



Technology and Sexual Offending

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Abstract

Purpose of Review This review examines the literature on technology-facilitated sexual violence (TFSV). The prevalence, perpetrators, harms, and victims of a selection of types of TFSV are covered. Particularly, the topics of image-based sexual abuse, video voyeurism, sending of unsolicited sexual images, and the use of technology to facilitate in-person sexual violence are discussed.

Recent Findings The literature suggests that the types of TFSV discussed are prevalent and the impacts far-reaching. There is emerging evidence outlining the characteristics associated with and motivations behind these acts of TFSV. The impacts of TFSV victimization can be diverse and damaging. Many questions about TFSV are unanswered, highlighting the need for more empirical investigations.

Summary Technology can be used to facilitate sexual violence through several means. It is clear that there is the potential for the impact on victims to be extensive; thus, it is critical that more work be done to understand the extent and nature of TFSV and the individuals who perpetrate this type of violence.

Keywords Technology · Sexual violence · Image-based sexual abuse · Unsolicited sexual images · Voyeurism · Dating apps

“New technology is not good or evil in and of itself. It’s all about how people choose to use it.”
– David Wong

Introduction

Sexual violence is defined as “any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed, against a person’s sexuality using coercion” [1 p. 149]. It can be perpetrated in any location, by any person, notwithstanding how the perpetrator knows or is connected to the victim [1]. Conventionally, for an act of sexual violence to occur, a perpetrator and a victim

needed to be in close physical proximity to one another. However, with technological advancements and technology becoming a critical underpinning in many people’s lives, a new type of sexual violence has seemingly developed alongside these changes, which has made this need for proximity increasingly unnecessary. This new form of sexual violence has been termed “technology-facilitated sexual violence” (TFSV) [2 p. 195]. Scholars have defined TFSV as “a range of criminal, civil, or otherwise harmful sexually aggressive and harassing behaviors that are perpetrated with the aid or use of communication technologies” [p. 195–196]. This definition illustrates that people can perpetrate acts of TFSV in a multitude of ways and using countless technological avenues. TFSV has even resulted in existing laws being contested, reevaluated, and amended [e.g., 3–5] to reflect the novel ways sexual violence can be perpetrated via technology. Despite these facts, little remains known about people’s, particularly adults, experiences with TFSV due to limited empirical research available on the topic.

This review will discuss a selection of behaviors encompassed within this overarching definition of TFSV. The first section of this review will discuss the topics of image-based sexual abuse (e.g., “revenge porn”), video voyeurism, and sending unsolicited sexual images. The second

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section will discuss the topic of using technology to facilitate in-person acts of sexual violence, with a particular focus on dating applications (apps). The third section will discuss research questions needing further exploration. It should be noted that this review is not exhaustive. Instead, it addresses types of TFSV that have not been covered in-depth in other reviews (e.g., see [2]) or topics whereby new empirical findings have been made available. This review will focus on the experiences of individuals above the age of consent. Although we acknowledge children's vulnerability to technology and sexual offenses (e.g., online grooming and exploitation, creating, distributing, and accessing child sexual exploitation material), these have received comprehensive coverage elsewhere (see [6–8]); thus, these will not be discussed here to allow for lesser-known topics to be considered.

Image-Based Sexual Abuse

One type of technology-facilitated sexual violence (TFSV) that has started to receive increased scholarly attention is image-based sexual abuse (IBSA), at times referred to as non-consensual sharing of sexually explicit media, nonconsensual pornography, or “revenge porn” [9–12, 13]. IBSA refers to nonconsensually taking, sharing, or threatening to share nude or sexual images or videos of a person [3, 11]. IBSA has been conceptualized as a range of behaviors on a continuum of sexual violence, including what has been referred to as “revenge porn” [14]. It has been suggested that IBSA is the most appropriate term for these behaviors because motivations for such offenses extend beyond revenge [12, 14, 15] and the term “revenge” suggests that the victim did something harmful to elicit a vengeful response, which is generally not the case [16]. Particularly, IBSA most commonly occurs when someone knowingly shares an image or video with someone they trust, who then shares the content more widely without the victim's consent, but IBSA images or videos can also be captured without the victim's knowledge or even digitally altered to include the victim [12].

