.g., Bates, 2017), several news articles (e.g., Dean, 2012; Diebelius, 2017; Nicholson & Kubinec, 2018; Todd, 2012), victim stories posted on www.cybercivilrights.org, and a preliminary report published online by *Without My Consent* (Taube et al., 2014). To associate a TFSV event directly to responses on the TFSV Experience Impact Scale, participants were reminded to think about the one TFSV event they had described in detail in the open-ended question and rate the degree to which they felt a statement applied to their TFSV experience. The nine questions (see supplemental materials) dealt with such impacts as "having feelings of depression," "having a negative impact on your work," or "being the target of gossip." Ratings were on a 5-point response scale ranging from not at all (0) to extremely (4). An overall negative impact score ranging from 0 to 36 was created by summing across the nine potential outcomes, with higher scores indicating a greater degree of negative impact. High internal consistency for the scale was found, $\alpha = 0.90$. A principal component analysis (PCA) was applied to the 9-items as a data reduction technique, yet the rotated components matrix indicated a one-factor solution. A direct Oblimin rotation with eigenvalues set conservatively at one was utilized. The one component identified accounted for 55.2% of the variance (see supplemental materials). Therefore, each item was separately assessed using a series of ANOVAs with a Bonferroni corrected alpha of 0.006.

Interviews

We conducted in-depth follow-up semi-structured interviews with 10 participants to contextualize and understand the complexity of TFSV experiences. Qualitative data are particularly valuable for providing "the potential to capture

a diversity of perspectives, experiences, or sense-making” (Braun et al., 2021, p. 643; see also Braun et al., 2017). This diversity of perspectives is particularly useful to contextualize findings and provide grounds for future hypothesis generation “when researching an un- or under-explored area” (Braun et al., 2021, p. 643). As such, we sought to use this methodology to capture a range of experiences within the under-researched and emerging area of TFSV. Further, there are many emerging quantitative studies on TFSV (Patel & Roesch, 2020; Powell & Henry, 2016; Snaychuk & O’Neill, 2020) but little contextualization, diversity of methods, or qualitative research on TFSV more broadly (see Bates, 2017 on revenge porn).

Participants interested in the interview portion of the study submitted their email address at the end of the initial survey to be contacted for a follow-up interview. Exact locations, names, or other identifiers mentioned in the interviews were redacted through the transcription process. A semi-structured interview process was utilized, which allowed for adapted questioning. Including the open-ended responses from questions 2 and 3 above, and the interview transcripts, the first author coded for themes within each TFSV type. We assessed the reliability of the first author’s coding by selecting one additional coder to substantiate the themes. The inter-rater coder agreement was substantial with Cohen’s kappa = 0.85 (McHugh, 2012).

Results

Quantitative survey responses were exported into IBM SPSS® software for statistical analyses. Open-ended survey responses and entire interview transcriptions were imported into NVivo for thematic coding by the first author. First, deductive qualitative analysis was conducted using NVivo; open-ended survey responses and interview transcriptions were coded into four main TFSV victimization types and corresponding subtypes pre-determined based on Powell and Henry’s (2016) 21-item TFSV Victimization Scale. This classification method was used to ensure consistency between TFSV research and to identify the specific TFSV victimization experienced by each participant. Responses were coded deductively for major impact themes that coincided with TFSV Experience Impact Scale (e.g., depression, anxiety, problematic alcohol consumption, etc.) and themes presented by Bates (2015, 2017). Bates found several impact and coping themes among victims of online image-based abuse; these themes were determined a priori as a coding template for the present study.³ Finally, a more

inductive approach was utilized for responses with novel impact themes. This method was used to identify the negative impacts of various types of TFSV victimization.

Participants

The sample was comprised of 337 participants (women; $n = 213$; 63.0%) between the ages of 18 and 67 years ($M_{\text{age}} = 33.91$; $SD_{\text{age}} = 9.37$). Table 1 presents participant demographics by gender for the online survey. Ten participants agreed to partake in the study’s follow-up interview segment. These 10 participants (women; $n = 5$) ranged in age from 24 to 46 years, were primarily heterosexual ($n = 8$), White ($n = 6$), university-educated ($n = 7$), and indicated moderate to heavy social media usage ($n = 5$). Thus, when compared to the total sample, interviewees were demographically comparable, albeit slightly more ethnically diverse with a truncated age range. Due to the recruitment criteria, all participants had experienced at least one form of TFSV in their lifetime; 69% ($n = 231$) had experienced more than one type of TFSV. Regarding overall TFSV incidents, the majority (~93%) of participants experienced online sexual harassment (see details in Table 2 for all types of TFSV incidents).

Four participants were unable to be categorized into distinct TFSV experiences due to leaving open-ended survey questions blank or providing ambiguous responses. Therefore, they were excluded from further analyses, resulting in a sample size of 333. When asked to elaborate on the one TFSV experience that had the most negative impact on their lives, most participants (~75%) described an online sexual harassment experience. Although participants may have experienced more than a single type of TFSV, participants were grouped based on the type of TFSV event they indicated was most impactful (details are presented in Table 2).

Quantitative Results: RQ1a/b and RQ2

Prior to conducting multivariate statistics on TFSV type and the level of distress, demographic comparisons were performed using Fisher’s exact tests for categorical variables and analysis of variances (ANOVA) for continuous variables. Fisher’s exact was used as an alternative to chi-square analysis, as some values were below the expected value of 5 per cell (Field, 2013). Fisher’s exact tests revealed statistically significant associations for gender, $\chi^2(N = 333) = 8.82$, $p = 0.03$, sexual orientation, $\chi^2(N = 333) = 8.36$, $p = 0.03$, and relationship status, $\chi^2(N = 333) = 10.19$, $p = 0.01$ among the TFSV groups. Significantly more women experienced online sexual harassment than other forms of TFSV, whereas men experienced comparatively more diverse types of TFSV victimizations. Sexual minority individuals experienced more incidents of online gender or sexuality-based harassment and online sexual aggression/coercion, while individuals

³ Examples of themes include: (1) Loss of control, self-esteem or confidence; (2) Security and privacy; (3) Negative coping such as suicidal thoughts/behavior, and excessive alcohol consumption; (4) Fear of revictimization and the future; (5) Anxiety and depression (Bates, 2015).

