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What Do We Know About Dark Web Sexual Abuse Crimes Against Minors After COVID-19? A Systematic Review

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Abstract

The internet has become a catalyst for globalization, while the dark web remains a relatively hidden environment associated with various forms of cybercrime. This study examines how the dark web facilitates child sexual exploitation in the post-pandemic context using qualitative meta-synthesis. It focuses on the role of online anonymity, offender behaviour, and the vulnerability of minors in concealed digital environments. The analysis synthesizes post-pandemic empirical research and identifies four key themes: intentional user behaviour patterns, social structures that reinforce engagement, complex offender risk profiles, and barriers to detection and intervention. The findings indicate that the dark web can create conditions that facilitate child sexual exploitation while complicating law enforcement responses. The study contributes contemporary insights into emerging patterns of online child sexual exploitation and challenges for prevention and intervention.

Keywords: Dark Web, COVID-19, Child Sexual Exploitation, Minors, and Law Enforcement.

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1. Introduction

The internet has been one of the most monumental inventions of the last century. Commissioned on January 1, 1983 (Cerf et al., 2009), the Internet became a catalyst for international connectivity almost instantly. The Internet has a plethora of positive influences worldwide; however, with the introduction of instantaneous connections, there have also been negative outcomes. As the Internet integrated into society, its capabilities expanded, and it was discovered that there are three levels to the web. The surface web is used daily by the world's population, with search engines like Google and Bing frequently visited (Khromova, 2025).

The deep web is another part of the Internet that is typically password-protected or subscription-based because search engines cannot index it (Ngo et al., 2023). The dark web is the deepest sector of the Internet that requires specific software for access (Ngo et al., 2023). It is important to note that both the deep web and dark web make up around 96% of the web (Ngo et al., 2023). The dark web became notable in 2011 with the rise of the Silk Road, an illegal online marketplace for drug trafficking (Ngo et al., 2023). From there, it continued to be a breeding ground for cybercriminals to conduct their affairs out of the public eye (Ngo et al., 2023).

This study will examine the effects of the dark web on the sexual abuse of minors post-COVID, a phenomenon whose effects will be discussed further throughout the study. The COVID-19 pandemic fundamentally altered how minors interact with the digital world, with school closures, social isolation, and increased screen time creating unprecedented vulnerabilities (Harris et al., 2021; Miloshevska, 2023). These shifts occurred alongside an expansion of dark web activity, raising critical questions about how the pandemic may have accelerated or transformed CSAM-related crimes.

This study will utilize the term child sexual abuse material (CSAM), which refers to child pornography (Leclerc et al., 2021), as one of the main focuses. Additionally, the anonymity of the dark web allows criminals to avoid immediate detection from law enforcement and the government as they interact with minors. Minors are more vulnerable to influence, especially with the rise of social media and the Internet, and many can hide their interactions from guardians. The importance of this study is to determine how and where minors are being targeted by online predators in these spaces, and what long-lasting effects are left on the minors. There is limited research on this topic, demonstrating a need for addressing these unseen crimes,



as the capabilities of the Internet continue to expand. This particular crime is a global human rights violation and a significant concern for global criminal justice, requiring more empirical data to comprehend the severity of the issue fully.

CSAM crimes are recurring with the use of the Internet. In a study done by David Finkelhor et al. (2022), the different forms of online sexual abuse were investigated, with the conclusion that 15.6% of the youth they surveyed confirmed that they had experienced some form of online sexual abuse. These youths ranged from ages 13 to 17, the conventional ages at which minors tend to access online networks. This data does not indicate specific dark web data; however, this can be due to the shortage of data on the topic. Children between the ages of 10 and 17 are highly susceptible to online influences and typically experience social isolation or various forms of prior abuse (Finkelhor et al., 2022). This leads them to seek connections with those who they feel understand them; this is a common guise of sexual predators, specifically online.

One of the indicators that investigators look at to assess CSAM is “pubertal development” (Sutton, 2025). According to Pinyerd and Zipf (2005), puberty is a period of physical, sexual, and psychological growth that begins between the ages of 8 and 14, with delayed puberty being 13 years of age for girls and 14 years of age for boys (NHS, 2022). Predators tend to find these ages appealing as minors are in a stage of hormonal confusion, guiding them to come across individuals they perceive will give them a sense of security and protection (Sutton, 2025).