The prevalence of image-based sexual abuse (IBSA) is difficult to determine given inconsistencies in the definition and framing of questions related to this topic [13]. However, the studies reporting prevalence indicate this is clearly an extensive problem. In a survey of participants in Australia, New Zealand, and the UK (N = 6109) ranging in age from 16 to 64, 1 in 3 participants reported that they had experienced at least one type of IBSA victimization [12]. In a large sample of adult (aged 18+) American Facebook users (N = 3044), 1 in 12 reported at least one incident of nonconsensual IBSA victimization and 1 in 20 reported perpetrating such abuse [17]. It has been noted that this is likely an underestimate of true prevalence as only those victims who are aware their images have been shared are able to report this [15].

Several studies have examined the characteristics of those who have experienced image-based sexual abuse (IBSA). Perpetrators of IBSA have generally been found to be younger, with those aged 16–39 significantly more likely to be perpetrators than those over 40, and are most commonly someone known to the victim [12]. Victimization has been found to be more prevalent in younger individuals (i.e., aged 16–29), ethnically diverse groups (i.e., non-white), and those of diverse sexuality (i.e., LGB+) [12, 18]. However, there are inconsistencies in the literature around gender differences in experiences of IBSA. Some studies indicate roughly equal rates of victimization between genders [12]; others suggest higher rates of victimization reported against males [13]. Even with equal rates reported in some cases, another study found that images on the “revenge porn” sites they investigated were almost exclusively of women [3]. Studies have generally found that men are more commonly perpetrators [12, 17]. Furthermore, sexual scripts informed by traditional gender roles [19] appear to be relevant in responses to IBSA. Females appear to suffer greater social stigmatization and repercussions and are more often blamed for their abuse (because they may have voluntarily posed for the images or shared them consensually with one partner) than the male perpetrators who actually violated their trust and privacy [13, 15, 17].

Motivations for “revenge porn” are much more varied than that particular term implies. In some cases, image-based sexual abuse (IBSA) can be perpetrated by a vengeful ex-partner, but it can also be used as a means of controlling one's partner or as a threat against reporting their abuse by a current or previous partner [20]. Other motivations noted include trying to be fun, flirty, sexy, and to impress friends by trading images [12]. One research team examined high-volume online sites hosting IBSA abuse material [15]. They found that the majority of images were of women, and even on the sites that allowed images of men, they received substantially fewer views than images of women. They concluded that in addition to being motivated by revenge and shaming of ex-partners, perpetrators were motivated by sexual gratification and proving their masculinity to a sexually deviant peer network.

The harms experienced by victims of image-based sexual abuse (IBSA) can be extensive. For example, IBSA images can easily be distributed widely, such as on social media, through email and via text messages [12]. There are also websites devoted to the sharing of this nonconsensual sexual material in which personal details about the victim might be included, such as their name, social media details, contact information, address, and employer [3, 21]. Furthermore, the repercussions faced by victims of IBSA have been compared to those suffered by survivors of in-person sexual assault [22]. These can range from anger, guilt, and depression, damaged relationships with partners, family, employers, job loss, social isolation, and even suicide [9, 11, 21, 23]. Women and

LGBTQ+ individuals reported greater negative impacts than men and heterosexual individuals [12].

