Filtering Technology for Sexual and Violent Online Films: A Structured Review

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ABSTRACT

Keywords:

Filtering technology; sexual content; violent content

The emergence of online content including film, drama, animation and video that can be accessible via free or subscription platforms such as over-the-top (OTT) media is increasingly impacting audiences in Malaysia. However, online pornography and violent content, have been posited in the literature as a risk factor for problematic sexual and violence behaviours in children and adolescents and have been identified as important avenues for government intervention. This paper employs the method of Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA). Advance searching is used through Scopus and Web of Science (WoS) databases are the main platforms to source for articles. Based on the search results, 42 published papers associated with sexual and violent behaviour online content are analysed, synthesized and segregated into two major domains according to the purpose, nature and usage of the filtering technology/systems. Finally, a few suggestions are made at the conclusion of this work for use in future studies.

1. Introduction

In the digital age, the internet has become an indispensable part of our daily lives, revolutionizing the way we communicate, access information and engage with various forms of media. However, this unparalleled connectivity has also brought with it a dark underbelly in the form of online content that is sexually explicit and violently graphic [1,2]. The unrestricted proliferation of such content on the internet poses significant societal challenges [3], from endangering the well-being of individuals [4], particularly children and adolescents, to fostering a culture of online toxicity and desensitization to violence. In response to these concerns, the need for effective filtering technologies to mitigate the dissemination of sexually explicit and violent online films has gained prominence. This systematic review paper, titled "Filtering Technology for Sexual and Violent Online Films: A Structured Review," aims to comprehensively examine the state of the art in filtering technologies designed to combat

the dissemination of online content that falls within the domains of sexual explicitness and violent graphicness. This study would like emphasizes that there are already studies conducted on the filtering mechanism in mechanical ventilation systems on the spread of airborne diseases in closed environments, but there is still no comprehensive study on online content via technology filtering [1]. The review will provide an in-depth analysis of the existing approaches, their effectiveness, limitations and implications for online safety. The proliferation of sexually explicit and violent content on the internet is not a new issue, but its urgency has intensified with the exponential growth of digital platforms, social media and user-generated content. This proliferation has not only made such content more accessible to a wider audience but has also created significant challenges for policymakers, educators and families. Consequently, there has been a growing need for technological solutions capable of identifying, categorizing and blocking or restricting access to explicit and violent online films.

To address this need, various filtering technologies have been developed, spanning from keyword-based filters [5,6] and image recognition algorithms [7,8] to machine learning and artificial intelligence-driven content analysis tools [9,10]. These technologies operate on diverse principles, utilizing linguistic, visual and behavioral cues to identify and categorize explicit and violent content. However, their effectiveness in curbing the spread of such content remains a topic of active research and debate. This systematic review will adopt a structured and comprehensive approach to evaluate the existing literature on filtering technologies within the context of sexual and violent online films. It will consider factors such as the algorithms used, their accuracy, scalability and adaptability, as well as ethical and privacy concerns associated with content filtering on the internet. By synthesizing the findings from a wide range of studies, this review aims to provide a nuanced understanding of the current landscape of filtering technologies and offer insights into potential window opportunity for future research and development. While the advent of the digital age has brought both opportunities and challenges, one of the most pressing challenges is the proliferation of sexually explicit and violent online content. This systematic review will delve into the world of filtering technologies, shedding light on their capabilities, limitations and implications for online safety in an ever-evolving digital landscape. This article would like to reiterate that any type of online content that is available as digital data is referred to as digital content. Specific formats of digital content are saved on digital media or analogue storage. Information that is broadcast, streamed or stored digitally is an example of online digital content as illustrated in Figure 1 below:
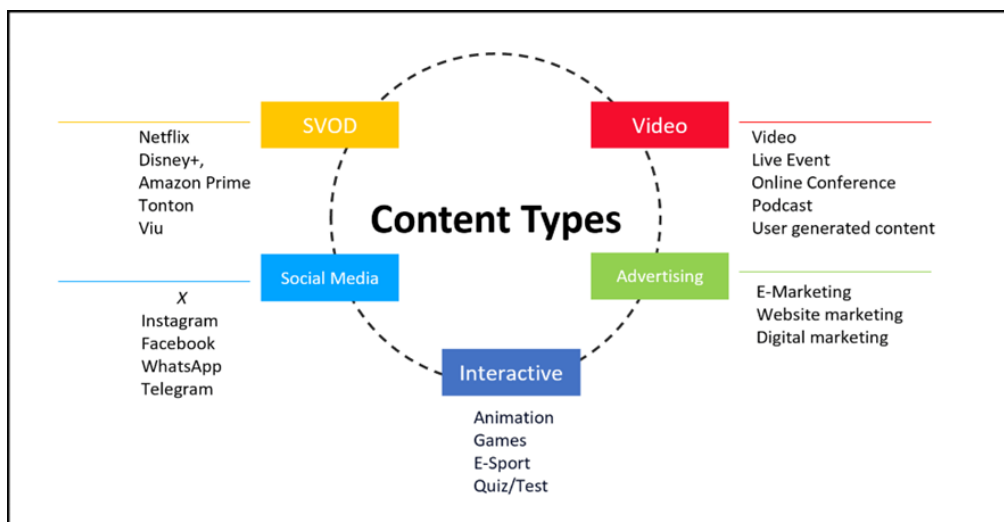

Fig. 1. Type of online content

2. Literature Review

One of the most significant current discussions on unwanted online content that associated to sexual and violence elements. This has become a central debate among the majority of Malaysian and may require government consideration to introduce content filtering policies in order to protect minor's adolescents. In 2022, Spörlein and Schlueter [11] published a paper in which they described that involuntary celibates known as incels have received media attention for violent crimes, frequently focused on misogynistic rhetoric and manifestos. However, Spörlein and Schlueter [11] found that incels frequently struggle with problems like loneliness, dread of being single, depressive symptoms, insecure attachment and romantic rejection. Recent research discovered by Spörlein and Schlueter [11], four German political talk shows reveal that comments using ethnic insults in online comment networks are socially contagious, with larger presence in earlier comments increasing the commonness of insulting comments by 2 percentage points and 7 percentage points after violent incidents.