COVID-19 did play a role in how minors interact online and how they become more vulnerable to online predators (Miloshevska, 2023). There were various factors that shifted with the rise of COVID-19: closure of schools, increased time spent online, social isolation, and limited community involvement (Miloshevska, 2023). During the increased time spent both inside and online, minors experienced anxiety, depression, stress from internal and external factors, as well as malnutrition and neglect, with an elimination of protective factors such as lack of parental supervision (Harris, 2021). These victims of online CSAM continued to be targeted at higher rates due to the increased presence of predators (Miloshevska, 2023), with the dark web expanding the scope of outreach, but intensifying the crime. The post-pandemic environment has also seen shifts in how offenders

operate, with some research suggesting a migration from traditional dark web platforms to more accessible mainstream applications (Berwick & Foldy, 2024).

Understanding offenders is just as important as understanding victims, particularly in research on online sexual exploitation. However, developing a clear offender profile is challenging because these crimes occur in cyber environments that allow for anonymity and varied levels of participation. According to Woodhams et al. (2021), individuals involved in dark web child sexual abuse material (CSAM) offenses are typically younger males, often from identifiable ethnic backgrounds. In a related study, Woodhams et al. (2021) further found that many offenders occupied higher-status or leadership positions within online platforms used to facilitate these crimes. The same study (Woodhams et al., 2021) reported that approximately 47% of offenders had direct access to children, whether through their own families or through other caregiving or social roles. The study also highlights important distinctions between online offenders and contact sexual offenders. Unlike individuals who commit physical contact offenses, online offenders were less likely to report histories of sexual abuse, mental health difficulties, or unemployment (Woodhams et al., 2021). In contrast, contact offenders demonstrated higher levels of sexual deviancy and greater victim empathy (Woodhams et al., 2021). These findings suggest that online sexual offending may involve different behavioral and background characteristics than traditional contact-based sexual abuse, reinforcing the complexity of accurately defining and categorizing offender profiles in sexual cyber crimes.

Accessibility and understanding of children tend to be a pattern, allowing these predators to gain an unethical dominance over minors they become involved with. A striking realization is that before these offenders navigate the dark web, the surface web is explored first (Leclerc et al., 2021); when these searches fail to provide the level of material they are seeking, individuals look to establish an account on dark web platforms (Leclerc et al., 2021). It is important to note that the dark web is used to spread content and engage with like-minded individuals and consume CSAM content, rather than interact with minors (Leclerc et al., 2021). The minor interactions occur on customary social media platforms such as TikTok, Instagram, YouTube, and X (Leclerc et al., 2021). According to a study done by Insoll et al. (2022), 42% of the predators on the dark web have directly contacted a minor, while 55% admitted committing sexual offenses. Once these accounts are created, the next step for individuals is to protect their identity; however, their



usernames indicate the interactions they are seeking to have with fellow predators. Some of the most popular accounts on these platforms include these usernames: “boyvids-V6, boysrus, amorzinho, resistance, nymphetomania, pedo-support, naughtykids, and pharos” (Ngo et al., 2023). These accounts shared their CSAM material and instructed others on how to access it as well (Leclerc et al., 2021).

Similarly to the victim profile, COVID-19 magnified the rate at which offenders exploited minors by interacting with them online as well as sharing explicit images of them to other users (Miloshevska, 2023). However, the effects of COVID-19 on dark web sexual abuse crimes involving minors have limited information, so this study will explore both before and after COVID-19 to understand the full scope of these crimes. Additionally, this study will explore these specific crimes on a global level; therefore, many countries will be referenced as evidence of how these crimes affect the world. In the study done by Sutton (2025), numerous data sources were examined to investigate the rate at which CSAM online crimes are happening against minors. Most of the references included the United States (49%), with international and Canadian references being the next most prevalent (16% and 14%, respectively). Whilst many of the references listed throughout this paper are region-based within the United States, international data is crucial to examine, as this issue impacts global youth’s safety.

This study aims to replicate and expand on previous empirical research done by scholars to address the concern of how the dark web facilitates child sexual exploitation post COVID-19. Utilizing sources such as Blokland et al. (2024) & Woodhams et al. (2021), the study will investigate offender and victim demographics, as well as offender patterns and motives for committing these heinous crimes. With the use of academic sources, this study seeks to identify both consistencies and disparities in how these crimes are defined, distributed, and detected across jurisdictions. Ultimately, this replication contributes to the existing literature by offering contemporary insights on how technological anonymity and social factors intersect to enable child sexual exploitation.