Table 1 Online survey participant demographics

	Men <i>n</i> (%)	Women <i>n</i> (%)
Gender	124 (36.8)	213 (63.2)
<i>Sexual Orientation</i>		
Heterosexual	101 (81.5)	165 (77.5)
Sexual Minority	23 (18.5)	48 (22.5)
<i>Relationship Status</i>		
Single	51 (41.1)	47 (22.1)
Casually dating	18 (14.5)	13 (6.1)
Non-married committed relationship	19 (15.3)	34 (16.0)
Married/Civil Union	34 (27.4)	101 (47.4)
Legally separated/Divorced	2 (1.6)	16 (7.5)
Widowed	–	2 (0.9)
<i>Education</i>		
Some high school	2 (1.6)	2 (0.9)
High school diploma	4 (3.2)	25 (11.7)
Some college/university	42 (33.9)	46 (21.6)
Completed undergraduate	62 (50.0)	103 (48.4)
Vocational degree/certificate	3 (2.4)	8 (3.8)
Postgraduate studies	11 (8.9)	29 (13.6)
<i>Ethnicity</i>		
White	86 (69.4)	168 (78.9)
Asian	17 (13.7)	19 (8.9)
Black	7 (5.6)	14 (6.6)
Hispanic	10 (8.1)	7 (3.3)
South Asian	1 (0.8)	1 (0.5)
Mixed	3.5% (21)	4 (1.9)
<i>Internet Usage</i>		
Once a day or less	11 (8.9)	6 (2.8)
Several times a day	28 (22.6)	47 (22.1)
Once an hour	–	14 (6.6)
Several times an hour	22 (17.7)	38 (17.8)
All the time	63 (50.8)	108 (50.7)
<i>Social Media Upload Frequency</i>		
Once a day or less	49 (39.5)	84 (39.4)
Several times a day	38 (30.6)	71 (33.3)
Once an hour	5 (4.0)	7 (3.3)
Several times an hour	13 (10.5)	18 (8.5)
All the time	19 (15.3)	33 (15.5)
<i>Social Media Browsing Frequency</i>		
Once a day or less	45 (36.2)	66 (31.0)
Several times a day	39 (31.5)	82 (38.5)
Once an hour	5 (4.0)	10 (4.7)
Several times an hour	11 (8.9)	26 (12.2)
All the time	24 (19.4)	29 (13.6)
Age	$M=30.91$ ($SD=6.74$)	$M=35.66$ ($SD=10.22$)

who identified as heterosexual experienced relatively more incidents of online sexual harassment. Further, significantly more single individuals experienced online image-based sexual abuse or online sexual aggression/coercion, whereas individuals in relationships experienced more online sexual

harassment and online gender or sexuality-based harassment. Ethnicity and education were not significant among the TFSV groups. Results are presented in Table 3.

An ANOVA revealed a significant difference in age among the TFSV groups. Follow-up pairwise comparisons using a

Table 2 Overall and most impactful incidents of Technology-Facilitated Sexual Violence

Overall Incidents of TFSV: Closed-Ended Survey Responses		
Type of TFSV experience	<i>n</i>	%
Online Sexual Harassment	313	92.9
Online Gender/Sexuality-Based Harassment	203	60.2
Online Image-Based Abuse	97	28.8
Online Aggression/Coercion	69	20.5
Total number of reported TFSV incidents	682	
Most Impactful TFSV Experience: Opened-Ended Survey Responses		
Type of TFSV experience	<i>n</i>	%
Online Sexual Harassment	252	74.8
Online Gender/Sexuality-Based Harassment	43	12.7
Online Image-Based Abuse	31	9.2
Online Sexual Aggression/Coercion	7	2.1
Uncategorizable/Did not respond	4	1.2
Total	337	100

Percentages add up to more than 100% for overall incidents of TFSV (closed-ended survey response) as participants ($N=337$) were asked to indicate all types of TFSV victimization experienced

Bonferroni corrected alpha of 0.01 revealed that participants in the online gender or sexuality-based harassment and online sexual harassment groups were significantly older than individuals in the online sexual aggression/coercion group. There were no significant differences in age at the time of the TFSV event or frequency of internet usage among the TFSV groups (see Table 3 for details). Contextual details of the TFSV event are reported in the online supplemental materials.

RQ1a: Technology-Facilitated Sexual Violence Group Differences on Level of Distress

Given the group demographic differences, we controlled for age in a 2 (gender) \times 2 (sexual orientation) \times 2 (relationship status) \times 4 (type of TFSV victimization) factorial analysis of covariance. This test determined the effects of gender, sexual orientation, relationship status, and TFSV victimization on distress level as measured by the TFSV Experience Impact Scale. Age was entered as a covariate as it differed significantly between the TFSV groups (Table 3). Several studies have suggested that younger individuals are at a disproportionately higher risk for TFSV (see Henry & Powell, 2018, for a review). Given small sample sizes among the online