In the above-mentioned context, filtering technology via network tap revealed user perception of blocked content explanations and its relationship with audiences' previewing behavior. A survey of 254 participants found that explaining content as 'sensitive' or 'violent' reduced previewing behavior, while explaining it as 'sexual and/or nudity' increased it. High agreement to block unwanted content led to higher intention to not click on it. The research suggests that proper explanations can enhance user experience by reducing exposure to unwanted content in online social network services [12]. In addition to the above, a previous study also has proved that in offensive language in participatory online spaces, the term 'hate speech' has become especially prominent. The study conducted by Paasch and his research team in 2021 managed to develop a modularized framework to differentiate between hate speech and offensive language in online spaces. It analyzes 5,031 user comments on immigration and refuge in March 2019. They managed to identify various types of hate speech and offensive language targeting immigrants and refugees, ranging from insults to hate crimes. The results focus on the grey area between hate speech and offensive language, addressing misunderstandings and challenges in identifying hate speech in online space [13].

It is important to highlight that trial scenes in the courtroom are a longstanding genre of news and entertainment through radio, film, television, print media and online content. Surveys such as those conducted by Revier [14] suggested that YouTube sentencing clips, which are short, short videos with little context, reinforce punitive justice frames like justice-as-retribution, victim-advocacy and entertainment. Most clips feature defendants sentenced for violent acts, highlighting the 'worst of the worst' being brought to justice. This reinforces a punishment paradigm in contemporary U.S. criminal justice, despite concerns about the 'relatively innocent'. A recent study conducted by Freeman and his team in 2023, also supported the evidence on how customer responses to internet video commercials are affected by the severity of sexual or violent content, with a focus on sharing intentions. The research team led by Freeman discovered that study 1 reveals that increasing sexual and violent humor enhances commercial advertisement efficiency for men but leads to negative attitudes towards women. Study 2 on the other hand reveals gender and humor types mediate sharing intentions in diverse audience environments [15]. It clarifies the impact audience diversity has on sharing intents for sexual and violent humor-based online media marketing platforms.

Given that children have widespread access to technology, it has been suggested in the literature that exposure to sexual content, such as live sexual content or online pornography, increases the risk of problematic sexual behaviors (PSBs) in children and adolescents. This has been identified as an important area for research and intervention. For instance, the connection between exposure to non-violent sexual content and PSB was shown to be moderated by gender, making the association

stronger in studies with more female participants. In order to prevent children with PSB and their families from benefiting by incorporating education on sexual content exposure, Mori and his team made a recommendation for future research on risk factors and mechanisms implicated in PSB, including intervention via technology filtering towards inappropriate online content [16]. On the same note, a study has found that sexual content that can be accessible via online may expose minors and adolescents towards aggression-related sexual fantasies (ASF) which are considered an important risk factor for sexual aggression.

Bondu and Birke [17] in their research demonstrated that maleness, repeated sexual fantasies, psychopathic characteristics and disapproval of sexual fantasies all anticipated higher rates of aggression-related sexual fantasies (ASF). Beyond other risk variables including typical aggression, psychopathological tendencies, acceptance of the rape myth and seeing violent pornography, ASF were the most effective predictor of sexual aggression. However, ASF are a common phenomenon that have been strongly linked to sexual aggression in both the general population and among women. Therefore, there needs to be further consideration in studies on sexual aggression and its prevention. Complementary to this, men who act out hybrid masculinities claim to be outside of the male hegemony while really perpetuating it. In a clearer context, Glace *et al.,* [18] managed to examine the Incel community using Ging's original theory of hybrid masculinities. Glace and his team asserted that the Incels are a self-described group of beta males who assert that they are at the bottom of the social scale since women continue to reject them romantically and sexually.

And yet, teenagers who are exposed to sexual and violent media may be more inclined to engage in dangerous sexual and aggressive behavior. Empathy is a dispositional feature that can predict dangerous media exposure and mitigate the link between exposure and behavior. A study conducted by Mitchell and his research team involving 2,424 US adolescents found that empathy predicts exposure to sex and violence in movies and moderates the relationship between exposure and behavior. The study found that empathy was a predictor of media exposure to this content and moderated the exposure-behavior relationship. This is consistent with the research finding by Mitchell *et al.,* [19] that role of individual differences in adolescent enactment of risky behaviors, highlighting the importance of understanding the relationship between media exposure and risky behavior. Another essential point is that the majority of previous research on problematic pornography usage and associated behavior has concentrated on factors that describe how frequently or how much time has been allocated by end users in accessing inappropriate films and/or content via online platform. According to Lewczuk *et al.,* [20], the total amount of time spent using pornography revealed that the lengthiest session of viewing inappropriate film as well as the type of pornography had an impact on the choice to seek therapy and the severity of symptoms.