Video Voyeurism

Voyeuristic behavior involves someone watching an unsuspecting, therefore, nonconsenting person who is naked, undressing, or taking part in sexual activity, and becoming sexually aroused by engaging in this observation [24]. With advancements in technology, people who wish to engage in voyeuristic activity now have additional means of committing this act of sexual violence, particularly, as a type of technology-facilitated sexual violence (TFSV), in the form of video voyeurism [25]. An act of video voyeurism can be broadly defined as when someone films or photographs an individual without their consent, in circumstances whereby a person would have a “reasonable expectation of privacy” [4, 26]. Some more mainstream types of video voyeurism include filming or photographing someone while they undress (e.g., “dressing rooms, gyms, restrooms”) [27 p. 375], “upskirting” (i.e., taking pictures or filming underneath a person’s clothing) [28, 29], and “down-blousing” (i.e., taking pictures or filming down a woman’s shirt) [30]. Therefore, considering these definitions, an act of video voyeurism could fall under the umbrella definition of image-based sexual abuse (IBSA), as “upskirting” has been included on this sexual violence continuum before [14]. Notably, although IBSA was discussed in the previous section of this article, this section focused more heavily on the sharing rather than the taking of sexual images or videos of an unsuspecting person. Due to the nonconsensual taking of sexual images and videos receiving less extensive coverage elsewhere, these facets of IBSA will be discussed separately.

One challenge that accompanies video voyeurism is determining its prevalence. One main reason for this is that the victim, by definition, is unaware, and thus often also uninformed, that they are being observed [4]. If victims are unaware that they have been victimized, they cannot then report this to the police [4]. Perpetrators often use creative, though unnerving, means to engage in this act of technology-facilitated sexual violence (TFSV), such as hiding small cameras in their shoes [31], in pens [32], and backpacks [33]. This poses an obvious obstacle to obtaining accurate prevalence rates from self-report studies. Despite these concerns, some prevalence rates have begun to emerge. For example, in Korea, where video voyeurism has been deemed an epidemic [34], a study found the number of cases involving spycams to have grown dramatically within a short period of time, from 564 cases in 2007 to 7730 cases in 2015; notably, these numbers decreased moderately in 2016 (N = 5249) and rose again in 2017 (N = 6615) [35, as cited in 34]. Also, in a sample of Australian participants (N = 4274, 16–49 years old), one-fifth

(20%) of participants reported having experienced this form of TFSV, such that someone had taken a nude or sexual image of them without their consent [36]. Regarding the prevalence of more specific forms of video voyeurism, this study also found that 1 in 10 women reported being a victim of “down-blousing” and 1 in 20 women reported being a victim of “upskirting” [36]. Although these prevalence rates are limited, they suggest that this type of TFSV can be far-reaching.

Although the terms “upskirting” and “down-blousing” insinuate female victims, men can also fall victim to this type of technology-facilitated sexual violence (TFSV) [26, 37]. Specific harms to video voyeurism victims have seldomly been reported empirically, but due to some of the similarities of video voyeurism and image-based sexual abuse (IBSA) [14], it could be hypothesized that the harms to victims of this act of TFSV would be similar in nature. Similar to victims of IBSA, victims of video voyeurism can also be doubly victimized [26]. This potential for double victimization stems from not only the violation of one’s privacy by taking the images in the first place but also through some perpetrators uploading these covertly taken images and videos onto the multitude of websites which post this type of material, including pornography websites [4, 11, 14, 26].

Sending Unsolicited Sexual Images

Another type of technology-facilitated sexual violence (TFSV) that has received limited empirical attention is sending unsolicited sexual images (USIs). A USI can be defined as a digital image of a fully or partially naked body that is sent to a nonconsenting or unsuspecting person through technological means. The majority of the literature has focused on the sending of unsolicited “dick pics” (DPs; i.e., “explicit digital images of men’s genitalia sent to recipients via web or mobile technology”) [38 p. 1]. Notably, sending someone a sexual image is not inherently problematic, but it is the nonconsensual nature of sending USIs, which makes it an act of TFSV. According to preliminary surveys conducted, receiving USIs more generally and receiving unsolicited “dick pics” specifically have reportedly been experienced by a sizeable proportion of people. For instance, results from a nationally representative sample of US adults (N = 4248) showed that 30% of males and 32% of females said that they had received an unsolicited explicit image [39]. Also, in a study conducted with US adults (N = 2343, 18–90 years old) within the subsample of women (heterosexual and nonheterosexual) and men (nonheterosexual) who had reported receiving a DP, 90% stated that they had received an unsolicited DP [40].