Table 3 Demographic difference among TFSV victimization groups

Categorical Variables: Fisher's Exact Results						
	Online Sexual Harassment	Online Gender/Sexuality-Based Harassment	Online Image-Based Abuse	Online Sexual Aggression/Coercion	χ^2 (<i>p</i>)	Cramer's V
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)		
Gender					8.82 (.027)	.16
Women	170 (81)	22 (10.5)	15 (7.1)	3 (1.4)		
Men	82 (66.7)	21 (17.1)	16 (13)	4 (3.3)		
Sexual Orientation					8.36 (.032)	.16
Heterosexual	207 (78.4)	28 (10.6)	25 (9.5)	4 (1.5)		
Sexual minority	45 (65.2)	15 (21.7)	6 (8.7)	3 (4.3)		
Relationship Status					10.19 (.014)	.18
Non-single	181 (77)	35 (14.9)	16 (6.8)	3 (1.3)		
Single	71 (72.4)	8 (8.2)	15 (15.3)	4 (4.1)		
Ethnicity					2.13 (.556)	
White	193 (76.9)	32 (12.7)	22 (8.8)	4 (1.6)		
Ethnic minority	59 (72)	11 (13.4)	9 (11)	3 (3.7)		
Education					4.63 (.167)	
Postsecondary	225 (75)	42 (14)	26 (8.7)	7 (2.3)		
High school	27 (81.8)	1 (3)	5(15.2)	0		
Continuous Variables: ANOVA Results						
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>F</i> (<i>p</i>)	η^2
Age	34.23 (9.36) _b	34.49 (9.41) _a	31.32 (8.15)	25.29 (4.54) _{ab}	3.01 (0.03)	.03
Age at TFSV	27.89 (9.85)	27.88 (10.51)	24.94 (8.60)	21.71 (3.68)	1.70 (0.17)	
Internet Usage	19.30 (4.88)	18.47 (4.28)	20.71 (5.84)	16.71 (5.06)	1.91 (0.13)	

Cramer's V only reported for statistically significant associations on Fisher's Exact tests. Subscripts in the ANOVA results indicate significant group differences. Internet usage scores ranged from 0 to 27; higher scores indicated more social media and technology usage. Partial η^2 reported only for significant ANOVAs

Table 4 Adjusted and unadjusted Technology-Facilitated Sexual Violence group means on the impact of the Technology-Facilitated Sexual Violence Experience Scale (i.e., distress) with age as a covariate

Type of TFSV experience	N	Unadjusted		Adjusted	
		M	SD	M	SE
Online Sexual Harassment	252	10.79	7.77	10.47 _{ac}	0.81
Online Gender/Sexuality-Based Harassment	43	13.14	7.29	13.98 _b	1.66
Online Image-Based Abuse	31	21.29	7.93	22.07 _{ab}	1.89
Online Aggression/Coercion	7	19.71	5.85	20.23 _c	3.29

Subscripts indicate significant group differences on adjusted marginal means

image-based sexual abuse ($n = 31$) and sexual aggression/coercion ($n = 7$) groups, normal distributions for each TFSV group on the TFSV Experience Impact Scale scores were confirmed before running the ANCOVA.

Results revealed a statistically significant main effect for TFSV group, $F(3, 303) = 12.96$, $p < 0.001$, $\eta^2_p = 0.11$. Bonferroni corrected pairwise comparisons revealed statistically significant differences in adjusted marginal means. Participants in the online image-based sexual abuse group ($M = 22.07$, $SE = 1.89$) reported significantly higher levels of distress compared to individuals in the online sexual harassment group ($M = 10.47$, $SE = 0.81$) and the online gender/sexuality-based harassment group ($M = 13.98$, $SE = 1.66$). There were no significant differences between the online image-based sexual abuse group and the online sexual aggression/coercion group ($M = 20.23$, $SE = 3.29$). Further, individuals in the online sexual aggression/coercion group reported significantly higher distress levels than the online sexual harassment group. No significant differences were found in distress scores between (1) the online sexual aggression/coercion group and the online gender/sexuality-based harassment group, and (2) the online gender/sexuality-based harassment group and the online sexual harassment group (see Table 4).

The online sexual aggression/coercion group results should be interpreted with caution due to the small sample size ($n = 7$). Statistical analyses were used to gauge the aggregate negative impacts of TFSV among victimization groups. Qualitative responses were then used to extrapolate details and contextual factors. No additional significant main effects or statistically significant interactions were indicated.

RQ1b: Descriptive Psychological Impacts based on Technology-Facilitated Sexual Violence Group

The quantitative results discussed below are presented from most impactful to the least impactful TFSV victimization experience based on the aggregate group distress scores (i.e.,

adjusted marginal means on the TFSV Experience Impact Scale, see Table 4).

The Impact of Online Image-Based Sexual Abuse Thirty-one participants (9% of the total sample) reported an experience with online image-based sexual abuse as the most impactful. Based on survey responses on the TFSV Experience Impact Scale, approximately 71% ($n = 22$) indicated that the event caused high (i.e., “very” or “extreme”)⁴ stress and anxiety levels. More than half experienced high levels of depression ($n = 17$; 54.8%) and negative interpersonal impacts (e.g., gossip; $n = 19$; 61.3%). Roughly forty percent indicated high levels of negative impacts on academic or occupational functioning ($n = 13$; 41.9%). Fifteen (48.4%) reported moderate-to-extreme⁵ suicidal ideation levels, and 16 (51.6%) reported moderate-to-extreme levels of problematic alcohol use. All but six individuals (80.6%) indicated being subjected to some degree of bullying, rumors, or gossip.

The Impact of Online Sexual Aggression or Coercion Seven participants (2% of the total sample) reported experience with online sexual aggression or coercion as most impactful. TFSV impact survey responses revealed that almost all victims of online sexual aggression/coercion experienced high (i.e., “very” or “extreme”) levels of anxiety ($n = 7$; 100%) and stress ($n = 6$; 85.7%). Most reported that the event caused only moderate levels of negative impacts to their academic or occupational functioning ($n = 5$; 71.4%). Nearly half reported that the TFSV event caused major issues (i.e., “very” or “extreme” levels of negative impacts) within their interpersonal relationships or being the subject of gossip ($n = 3$; 42.9%). Further, nearly half reported ($n = 3$; 42.9%) only low-to-moderate levels of bullying.⁶ Two participants reported high levels of depression, suicidal ideation, and coping with alcohol (“very” or “extreme” levels).