2. Method

This study will explore the question “*What do we know about dark web sexual abuse crimes against minors post-COVID-19?*” The method of analysis is a

systematic qualitative meta-synthesis. This method involves analyzing data from various qualitative sources to address the research question and generate a new understanding of the topic (Adelphi University, 2026). This analysis method is beneficial to this study as it examines the literature in search of unprecedented findings, contributing to further research in the field. To ensure rigor, the authors employed Braun and Clarke's (2006) six-phase thematic analysis framework. This involved: (1) familiarization with the selected sources, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the final report. This systematic approach enhanced the reliability and transparency of the qualitative synthesis.

There were multiple platforms utilized during the selection process. The study's exploration began with the Virginia State University Library's databases. On the website, there is access to a plethora of databases across every subject; however, for this study, the selected subject was criminal justice. From there, the website generated eight suggested databases to acquire sources, including JSTOR, SAGE Journals, and Academic Search Complete. Of the three databases, SAGE Journals and Academic Search Complete were the primary sources utilized for this study, as JSTOR did not produce many articles relevant to the inputted terms. Both SAGE Journals and Academic Search Complete are databases with peer-reviewed scholarly sources, making them ideal for productive research.

Before mentioning the specific search terms and the results, it is important to note that all the searches included other filters, the primary ones being "English", "Articles & Books", as well as "Abstract". Filtering for English articles was successful, as English is the primary language of this study, and filtering through articles written in different languages would not be beneficial given the study's time constraint. "Articles & Books" was used to generate peer-reviewed, scholarly sources. "Abstract" was used to find sources that contained the search terms in the abstract, uncomplicating the screening process, allowing for more time to read the sources.

There was also a search filter added for the date range of sources. In each search, the dates were input as January 2020 through February 2025. These dates were selected to ensure the most recent and relevant sources were selected for screening; additionally, the study's focus is post-COVID-19, which these dates fall into. Examining dark web sexual abuse of minors post COVID-19 is essential since the pandemic changed many aspects of life; therefore, analyzing data post-



pandemic may show changes in the interactions with minors that are being had on the dark web (the goal of the study).

At the beginning of this process, there were some difficulties finding search terms that generated conducive sources. Terms such as “dark web sexual“, “dark web sexual crimes“, “dark web sex“, and “online sex crimes“ were input into both SAGE Journals and Academic Search Complete; however, they all yielded numerous results. The terms “dark web sexual crime“ and “dark web sex“ were unsuccessful in producing any articles across both databases. The term “online sex crime“ produced thousands of results on Academic Search Complete, meaning the filters needed to be reviewed and narrowed, as they were too broad. After those results, the search terms were made more specific to ensure that sources qualified and pertained to the study’s main goal. The study’s topic is extremely specific, and research on the impact of specifically sexual abuse against minors is very limited, which impacted the source search process. As stated before, JSTOR didn’t yield many articles across any of the search terms, indicating the difficulty of source extraction.

Following these initial challenges, more refined and targeted search terms were implemented across JSTOR, SAGE Journals, and Academic Search Complete to improve the relevance of retrieved sources. The search term “dark web and child sexual material“ was first introduced, resulting in zero sources from JSTOR, one literature review from SAGE Journals, and four sources from Academic Search Complete. Building on this adjustment, the term “darknet and child abuse“ was then utilized. This search again yielded no results in JSTOR, while SAGE Journals produced one source, and Academic Search Complete generated five sources. A final refined search term, “TOR and child abuse,“ was applied. This query produced one source from JSTOR, no results from SAGE Journals, and four sources from Academic Search Complete. In total, these refined searches resulted in sixteen sources across all databases. Of these, eleven sources met the inclusion criteria for full-text analysis. A quality assessment was conducted, evaluating each source based on methodological rigor, relevance to the research question, and contribution to the overall understanding of the topic. All eleven sources were determined to be of sufficient quality for inclusion.