These prevalence rates are disconcerting as sending “dick pics” (DPs) is often denoted as a form of sexual harassment when discussed online [41, 42]. Sending USIs has also been compared to in-person acts of sexual violence. Specifically,

due to marked similarities between sending USIs and exhibitionism (i.e., both involve the exposure of the naked body to a nonconsenting party), authors have alluded to the idea that sending USIs could be an online form of exhibitionism [28, 38, 43–45]. Only one known study has examined the relationship between these two behaviors and found no statistically significant differences in exhibitionistic tendencies between people who had not sent and those who had sent unsolicited DPs [38]. However, due to the parallels between the two, this relationship is worth further investigation.

Preliminary studies have provided some insight as to why people send unsolicited sexual images (USIs) and the characteristics associated with individuals who engage in this act of technology-facilitated sexual violence (TFSV). One of the few studies on this topic reported that in a sample of heterosexual men, the largest proportion of men reported sending unsolicited “dick pics” (DPs) in hopes that they would get something in return from the recipient (e.g., sex, sexual image), which the authors labeled as operating in a “transactional mindset” [38]. They also found that heterosexual men who sent unsolicited DPs displayed higher levels of narcissism, as well as ambivalent and hostile sexism than non-senders [38]. Similarly, in a sample of men with varying sexual orientations, most men reported sending unsolicited DPs because they hoped to receive a sexual image in return (i.e., transactional mindset), as well as because they felt “horny” [46]. In contrast, this study did not find a significant association between sending unsolicited DPs and narcissism or sexism, among other traits (e.g., psychopathy) [46]. The author suggested that this contrasting finding may be because of characteristic differences in the two study’s samples (i.e., age, race) or possibly due to methodological differences [46]. Instead, this study found that only heterosexual men who sent unsolicited DPs demonstrated significantly lower self-esteem and agreeableness than non-senders and often had higher Machiavellianism scores than non-senders, but this relationship did not quite reach significance (i.e., $p < 0.06$) [46]. It is important to highlight that this study did not find any statistically significant associations between sending unsolicited DPs and the traits examined in non-heterosexual men, suggesting that correlates with this form of TFSV may vary by sexual orientation [46].

The characteristic correlates with sending unsolicited sexual images (USIs) have also begun to be investigated in samples including both men and women. For example, a study found that males, as well as those with higher self-rated mate value (i.e., how desirable someone thinks they are to a potential mate), and Machiavellianism scores had higher explicit image scale scores (i.e., a variable that evaluated a participant’s attitude toward and history of sending unsolicited genital images) [47]. Although, in this study, there were no significant interactions between a participant’s sex, self-rated mate value, or Machiavellianism score [47]. Another study found that in women having more liberal attitudes toward

sending sexual images and narcissism was predictive of sending USIs [48]. In contrast, for men, psychopathy, self-rated mate value, and having an accepting attitude toward sending sexual images were predictive of engaging in this act of TFSV [48]. These findings suggest that the motivations and characteristics associated with sending USIs may not be clear cut (e.g., not strictly antisocial) and may vary by gender and sexual orientation, highlighting the need for further investigation.

Although it is of value to better understand what motivates someone to send an unsolicited sexual image (USI), a motivation lacking nefarious intent does not negate that this is an act of TFSV; USIs are, by definition, nonconsensual. The nonconsensual element has been highlighted in interviews with adult women (i.e., 18–38 years), as they have noted feeling that unsolicited “dick pics” (DPs) illustrate the disproportionate level of power and control men have in sexual situations when compared to women and that these images eliminate a woman’s ability to consent to engage in a sexual experience [49]. These feelings were also expressed in interviews with younger women (i.e., 17–20 years), with participants voicing that they felt unsolicited DPs are invasive [50]. This negative sentiment toward unsolicited DPs was also communicated quantitatively, whereby most women of varying sexual orientations endorsed negative reactions (e.g., “grossed out”) to receiving unsolicited DPs [40]. In relation to women’s responses to USIs, young men have reported a disregard for women’s expressed lack of interest and adverse reactions to DPs, viewing it as not authentic. Instead, in line with traditional gender scripts [19], young men have attributed negative reactions to DPs to women being worried about admitting that they genuinely enjoy being the focus of a man’s sexual advances [50].