The Impact of Online Gender or Sexuality-Based Harassment Forty-three survey participants (13% of the sample) described an experience with online gender or sexuality-based harassment as most impactful. Among the 43 participants, approximately 60% reported low-to-moderate levels of anxiety ($n = 25$), stress ($n = 25$), depression ($n = 27$), and negative interpersonal ($n = 24$) and academic or occupational functioning ($n = 24$) on the negative impact scale. Roughly 45–50% indicated low-to-moderate levels of gossip ($n = 19$) or bully-

⁴ “High” levels represent “very” to “extreme” levels of distress selected on the TFSV Experience Impact Scale item(s) reported.

⁵ “Moderate-to-extreme levels” represent “moderate,” “very,” or “extreme” levels of distress selected on the TFSV Experience Impact Scale item(s) reported.

⁶ Low-to-moderate levels refers to “slight” or “moderate” levels of distress on the TFSV Experience Impact Scale item(s) reported.

ing ($n=22$). A relatively smaller subset indicated high levels of stress ($n=15$; 34.9%), anxiety ($n=14$; 32.6%), depression ($n=8$; 18.6%), gossip ($n=7$; 16.3%), bullying ($n=12$; 27.9%), suicidal ideation ($n=4$ or 9.3%), negative interpersonal impacts ($n=10$; 23.3%), and coping with alcohol ($n=3$; 7%).

The Impact of Online Sexual Harassment Three quarters of the participants ($n=252$) described an experience with online sexual harassment as most impactful, three of whom were interviewed. Over half of participants in this group reported low-to-moderate levels of stress ($n=140$; 55.6%) and anxiety ($n=137$; 54.4%). Over 40% of participants in this group reported low-to-moderate levels of depression ($n=101$; 40.1%) and negative impacts on interpersonal ($n=114$; 45.2%) and/or academic or occupational ($n=109$; 43.3%) life domains. Further, over 30% indicated high levels of stress ($n=89$; 35.3%) and anxiety ($n=90$; 35.7%). A comparatively smaller subset indicated high (“very” or “extreme”) levels of depression ($n=41$; 16.3%), gossip ($n=37$; 14.7%), bullying ($n=29$; 11.5%), suicidal ideation ($n=18$ or 7.1%), negative interpersonal impacts ($n=64$; 25.4%), and coping with alcohol ($n=19$; 7.5%). A majority of this TFSV group did not experience suicidal ideation ($n=198$; 78.6%) or problematic alcohol consumption ($n=163$; 64.7%). Only six participants (2.0%) indicated high levels of suicidal ideation and nineteen participants (7.5%) indicated high levels of alcohol consumption as a coping mechanism.⁷

RQ2: Is Technology-Facilitated Sexual Violence a Gender-Based Harm?

Distress Levels and Types of Psychological Impacts For cumulative distress scores, no differences were found between women and men within each TFSV victimization subtype. We attempted a principal component analysis (PCA) as a data reduction technique to reduce the number of items on the 9-item TFSV Experience Impact Scale. A direct Oblimin rotation with eigenvalues set at one was utilized—the rotated components matrix indicated a one-factor solution (see online supplemental materials). Thus, each item was separately assessed using a series of ANOVAs with a Bonferroni corrected alpha of $p \leq 0.006$.

⁷ We conducted supplementary exploratory analyses which showed that for victims of online sexual harassment, victimization perpetrated by a partner was related to higher rates of psychological distress. An exploratory ANOVA and post hoc test determined whether victim impact scores varied due to who perpetrated the online sexual harassment victimization. A significant difference was found, $F(2, 249)=9.46$, $p=.001$, $\eta^2p=.07$. Online sexual harassment perpetrated by a partner was associated with significantly higher rates of distress ($M=16.61$; $SE=1.77$) compared to victimizations perpetrated by a stranger ($M=9.09$; $SE=.68$) or another individual ($M=11.75$; $SE=.72$).

Table 5 Online sexual harassment and specific negative impact items by gender

	Men <i>M (SE)</i>	Women <i>M (SE)</i>
<i>Negative Impact Items</i>		
Stress	2.00 (.13)	2.16 (.09)
Anxiety	1.99 (.13)	2.08 (.09)
Relationship issues	1.67 (.15)	1.43 (.10)
Gossip _a	1.29 (.13)	0.81 (.09)
Work issues	1.16 (.13)	0.98 (.09)
Depression	1.06 (.14)	1.15 (.10)
Coping with alcohol _a	0.90 (.11)	0.52 (.08)
Bullied	0.87 (.13)	0.92 (.09)
Suicidal thoughts	0.46 (.11)	0.44 (.08)

Subscripts denote significant ($p \leq .006$) group differences on negative impact item

Thus, to further test whether specific items on the distress scale differed between women and men within each TFSV type, a series of exploratory ANOVAs were calculated to assess gender variations on each impact item (e.g., depression, anxiety, stress). Among victims of online sexual harassment, men were more likely to report being subjected to gossip, $F(1, 250)=8.76$, $p=0.003$, $\eta^2_p=0.03$, and to using alcohol more frequently to cope with their experience, $F(1, 250)=7.65$, $p=0.006$, $\eta^2_p=0.03$ (see Table 5). No other significant gender differences were found.

We additionally explored whether women experienced more types of TFSV than men by using a Poisson regression to predict the number of different TFSV events by gender after controlling for differences in age, sexual orientation, and relationship status. The model was not significant ($p=0.69$); women ($M=2.05$; $SE=0.10$; 95% CI, 1.86 to 2.25) and men ($M=1.98$; $SE=0.13$; 95% CI, 1.74–2.25) experienced, on average, two types of TFSV events.

Qualitative Results: RQ3

Interviews and Open-Ended Survey Responses: The Lived Emotional, Psychological, and Social Experiences of Individuals after a Technology-Facilitated Sexual Violence Event

The qualitative results discussed below are illustrative of some of the major themes discovered within each TFSV victimization experience type. Also included is a breakdown of proportions of responses that align with the themes found for each TFSV type.

