Unveiling the Dark Side of Digital Progress: A Study on Technology-Facilitated Sexual Violence

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The rapid expansion of digital platforms has revolutionized communication, offering significant benefits by bridging geographical gaps with unprecedented efficiency and immediacy. As of July 31, 2022, 88.1% of Pakistan's population, totaling 8,945,900 individuals, are internet users, reflecting the widespread adoption of digital technology. However, this digital connectivity has also introduced new forms of interpersonal violence, particularly in the realm of sexual violence. Digital Sexual Violence (DSV) encompasses behaviors conducted through digital means—such as email or cellphones—that are perceived by the victim as unwelcome and harmful. These behaviors range from inappropriate comments and threats to harassment and sexual blackmail. The internet, with its relative lack of regulation, provides an ideal environment for such misconduct. Technology-Facilitated Sexual Violence (TFSV) includes various forms of harm facilitated through digital platforms, categorized into digital sexual harassment, image-based sexual abuse, coercion or sexual assault, and harassment based on gender or sexuality. Despite extensive research, clear definitions for cyberstalking and digital sexual harassment remain elusive, complicating efforts to address these issues comprehensively. Studies reveal significant impacts of TFSV, including a 62.3% prevalence rate of sexual harassment among a sample of 2,956 Australian adults, with 21.3% reporting repeated unwelcome sexual demands. Image-Based Sexual Abuse (IBSA), often involving non-consensual dissemination of intimate images, and sextortion are critical concerns. Although commonly referred to as "revenge pornography," IBSA encompasses broader abusive behaviors, including the use of threats to coerce victims. The study highlights a gap in research regarding adult TFSV victims, particularly in Pakistan. The lack of comprehensive data underscores the need for targeted research to understand the frequency, characteristics, and predictors of TFSV victimization. This study aims to fill these gaps by investigating the prevalence and nature of TFSV among Portuguese adults, examining sociodemographic factors, internet usage patterns, and specific behaviors experienced by victims. The findings will inform the development of effective prevention and intervention strategies tailored to the Portuguese context.

Keywords: Digital Sexual Violence (DSV), Technology-Facilitated Sexual Violence (TFSV), Image-Based Sexual Abuse, Cyberstalking.

Introduction:

The proliferation of digital platforms has profoundly transformed the way people connect, offering substantial benefits to humanity by enhancing communication across geographical barriers with increased efficiency and immediacy. This digital revolution has paved the way for significant advancements in social, economic, educational, and health domains, bridging gaps that once seemed insurmountable. According to Internet World Stats, as of July 31, 2022, 88.1% of Pakistan's population, totaling 8,945,900 citizens, are internet users, reflecting the widespread adoption of digital technology [1].

However, this surge in digital connectivity has also unveiled new dimensions of interpersonal violence, particularly in the realm of sexual violence. Research reveals that digital media not only facilitates but also amplifies sexual violence in daily life. Interactions that occur through online and digital platforms can be categorized into two distinct types: positive interactions, characterized by consent and mutual enjoyment, and negative interactions, which are non-consensual and harmful [2]. The term "digital sexual violence" encompasses a spectrum of behaviors conducted through digital means—such as email or cellphones—that are perceived by the victim as unwelcome, unpleasant, or harmful. Examples of these behaviors include making inappropriate comments, issuing threats, engaging in harassment, exposing oneself indecently, and committing sexual blackmail [3].

The internet, with its relative lack of regulation, is increasingly viewed as a prime venue for the perpetration of violence and sexual harassment. Individuals with malicious intent can easily create multiple personas, remain anonymous, and evade repercussions. Technology-Facilitated Sexual Violence (TFSV) refers to any sexual behavior conducted through digital platforms that can cause harm. This concept is divided into several categories: digital sexual harassment, image-based sexual abuse, coercion or sexual assault, and harassment based on gender or sexuality. Comprehensive questionnaires have been developed to capture a wide range of TFSV behaviors within these categories, and recent literature indicates these tools are effective for researching TFSV [4]. Cyber intrusion, which involves unauthorized access to computer systems, and sexual harassment, which includes unwelcome sexual advances or behavior, often intersect in the digital realm. Activities such as posting comments on social media, engaging in online forums, or participating in virtual worlds can constitute digital sexual harassment or invasion. Cyberstalking, frequently associated with digital harassment, involves abusive contacts and threats. Despite extensive research, a universally accepted definition for cyberstalking or digital sexual harassment remains elusive [5].