In fact, many people use online platforms as their primary source of entertainment, education and/or ways of engaging with the community including political campaigns; they spend hours each day watching videos and films online. In recent years, thousands of new channels have emerged, producing and disseminating kid-friendly films on various topics including superhero movies, comic books and animation. Unfortunately, many of these movies have been found to contain unpleasant, violent or sexual content, making them unsuitable for their intended audience [21]. Ironically, channels that upload such frightening films use their channel characteristics, like keywords, descriptions, subjects and postings, to attract children and teenagers. Using a Network TAP or test access point, provides complete visibility into internet service providers network, allowing inappropriate content to be filtered for every packet of data flowing into and out of the network. Hence, the internet service provider network is obliged to ensure that the relevant software installed in their network is able to recognize and become a classifier so that when a channel is associated with upsetting material uploads to the internet, a collection of such channel and content attributes must

be gathered and filtered. Without examining real videos, these classifiers can assist YouTube content administrators in reducing such occurrences by highlighting potentially questionable accounts by simply using ply channel characteristics [21].

Online media consumed on screens has grown to be a significant aspect of modern life. There is a need to create standards to promote digital well-being and control screen time in minor, kids and adolescents due to their easy availability, growing use and links between excessive use and physical, developmental and emotional problems in children. In fact, there is a movement that protects minors which recommends limiting screen exposure to children below 2 years, 24-59 months and 5-10 years, with an utmost of one hour of supervised screen time per day [22]. The reason is that screen time should not take the place of other routine that are crucial for children and teenagers' general development and health, including but not limited to outdoor games, sleep, family and peer communication, schoolwork and skills development.

Families should provide a safe, secure, loving, nurturing atmosphere for their children at home and they should control what they let them watch on screens to make sure it's educational, age-appropriate and free of violence. Families, schools and pediatricians should get education on the value of documenting screen usage and digital wellness as part of normal child health assessments. They should also learn how to spot any signs of media addiction or cyberbullying and take prompt action with the help of experts, if necessary [22]. Online pornography is a complicated phenomenon. The ability to lessen this experience's harmful impacts and enhance youth prevention efforts may result from the identification of the experience's determinant qualities. A study conducted by Ballester [23], managed to identify the main pornography elements, the type of effects related to its usage and the most suitable interventions through filtering technology to mitigate the negative consequences of this consumption in minor and youths. It has been shown that interventions via technology filtering may provide better strategies for preventing or reducing the harmful impact of pornographic and/or exposure to violence among adolescents and young people in Malaysia.

3. Material and Method
3.1 Identification

Three main phases make up the systematic review approach, which was used to choose numerous suitable papers for this review. The first step was identifying keywords and looking for related and similar terms utilising dictionaries, thesaurus, encyclopaedias and previous research. Thus, following selection of all pertinent words, search strings for Scopus and Web of Science databases were generated (see Table 1). As a result, the researchers successfully gathered 1,010 publications from databases for the initial phase of the systematic review.

Table 1
The search strings

Scopus	TITLE-ABS-KEY ((sexual OR adult AND content OR x-rated) AND (violent OR crime) AND (online OR internet)) AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2023)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (PUBSTAGE , "final"))
WoS	(TS= ((sexual OR adult AND content OR x-rated) AND (violent OR crime) AND (online OR internet) (Topic) and 2023 or 2022 or 2021 or 2020 or 2019 (Publication Years) and Article (Document Types) and English (Languages)

3.2 Screening

In the initial screening round, redundant papers were removed and during the first stage of the study, 6 papers were rejected. The primary criterion for this initial stage was the reliance on literature, particularly research articles. This criterion also encompassed systematic reviews, general reviews, meta-synthesis, meta-analysis, books, book series, chapters and conference proceedings that did not represent the latest research. Additionally, the review was restricted to publications in the English language. It is essential to note that this plan was designed for the previous five-year period, spanning from 2019 to 2023. Altogether, 605 publications were excluded based on specific criteria.

3.3 Eligibility

For the third level, called eligibility, a total of 399 items were prepared. At this point, all article titles and important content were carefully examined to make sure they met the criteria for inclusion and complemented the current study's objectives. 355 articles were thus excluded because they were out of scope, had insignificant titles, abstracts that had nothing to do with the goal of the study, lacked imperial data and we were unable to access the full text. The range of studies to be analyzed in a systematic review is decided upon using predetermined, clear-cut eligibility criteria. The authors may create the eligibility criteria from scratch or benchmark certain criteria from another review paper. The first case requires citing the original writers. Thus, 42 articles are available for review as of this stage (see Table 2).

Table 2
The selection criterion in searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Timeline	2019 - 2023	< 2019
Literature type	Journal (Article)	Conference, book, review, book chapter
Publication Stage	Final	In Press

3.4 Data Abstraction and Analysis

In this study, a variety of research designs such as quantitative, qualitative and mixed techniques were examined and synthesised using the consolidative analysis as one of the evaluation strategies. Finding significant subjects and subtopics was the aim of the expert study. The theme's development started with the data collection phase. As depicted in Figure 2, the authors thoroughly analysed a compilation of 42 publications for assertions or material relevant to the present study's topics. The authors next assessed the relevant documents associated to the online context, in particular sexual and violent online films and subsequently establishing significant groupings in the second stage. The detection and classification impact are the two key topics involved during the data abstraction phase. The authors then continued each established subject, along with any themes, notions or ideas, from this point forward. The co-authors cooperated with each other to create themes depending on the evidence in the context of this research. A log was kept throughout the data analysis process to note any analyses, viewpoints, puzzles or other ideas related to the data interpretation. In order to spot any irregularities in the theme design process, the authors finally compared the results. It is important to note that the writers discussed any differences in the concepts among themselves if there were any. The generated themes were eventually adjusted to make sure they were unified. A communication and public policy specialist conducted the analysis to determine the legitimacy of the