The Impact of Online Image-Based Sexual Abuse

Thirty-one participants indicated an experience with online image-based sexual abuse as the most impactful to their psychological and social functioning; three of these individuals were interviewed. Interviewees reported multiple forms of victimization due to the TFSV event, such as interpersonal conflict or bullying, loss of control over their images, privacy, and sexuality, and fear of future re-victimization. These themes were echoed in the open-ended survey responses from other participants in this TFSV group. Overall, the proportion of responses (interview and open-ended survey responses) that fell into each theme were as follows: interpersonal conflict or bullying ($n = 19$; 61.3%), loss of control over their images, privacy, and sexuality ($n = 10$; 32.3%), and fear of future re-victimization ($n = 12$; 38.7%).

The three interviewees described the following experiences: intimate images of them were dispersed and/or taken without consent, they were betrayed by their friend(s), acquaintance(s), or a former romantic partner, and they were the target of subsequent bullying/rumours or harassment. Aggregate data revealed that partners more often perpetrated online image-based sexual abuse (see online supplemental materials), yet in an interview, Participant 10 (woman; age 14 at TFSV event) recounted an incident when her intimate photographs were posted online by a stranger:

Someone [a stranger]⁸ took my phone and found intimate pictures. This guy sent them to all his friends and it quickly got around to everyone in my school. A couple of days later, a friend called to tell me he had seen my pictures online. Someone ended up putting one of my pictures as the wallpaper on every school computer; I think some people were also selling them. I knew friends of mine that had them and were passing them around. They betrayed me. I was harassed and cyber-bullied on Facebook and called a 'whore' by a bunch of people from other schools....Months after, I would still get calls from people I didn't know. Telling me, you're such a slut, you should kill yourself. I was very depressed for about a year after the incident, and I am always terrified that someone from my past is going to publish these images or send them to someone I know or an employer.

Similarly, Participant 12 (man; age 23 at TFSV event) and Participant 119 (woman; age 21 at TFSV event) felt a lack of control and feared future victimization. Participant 12 reported during the interview, "they [his ex-girlfriend and her friends] kept posting my nudes everywhere and just kept harassing me. She also messaged my employers and sent them

the nudes. She tried to ruin my life; I couldn't understand why somebody would go so far." Interestingly, among these three experiences recalled by interviewees, a cascade of victimizations/betrayals occurred regardless of who perpetrated the online image-based abuse (i.e., stranger versus former partner).

The Impact of Online Sexual Aggression or Coercion

Of the seven participants who reported experience with online sexual aggression or coercion as most impactful, one was interviewed. Two subtypes of sexual aggression/coercion emerged from the open-ended responses; subtypes are presented in supplemental materials.

Overall, three distinct impact themes emerged from the open-ended survey responses and interview transcripts, which included anxiety ($n = 4$; 57.1%), embarrassment ($n = 3$; 42.9%), and efforts to reclaim control over their lives through behavioral changes, such as living arrangements, employment, or avoiding certain online platforms ($n = 5$; 71.4%). Although the aggregate quantitative data suggest a general pattern of higher distress rates ($M = 20.23$; see Table 4) and qualitative themes indicate a similar pattern, the single interviewee noted contrasting impacts. For instance, Participant 123 (man; age 23 at TFSV event) reported low levels of all types of negative impacts except for moderate levels of negative occupational functioning on survey responses. He further described his experience with online sexual aggression and coercion during our interview, stating that the incident was primarily or "only" embarrassing:

I was using a dating app... I matched with some girl and then she sent me texts... She asked me to meet. But before she was like... let's do Skype together... Once we connected on Skype, she was already naked. Then she texted me. "Ok. Next your turn." And then I was like "No I don't want to." But I also felt so bad. Like did I make her do this? Or something? Then I took off my pants and moved in front of the camera. Once I took off my pants then she took a video or photo of me. She said send me money or I will send the video to your friends and family. I freaked out. I didn't give her money. She sent me pictures of my friends on Facebook too. It was very, very embarrassing...it only embarrassed me. So, no more apps.

In contrast, survey Participant 125 (woman; age 23 at TFSV event) wrote that "an ex-boyfriend videotaped a sexual encounter we had without my consent when I was drunk. He kept it and hung it over my head years later. The experience probably made me more sexually dominant. I want to take charge in my sexual encounters to prevent future events like that." Participant 291 (woman; age 24 at TFSV event) and Participant 288 (woman; age 16 at TFSV event) experienced

⁸ This was clarified later in the interview.

similar TFSV events. Participant 291 stated that due to severe embarrassment, she ultimately decided to quit her job and relocate. Participant 288 stated that she "developed severe anxiety and paranoia."

The Impact of Online Gender or Sexuality-Based Harassment

Forty-three survey participants, three of whom agreed to be interviewed, described an experience with online gender or sexuality-based harassment as most impactful. Two different types of online gender or sexuality-based harassment experiences emerged from the survey's open-ended segment (see supplemental materials). Two central themes that emerged from this TFSV type were participants changing their online behavior ($n = 20$; 46.5%) and being more cautious and less trusting of other people online due to their victimization ($n = 19$; 44.1%).⁹ For instance, in an interview, Participant 308 (woman; age 43 at TFSV event) detailed her experience with online gender-based harassment:

Right after my band had a performance, I received several friend requests on Facebook... a man, starts messaging me, asking me these weird questions, like am I married... I said yes, asked where he met me from then since it obviously wasn't from the concert, and he said he just wanted to get to know me. Then he starts making up all these innuendos and saying horrible things about what kind of a "slut" and other worse sexualized terms that I must be for being a married woman who has accepted a friend request on Facebook from another man, trying to degrade and humiliate me. I felt like he was trying to make me feel so bad about myself that I'd go along with whatever sexual stuff he was going to want me to do next. I blocked him, but it's made me very wary in my interactions with men online that I don't personally know.

Similarly, Participant 301 (man; age 26 at TFSV event) reported feeling very anxious and stressed; he consumed alcohol to cope with the incident where he received degrading and threatening messages regarding his bisexual orientation. He also expressed during our interview that he is now more cautious online:

I was a part of an internet forum [on] LGBTQ+ issues, but in one thread we got into a debate about bisexuality and another user began sending me threatening messages that included intentions to find out my real identity and publish the information on the web. I was

quite shaken by this experience and ended up curtailing my membership to that message board... I have been a lot less open about my life online and have actually stopped broadcasting any type of personal information about myself out into the cyber ether.