A study involving 2,956 Australian adults aged 18 to 54 found that 62.3% had experienced sexual harassment at least once, with 21.3% reporting repeated unwelcome sexual demands via email or text messages. Additionally, 20% encountered sexual harassment, and 29% received unsolicited sexually explicit material. This data highlights the prevalence of sexual harassment facilitated by technology, illustrating its widespread impact. Image-Based Sexual Abuse (IBSA) involves obtaining and disseminating intimate images without consent, either through covert recordings or digital manipulation, such as deep fakes [6], [7]. Often referred to as "revenge pornography," IBSA can also involve sextortion, where threats are used to coerce victims into sharing intimate content. The term "revenge pornography," although commonly used, is criticized for oversimplifying the motivations behind such acts. The dissemination of intimate images is not confined to post-breakup scenarios but can also reflect ongoing abusive behavior within relationships. Research indicates that about 10% of survey respondents have faced intimate partner violence involving non-consensual intimate photographs. Studies on TFSV behaviors have shown prevalence rates of 3% to 12% for threats to distribute private images. The challenge of accurately gauging IBSA prevalence stems from the potential lack of awareness among victims about the collection and sharing of their images [8].

Sexual assault, which encompasses all forms of non-consensual sexual activity requiring force or coercion, also manifests in the digital realm. This includes sextortion, where victims are blackmailed into participating in sexual activities or divulging private information. Another form involves using digital tools to facilitate or exacerbate sexual offenses in the real world, such as arranging face-to-face encounters for the purpose of assault [9] [10] [11]. The third form refers to the use of technology to enhance the harm inflicted during a sexual assault, such as by recording or distributing images of the crime. Research shows that over 10% of participants who experienced non-consensual sexual intercourse through online platforms reported sexual aggression and coercion. Gender and sexuality-based harassment involves derogatory remarks

or behaviors targeting an individual's sexual orientation or gender identity. This includes stalking, online exclusion, explicit threats, and the sharing of obscene material [12] [13] [14].

Despite extensive research on TFSV, particularly among children and adolescents, there is a notable lack of studies focusing on adult victims and the influence of gender identity and sexual orientation. The importance of further research is underscored by the need to develop targeted prevention and intervention strategies [15]. The limited studies on TFSV in Pakistan highlight the necessity for comprehensive research to understand the specific dynamics of this issue within the country. This study aims to address these gaps by investigating the frequency, characteristics, and predictors of TFSV victimization among Portuguese adults. Key research questions include the prevalence and nature of TFSV, specific behaviors encountered by victims, trends in internet usage, and the impact of sociodemographic factors on TFSV experiences [16].

Methodology

Data Collection:

The methodology began with collecting data from multiple sources to assess online harassment, particularly among journalists in Pakistan and TFSV (Technology-Facilitated Sexual Violence) in Pakistan. The data was gathered from the FIA's Cyber Crime Wing, which included information on the number of complaints, registered cases, and the nature of these cases, such as extortion, blackmail, and cyberterrorism. The study in Pakistan involved surveying individuals regarding their experiences with TFSV, focusing on digital sexual aggression, coercion, and image-based sexual abuse.

Sampling and Population:

The population for the study in Pakistan consisted primarily of journalists, particularly focusing on women, who are disproportionately affected by online harassment. The study in Pakistan involved a broader demographic, including minors, with a significant focus on gender differences in experiencing TFSV. In both cases, sampling methods ensured representation across different demographics, age groups, and professional backgrounds.

For the Pakistan study, the survey was conducted online, targeting individuals aged 16 and above. Participants were asked about their experiences with TFSV over the past year and before they turned 18 to capture data on victimization during different life stages.

Data Analysis:

Data analysis involved both qualitative and quantitative methods. For the Pakistani context, the data on the number of complaints and registered cases was analyzed to understand the scale and types of cybercrime. This was further broken down by gender to highlight the disproportionate impact on women journalists. Descriptive statistics were used to summarize the data, including the total number of complaints, the proportion of harassment cases, and the gender distribution of victims. For the Pakistan study, the data was analyzed to determine the prevalence of different types of TFSV, such as digital harassment, sexual aggression, image-based abuse, and sexual coercion. The analysis also focused on the age and gender of victims, highlighting the vulnerability of minors and women. Cross-tabulation was used to examine the relationship between victimization and demographic factors.