issues. The expert review process contributes to ensuring the clarity, significance and applicability of each theme by proving domain validity. Subsequently we modified our judgement in the light of suggestions and the expert opinions.
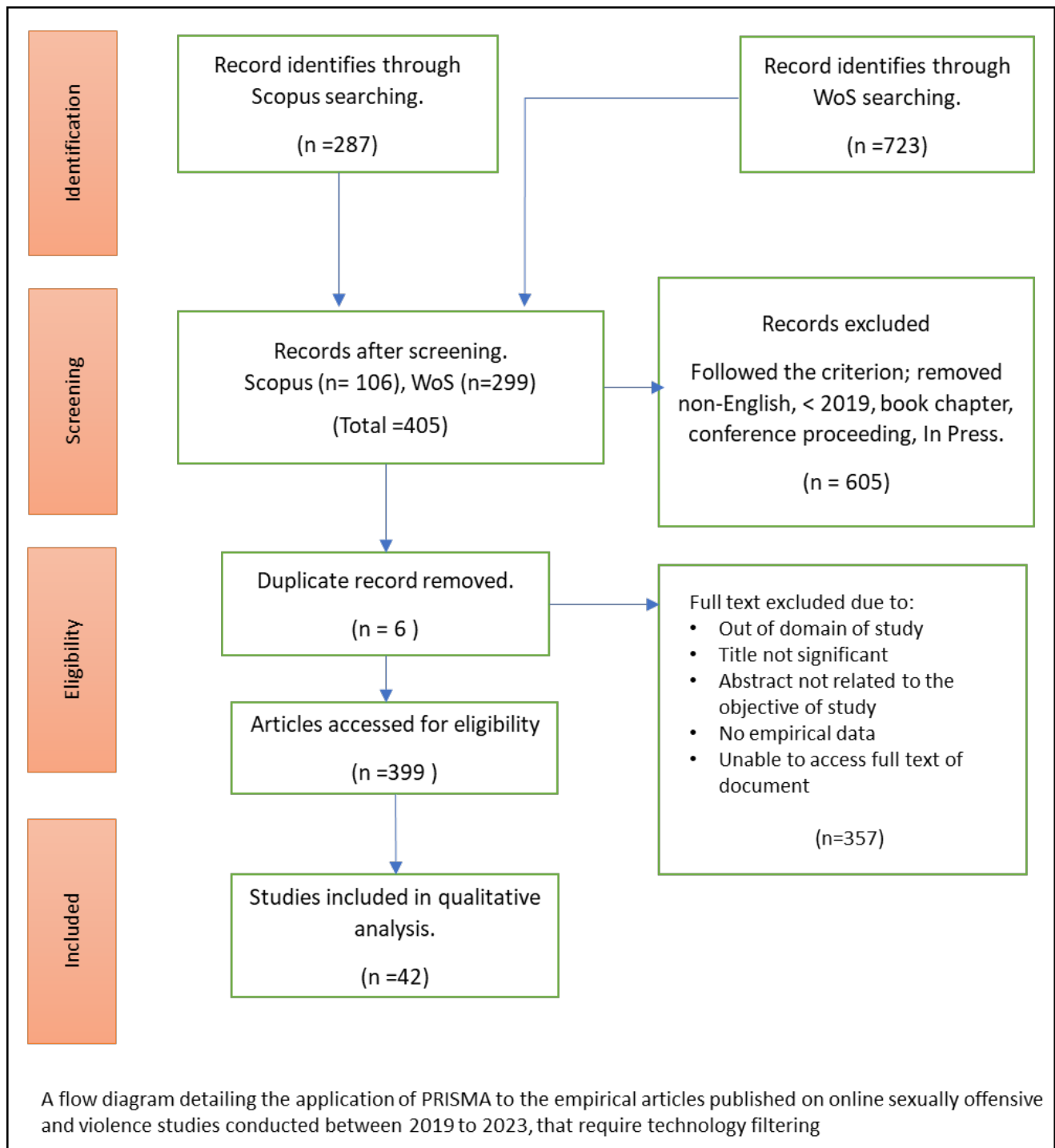

A flow diagram detailing the application of PRISMA to the empirical articles published on online sexually offensive and violence studies conducted between 2019 to 2023, that require technology filtering

Fig. 2. Flow diagram of the proposed searching study [24]

4. Findings and Discussion

Due to the intense impacts of sexual and violent films that are accessible via internet that may impact minors and adolescents in terms of mental health and socio-culture, there is an essential need for effective strategies. Although several scholars have discussed this issue, there is still a paucity of

research focusing on filtering technology in Malaysia. This study offers numerous adaption solutions with a focus on the adoption of filtering technology in internet service providers' networks in order to address the research gap. Next, to develop an appropriate theme in this study, the authors selected articles relevant to developing the theme based on strategies recommended. The themes built on the recommended strategies are in line with what some academics, stakeholders and policy makers have suggested.

4.1 The Intersection of Technology and Safety: Navigating Online Challenges for a Safer Future

A total of 15 articles could be synthesized into a technology-themed overview focusing on issues related to the importance of filtering technology to curb the impact of sexual assault, maintain online safety and the role of technology in addressing these challenges. In our digital age, the nexus between technology and safety has become increasingly intricate and paramount. The authors emphasize the significant role of technology in addressing issues related to sexual assault, online safety, content moderation and prevention, highlighting both its potential and challenges in the digital age. Thus, this essay explores various facets of this intricate relationship, emphasizing the pressing need for digital platforms to better support survivors of online sexual assault, regional considerations in online safety measures, the integration of legal assistance and mental health support and the role of technology in criminal justice reform.