In contrast to these reported negative reactions, some studies suggest that not everyone experiences unsolicited sexual images (USIs) negatively. When surveyed, the majority of gay and bisexual men endorsed more positive reactions (e.g., “entertained”) to receiving USIs [40]. In addition, another study found that when evaluating a vignette situation, participants deemed a woman sending a USI as more appropriate than a man sending a USI [51]. These differences in response highlight that this is a complex area requiring further investigation.

The Use of Technology to Facilitate In-Person Sexual Violence

In addition to technology-facilitated sexual violence (TFSV) that can occur exclusively online, perpetrators can also use technology as a tool to arrange meetings offline where an act of in-person sexual violence can occur. Although media outlets have publicized the occurrence of this type of TFSV [e.g., 52–54], empirical investigations exploring this type of TFSV

remains scarce. However, the limited literature has suggested that dating apps are one avenue that perpetrators can use to facilitate in-person sexual violence after meeting their victims online.

In 2016, the UK National Crime Agency released a report which detailed that between 2009 and 2014, there was a six-fold increase in the number of people who reported being sexually victimized by someone they had met on a dating app or website [55]. In line with these findings, when the caseload ($N = 76$) of a forensic medicine service in Australia was reviewed, among the sexual assault victims who had been examined forensically, 14.5% ($n = 11$) reported that they had met the perpetrator of their assault on a dating app or website [56]. Similarly, albeit more of an anecdotal finding, one study noted that in interviews with stakeholders who respond to TFSV, police had discussed that dating apps and sites appear to be an enabler of sexual violence [57]. Likewise, in a study examining Australian adults' experiences with TFSV ($N = 2956$, 18–54 years old), 10.5% of participants reported undergoing an “unwanted sexual experience” with a person they had initially met on a dating site or app [58]. Similarly, in a sample of US college women ($N = 253$), when reporting the contextual factors of their “most significant” sexual assault experience since enrolling in college, 4.8% stated that they had met their perpetrator on a dating app [59].

Some preliminary investigations have also begun to provide contextual information about cases of dating app facilitated sexual violence. For example, the UK National Crime Agency reported that within a subset of sexual assault cases ($n = 163$) available for analysis whereby the victim met their alleged perpetrator on a dating app or website, the majority (85%) of victims were female [55]. This report also described that 72% of the assaults occurred at either the residence of the victim or the perpetrator [55]. Similarly, another study found that within a smaller sample of cases ($N = 11$), all of the victims were female and each victim identified the perpetrator as being a single male, with the majority of assaults having occurred at the perpetrator's residence [56]. Also, in these eleven cases, according to examinations that took place within 24 h to 5 days after the assaults, 60% of victims had anogenital injuries and 70% of victims had observable bodily injuries [56].

In addition to reports of prevalence and contextual factors associated with dating app facilitated assaults, other studies have found the use of dating apps to have disconcerting correlates. Specifically, dating app use has been associated with a higher odds of reporting nonconsensual sex [60] and a higher likelihood of reporting being a victim of sexual violence in the past year [61]. Although valuable, these studies are limited because they could not specify whether the in-person sexual violence experienced by participants was perpetrated by someone the victim had met on a dating app. These findings demonstrate that although dating apps may be the new way

people are meeting their dating or romantic partners, they may also be a new avenue for perpetrators of sexual violence to meet their victims.