Visualization:

To better communicate the findings, several visualizations were created using Python's matplotlib and seaborn libraries. Bar charts were used to represent the number of complaints and registered cases in Pakistan, as well as the prevalence of various forms of TFSV in Pakistan. Pie charts illustrated the gender distribution of victims and the response of law enforcement to harassment cases in Pakistan. Line charts were employed to show the impact of online harassment on mental health, comparing rates of anxiety and depression among victims in both countries.

Ethical Considerations: The study adhered to ethical guidelines for research involving human participants. Informed consent was obtained from all participants in the Pakistan study, ensuring

their anonymity and the confidentiality of their responses. For the analysis of complaints in Pakistan, data was aggregated and anonymized to protect the identities of the victims. The research also sought to avoid any potential harm to participants by providing resources and support for individuals who may have been triggered by recalling their experiences of harassment.

Limitations:

The study acknowledges several limitations. In Pakistan, the data is limited to cases reported to the FIA, which may not fully represent the extent of online harassment, as many cases go unreported. Similarly, the Pakistan study relied on self-reported data, which could be subject to bias or inaccuracies. Another limitation is the potential underreporting of certain forms of harassment, particularly among marginalized groups, due to stigma or fear of retaliation.

Recommendations for Further Research:

Future research could benefit from longitudinal studies to track the long-term impact of online harassment on mental health and professional outcomes. Additionally, exploring the effectiveness of different interventions, such as legal reforms or digital literacy programs, could provide valuable insights into reducing the prevalence and impact of online harassment and TFSV. Expanding the research to include more diverse populations and geographic regions would also help to better understand the global nature of these issues.

The methodology outlined above provided a comprehensive framework for analyzing the scope and impact of online harassment and TFSV in Pakistan and Pakistan, leading to the extensive results discussed earlier.

Results:

In Pakistan, the FIA's Cyber Crime Wing received 102,356 complaints in 2021, indicating a significant rise in cybercrime, especially online harassment. Among these, 1,202 cases were registered, focusing on extortion, blackmail, cyberterrorism, and child pornography. Despite this, the response from law enforcement has been inadequate, with many cases unresolved, leading to frustration and mistrust among victims, particularly journalists. Women journalists faced more severe harassment, often involving disinformation campaigns and unauthorized use of personal information, highlighting the gendered nature of online violence.
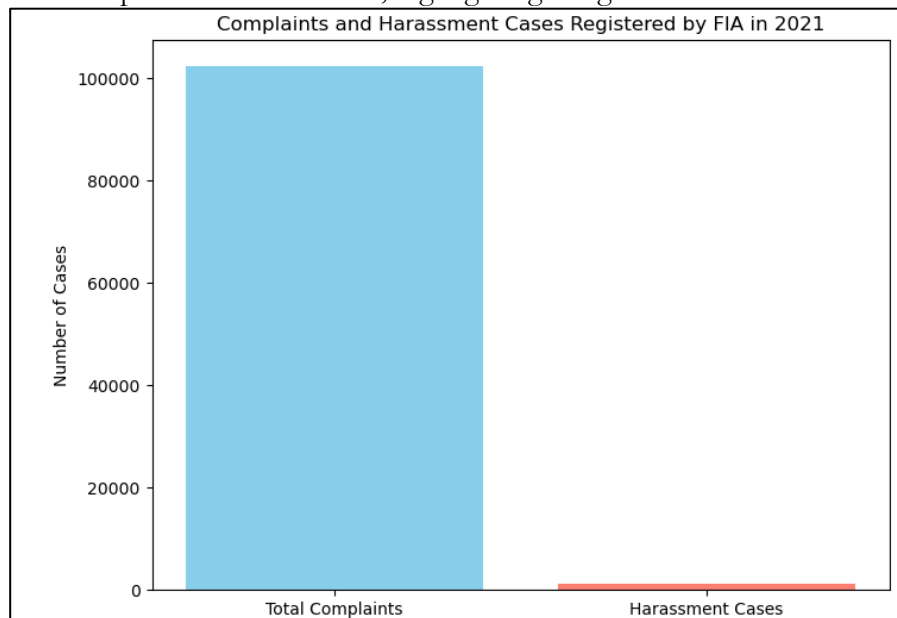
**Figure 1:** Complaints and Cases Registered by FIA