The next step of the meta-synthesis method is to screen all the articles that were found in the search process. Each abstract of the source was inspected, and keywords were sought out, including “child sexual material“, “child sexual content“, “dark web“, and “darknet“. These were relevant terms to the topic, and if the abstract did not include one of these terms or something similar, it was eliminated from the screening process. Five sources did not meet this requirement. Two sources were excluded from Academic Search Complete under the search term “darknet and child abuse.“ One source was excluded from JSTOR, and two sources were excluded from Academic Search Complete under the search term “TOR and child abuse.“ This process resulted in a total of eleven sources selected for further review. Each of these sources was determined to be directly relevant to the study’s focus and appropriate for inclusion in the qualitative meta-synthesis analysis. Of the final sample, two sources were obtained from SAGE Journals, and nine were retrieved from Academic Search Complete across all applied search terms. Consequently, the final dataset for in-depth analysis consisted of eleven scholarly sources. These sources were reviewed to ensure that there was significant relevance to the study topic. Overall, this process was incredibly tedious, but it was necessary to guarantee consistent and pertinent results.

3. Literature Review

1. Berwick, A., & Foldy, B. (2024). How Telegram became criminals’ favorite marketplace. *Wall Street Journal - Online Edition*, N.PAG.
<https://www.wsj.com/business/telecom/how-telegram-became-criminals-favorite-marketplace-8c824dfb>

This article investigates how the messaging app Telegram has evolved into a major platform for criminal activity. With nearly one billion users, Telegram has grown rapidly, but its design has raised concerns among law enforcement and researchers. The purpose of the article is to explain why criminals increasingly prefer Telegram over traditional darknet marketplaces. The authors focus on how features such as large group chats and private messaging have enabled illegal activities to move into more accessible and mainstream digital spaces. The article also aims to highlight the risks to everyday users and to examine the role of Telegram leadership in failing to address these issues.



This source differs from the others as it is a journalistic investigation rather than a peer-reviewed academic study. Consequently, it does not use a traditional experimental method and has no page numbers to cite. The authors focus on multiple sources of evidence, including interviews with law enforcement officials, cybercrime researchers, and victims of online crime. They also analyze real examples of Telegram channels and chat groups where illegal activity occurs. The article incorporates case studies to illustrate how these systems operate in real life. Additionally, the authors review platform policies, moderation practices, and statements from Telegram executives to understand how the company responds to criminal activity.

The article finds that Telegram has become a hub for a wide range of criminal behavior, including, but not limited to, the sharing of illegal content. The platform's structure makes it especially attractive to criminals. Large group chats can host up to hundreds of thousands of users, and private messaging allows transactions to occur discreetly. Payments for these transactions (including illegal content) are often conducted using cryptocurrency, making transactions harder to trace. Overall, the findings show that Telegram is replacing or supplementing darknet marketplaces because it is easier to use, more accessible, and less regulated.

The authors conclude that Telegram's design and moderation practices have unintentionally made it a preferred platform for criminal marketplaces. Its ease of access, combined with limited oversight, allows illegal networks to operate at scale. They also argue that while Telegram claims to remove harmful content and cooperate with authorities, critics believe these efforts are insufficient. The article suggests that stronger regulation, improved moderation, and greater cooperation with law enforcement are necessary to reduce criminal activity on the platform. Additionally, the authors highlight that the shift from the dark web to mainstream apps like Telegram represents a major change in how cybercrime operates, making it more visible and accessible to a broader population.

Since the source is a news article, it does not utilize systematic data collection or quantitative analysis, which limits its ability to generalize findings across all Telegram users. The evidence is largely based on specific examples, interviews, and observations rather than controlled research methods. This means the findings may emphasize more extreme or visible cases of criminal activity rather than the

full range of platform use. It is also incredibly difficult to measure the extent of criminal behavior on the platform due to the encryption placed throughout the app. Despite these limitations, this source provides valuable contextual information about the evolving landscape of online criminal activity and the migration from dark web platforms to more accessible mainstream applications.

2. Blokland, A., Daser, A., de Boer, M., Gannon, C., Gnielka, F., Huikuri, S., Reichel, R., Schäfer, T., Schmidt, A. F., Staciwa, K., & Lehmann, R. (2024). Why do users continue to contribute to darknet Child Sexual Abuse Material forums? Examining social exchange, social capital, and social learning explanations using digital forensic artifacts. *Child Abuse & Neglect*, 153, 106815. <https://doi.org/10.1016/j.chiabu.2024.106815>

The darknet is a space for plenty of illegal activity; however, this source delves into how it can become a playground for inappropriate relationships with children. There has been significant social and geographic growth in these communities online. On the darknet, there are chat rooms and forums like those on the “clearnet” (pg. 2). These are where online predators share their preferences and experiences, and where they share links to their CSAM material with the entire group. The authors aim to examine whether social incentives within these online communities encourage continued participation. The research is important because law enforcement typically focuses on removing content and predators; however, there is less attention to the dynamics within these groups that contribute to ongoing offenses.