Firstly, the experiences of young women who report sexual assault online underscore the importance of digital platforms in supporting survivors. Online reporting has become a lifeline for many victims and it is crucial for technology companies to create safe, empathetic spaces that facilitate these disclosures [25]. Secondly, regional differences and IP addresses challenge online safety measures. Recognizing these variations is essential in creating effective strategies to combat online offenses while respecting regional nuances and privacy concerns [14]. Thirdly, integrating legal assistance and mental health support after online disclosures is vital [26]. Technology can bridge the gap between survivors and essential resources, ensuring a comprehensive response to their needs [27]. Furthermore, technology platforms like YouTube play a pivotal role in disseminating content related to criminal activities, necessitating criminal justice reforms to address online offenses effectively. The digital age has reshaped the landscape of criminal justice, requiring adaptive solutions.

The existing punishment paradigm in the U.S. criminal justice system for instance is also influenced by the digital age. This is consistent with research finding by Soldino *et al.,* [32] that the necessitates technological adaptations to ensure fairness and effectiveness in addressing modern-day challenges [28]. In addition to addressing the aftermath of online offenses, we must also focus on prevention and education. Effective ways of integrating apps into community or school environments can harness technology's potential in these areas. Moreover, metacognitive treatment interventions for problematic internet pornography users exemplify technology's capacity to provide tailored support, indicating a promising avenue for mental health interventions. The role of technology extends to digital forensics and content deletion, crucial for both investigations and user safety. Furthermore, linguistic analysis and computerized coding methods can help combat digital sex crimes through the monitoring of discourse. Therefore, technology is undeniably intertwined with our safety in the digital age. From supporting survivors to reshaping criminal justice, enabling prevention and facilitating intervention, technology's role is multifaceted. To navigate the evolving landscape successfully, we must recognize its potential for both harm and good, embracing it as a tool to foster a safer online world.

4.2 Enhancing Online Safety: Legal and Policy Measures in the Digital Age

Legal provision and law are crucial to ensure that privacy rights are upheld and safeguard persons and businesses from criminal activity. Additionally, technology law aids in regulating technology use and safeguarding individuals from its unfavourable effects. A total of 8 articles made suggestions that revolve around the theme of law and its impact on various aspects of online adult content, sexual offenses and safety strategies. In our rapidly evolving digital landscape, the regulation of online adult services and related content has become a pressing concern. This study discusses a series of vital legal and policy changes needed to ensure a safer online environment. Firstly, the need for stringent regulations to ban online adult services and associated advertising in online spaces is evident [29]. This is primarily motivated by concerns over the direct impact of such content on safety strategies [23]. By limiting access to explicit content, we can contribute to the protection of vulnerable individuals, particularly minors who may inadvertently stumble upon such material [20]. Secondly, law enforcement agencies must play a proactive role in curbing online offenses linked to adult content [30]. Addressing issues related to online sex work and ensuring a safe digital space is essential. This includes risk assessment, especially in cases involving non-pornographic child content, to prevent child exploitation effectively. Establishing guidelines for assessing offenders, both present and potential, is crucial for effective law enforcement [31,32]. This applies to those who have committed contact child sexual offenses and those who might commit online child sexual offenses in the future. Having clear guidelines ensures fairness and consistency in legal proceedings. Furthermore, professionals and industries involved in digital marketing must adhere to responsible content creation guidelines [27]. This includes refraining from using crude humour, which can perpetuate harmful stereotypes and create an unsafe online environment.

Educational institutions should make resources related to sexual violence readily accessible to students and the school community. This proactive approach is instrumental in addressing campus sexual assault effectively and providing support to survivors [32]. The influence of pornographic content on individuals' treatment decisions and symptoms is well-documented. Legal approaches should be developed to regulate and mitigate the impact of such content, ensuring that it does not harm vulnerable populations [15,32]. Similarly, potentially arousing video games require regulation based on research findings to ensure responsible use and minimize potential harm to players. Finally, there is a need to review and adapt current legal approaches in the UK and India regarding the regulation of pornography. This review aims to prioritize the safety of online spaces and mitigate the negative impact on victims [32]. Therefore, these legal and policy changes are essential steps toward creating a safer online environment. By regulating online adult content, promoting responsible content creation and addressing issues related to child exploitation and sexual violence, we can work towards a digital world that protects its users, especially the most vulnerable among us.

4.3 Shaping a Safer Digital Society: Redefining Social Norms in the Age of Online Interaction

In the digital age, social norms are undergoing a profound transformation and it is imperative that we adapt to these changes for the betterment of society. The evolution of technology and the rise of social media platforms like Facebook, Twitter and YouTube have introduced new dimensions to human interaction, challenging our conventional understanding of acceptable behavior. In this essay, we will explore key points related to online conduct, education and advocacy, all of which play vital roles in shaping these evolving social norms. In the above-mentioned context, a total of 19 articles urged and/or recommended that there is a need to further spur and nurture self-regulation among

the community not to become victims of inappropriate online films and content that can be accessed via internet.

First, online platforms have established codes of conduct and mechanisms to report abusive behavior. However, we need to prioritize handling complaints effectively, focusing on credible threats of physical harm or hate speech. While freedom of expression laws protects certain speech, they should not be a shield for hate or violence. Second, future studies must encompass a broader context, including racism and discriminatory speech, as hate speech takes many forms. Recognizing these nuances is essential for crafting effective responses [33]. Third, education programs should incorporate discussions on teen sexting within the larger context of healthy relationships, internet safety and sexual consent. Empowering young individuals with knowledge is crucial [34]. Four, professionals who report unexpected and violent deaths, such as psychiatrists and psychologists, should be the subjects of a comparative study to better understand their experiences [17].