Future Directions

Due to the limited number of investigations into technology-facilitated sexual violence (TFSV), many questions remain. At the most basic level, additional studies are needed to provide more reliable prevalence estimates of TFSV, as the prevalence rates available for most types of TFSV are limited in number or to particular geographical regions. Developing a better understanding of the circumstances that facilitate acts of TFSV would also be useful, as this knowledge could help to better inform prevention efforts. These efforts could include informing potential perpetrators about the harmful impact of TFSV and how to interact with potential partners respectfully and consensually, as well as informing potential victims about how to interact with others via technology in a way that minimizes the potential for them to be victimized.

It is also imperative that additional studies are conducted to help to determine who perpetrates TFSV and why they engage in these behaviors. The UK National Crime Agency suggested that dating apps are affording the development of a new typology of people who commit sexual offenses, who take advantage of the heightened accessibility of victims via dating apps and who are less likely to have prior convictions [55]. Thus, it is important to determine whether a new technology-specific sexual perpetrator is budding or if new technologies are merely acting as another vehicle for victimization for those who would also perpetrate in-person acts of sexual violence. Such consideration is important in ascertaining whether acts of TFSV generally are extensions of acts of in-person sexual violence or recognized paraphilias or if acts of TFSV are motivated by distinct factors. Although TFSV has wide-reaching harmful implications in and of itself, understanding the potential for escalation from TFSV to in-person acts of sexual violence is also critical. Answering these questions could help to inform treatment providers of new types of sexual violence clients that may be at risk of perpetrating, as well as possibly help inform policymakers as to how to manage TFSV in the legal sphere.

A better understanding of victims' experiences with TFSV is another important avenue of research in need of further exploration. Notably, examining if and how victimization extends past the initial TFSV incident, if those who have been victimized by an act of TFSV are at a higher risk of in-person sexual victimization, and determining whether the impacts of TFSV differ from the impacts of in-person sexual violence.

Finally, investigating the public's perception of TFSV would be useful to examine. More specifically, it may be

useful to examine if people believe that acts of TFSV are more acceptable or less harmful than in-person sexual violence. This may be particularly pertinent to examine concerning TFSV as it has been suggested that the language used to describe acts of sexual violence is critical to consider [14, 62]. This concern about terminology has been discussed in relation to different acts of TFSV, such as “dick pics” [62] and “upskirting” [14], particularly noting that these colloquial names can work to disparage the seriousness of these acts of TFSV [14, 62]. In relation, it would be useful to understand if any acts of TFSV have appeared to become normalized and, if yes, what has contributed to this process.

As our lives increasingly move into the virtual sphere, the opportunities for harassment, exploitation, and TFSV also increase. This can include a wide range of areas that have yet to be examined extensively in the academic literature, such as “Zoom bombing” (e.g., unknown persons entering virtual Zoom meetings and distributing unwanted sexual material including child sexual abuse images) as well as other types of exploitation and unwanted sexual material forced upon people virtually. Although some of these online behaviors have many parallels with in-person sexual violence, there is the potential that others represent novel avenues for perpetration that may never have been enacted without the anonymity and physical distance between the individuals who are perpetrating these acts of violence and their victims. The clear consistency between them though is the potential for serious harm to the victims, highlighting the need for improving our understanding of TFSV.

Conclusions

Technology-facilitated sexual violence (TFSV) can take many forms and appears to be a widespread phenomenon. The literature suggests that the motivations for TFSV can vary widely and the harms inflicted upon victims can be long-lasting, far-reaching, and highly damaging. Although the research that has been conducted has provided invaluable insight into this form of violence, more research is needed to obtain a more holistic understanding of TFSV. Due to the limited investigations into TFSV, the questions left to be answered are virtually limitless. Therefore, this review can act as a call to action for those interested in investigating the largely unknown domain of TFSV. Readers are invited to consider what questions spark their curiosity and initiate a quest to resolve these quandaries.

Declarations

Conflict of Interest The authors declare that they have no competing interests.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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