In the methods section, the researchers analyzed digital forensic data from a darknet CSAM forum that was taken down by law enforcement in 2015. The study does not rely on surveys or interviews but rather on members’ behavioral data, providing an objective view of participation. The operation included examining posting frequency, interactions between members, time as a registered forum member, and content engagement (pg. 4). This study used a quantitative “group-based trajectory modelling” (pg. 5) to extract data for the results.

The results showed that social incentives play a role in user participation. Users were more likely to continue posting and contributing when they received engagement from other members, such as replies or recognition (pg. 6). An



important fact to note is that the number of members creating original posts is significantly less than those who are replying; the mean number of original posts is 4.88, the median of original posts is 2, while the range of original posts goes from 1 to 80 (pg. 7). There is a small group of frequently posting members that receive significantly more communication than their peers, reinforcing their behavior and encouraging involvement. The platform created a loop where engagement increased participation, and participation increased engagement.

The authors concluded that efforts to combat CSAM on the darknet should not solely focus on removing content or shutting down platforms. Instead, law enforcement should also target social structures and incentives that encourage user participation. The authors suggest that disrupting communication, reducing opportunities for recognition, and weakening community bonds may help reduce engagement (pg. 11). The social systems established in these online platforms reinforce harmful behavior and give predators a sense of community that invigorates the users to continue participating and contributing to this issue. There were no specific policy recommendations given.

The study has several limitations. The first being focused on one specific darknet forum, which limits generalization, as the findings may be different on another platform. The second was that the study focused on quantitative data, not looking into personal motivations or psychological factors that could contribute to the behavior. The final limitation is that the darknet and these forums are constantly evolving, and the structure changes quite often, again limiting generalizability.

3. Divakarmurthy, P., Requião da Cunha, B., Passold, J. F., Oliveira, M., & Menezes, R. (2024). Unravelling the dynamics of child sexual exploitation material circulation on the Dark Web. *PLoS ONE*, 19(7), 1–15. <https://doi.org/10.1371/journal.pone.0306516>

This study focuses on the understanding of how child sexual exploitation material circulates on the dark web and how users interact with the content. The authors aim to examine how users browse, consume, and distribute illegal material. Another focus of the article is to understand user behavioral patterns and the dynamics of users within the networks. The purpose is to identify patterns in

user activity to create a profile of the people who are utilizing these platforms; this will aid in preventing exploitation and improving law enforcement responses (pg. 2).

The study was conducted by collecting data from an online forum provided by the Brazilian Federal Police. The data included logs of user activity, such as browsing behavior, posting patterns, and time spent on the platform (pg. 3). The researchers categorized user actions into sessions, defining a new session when there was a break in activity of more than an hour (pg. 4). They then analyzed how users interacted with different content categories (67 in total) and how frequently they returned to the forum. The study utilized statistical methods to identify patterns in user engagement and behavior over time. Additionally, the study examined both “consumers” and “producers” to compare differences in behavior between the groups, providing a better understanding of the platform structure (pg. 4).

The results revealed several patterns in user behavior. The first being in activity growth rate from both groups increasing significantly between November 2013 and November 2014, with an accelerating rate of growth from February 2014 and on (pg. 5). Most users focused on a limited number of categories, with some categories being viewed less than a couple of hundred times (pg. 6). On average, users visited around 20 categories, while only posting in about 10. The study also found that users spent more time on these platforms than the average user of mainstream pornography websites (pg. 8). The average amount of time spent per session was around 40 minutes, with some outliers remaining on the platform for up to 2 hours; however, that was a rare occurrence (pg. 7 & 8). Another finding was that there was no homogeneity found among the users, with some categories being viewed more than others, but not at a disproportionate rate (pg. 9).