Five, prevention programs for youth need continuous enhancement, emphasizing the importance of avoiding risky online engagement to protect their well-being [35]. Six, advocating for societal participation in major life decisions can be transformative. Encouraging people to engage and speak out can lead to positive change. Seven, it is vital to address the issue of moral disengagement techniques in violent situations and foster empathy towards offenders, even in the world of literature. Eight, increasing public awareness of child abuse through online platforms is a critical step towards prevention. Nine, mental health practitioners should delve into the connection between sexting, consent and psychopathological symptoms to provide comprehensive support [36]. Ten, understanding the opinions of self-identified ritual abuse survivors can inform research on sexual victimization.

Eleven, considering the victims' perception of legal repercussions and social consequences is essential in addressing various forms of abuse. Twelve, awareness campaigns and knowledge dissemination can enhance prevention efforts, particularly for minors and adolescents [37]. Thirteen, public awareness should extend to issues such as child trafficking, online child exploitation and the sexual abuse of minors in various contexts [38]. Fourteen, understanding the strategies and manipulation techniques employed by female perpetrators can improve prevention and care [39]. Fifteen, establishing interpersonal relationships online is becoming increasingly common and awareness campaigns can help users navigate this new territory safely [37].

Lastly, raising awareness about the potential harm of exposure to inappropriate content is crucial, especially in the context of the digital age [40]. Therefore, the transformation of social norms in the digital age is an ongoing process that requires our active participation. By addressing issues such as online conduct, education and advocacy, we can collectively shape a safer and more responsible digital society [41]. It is our responsibility to adapt to these evolving norms for the well-being of individuals and the betterment of society as a whole. To sum-up, each of these three themes in deliberated in 4.1,4.2 and 4.3 brings together a series of knowledge that are deemed necessary for the success of the filtering technology in Malaysia in order to cultivate a civilization (*madani)* society, safe from violent and sexually elements via internet (Figure 3).
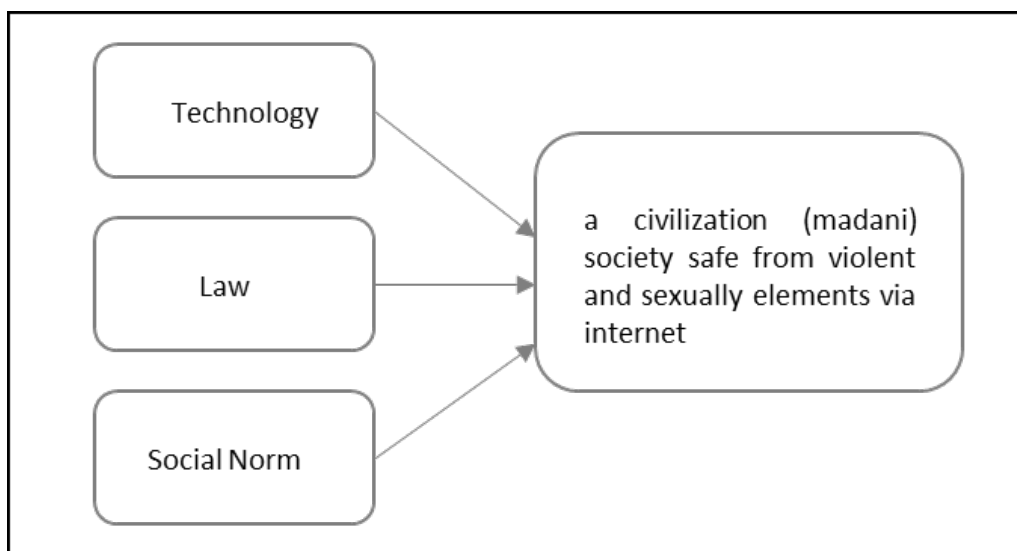
Fig. 3. Three major themes of knowledge that make the internet safe for users

Based on the articles that have been selected, this study has developed as many as 3 themes, namely technology, law and social norms and details as presented in Table 2. The meticulous selection of a research theme stands as the inaugural and pivotal stride in the research and writing journey. This decisive step not only shapes the subsequent phases but profoundly influences elements such as the formulation of the research statement, the selection of pertinent sources and the overall approach to crafting the research paper. Consequently, this paper asserts the paramount importance of establishing robust and captivating themes to underpin a successful and meaningful research endeavor.

Table 2
Articles selected in developing the theme based on strategies recommended

Title of articles	Authors	Strategies recommended	Theme
Risking safety and rights: online sex work, crimes and blended safety repertoires'	[23]	Law and policy changes are required to ban online adult services especially in advertising and sex work related content within online spaces as it has direct impact on the safety strategies	Law
Young Women's Experiences with Technology-Facilitated Sexual Violence from Male Strangers	[33]	- To tackle the issue of persistent targeted online harassment, it is highly recommended the industry to explore looking forward in mitigating the issues: - Established codes of conduct for acceptable use and mechanisms for reporting abusive behaviour as social media and online platforms like Facebook, Twitter and YouTube have done - Ensure the effectiveness of handling the user's complaint and enforcement systems to focus on credible threats of physical harm or hate speech, which is often protected under freedom of expression laws; and ensure early intervention and education programme requirements, as well as industry response	Social Norm

