

## Enhancing Women's Knowledge on Cyber Sexual Offenses through AI-Based Education and Awareness

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### ABSTRACT

Cyber sexual crime is a prevalent form of criminal activity observed within the context of India. Ignorance of the abuses is identified as a prominent contributing factor to the occurrence of crime. This study explores the awareness and perceptions of women regarding online sexual crimes, presenting its findings. It also suggests leveraging Artificial Intelligence to improve women's understanding of cyber offenses. The study elucidates that while women who use the cyber world have a positive attitude, they also demonstrate a lack of information regarding the IT Act and its associated services. According to the survey, there is an increasing trend of crimes against women across several domains, with becoming a victim of cybercrime being particularly distressing for women. Consequently, they may have challenges in seeking assistance from others to report these issues to the relevant authorities. These issues lead individuals to engage in cybercrimes and several other unlawful activities. In the modern society, the Artificial Intelligence (AI) tools has got a significant role in technology world. The paper is an attempt to highlight the role of AI based tools for creating awareness on cyber sexual offences among women. In order to provide light on the numerous strategies used by offenders to groom and take advantage of youngsters, the study starts by evaluating the existing landscape of online child sexual abuse. Following that, it explores the cutting-edge AI methods and algorithms that can be used to identify and stop this horrible act. Among them are chatbot-based interventions, automated content moderation, image and video analysis, and predictive modeling to find potential offenders and victims.

**Key Words:** Cyber Sexual Offences, Women's Knowledge, Artificial Intelligence

### Background of the Study

Throughout history, women have consistently played a significant role in the social fabric of societies worldwide, alongside men. In the context of Indian society, she has consistently played a significant and enduring role. Changes in the societal position of women have occurred periodically, influenced by factors such as cultural context, family dynamics, legal considerations, social class, and property ownership. Thakkar (2010) asserts that her multifaceted involvement in several spheres of society has significantly contributed to the development of

values, hence fostering comprehensive societal advancement. Currently, women encounter numerous challenges in their daily lives. There are a diverse range of psychological, economic, and societal manifestations of victimization experienced by women. In contemporary society, there is a prevalent observation that women encounter economic discrimination within the workplace. Simultaneously, women are subjected to physical, emotional, and sexual exploitation. The lack of control that women have over deciding whether their pregnancies continue or end is an alarming insight. In India, offenses against women are diverse and can be categorized into several types, such as sexual crimes, crimes committed for personal benefits, instances of assault and rape, occurrences of harassment in domestic spaces leading to suicide or the killing of young wives, unethical trafficking, exploitation of women, cybercrimes, physical abuse, and psychological torments. In modern times, technological advancements have paved the way for various forms of abuse against women, with the digital realm becoming a significant platform for such violations.

The number of registered cyber-crimes has increased from 73 in 2009 to over 500 in the previous year. To address the growing prevalence of cyber-related criminal activities, the state administration has put out a proposal to establish a Cyber Dome within the premises of Techno Park. The implementation of the Cyber Dome would enhance law enforcement surveillance capabilities to effectively identify and apprehend cyber threats, as well as pursue those responsible for such activities. The inaugural establishment of the initial cyber police station within the state occurred in Thiruvananthapuram in July of 2009. The Cyber Crime Police Station has authority across the entire Kerala state, enabling it to undertake investigations into crimes perpetrated in violation the Information Technology (Amendment) Act 2008, also known as Central Act 21 of 2008.

Ordinarily, the Cyber Police Station refrains from initiating case registrations based on direct complaints from the populace. Such incidents are first documented at the pertinent local Police Station. Should the Unit head determine the necessity for Cyber Forensic methods in the case's probe, it will then be escalated to the Cyber Police Station. Here, it may either undertake further examination or assist in the active investigation. The Cyber Police Station is dedicated to delivering exhaustive aid to officers probing into cyber crimes, contingent on their solicitation.

The occurrence of cybercrime extends beyond international borders and affects many regions worldwide. The rise of technology has led to an increase in cybercrime and the victimization of women, which presents a significant threat to overall personal security. Despite the implementation of the IT Act 2000 in India, which aims to address cybercrimes, it is noteworthy that the Act does not adequately address issues pertaining to women. The legislation designates specific actions like hacking, dissemination of explicit content online, and data manipulation as serious offenses. However, it is important to note that the comprehensive protection of women's security is not adequately addressed by the provisions outlined in this legislation. The phenomenon of cyber bullying has the potential to impact individuals across all age groups, particularly the vulnerable population of children. According to Halder (nd), Safety Web offers assistance to parents in enhancing internet safety measures for children.

State records reveal a troubling trend: nearly 62.5% of cyber-crime complaints come from women. The state government's statistical analysis indicates a significant proportion of these complaints in Kerala are related to the abuse of women via modern technological devices. Adolescents and adult females represent the majority of victims targeted by these cyber offenses. These incidents often involve the misuse of online platforms and the internet. The National Crime Records Bureau's data highlights that a major motivating factor for online misconduct is Eve teasing or harassment, contributing to 136 out of 383 reported cases. Women are predominantly the victims of these cyber-crimes. Additionally, there's a worrisome surge in child abuse instances. Approximately 35% of the crimes within this area are committed with the intention of harassing women. There is also notable mention of revenge acts carried out by employees or partners against their previous employers or partners.