Overall, participants mentioned several different types of reactions, such as closing online accounts, changing privacy settings, or being more mindful about what they disclose online or who they agree to add to their social media accounts.

The Impact of Online Sexual Harassment

Three quarters of the participants described an experience with online sexual harassment as most impactful, three of whom were interviewed. Seven different subtypes of online sexual harassment emerged (see supplemental materials), although, most individuals received unwanted sexually explicit images/comments ($n = 145$) or repeated unwanted sexual requests ($n = 41$). Three major themes emerging from this TFSV type were feelings of disgust ($n = 135$; 53.6%), lowered self-esteem ($n = 81$; 32.1%), and lowered trust ($n = 95$; 37.7%). In an interview, Participant 3 (woman; age at TFSV event = 28) expressed how TFSV affected her self-esteem and trust:

I think what had the most effect is the cumulative number of unsolicited dick pictures that I've received. Every single time it makes me feel like I'm just a piece of meat, and I believe that it has had an effect on my self-worth over time. Especially the time I received one from a guy I had honestly considered a best friend and brother. I thought there must be something wrong with me if my friends only see me as a sexual object. It has decreased my self-esteem and my trust in men overall.

The need for self-protection (i.e., mistrust and keeping others at a distance) was another prominent theme that emerged among participants who had their partners track their online activity/location or gain access to their online accounts. Participant 64 (woman; age 25 at TFSV event) detailed in her interview how her partner gained access to her online account to monitor her activities and how the experience led her to increase self-protection:

I lived in [redacted] at the time and my partner lived in [redacted]. I heard my email go off. So, then I'd go to look and, it's like, oh you've got a Facebook log-in from a new location. I'm like my partner lives in [redacted]. I called her at that point. She tried to deny it at first, but I'm like, I literally just got a notification on my email that somebody in [redacted] logged in. So, if it wasn't her logging into the Facebook, it was her going on my phone, and checking my text messages or my emails. It created this air of distrust in our relationship. I think

⁹ Two less common themes were rumination ($n = 5$; 11.6%) and feelings of awkwardness ($n = 3$; 7%).

that I have dealt with this experience by having a lack of trust in potential dating partners.

Overall, disgust, lowered self-esteem, and issues with trusting people permeated the stories of individuals who experienced online sexual harassment. These themes were expressed during their interviews and in their open-ended survey responses.

Discussion

In the current study, we utilized a sequential mixed methods approach including a mixed-methods online survey and follow-up interviews to capture participants' experiences of TFSV victimization and subsequent psychological impacts. Here, we summarize our findings by TFSV subgroup, integrating our quantitative and qualitative results to contextualize participants' lived experiences.

Online Image-Based Sexual Abuse

Our quantitative findings showed similar levels of psychological distress between victims of online image-based abuse and victims of online sexual aggression/coercion, which were heightened relative to the distress experienced by victims of online sexual harassment or online gender/sexuality-based harassment. A large proportion (~70–81%) of victims of online image-based abuse had high level of stress and anxiety and were targets of severe bullying or gossip. More than half (~55–61%) had high levels of depression and interpersonal issues because of their experience, and nearly half had thoughts of suicide and coped with their distress by consuming alcohol. In line with the current findings, prior quantitative (Ruvalcaba & Eaton, 2020) and qualitative (Bates, 2017) studies have found a significant relationship between image-based sexual harassment (called “non-consensual pornography” in Ruvalcaba & Eaton, 2020; or ‘revenge porn’ in Bates, 2017) and anxiety, depression, somatic, and post-traumatic stress symptoms. Links between this form of victimization and coping through self-medication have also been noted (see Bates, 2017).

Our qualitative results (i.e., interviews and open-ended survey responses) offer a contextualization of why victims of online image-based abuse suffer greater distress than victims of other types of TFSV in the present work; we found several commonalities among participants' lived experiences with online image-based abuse within open-ended and interview responses. Participants were exposed to multiple types of victimization from multiple individuals, felt a loss of control over their privacy and sexuality, and feared future re-victimization. These multiple victimizations by multiple perpetrators may explain why victims of online image-based abuse report

higher rates of distress and negative life consequences than victims of other forms of TFSV.

Online Sexual Aggression/Coercion

Nearly all victims of online sexual aggression/coercion experienced high levels of anxiety and stress and almost half said their experience resulted in major relationship problems or relational aggression (i.e., the target of gossip). Existing studies on the psychological impacts of online sexual aggression/coercion reveal mixed findings; Howard's (2019) quantitative study using a cross-sectional survey design of 27 respondent indicated no link between sextortion (i.e., a type of online sexual aggression or coercion) and psychological distress or self-esteem issues, though the author noted a lack of statistical power contributing to the null findings. The opposite effect was found in a qualitative study of three sextortion cases; researchers discovered a relationship between sextortion, fear, helplessness, hopelessness, shame, humiliation, self-blame, psychological distress, and several cognitive, psychological, and behavioral precursors to suicidal behavior (e.g., suicidal ideation, depression, and self-harm; Nilsson et al., 2019). Our findings support the notion that experiences of online sexual aggression/coercion are associated with negative psychological outcomes.

Our qualitative results revealed a combination of varying reactions to experiences with online sexual aggression/coercion, which may provide explanatory power for the mixed findings in previous research. Some individuals experienced transient feelings of embarrassment without lasting impact, while others experienced sustained feelings of embarrassment and anxiety as well as engaged in exerted efforts to regain control over their lives. These mixed reactions may be due to differences in TFSV event severity and victim–perpetrator relationship. For example, the negative harms associated with TFSV victimization for the three women participants in this subgroup were more significant than for the male participant in this subgroup. These women indicated high levels of stress and anxiety, and all were subjected to gossip related to their TFSV experience. However, in comparison, the man experienced less distress and negative impacts.