Understanding Discussions of Sexual Assault in Young Women on a Peer Support Mental Health App: A Content Analysis	[25]	• Investigate the experiences of young women in technology who report sexual assault online in terms of their mental health and trauma; • Consider regional differences for important future direction to due to inability to access addresses of users • Consider legal assistance and mental health support between a disclosure and the recovery process after sexual assault as the key point	Technology
From insult to hate speech: Mapping offensive language in German user comments on immigration	[13]	Future studies should consider broader context on hate speech including racism and discriminatory speech	Social Norm
A Bad Romance: Sexting Motivations and Teen Dating Violence	[34]	It is strongly advised to incorporate sexting education into programmes that teach about relationships and sexuality. Discussions regarding teen sexting should be integrated into a larger debate about healthy relationships, internet safety and sexual consent.	Social Norm
The 'worst of the worst': punitive justice frames in criminal sentencing clips on YouTube	[14]	• Criminal justice reform is needed, as the 'relatively innocent' criminal bogeyman continues to thrive on digital media platforms like YouTube; • The punishment paradigm in contemporary U.S. criminal justice is based on the 'worst of the worst', reinforcing the system's overall structure.	Technology
Communicating Unexpected and Violent Death: The Experiences of Police Officers and Health Care Professionals	[35]	Comparison studies are required to compare the experiences of professionals who have reported unexpected and violent deaths, such as psychiatrists and psychologists	Social Norm
Formative research to develop an app to prevent dating and sexual violence and alcohol use among high school youth	[28]	Future research should explore the most effective approach for integrating the app into community or school environments.	Technology
Bystanders' Victim Blaming and Minimizing Consequences of Weight-Based Cyberhate Attacks: The Roles of anti-Fat Attitudes, Body-Positive Online Content and Gender	[38]	To further enhance educational and prevention programs for youth	Social Norm
Aggression-Related sexual fantasies: Prevalence Rates, Sex Differences and Links with Personality, Attitudes and Behaviour	[17]	Reduce the likelihood of becoming a sexual assault victim such as avoiding hazardous situations and being assertive	Social Norm
Online sexual engagement and psychosocial well-being: The mediating role of sexual victimization experiences	[42]	• Internet users need to take precautionary actions to avoid become a victim; • Risky online engagement is linked to increased victimization, which in turn negatively impacts an individual's well-being.	Social Norm
Criminological differences between child pornography offenders arrested in Spain	[32]	• Law enforcement agencies need to play a proactive role to curb any offences. • Police detectives should proactively gather and examine risk variables that are pertinent to this population, like the characteristics of non-pornographic child content.	Law

The Criminal Selfie: Conveying Grievance While Recording and Live Streaming Antisocial Behaviour	[43]	Increase the amount of advocacy in society, which can be a lifesaver for many and encourage participation in major life decisions.	Social Norm
Online original TV series: Examining portrayals of violence in popular binge-watched programs and social reality perceptions.	[44]	Rarely do moral disengagement techniques appear in violent situations and literary characters show little pity for violent offenders.	Social Norm
Characteristics of Online Pornography and Interventions Against its Negative Effects in Young People: Results from an International Delphi Panel	[23]	To have a proper development on metacognitive treatment interventions for problematic internet pornography users.	Technology
Collecting and viewing behaviours of child sexual exploitation material offenders	[45]	The regular deletion of inappropriate content as part of a viewing must be considered for digital forensics	Technology
Validation of the Sexual Grooming Model of Child Sexual Abusers	[46]	Improve awareness on public health issues related to child abuse via online platforms	Social Norm
The development of the ERICSO – a proposed instrument for internet child abuse material offender assessment	[30]	Presents guidelines for assessing offenders who have already committed contact child sexual offences as well as internet child abuse material offenders who may commit online child sexual offences in the future.	Law
Sexting, online sexual victimization and psychopathology correlates by sex: Depression, anxiety and global psychopathology	[36]	Mental health practitioners should compare consensual and nonconsensual sexting behaviours with young males and women with psychopathology symptoms, anxiety and depression and explore the connection between sexting and nonconsensual sharing.	Social Norm
Uncivil reactions to sexual assault online: Linguistic features of news reports predict discourse in civility	[27]	Employs a computerised coding method to study linguistic aspects of the media that are likely to affect discourse impoliteness, notably discussions of negative emotion, disagreement and power relations	Technology
A study on characteristics analysis and countermeasures of digital sex crimes in Korea	[47]	The only way to combat digital sex crimes is to prevent them, thus countermeasures must be put in place.	Technology
Ritual Abuse Survivors' Perspectives on Research Participation: An Exploratory Mixed Methods Online Study	[48]	To explore more about the opinions of self-identified ritual abuse survivors who were sexually victimised regarding their involvement in research.	Social Norm
Non-consensual pornography: a new form of technology facilitated sexual violence	[49]	Technology and electronics are increasingly being used in intimate relationships and as tools for sexual exploitation and criminal victimization.	Technology
Situational Peer Dynamics and Crime Decisions	[50]	The victims' perception of the potential for legal repercussions as well as potential social consequences like humiliation or disgrace	Social Norm
Examining correlates of aggression and mediating effect of psychological distress between exposure to media violence and aggression in Lebanese adults	[51]	Social media platforms' exposure to violent media content could be reduced by using algorithms to trace it.	Technology
Investigating the dynamics of illegal online activity: The power of reporting, dark web and related legislation	[52]	To reduce the amount of illegal via software and mainly child sexual abuse material on the internet and generally in order to help protect minors while online	Technology