Hence, it is imperative to examine the attitudes and levels of awareness among women regarding cyber crime sexual offenses. Loneliness and depression are prevalent among women, particularly homemakers, who often seek external assistance beyond their immediate family network. This tendency arises due to the aforementioned rationale, leading individuals to place their trust in unfamiliar individuals and designate them as their confidants. The advent of technology has facilitated individuals to engage in interactions with others through various means such as chat rooms, video chat, and instant messages, all from the comfort of their own homes (Halder & Jaishankar, 2011). To alleviate their feelings of isolation, individuals engage in conversational exchanges. The majority of conversations often occur within the context of friendships or familial relationships. However, in

instances where individuals are unable to find a close friend, women may engage in conversations with unfamiliar individuals (Halder & Jaishankar, 2011). Engaging in conversations with unfamiliar individuals serves as a means of achieving emotional release and purification. It is commonly claimed that women exhibit greater emotional expressiveness compared to men, a phenomenon that can be anticipated based on established patterns of cognitive ability. According to the findings of Parkins' (2012) study on the topic of gender and emotional expressiveness, it was determined that women exhibit a higher degree of emotional expressiveness compared to men. Therefore, in the study conducted by Saha and Srivastava (2014), the focus was on the vulnerability of Indian women in the cyber space. According to the studies, there is a growing concern regarding the vulnerability of young individuals, particularly females, to cyber-connected sexual offenses. Therefore, it is crucial to evaluate the level of awareness among female youths regarding various concerns related to the internet and cybercrimes.

#### **AI Tools and its Connection to Creating Awareness on Cyber Sexual Offence**

In the digital age, child sexual abuse continues to be a serious and widespread problem as offenders use internet platforms to prey on young children. Artificial Intelligence (AI) techniques can be effectively applied to stopping child sex abuse online. The AI technologies can be used to spot, reduce, and stop the spread of inappropriate content involving children by utilizing AI's skills in data analysis, picture recognition, natural language processing, and behavioral analysis. AI tools can play a significant role in creating awareness about cyber sexual offenses. These offenses, which include activities like cyberbullying, revenge porn, online harassment, and child exploitation, can have serious consequences for victims. Here's how AI tools can be used to raise awareness

1. **Content Monitoring and Reporting:** AI algorithms can be used to monitor online content, including social media posts, websites, and forums, to detect and report instances of cyber sexual offenses. These tools can help identify and report offensive or illegal content, allowing authorities to take action
2. **Education and Preventions:** AI-powered chatbots or virtual assistants can be used to provide information and resources to individuals on safe online behavior. They can educate users on the potential risks and consequences of engaging in cyber sexual offenses and encourage responsible online conduct
3. **Social Media Moderation:** Social media platforms can use AI for content moderation. Automated systems can flag and remove inappropriate or offensive content, reducing the spread of cyberbullying and harassment.
4. **Anonymous Reporting:** AI can be used to create anonymous reporting mechanisms for victims of cyber sexual offenses. This can help victims come forward without fear of retaliation, making it easier for authorities to investigate and take action
5. **Simulations and Training:** AI can be used to develop realistic simulations for training law enforcement, educators, and the general public about the various forms of cyber sexual offenses. This can help people recognize these offenses and know how to respond
6. **Content Tagging and Warning Labels:** AI can be used to tag content that may contain cyber sexual offenses, providing warning labels to potential viewers. This can help individuals make informed decisions about the content they engage with
7. **Awareness Campaigns:** AI tools can assist in targeting awareness campaigns to specific demographics and regions where cyber sexual offenses are prevalent. They can also help in tailoring the messaging to be more effective

It's important to note that while AI can play a crucial role in creating awareness and addressing cyber sexual offenses, it is not a substitute for legal measures and human intervention. AI should be used in conjunction with legal frameworks, law enforcement, and support services to combat these offenses effectively.

#### **Review of Literature**

The proliferation of computer and Internet usage has resulted in the emergence of novel criminal activities, such as the transmission of offensive emails and multimedia messages, the production and distribution of child pornography, cyber terrorism, the dissemination of sexually explicit materials in electronic format, video voyeurism, unauthorized disclosure of confidential information and data breaches by intermediaries, fraudulent practices in e-commerce, including phishing scams and identity theft, as well as fraudulent activities on online auction platforms, among others. The inclusion of punitive penalties in the Information Technology Act, 2000 was deemed necessary. Furthermore, it was necessary for the Act to maintain technical neutrality in order to accommodate alternative electronic signature technologies and achieve conformity with the Model Law on Electronic Signatures endorsed by the United Nations Commission on International Trade Law (UNCITRAL).