Though these findings could be taken to support the currently dominant TFSV perspective—that TFSV is a gender-based harm against women—this interpretation fails to consider the intricacies of the context of the TFSV situation in this sample. Whereas our male participant had an experience with a stranger who took a video of his genitalia but never posted or disseminated the content, the women participants had experiences with intimate partners who took non-consensual videos of their sexual encounters and then proceeded to distribute/threaten to distribute the explicit content for an extended period. It is likely that, beyond victim gender, these differences in TFSV event severity and victim–perpetrator

relationship may affect the victim's social, psychological, or occupational functioning.

Indeed, victim-perpetrator relationships can significantly influence the victim's experienced trauma level; victims of sexual assaults within the context of intimate relationships may suffer more negative consequences than those who are less interpersonally involved with the perpetrator (i.e., a stranger or an acquaintance; Culbertson & Dehle, 2001; Ullman & Siegel, 1993), perhaps due to a heightened likelihood of multiple victimizations (see Russell, 1990). Differences in the relationship context of the TFSV events and the severity of the incident may explain the varied experiences of participants in the present work. Alternatively, some suggest that men may need to experience “harsher” forms of sexual violence to be negatively impacted by the experience. This has been attributed to sexuality norms for men (i.e., always wanting sex, ready for sex, or in a state of sexual arousal) as mitigating the impact of unwanted sexual activity. As such, men may view victimization experiences as neutral, inconsequential, or satisfactory (see Muehlenhard, 1998). Future research should aim to further examine men's TFSV victimization experiences to better understand contextual factors, and the impact of masculinity norms, on men's psychosocial outcomes.

Online Gender or Sexuality-Based Harassment

More than half of victims of online gender or sexuality-based reported lower levels of anxiety, stress, depression, and negative interpersonal and academic or occupational functioning relative to other victimization groups. Only a small proportion of victims of online gender or sexuality-based harassment reported high levels of stress, anxiety, depression, gossip, bullying, suicidal ideation, negative interpersonal impacts, and coping with alcohol. Our qualitative data revealed that most participants who experienced these forms of TFSV said that they changed their online behavior and became more cautious or less trusting of others.

A recent survey revealed that roughly 40% of online harassed individuals stated that they responded to the harassment by confronting or blocking their harasser(s) (Duggan, 2017), corroborating the phenomenon noted here whereby individuals changed their own behavior following victimization. That most participants in this subgroup reported relatively low levels of distress related to their victimization aligns with prior research suggesting that only one-third of Americans who experienced online harassment also reported mental and emotional stress as a result (Duggan, 2017). Of particular concern, however, is the fact that sexual minority individuals are particularly likely to experience online harassment, as well as reputational harms associated with this harassment (Lenhart et al., 2016). Online gender- and sexuality-based harassment may add to the societal and structural stressors experienced

for LGBTQ+ individuals and other minorities (i.e., minority stress; e.g., Frost et al., 2015; Matsick et al., 2020; Meyer, 2003), compounding feelings of exclusion and stigma. Future research should thus aim to specifically examine this form of TFSV among individuals with marginalized gender and sexual identities.

Online Sexual Harassment

One-third of victims of online sexual harassment indicated high levels of stress and anxiety. Only a minority reported high levels of depression, relational aggression, suicidal thoughts, negative interpersonal impacts, and coping with alcohol. In interviews, victims of online sexual harassment expressed mostly feelings of repulsion, a reduction in self-esteem, and trust for others after receiving unsolicited genital images or sexual propositions or experiencing partner monitoring. Previous research has consistently revealed a positive correlation between partner cyber-monitoring and negative emotions in the relationship such as jealousy, suspiciousness (Utz et al., 2015), and hostility (Cohen et al., 2014). Traumatic experiences, and by extension TFSV victimization, can lead to a profound distrust in others, especially when the trauma is inflicted by an individual who is presumed to be trustworthy, such as a romantic partner. Therefore, a diminishment in trust can act as a self-preservation strategy to avoid being vulnerable to future victimizations (Taft et al., 2016).

Scholars have suggested that online sexual harassment is gendered, as women are more likely to experience this form of abuse than men. Indeed, some studies suggest that women who are harassed online are more likely to understand these experiences as being very or extremely upsetting than men (Vogel, 2021), though other studies have revealed small or no gender differences in negative emotional impacts (see Duncan et al., 2019; Kaltiala-Heino et al., 2016). Our quantitative findings support theorizing of gender similarities in these impacts: women experienced more online sexual harassment than men but did not experience more negative emotional impacts associated with these events.

Is Technology-Facilitated Sexual Violence a Gender-Based Harm?

TFSV has broadly been situated as a gender-based harm in existing literature; it is theorized that women are disproportionately victims of TFSV compared to men, and that the negative impacts associated with TFSV are gendered, such that women experience greater harm associated with TFSV (see Bates, 2015; Henry & Powell, 2015; Powell & Henry, 2016). Corroborating this theorizing, Powell and Henry's (2016) study revealed that women reported significantly higher rates of emotional distress associated with their TFSV victimization than men.

The current investigation suggested contrary findings when cumulative distress scores were assessed; women and men did not significantly differ on levels of negative impacts associated with TFSV victimization overall, even after considering distinct forms of TFSV victimization. When negative impact items were evaluated separately, among victims of online sexual harassment, men indicated experiencing more relational aggression (i.e., gossip) and maladaptive coping (i.e., alcohol consumption) than women—perhaps due to victimization severity and victim-perpetrator relationship, as explained above. However, for most analyses, we failed to find evidence of gender differences. We found both women and men in the current investigation more likely to experience online sexual harassment than other forms of TFSV, and that women and men did not differ on the number of TFSV types experienced. Further, our qualitative interview responses from women and men victims of online image-based abuse revealed similar sentiments, such as feelings of being out of control and afraid of future victimization. Similarly, victims—both women and men—of online gender or sexuality-based harassment experienced stress and anxiety due to their victimization, and victims of online sexual harassment experienced disgust, self-esteem, and trust issues.