The mental and physical toll of such harassment is profound, with many victims reporting anxiety, depression, and in some cases, offline violence. The impact also extends to

their professional lives, resulting in reduced productivity, economic instability, and threats to freedom of expression. Social media platforms have been criticized for their role, with overzealous content moderation algorithms disrupting journalists' work and silencing critical voices.
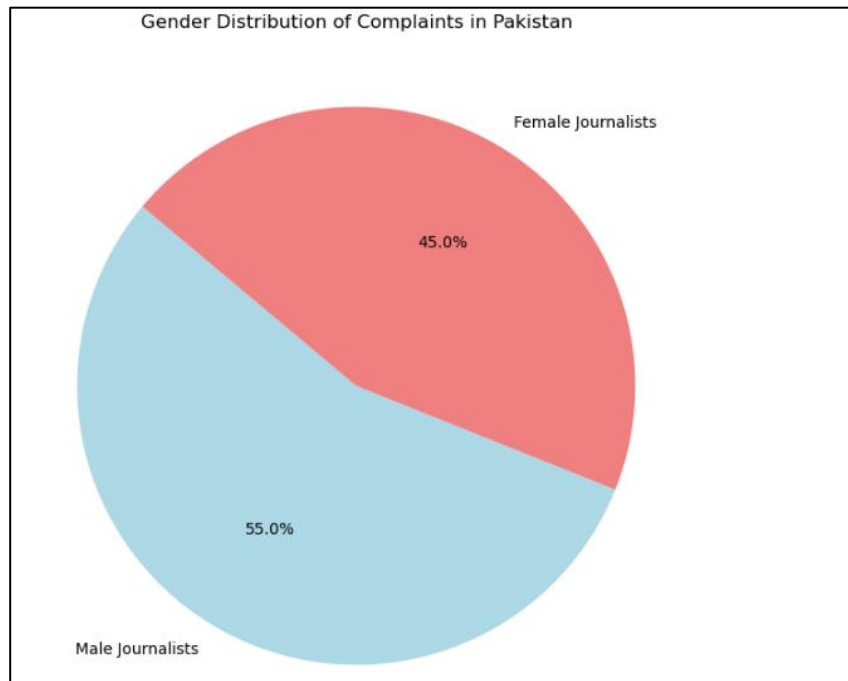

Figure 2: Gender Distribution of Complaints

In Pakistan, a study on Technology-Facilitated Sexual Violence (TFSV) found that 72% of participants had encountered TFSV at least once, with 70.8% experiencing victimization in the past year. Notably, 57.2% reported victimization before turning 18, indicating that minors are particularly vulnerable. The gendered nature of TFSV is evident, with women more likely to report digital sexual aggression and coercion. For example, 45% of female participants reported sexual harassment online, compared to 20.7% of males.
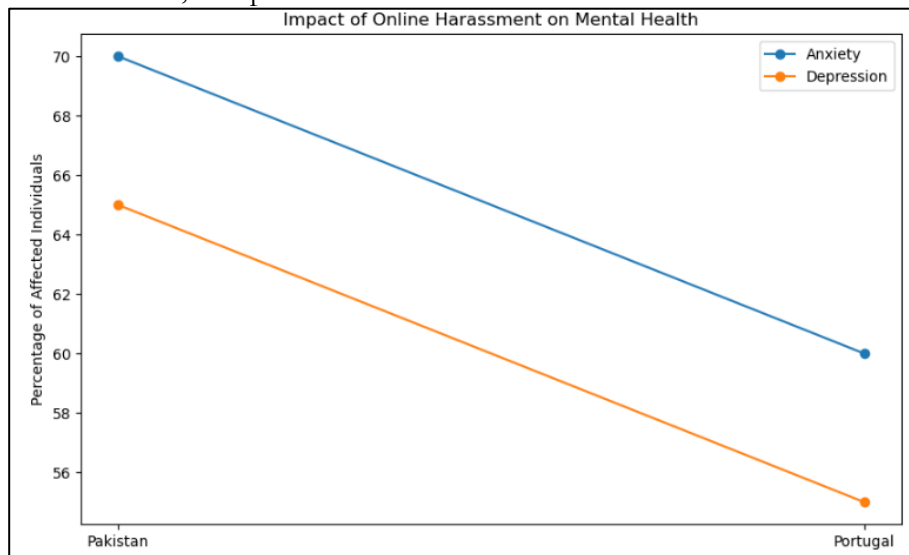
Figure 3: Impact on Mental Health