The Internet has experienced a significant rise in prominence and influence, impacting all aspects of daily life. This has led to the introduction of novel activities facilitated by this digital medium. Concurrently, the prevalence of cyber criminal activities has expanded, prompting the need to understand the challenges associated with accurately quantifying and assessing these illicit actions. Numerous manifestations of cybercrime, such as hacking, pornography, piracy, online hate speech, e-frauds, and identity theft, have been extensively examined and analyzed. The author highlights a significant aspect that crime and deviance cannot always be distinctly delineated within the realm of criminological investigation (Majid, 2006). The negotiation of societal borders between illegal behavior and deviance is a recurring aspect of contemporary trends, particularly in relation to the Internet. The emergence of cybercrime has presented novel obstacles for law enforcement and the criminal justice system due to its fundamentally non-territorial nature. This text examines the correlation between the security of internet users and the rise of cyber crime. In his study, Higgins (2006) investigates the prevalence of cyber pornography. An individual has reflected on how the rise of computer networking and the ubiquitous presence of the internet have simultaneously fueled a surge in illegal hacking activities. Additionally, the widespread practice of conducting online transactions poses a threat to privacy. Higgins suggests that it's essential to carry out a detailed exploration of strategies to safeguard information stored digitally as a step forward. Grasping the misuse of technology is key to tackling the recent upswing in crimes linked to the internet. Jewkes (2006) has put forth an in-depth study on the various categories of cybercrime, covering aspects like victimization through online means, the societal depiction, and policy repercussions of internet crimes, the dual nature of cyberspace, the complete anonymity provided by the virtual world, and the hurdles in implementing effective regulation and control. Moreover, Jewkes recommends ways to counter these criminal activities successfully. The utility of the discussed examples and data is deemed narrow due to the evolving landscape of cybercriminal activities, showing limitations in addressing the rise of social media platforms and virtual reality technologies. Holt (2011) further delineates four main types of cybercrimes: cyber trespassing, cyber deception/theft, cyber pornography and obscenity, and cyber violence.

In an era frequently described as one that empowers women, and with much discourse surrounding women's perceived agency over their bodies and sexualities, instances of rape and sexual coercion against women serve as a stark reminder of the pervasive influence of patriarchy. The prevalence of the offense of rape appears to be widespread in India. Rape is a societal affliction. Instances of rape are frequently documented in Indian publications and media on a daily basis. Women from lower castes and indigenous communities appear to be more vulnerable to various risks. The disheartening aspect of rape in India lies in the prevailing lack of gravity with which this crime is frequently addressed. According to the statistical data provided by the National Crime Records Bureau (NCRB) for the year 2013, it was observed that there were 93 reported cases of rape against women in India on a daily basis. Based on data from the National Crime Records Bureau (NCRB), there has been a progressive escalation in the reported incidents of sexual assault in India, with the figures rising from 24,923 cases in 2012 to 33,707 cases in 2013. Women's advocacy organizations argue that the stringent and traditional perspectives on sexuality and familial privacy in India are factors that undermine the efficacy of the country's rape legislation. Rape survivors frequently exhibit hesitancy in reporting incidents of sexual assault. In the context of a legal proceeding, victims are required to provide evidence demonstrating that they were subjected to sexual penetration by the accused perpetrator in order to secure a conviction. This phenomenon can have very detrimental effects. Following the establishment of evidence substantiating a rape incident, it is not uncommon for the victim to experience social exclusion from both their familial unit and broader community. The issue is further compounded by the insufficiency of rape legislation and the restrictive nature of its definitions, which consequently hinders the prosecution process (Fahs, 2014).

In 2021, Sunde, N., and Sunde, I. M. unveiled the PrevBOT system, an automated solution designed to aid law enforcement in combatting Child Sexual Exploitation and Abuse (CSEA) within internet chatrooms. This system employs artificial intelligence to perform Authorship Analysis, allowing it to detect digital environments that are dangerous for minors. By analyzing online interactions, PrevBOT has the capability to infer the age and gender of individuals who engage in conversations of a sexual nature with children. This, in turn, helps police forces in pinpointing criminals who persist in conducting these illicit activities on the web. Sanchez, L., Grajeda, C., Baggili, I., and Hall, C., in 2019, undertook an investigatory survey on the pivotal role of AI-integrated digital forensics and data science tools, as reported by those in the field who deploy them against virtual sexual offenses. Their research primarily scrutinized how these professionals assess the effectiveness of the tools and

methodologies employed in probing incidents of online child sexual abuse. Their overarching discovery was that the deployment of filtering technologies held paramount importance over technologies that enable safe viewing on the internet in the fight against these crimes.

**Methodology**

The core aim of this research was to explore and highlight the use of Artificial Intelligence (AI) in raising awareness about cybersexual harassment among women. This investigation took place within the Cochin Corporation, situated in the Ernakulam district of Kerala, employing a descriptive research methodology. The method of simple random sampling, a technique within the scope of probability sampling, was applied here. In such a method, the population constituents are predetermined, ensuring an equal opportunity for every individual to be selected. Within the Ernakulam District, out of 74 colleges, 25 are government-supported. For this study, the researcher opted for three of these supported colleges, restricting the sample size to 150 students from these institutions. This limitation arose from the researcher's constraint in reaching out to all 25 government-supported colleges in the Cochin Corporation area. The focus was on undergraduate students aged between 18 and 21 years, marking the onset of early adulthood, as their perspective was deemed crucial for this research. A preliminary study was undertaken to assess the viability of the research, which provided insights into the population and the availability of samples. This initial interaction also allowed the researcher to meet key individuals and conduct an initial observation of the potential samples, which were to be gathered from female students active in the Women Cell of these colleges. The pilot study outlined the research's scope, limitations, and timeline. The data collection tool was a questionnaire, incorporating both open and closed-ended queries tailored to each research objective. The study utilized both primary and secondary data sources. While the primary data was directly obtained from the participants, the secondary data encompassed information from books, journals, websites, and reports. The analysis of the gathered data was performed using IBM SPSS version 20, and the findings were depicted through tables and graphs. The research analysis adhered to both descriptive and inferential statistics methodologies.