Our findings indicate the necessity of evaluating a range of negative emotions and consequences of victimization such as stress, problematic alcohol consumption, negative academic, occupational, and/or interpersonal functioning to accurately assess gender differences in trauma-related outcomes. However, we suggest that a more fruitful direction for future research may be to assess gender similarities, rather than gender differences (see also Cole, 2009; Matsick et al., 2021; Wyer, 2018). Indeed, the results from a review of 46 meta-analyses demonstrated the importance of the gender similarities hypothesis as an alternative to the dominant differences model in understanding psychological outcomes (e.g., self-esteem, coping, and depressive symptoms; Hyde, 2005). The present work provides preliminary evidence to challenge the predominant gender-based theory (i.e., differences model) and highlights the importance of considering alternative perspectives/theoretical frameworks within the context of TFSV victimization research.

Limitations

The current study is not without limitations. As one of the first exploratory mixed methods studies of TFSV, the negative impacts and themes associated with different types of online sexual victimization have not been shown/corroborated in previous research using a mixed-gender sample. The purpose of the present investigation was to expand the current literature by utilizing a mixed methods approach to gather a more comprehensive and inclusive understanding of the negative impacts of TFSV victimization from the perspective of both women and men. Although the current investigation utilized an extensive operational definition of TFSV and a

broad range of negative outcome variables, the survey and interview questions did not contain specific items regarding the severity of the online content; a minority of individuals offered a more descriptive account of their TFSV experience including the severity of the online content (e.g., nude, or semi-nude video/image), although most participants did not. Severity could not be assessed for each participant or within each TFSV group. Parallel limitations have also been found in previous research (Powell & Henry, 2016). Future studies should consider potential differences in varying severity of TFSV types, such as whether victims have had a nude or partially nude image of themselves distributed without their consent and how this may influence the victim's perceived violation.

Further, given our total sample included a relatively homogenous group (e.g., primarily White heterosexual participants with some post-secondary education), future research should seek to study a more diverse (e.g., non-binary individuals, sexual and/or ethnic minorities) sample of TFSV victims to better understand how sexual orientation, ethnicity, and other personal dynamics (e.g., underlying mental health problems, online behavior and/or privacy security) moderate TFSV impacts. Though we did not exclude non-binary individuals from the present work based on gender identity, we did not have any individuals in our sample who identified as such. Further, our demographic variables were insufficient to capture trans identities as we did not specifically include identifiers for trans-identified people. Future work should prioritize inclusivity, and recruitment efforts should be made to specifically sample marginalized group members.

Additionally, though the present results revealed that women and men were victimized at similar rates, and had similar psychological outcomes following TFSV experiences, it is possible that perpetrators commit TFSV against women and men for differing reasons. Thus, though outcomes may be the same across gender (though our claim to this remains limited given the lack of gender diversity in the present sample), mechanisms of victimization may differ. For example, men may be more likely to be targeted with sextortion due to their, on average, heightened financial resources relative to women¹⁰; further, in line with extant theorizing, control-based motivations may be more prevalent in victimizations of women. These differing mechanisms of victimization—which have the potential to result in similar outcomes—would benefit from closer examination. In particular, this theorizing points to the necessity of understanding perpetrator's perspectives on TFSV.

In addition, future studies should aim to recruit a larger sample of varying TFSV types as our statistical analyses were

¹⁰ We thank an anonymous reviewer for raising this point.

limited by our small sample sizes, specifically in the online sexual aggression/coercion group; this would improve the reliability and generalizability of the findings. In addition, future studies should adopt methodology and statistical analyses that accommodate for non-independence of observations especially for participants who experience more than one type of TFSV. Measures of psychological impacts should be framed to accommodate multiple TFSV experiences or co-occurring TFSV types/subtypes. Based on this study's findings, the TFSV Experience Impact Scale should be expanded to include mistrust, perceived loss of control, embarrassment, fear of future re-victimization, and online behavior changes. Finally, TFSV victimization experiences are not entirely isolated, as TFSV subtypes can co-occur during an incident. This co-occurrence was particularly apparent among victims of online image-based abuse; future research should consider these complexities.

Conclusion

Previous investigations have almost exclusively adopted the perspective that TFSV is a gender-based harm and have employed solely qualitative (Bates, 2017) or quantitative (Powell & Henry, 2016) methodologies. This study is the first to use a mixed methods approach to examine a wide range of TFSV victimizations and impacts. Overall, participants experienced anxiety, stress, depression, loss of control, mistrust, multiple victimizations, poor academic/occupation functioning, problematic alcohol consumption, embarrassment, and online behavior changes due to TFSV victimization. Victims of online image-based sexual abuse reported higher rates of distress and negative consequences than other forms of TFSV, which may be due to multiple victimizations executed by various perpetrators.

Furthermore, our findings support the notion that women's and men's psychological experiences are more similar than different (see Hyde, 2005). Though we did find small differences for victims of online sexual harassment, with men more likely to report being subjected to gossip and to consume alcohol more frequently to cope with their experience, there was no difference in cumulative distress scores between women and men within each TFSV victimization type. Further, we found no differences in the number of different TFSV incidents experienced between women and men—both experienced on average two types of TFSV. Our qualitative responses illuminated similar themes and experiences among women and men who experienced image-based abuse, online gender or sexuality-based harassment, and online sexual harassment.

In sum, our findings support the conclusion that TFSV is not exclusively a gender-based harm predominately used to target or harm women. Specifically, evidence from this study suggests that TFSV experiences are similar for women and

men for most TFSV types. It is clear from the qualitative themes that TFSV is used against both women and men to exert power, control, or to humiliate victims (e.g., themes include victims trying to reclaim control, embarrassment, fear of re-victimization, or changing online behavior). Indeed, more research is needed to clarify these findings. The present study demonstrates the negative impact TFSV has on both women and men and highlights the need for greater awareness and increased support for all victims of the diverse forms of sexual violence included under the TFSV umbrella and beyond.

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Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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