Would you share that? How the intensity of violent and sexual humour, gender and audience diversity affect sharing intentions for online advertisements	[15]	Offers advice to professionals and industry about whether it's inappropriate to employ crude humour as part of a digital marketing strategy.	Law
The Development and Piloting of a Digital Checklist to Increase Access and Usage of Campus Online Sexual Violence Resources	[31]	Administrators are providing online access to policies, programmes and resources relating to sexual violence to students and members of the school community in response to campus sexual assault.	Law
Victimization as a result of non-consensual dissemination of sexting and psychopathology correlates: An exploratory analysis	[53]	Propose to provide new approach in term of awareness campaign and relevant knowledge that can help develop better prevention to minor and adolescent	Social Norm
Offense-Supportive Cognitions Expressed by Men Who Use Internet to Sexually Exploit Children: A Thematic Analysis	[54]	Increase public awareness of issues such child trafficking for sexual exploitation or prostitution, internet child sexual exploitation, the creation and dissemination of materials that depict child sexual abuse and sexual exploitation of minors in travel and tourism.	Social Norm
Do Varying Levels of Exposure to Pornography and Violence Have an Effect on Non-Conscious Emotion in Men?	[55]	To censor images of violence and pornography that can be accessed via internet	Technology
Sex and Violence in the Movies: Empathy as a Moderator of the Exposure-Behaviour Relationship in Adolescents	[19]	• Results revealed that empathy was a modulator of the connection between exposure and behaviour and was a predictor of media exposure to sex and violence in films. • Thus, filtering technology is necessary to reduce the negative impact	Technology
Correspondence of Child Age and Gender Distribution in Child Sexual Exploitation Material and Other Child Content with Age and Gender of Child Sexual Assault Victims	[26]	• Accessing child pornography, as defined by legal regulations, can suggest a sexual interest in children. • Thus, filtering technology is necessary to reduce the negative impact	Technology
Comparing female to male perpetrated child sexual abuse as presumed by survivors – A qualitative content analysis	[39]	Understanding female perpetrators' subtle strategies and psychological manipulation can enhance prevention work and improve psychosocial and psychotherapeutic health care.	Social Norm
Variability of Pornographic Content Consumed and Longest Session of Pornography Use Associated with Treatment Seeking and Problematic Sexual Behaviour Symptoms	[20]	The study found that the duration and variety of pornographic content significantly influenced treatment decisions and symptoms severity, even when the time spent on pornography was controlled.	Law
Sexualised video games, sexist attitudes and empathy towards victims of rape: Correlational evidence for a relationship is minimal in an online study	[56]	Due to high influence of potentially arousing video games, actual impacts can be unexpected. Therefore, it is necessary to act on actual knowledge when seeking to regulate.	Law
Incels, Compulsory Sexuality and Fascist Masculinity	[37]	Increase awareness in term of establishing inter-personal relationship via online	Social Norm
Revenge pornography: Impact on the mental health of victims and legal remedies	[29]	To review the current legal approach to solve the problem in relation to the porn in UK and India in order to mitigate negative impact on victims	Law

Examining the Use of Mobile Technology to Deliver Tailored Sexual Assault Prevention in a Classroom Environment in the Military: Development and Usability Study	[57]	The deployment mobile app for tablet-based training in an educational environment is feasible to curb sexual assault	Technology
Reactions to unsolicited violent and sexual, explicit media content shared over social media: Gender differences and links with prior exposure	[40]	• Key concern is the population's exposure to inappropriate content and its potentially detrimental effects. • Increase awareness about the dangers, questioning widely held beliefs and assisting those who might be distressed as a result of exposure to such content.	Social Norm
"Rule 34: If It Exists, there is Porn of It…" Insights into the Content Choices, Viewing Reasons and Attitudinal Impact of Internet Pornography among Young Adults	[58]	• The difficulty of Apple licencing revalidation and the secure movement of data from the classroom to project staff were made more difficult by Wi-Fi access restrictions. • The outcomes showed that implementing a mobile software for tablet-based training in a military educational setting was feasible.	Technology
A Formative Evaluation of a Web-Based Intervention for Women with a Sexual Assault History and Heavy Alcohol Use	[41]	Results emphasise the value of including target people in intervention development before spending money on pricey clinical trials. Formative assessments offer helpful input for improving and changing interventions.	Social Norm

5. Conclusions

In conclusion, the intersection of technology and safety in our digital age presents a complex landscape filled with challenges and opportunities. Through the synthesis of 42 articles, we have explored various facets of this relationship, emphasizing the pressing need for technology to play a significant role in addressing issues related to sexual assault, online safety, content moderation and prevention. Key takeaways include the importance of digital platforms in supporting survivors of online sexual assault, the need for regionally nuanced online safety measures and the integration of legal assistance and mental health support. Furthermore, technology's role extends to criminal justice reform, prevention, education, mental health interventions, digital forensics and linguistic analysis in combating digital sex crimes. Additionally, we have highlighted the critical role of legal and policy measures in regulating online adult content, addressing issues related to child exploitation and promoting responsible content creation. These measures are essential steps toward creating a safer online environment, particularly for vulnerable individuals. Lastly, as social norms continue to evolve in the age of online interaction, we must adapt and nurture self-regulation within our communities. Prioritizing effective handling of abusive behaviour, addressing hate speech in its various forms and empowering individuals with knowledge are crucial aspects of shaping a safer digital society. In this ever-changing digital landscape, technology must be harnessed as a tool for good while also acknowledging its potential for harm. By actively participating in the transformation of social norms and embracing responsible technology use, we can collectively work towards a safer and more responsible digital future for all. More holistic, dynamic conceptualizations of technology filtering is necessary for future research into ending child and adolescent abuse via increasing safety of internet users and fostering sustainability.

Acknowledgement

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