**Result and Discussion**

The current investigation was undertaken to examine the attitudes and levels of awareness pertaining to cyber sexual offenses among women. Additionally, the study proposes the utilization of artificial intelligence as a means to foster awareness in this domain. The survey had a sample of 150 female participants within the age range of 20 to 22 years. The findings of the study indicated that the majority of respondents (60%) resided in their own homes, while a small proportion (1.3%) lived in paying guest accommodations. The remaining participants (38.7%) reported staying in hostels. According to the findings of the study, a majority of respondents (83%) reported belonging to a Nuclear Family, while the remaining respondents (17%) reported belonging to a Joint Family. The majority of the respondents' fathers are engaged in business, with only 28% of them pursuing alternative career paths. The participants' monthly wages ranged from Rs 10,000 to Rs 70,000. Among them, 14.7% reported a monthly income of Rs 40,000, which they relied upon to provide for their families. Due to their affiliation with the business sector, a significant proportion of individuals within this group tend to earn higher monthly incomes. Social media is a widely utilized medium among individuals in contemporary society. Facebook, Whatsapp, Twitter, Hike, Hangouts, Instagram, and other similar applications are well recognized and popular social media platforms. Facebook, Whatsapp, and Instagram are widely utilized programs for social connectivity with friends.

**Table 1**  
**Engagement with Social Media**

| Parameters                           | Percent |
|--------------------------------------|---------|
| <b>Multiple Account Users</b>        |         |
| Yes                                  | 61%     |
| No                                   | 39%     |
| <b>Fear on using social media</b>    |         |
| Yes                                  | 82.7%   |
| No                                   | 17.3%   |
| <b>Social Media Account creation</b> |         |
| Own Wish                             |         |
| Peer Influence                       | 37.4%   |

|  |       |
|--|-------|
|  | 62.6% |
|--|-------|

The respondents possess Social Media Accounts, which may encompass various accounts across numerous applications, including but not limited to Facebook, Whatsapp, and Instagram. Consequently, Social Media users can maintain multiple accounts simultaneously across different applications. The table presented above provides an overview of the respondents who possess several accounts on various social media platforms. 61% of respondents have multiple social media accounts, which could indicate a high level of engagement with social media platforms or a desire for different personas or privacy settings for different aspects of their lives. 39% do not have multiple accounts, which could suggest a more casual approach to social media, concerns about managing multiple presences, or a preference for simplicity. A significant majority, 82.7%, report fear when using social media. This high percentage could be indicative of concerns over privacy, negative experiences, or awareness of potential harassment or cyber offenses. The remaining 17.3% who do not experience fear might be more confident in their ability to manage risks online, may have more positive experiences on these platforms, or could be less aware of potential dangers. 37.4% created their social media accounts of their own wish. This suggests a deliberate choice to engage online for personal reasons such as staying in touch with friends, professional networking, or accessing content. 62.6% report peer influence as the reason for creating their accounts. This implies that social pressure or the desire to be part of a community plays a significant role in their decision to engage with social media.

The data presents a dichotomy where, despite a significant level of fear associated with social media use, peer influence remains a strong factor in the decision to create accounts, possibly overriding personal apprehension. The prevalence of multiple accounts could be further explored to understand whether this is a strategy to mitigate fears (by compartmentalizing identities and online activities) or if it's driven by other reasons such as platform-specific content or functionalities. This high level of fear also suggests the need for better safety measures, educational programs, and tools that can empower users, especially women who may be disproportionately affected by cyber offenses. The role of peer influence in account creation highlights the importance of social dynamics in online behavior and the potential for peer-led interventions in promoting safer online practices. It's also worth noting that these findings could be leveraged to inform the development of AI-based tools mentioned earlier, to tailor them in a way that addresses these specific concerns and behaviors. The data underscores the necessity for such tools to be user-friendly and accessible, given the significant influence of social factors in online engagement.

The study additionally revealed that the peer group plays a significant impact in motivating individuals to create social media accounts. Cyber sexual offenses refer to criminal activities conducted via the internet, when individuals disregard the established netiquette guidelines that are expected to be adhered to during online interactions. The illicit utilization of the Internet can result in various criminal activities, including but not limited to rape, murder, and suicide. Hence, the perpetration of cyber sexual offenses can result in criminal behavior. The table presents data regarding the respondents' perspectives on the correlation between Cyber Sexual Offences and criminal behavior.