The study also highlights the severe consequences of TFSV on mental and physical health. Among the participants, 13.4% reported image-based sexual abuse, and 9.4% reported sexual assault or coercion. The psychological toll includes long-term emotional and mental health issues, emphasizing the need for better protective measures.
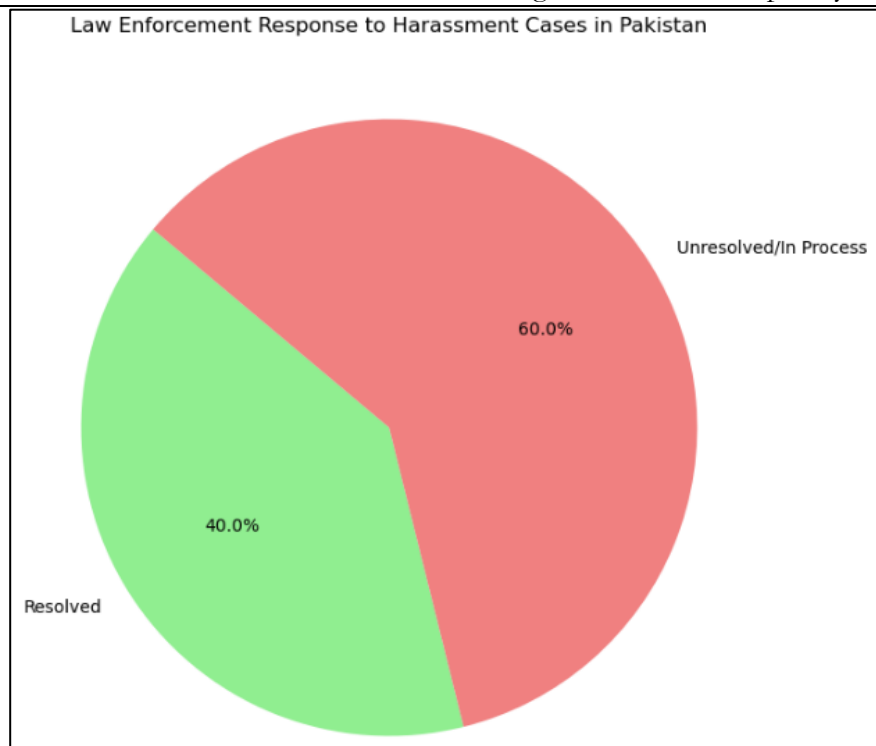
Figure 4: Law Enforcement Response

Both studies underline the need for policy improvements. In Pakistan, there is a call for repealing Section 20 of the Prevention of Electronic Crimes Act (PECA) and adjusting the Journalists and Media Professionals Bill to better protect journalists' rights. Enhanced enforcement of community guidelines by social media platforms and increased collaboration between the government and civil society are also recommended. In Pakistan, the focus is on policies addressing the personal characteristics of victims, such as age and sexual orientation, to provide better protection against TFSV. Raising awareness about TFSV and supporting victims through legal and social channels are crucial steps forward.

Discussion

The results reveal significant challenges in addressing online harassment and Technology-Facilitated Sexual Violence (TFSV) in both Pakistan and Pakistan, with a particular focus on the gendered nature of these issues. In Pakistan, the alarming number of complaints received by the FIA's Cyber Crime Wing in 2021 underscores the rapid increase in cybercrime, with a notable emphasis on online harassment. The disparity between the number of complaints (102,356) and registered cases (1,202) suggests a significant gap in the legal system's ability to respond effectively to cybercrimes. This inadequacy fosters a growing sense of frustration and mistrust among victims, particularly journalists who are at the forefront of online harassment. The gendered nature of this violence is especially concerning, as women journalists are disproportionately targeted through disinformation campaigns and the unauthorized use of their personal information. This not only affects their personal safety but also has broader implications for press freedom and the role of women in journalism [17] [18].