The data presented indicates a strong consensus among the participants regarding the potential for cyber sexual offenses to escalate into criminal behavior, with 80% acknowledging this possibility. This majority viewpoint underscores a recognition of the severity and potential legal ramifications of such online behaviors. The 17.3% of participants who are unsure about the connection between cyber sexual offenses and criminal activity may reflect a lack of information or understanding about what constitutes a cyber sexual offense or the legal consequences that can arise from it. This uncertainty suggests there is a need for more education and clear communication regarding what behaviors are considered offenses and their potential to become criminal acts. The 2.7% who do not see a link between cyber sexual offenses and criminal acts may either have a different understanding of these offenses or perhaps a belief in the separability of online actions and real-world legal consequences. Their stance might also reflect skepticism about the legal system's handling of cyber-related issues or a belief in rehabilitative over punitive responses to such offenses.

The influence of peer groups is acknowledged by over half of the respondents (50.7%) who agree that peer pressure can contribute to cyber sexual offenses. This could imply that peer norms, behaviors, and encouragement could play a significant role in an individual's decision to engage in such conduct, potentially due to a desire for acceptance or fear of ostracization. A substantial minority, 33.3%, partially disagree with the peer influence

hypothesis, suggesting that while they may recognize peer influence as a factor, they also believe other elements contribute to the issue. This perspective could point to a more nuanced understanding of the complex web of causation behind such offenses, acknowledging that while peers are influential, factors like individual psychology, societal norms, and access to digital platforms are also relevant. The 16% who fully disagree with the notion that peer pressure can lead to cyber sexual offenses might believe that personal accountability and individual choice play a more significant role than the influence of peers. They might also think that cyber offenses stem from other more influential factors such as personal moral compass, mental health issues, or other environmental influences beyond peer interaction. The investigation reveals a significant awareness of the gravity of cyber sexual offenses and their potential escalation to criminality. However, the role of peer influence is seen with varying degrees of emphasis, indicating that while it is recognized as a factor, there is not a unanimous agreement on its impact. These findings highlight the need for multifaceted preventive strategies that address legal, educational, and social components to mitigate the risk of such offenses.

**Table 2 : Response on Anonymous Communication**

| Response                      | Frequency  | Percent     |
|-------------------------------|------------|-------------|
| Will ignore the communication | 40         | 26.7%       |
| Will block the person         | 78         | 52%         |
| Will warn the person          | 16         | 10.7%       |
| Will complaint                | 12         | 8%          |
| Don't know                    | 4          | 2.7%        |
| <b>Total</b>                  | <b>150</b> | <b>100%</b> |

Cyber Sexual Offence can be arising by the promoting anonymous communication via Social Media with strangers. Anonymous Communication can leads to many abuses such as cheating, morphing, hacking etc. The majority of respondents, 52%, indicate they would block the person involved in anonymous communication. This suggests a proactive approach to personal digital safety and a preference for immediate, definitive action to prevent further interaction. The second most common response, from 26.7% of participants, is to ignore the communication. This could indicate a strategy to avoid engagement that might escalate the situation or reflect a belief that such communications are not significant enough to warrant a response. A smaller portion of the group, 10.7%, would take the additional step of warning the person. This implies a willingness to confront or address the issue directly, potentially to deter future unsolicited communication. 8% of respondents would file a complaint, indicating they are prepared to engage with authorities or platform governance to report inappropriate behavior. This response is less common, possibly due to the effort or perceived ineffectiveness of formal complaint processes. The "Don't know" category, at 2.7%, reveals a segment of the population that is uncertain about how to handle anonymous communications. This uncertainty can highlight a gap in knowledge or confidence in dealing with such situations, signaling a need for more public education on the options available.

Overall, the data points to a general preference for non-confrontational strategies (ignoring and blocking) as primary responses to anonymous communication. However, the willingness of a portion of the population to engage more actively (warning the person or filing a complaint) suggests some degree of trust in systemic solutions or personal efficacy in dealing with potential threats. The responses can inform strategies for public education campaigns, development of platform tools for user safety, and law enforcement protocols regarding anonymous online communication and harassment. It also underscores the importance of supporting users through clear guidelines on handling such situations, possibly leveraging AI and other technological solutions to empower and protect users in digital spaces.

**Table 3 : Awareness on Cyber Sexual Offense and its Legal Aspects**

| Cyber sexual Offense | Responses |       |
|----------------------|-----------|-------|
|                      | YES       | NO    |
| Flirting             | 66.7%     | 33.3% |

|  |        |       |
|--|--------|-------|
| Anonymous Communication                                | 87.3 % | 12.7% |
| Hacking  | 54.7%  | 45.3% |
| Cyber Pornography and Online sexual Abuse              | 74.7%  | 25.3% |
| Awareness on stalking and Squatting                    | 29.3%  | 70.7% |
| Awareness on judicial systems in cyber sexual offenses | 78.7%  | 21.3% |
| Awareness on IT Act 2000                               | 2.7%   | 97.3% |
| Penalties and Punishments on Cyber Crimes              | 40%    | 60%   |

Table 3 represents the respondent’s awareness towards cyber sexual offenses and its legal aspects. Flirting is another factor which can leads to Cyber Sexual Offence. Flirting is one of the factor which can leads to Cyber Sexual Offence, because flirting with strangers can leads to many cyber offences. A significant majority of the respondents (66.7%) consider flirting to potentially fall under the category of cyber sexual offenses, which suggests a broad interpretation of what behaviors may be inappropriate online. The highest level of awareness at 87.3% is for anonymous communication being associated with cyber sexual offenses, indicating a strong recognition of the risks tied to interactions with unknown individuals online. Over half, 54.7%, recognize hacking as a cyber sexual offense, reflecting awareness that unauthorized access to personal data can be a violation of privacy with potential for sexual exploitation. There is a high level of awareness (74.7%) that cyber pornography and online sexual abuse are cyber sexual offenses, indicating an understanding of the explicit nature of these acts and their illegality. Awareness on stalking and squatting is notably lower at 29.3%, which is concerning as these are significant issues within the realm of cyber sexual offenses. This may point to a need for increased education about these specific crimes. A majority (78.7%) are aware of the judicial system's role in cyber sexual offenses, suggesting a fair level of trust or belief in the legal process to handle such cases. Awareness of the IT Act 2000 is extremely low at 2.7%, indicating a gap in specific legal knowledge which is critical for understanding one’s rights and the legal framework that protects against cyber offenses. Awareness of the penalties and punishments for cyber crimes is divided, with only 40% feeling knowledgeable. This may deter reporting if victims feel justice may not be served.

The data suggests that while there is a general awareness of what constitutes a cyber sexual offense, there are significant gaps in specific knowledge areas. Most notably, the lack of awareness regarding the IT Act 2000 and specific penalties for cyber crimes could lead to a lack of empowerment among individuals to protect themselves or pursue justice. The data also suggests that the perception of what behaviors are considered offenses can vary, which could lead to misunderstandings and mishandling of certain situations. This underscores the need for comprehensive educational programs that address both the broad strokes and the finer details of cyber sexual offenses and their legal repercussions. There is a clear opportunity for creating targeted awareness campaigns, potentially leveraging AI to personalize and disseminate this information effectively. Further, the disparity in knowledge across different offenses suggests that educational initiatives should be nuanced, focusing on areas where awareness is particularly low, such as stalking, squatting, and specific legislative acts. By increasing awareness of these areas, individuals can become more empowered to recognize offenses and take appropriate legal action, leading to better prevention and response to cyber sexual offenses.

Cyber Sexual Offence is mainly targeted to women therefore they have fear to use Cyber Space. Due to the continuous cyber-attack towards women they may feel discomforts among them to use the Cyber Space. These discomforts make their attitude negative. Attitude towards Cyber Space means women behavior towards the Cyber Space.

**Table 4: Attitude Level of Women About Cyber Sexual Offence**

| Attitude Level | Frequency | Percent  |
|----------------|-----------|----------|
| Low            | 21        | 28 %     |
| Medium         | 33        | 44 %     |
| High           | 21        | 28 %     |
| <b>Total</b>   | <b>75</b> | <b>4</b> |



Table 4 represents the attitude levels of women about cyber sexual offenses. The distribution of attitudes is quite even across the spectrum with both the low and high attitude levels each making up 28% of the respondents. This indicates a polarization in perceptions, where an equal proportion of women feel very strongly as those who don't feel strongly at all about cyber sexual offenses. The majority, however, fall into the medium attitude level category with 44%. This suggests that while there is some awareness and concern about cyber sexual offenses, a significant number of women may not feel fully equipped with information or empowered to take a strong stance on the issue. The data suggests that there is no overwhelming consensus on the attitude toward cyber sexual offenses among the surveyed women, which could reflect varying levels of understanding, experiences, or beliefs about the prevalence and seriousness of these offenses. The sizable portion of women with a 'low' attitude level towards cyber sexual offenses could indicate a lack of personal experience with such offenses, a lack of awareness about the severity of these crimes, or a belief that these issues are not likely to affect them personally. The 'medium' attitude level being the most common suggests that many women may recognize cyber sexual offenses as a problem but might lack the conviction or the necessary information to form a strong opinion. This group might benefit from further education and awareness-raising activities. The 'high' attitude level group, also at 28%, shows that there is a significant number of women who are very concerned about this issue, which could drive them to be more proactive in seeking information, using online safety tools, or advocating for stronger measures against cyber sexual offenses. Overall, the findings highlight a need for targeted educational and awareness programs to raise the level of attitude and concern about cyber sexual offenses. This would not only improve the overall understanding and perception of the seriousness of these crimes but also empower more women to take an active role in protecting themselves and others online. Engaging the group with a 'medium' level of attitude effectively could shift the balance towards a higher general concern and proactive stance against cyber sexual offenses.

**Table 5 : Domicile of the Respondent and Time Period Used by the Respondent**

|                   | Sum of Squares | df        | Mean Square | F     | Significance |
|-------------------|----------------|-----------|-------------|-------|--------------|
| Between Groups    | 2.124          | 2         | 1.062       | 1.150 | .322         |
| Within the Groups | 66.463         | 72        | .923        |       |              |
| <b>Total</b>      | <b>68.587</b>  | <b>74</b> |             |       |              |

H0= There is no difference in domicile of the respondent and the time period used by them.

Ha= There is difference in domicile of the respondent and the time period used by them.