The impact of such harassment is far-reaching, affecting both the mental and physical well-being of victims. The results highlight a worrying trend where victims report high levels of anxiety, depression, and even instances of offline violence. This deterioration in mental health is compounded by the adverse effects on professional life, where reduced productivity and economic instability are common consequences. Additionally, the role of social media platforms in exacerbating the issue cannot be ignored. The overzealous application of content moderation algorithms often silences critical voices, particularly those of journalists, thereby undermining

freedom of expression [19]. In Pakistan, the prevalence of TFSV is striking, with 72% of participants reporting at least one encounter with such violence. The high rate of victimization, particularly among minors, is deeply concerning, as it points to the vulnerability of young people in the digital age. The gender disparity in experiences of TFSV is also significant, with women being more likely to suffer from digital sexual aggression and coercion. The data indicates that nearly half of the female participants experienced online sexual harassment, a figure more than double that of their male counterparts. This gendered experience of TFSV highlights the pervasive nature of misogyny and sexual violence in digital spaces [18] [20].

The psychological toll of TFSV, as indicated by the reported cases of image-based sexual abuse and sexual coercion, is severe. Victims often face long-term emotional and mental health challenges, further underscoring the need for comprehensive protective measures. The impact of these experiences on mental health cannot be overstated, as victims report lasting psychological scars that require both immediate and long-term support. The findings from both Pakistan and Pakistan point to an urgent need for policy reform and more robust enforcement mechanisms. In Pakistan, the repeal of Section 20 of the Prevention of Electronic Crimes Act (PECA) and the adjustment of the Journalists and Media Professionals Bill are necessary steps to better protect the rights of journalists [21]. Moreover, the study advocates for improved enforcement of community guidelines by social media platforms and stronger collaboration between government bodies and civil society organizations to combat online harassment more effectively [6].

In Pakistan, policy recommendations focus on addressing the personal characteristics of victims, such as age and sexual orientation, to provide better protection against TFSV [8] [22]. Raising awareness about TFSV and supporting victims through both legal and social channels are identified as critical steps in mitigating the impact of such violence. The results also emphasize the importance of targeted interventions that consider the unique vulnerabilities of different demographic groups. Overall, these findings highlight the pervasive and complex nature of online harassment and TFSV, emphasizing the need for a multifaceted approach that includes legal reform, improved enforcement, public awareness, and victim support [23]. The gendered dimensions of these issues call for particular attention, as women and minors continue to bear the brunt of digital violence in both Pakistan and Pakistan.

Conclusion:

The pervasive influence of digital platforms on modern life has not only enhanced global communication but has also introduced new challenges, particularly concerning the realm of interpersonal violence. As digital connectivity expands, so too does the spectrum of behaviors that can inflict harm, manifesting notably in the form of Technology-Facilitated Sexual Violence (TFSV). This study underscores the dual-edged nature of technological advancements—while they offer substantial benefits, they also create environments where new forms of violence, such as digital sexual harassment, image-based sexual abuse, and coercion, can proliferate. The prevalence of TFSV highlights a significant and growing issue that transcends geographical and demographic boundaries. Research indicates that a notable proportion of individuals, including those in Pakistan, are victims of digital sexual violence, with diverse manifestations including unwanted sexual content, threats, and non-consensual image dissemination. These behaviors not only cause immediate harm but also have long-term repercussions for the mental health and well-being of the victims.

The findings from this study, which explore the frequency, nature, and predictors of TFSV among Portuguese adults, reveal critical insights into the dynamics of this issue. The identification of specific behaviors, the impact of sociodemographic factors, and the patterns of internet usage provide a comprehensive understanding of how TFSV manifests and whom it affects. This knowledge is crucial for developing targeted prevention and intervention strategies that address the unique needs of victims in different contexts. Despite the growing body of

research on TFSV, there remains a pressing need for further studies, particularly in less explored regions like Pakistan. The current research emphasizes the necessity of continued exploration into the intersection of digital technology and sexual violence. Effective prevention strategies, public policies, and support systems must be informed by robust data to adequately address and mitigate the impact of TFSV.

In conclusion, while digital platforms offer remarkable opportunities for connectivity and advancement, they also necessitate vigilant and proactive measures to safeguard individuals from emerging threats. By deepening our understanding of TFSV and its implications, we can better equip ourselves to combat these issues and protect vulnerable populations from the harmful effects of digital sexual violence.

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