This represents the variability due to interaction between the groups. With a sum of squares at 2.124 and a mean square (variance) of 1.062 for 2 degrees of freedom (df), the F-value is calculated at 1.150. It also shows the variability within each group. The sum of squares is much higher at 66.463 with a mean square of 0.923 for 72 degrees of freedom, indicating that there is more variability within the groups than between them. This is the sum of the "Between Groups" and "Within Groups" variability, giving a total variability in the data.

The F-value is compared against a critical value from an F-distribution table at a specific significance level (usually 0.05) to determine if the observed differences in means are statistically significant. In this table, the significance (p-value) is 0.322. The null hypothesis (H0) states that there is no difference in the domicile of the respondent and the time period used by them. The alternative hypothesis (Ha) states that there is a difference. Given that the significance level (p-value) is 0.322, which is much higher than the common alpha level of 0.05, we do not have enough evidence to reject the null hypothesis. In other words, based on this ANOVA test, there does not appear to be a statistically significant difference in the time period used by respondents from different domiciles. Therefore, the conclusion of the analysis would be that the domicile of the respondent does not significantly affect the time period they use, according to the data collected and under the conditions of this test.

#### **AI tool for creating Awareness on Cyber Sexual Offense**

Online sexual crime is a major concern as a result of the proliferation of digital communication and online

platforms, which has brought both benefits and pitfalls. Researchers and engineers are looking to artificial intelligence (AI) capabilities as possible remedies to solve this problem. With a focus on their uses, drawbacks, and ethical implications, this review of the literature offers an overview of the body of knowledge on artificial intelligence technologies for combating online sexual crime.

1. **Image and Video Recognition:** AI-based image and video recognition systems have demonstrated potential in the fight against online sexual crime by spotting and flagging graphic or unlawful content, especially child sex abuse material. Hsu et al. (2020) showed the efficiency of AI systems in recognising such material, assisting internet platforms and law enforcement in acting quickly.

2. **Text analysis and Natural Language Processing (NLP):** In order to spot trends and linguistic cues connected to online sexual crime, text analysis and NLP techniques have been used to monitor and analyse online discussions. In order to gain insight into the potential of AI in early detection and prevention, Livingstone et al. (2020) investigated the use of AI in detecting grooming behaviours, solicitations, and discussions related to illicit actions.

3. **Behavioral Analytics:** AI systems can analyse user behaviour patterns on internet platforms to spot prospective predators or those carrying out shady operations. This is known as behavioural analytics. In order to take preventative action, Wilson et al. (2019) showed how behavioural analytics may effectively identify problematic tendencies, such as frequent interaction with children or viewing explicit information.

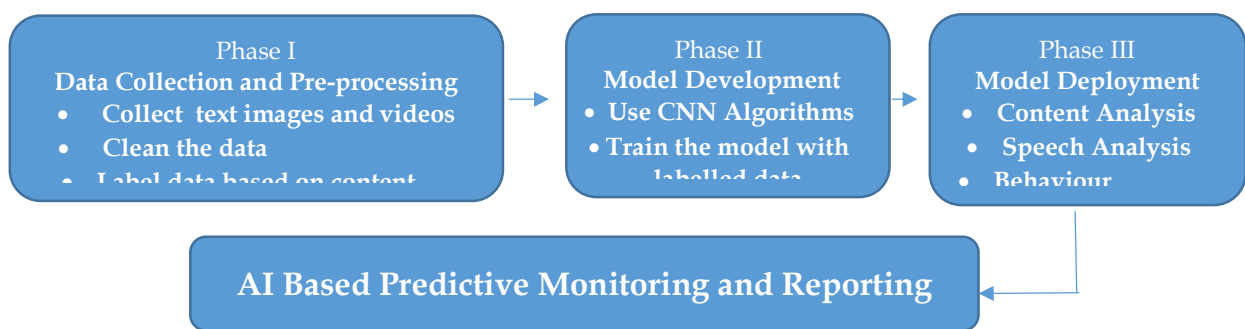
4. **Chatbot and Conversational AI:** In order to engage users and provide education, assistance, and advise regarding online safety, chatbots and conversational AI systems have been used. The potential of chatbots to give age-appropriate information, respond to user inquiries, and spread knowledge about online safety was noted by Rogers et al. (2018).

5. **Social Network Analysis:** AI techniques are able to discover networks involved in online sexual crime by analysing user profiles, social network linkages, and online interactions. The importance of social network analysis was emphasised by Latonero and Eldridge II (2019) in exposing hidden networks, identifying potential perpetrators and victims, and enabling targeted interventions.

6. **Content Moderation:** Online platforms use AI-powered content moderation systems to automatically assess and filter content created by users, identifying and eliminating explicit or illegal material. But there are issues that must be resolved about false positives, cultural quirks, and privacy issues (Citron, 2019).

The research also examined the ethical and privacy issues related to AI use in this setting, highlighting the significance of responsible AI development and implementation. An AI-based model to prevent Online Child sexual abuse is developed as a part of this study

Figure 1: AI-based model to prevent Online Child sexual abuse



Five most popular AI tools to prevent Online Child Sexual Abuse are presented here:

1. Developed by Thorn, an Artificial Intelligence Company, the AI tool named Safer achieves approximately 99% accuracy in the detection of child abuse imagery. This technology empowers technological platforms to pinpoint, eradicate, and report materials of child sexual abuse extensively, marking a significant progression in efforts to abolish such crimes.

2. Child Safe.AI represents an AI-driven platform dedicated to monitoring and predicting the threats of online child exploitation. Utilized by American law enforcement, this technology proactively collects and analyzes

indicators of exploitative threats within online environments known for such activities. It achieves this by examining millions of conversations, materials, and visual clues, ultimately aiding organizations in diminishing the hazards of online child abuse.

3. Spotlight utilizes predictive analytics to identify both victims of child sexual abuse and those at risk of child and human trafficking. By analyzing data from internet trafficking and content from sex adverts and escort services, it pinpoints potential victims. This tool is currently in use by a U.S. Federal agency, assisting in addressing complex child trafficking cases effectively.

4. Griffeye employs techniques such as facial and image recognition within computer vision technology to scrutinize images for nudity and age indicators. This method is actively used by U.S. Federal agencies for identifying similar offenses, showcasing its effectiveness in combating such crimes.

5. ai leverages computer vision by training on existing online child sexual abuse content, enabling it to detect and flag new images indicative of abuse. This approach significantly reduces manual investigative efforts by working alongside existing hash lists. Moreover, it assists in prioritizing cases related to child sexual assault, enhancing the efficiency of law enforcement processes.

### Conclusion

Numerous issues afflict the digital realm, predominantly due to the anonymity of its users and their lack of understanding regarding the laws and security measures governing it. Unfortunately, users often overlook the potential ramifications of misusing this space, leading to widespread cyber abuse. This problem is exacerbated by a general unawareness concerning legal protections and resources, causing many to dismiss such concerns. It is especially important for female users to be empowered and motivated to report any incidents, something that can be achieved through assertive training and awareness initiatives aimed at enabling women to both prevent and confront online abuse. Current research emphatically underscores the necessity of enhancing awareness about sexual offenses in the digital sphere and the legal frameworks designed to combat these issues. Various artificial intelligence (AI) techniques, including image and video analysis, text examination, behavior analytics, chatbots, analysis of social networks, and moderation of content, have proven to be promising tools in minimizing online sexual crimes. However, the deployment of these technologies raises significant ethical questions related to privacy, bias, and accuracy that must be addressed with care. Advancing and responsibly applying AI solutions for the suppression of online sexual offenses demands further inquiry and development. This study stresses the imperative for an interdisciplinary approach in the fight against online child sexual exploitation, positioning AI technologies as essential for early detection and deterrence. It acknowledges the capability of AI in protecting the most vulnerable segments of the population but also points out the ongoing necessity for research and ethical evaluation to enhance and broaden the role of AI in this vital field. The ultimate aim is leveraging technology to render the internet a secure environment for children worldwide.

### REFERENCES

- [1] Babu, J. (2018). An Analysis on the Factors Contributing to the Sexuality Awareness among Adolescent Boys. *Educere-the BCM Journal of Social Work* , 115-125.
- [2] National Institute of Standards and Technology - <http://www.nist.gov/cyberframework/upload/cybersecurity-021214-final.pdf>. February 12, 2014
- [3] Halder, D. (n.d). *articles/103.html*. Retrieved from [www.cyberlawtimes.com](http://www.cyberlawtimes.com): <http://www.cyberlawtimes.com/articles/103.html>
- [4] Holt, Thomas J (2011), *Crime Online : Correlates Causes and Contexts*. Durham, Caroline Academic Press, USA
- [5] Joseph, A. E. (2006, June 28). *articles/joseph06/*. Retrieved from [www.crime-research.org](http://www.crime-research.org): <http://www.crime-research.org/articles/joseph06/>
- [6] NCRB. (2016). *11592-cases-of-cyber-crime-registered-in-India-in-2015-NCR*. Retrieved July 6, 2017, from [www.livemint.com](http://www.livemint.com):
- [7] Macpherson. (2003). *cyber-crime*. Retrieved from [www.crossdomainsolutions.com](http://www.crossdomainsolutions.com): <http://www.crossdomainsolutions.com/cyber-crime/>
- [8] Parkins , “International Journal of Cyber Criminology” Vol 8 Issue 2 July December 2014
- [9] Smyth Sara M. , “International Journal of Cyber Criminology” Vol 8 Issue 2 July December 2014

- [10] Thakkar, R. p. (2010). *working women-issues and challenges*. haryana: Madhav Books.
- [11] Vijayalakshmi, Y. (2017). Cyber Crimes in Kerala. *UGC Approved Journal* , 1159.
- [12] Yar, Majid (2006), *Cyber Crime and Society*, Sage Publications, London
- [13] *Sunde, N., and Sunde, I. M. (2021). Conceptualizing an AI-based Police Robot for Preventing Online Child Sexual Exploitation and Abuse: Part I–The Theoretical and Technical Foundations for PrevBOT. Nordic Journal of Studies in Policing, 8(2), 1-21.*
- [14] *Sanchez, L., Grajeda, C., Baggili, I., & Hall, C. (2019). A practitioner survey exploring the value of forensic tools, ai, filtering, & safer presentation for investigating child sexual abuse material (csam). Digital Investigation, 29, S124-S142.*