The authors concluded that user activity is not random, but follows patterns related to time spent, content preferences, and interaction habits. They found that there was more time spent on the platforms after the initial introduction process, but their activity on the forum was dependent upon their interests (pg. 12). Another finding was that most of the users spent the same amount of time on the platform in each session, with very few outliers. The authors also concluded that a substantial proportion of users re-initiated their activity within 24 hours, indicating that the nature of user interaction correlates with a specific rhythmic cycle (pg. 12). One of the main conclusions is how critical it is for law enforcement to



understand the patterns. This gives them a better understanding of how users behave and allows authorities to better predict activity and disrupt the circulation of illegal content more effectively.

One of the biggest limitations of this study was that it was conducted using one darknet forum, which limits how the findings can be generalized, as one site may be different from another. This can also be a limitation because there is a lot of change happening in the darknet that is hard to keep up with, so utilizing only one data source could also be limiting to the study. Another limitation is that there is no way to factor in every reason why these individuals behave the way that they do.

4. Kloess, J. A., & van der Bruggen, M. (2021). Trust and relationship development among users in dark web child sexual exploitation and abuse networks: A literature review from a psychological and criminological perspective. *Trauma, Violence, & Abuse*, 24(3), 1220-1237. <https://doi.org/10.1177/15248380211057274>

This study was conducted to better understand how trust and relationships develop among users in the darknet involved in child sexual exploitation and abuse. The authors explain that the Internet has significantly changed the nature of these crimes by allowing individuals with shared interests to connect, communicate, and form communities more easily (pg. 1220). However, despite growing concern about these networks, there was still limited research on the social and psychological processes that allow them to function. The purpose of the study was to review existing research and identify how trust is built and maintained among users who must remain anonymous while engaging in illegal activities (pg. 1222). Ultimately, the goal was to provide insight that could help prevention and intervention strategies.

In the methods section, the researchers conducted a systematic literature review. They searched six academic databases to identify relevant studies that focused on four key areas: child sexual exploitation and abuse, darknet platforms, online communities, and trust and relationship development (pg. 1222). After applying the inclusion criteria, the authors selected 21 studies that were most relevant to their research question. These studies include both psychological and

criminological perspectives, so that researchers can examine both aspects of the crimes. The authors then reviewed and synthesized findings from these studies to identify common themes related to communication, trust-building, and user interaction.

The results showed that interpersonal communication plays a central role in sustaining darknet networks. Users interact with others who share similar interests, which helps create a sense of validation, normalization, and belonging (pg. 1231). These interactions serve multiple purposes, including sharing information, gaining access to content, and receiving advice (pg. 1232). Continued interactions help build trust between users, even when they can't be identified. The study also found that trust is both social and technical (pg. 1229 & 1234). Socially, users rely on communication and shared norms, while technically, they depend on security measures and platform features to reduce risk (pg. 1235). These online networks are not simply transactional, but developed and structured social communities built on trust.

The authors concluded that trust is a critical factor in the functioning of the darknet CSAM networks. Without trust, users would be unlikely to share content or engage with others due to the high risks involved. Therefore, trust-building processes are important for these communities (pg. 1235). They also emphasized that these networks provide more than just access to illegal material; they also offer a sense of belonging to encourage user engagement (pg. 1235). Suggesting that a way to eliminate these networks and identify these individuals should target disrupting the social dynamics within the communities.

As a literature review, there are some limitations. The first being the fact that qualitative data does not always consider quantitative data. The criminological literature did not delve into qualitative analysis, like some of the sources, limiting the scope of research (pg. 1235). Additionally, the psychological literature came from surface web sources, so there was little literature from a psychological perspective on the dark web (pg. 1235). This is to be expected, though, since the data is from before 2015, and there was little interest taken and research done on the darknet.

5. Kokolaki, E., Daskalaki, E., Psaroudaki, K., Christodoulaki, M., & Fragopoulou, P. (2020). Investigating the dynamics of illegal online activity: The power of reporting, dark web, and related



legislation. *Computer Law & Security Review*, 38, 105440.
<https://doi.org/10.1016/j.clsr.2020.105440>

This study focuses on SafeLine, which is the only Greek hotline for reporting illegal online content (pg. 1). The purpose of the study is to examine illegal online activity, particularly related to CSAM material, by analyzing reporting systems and legal frameworks (pg. 2). Uncovering how the illegal content spreads, how reporting contributes to combatting it, and how legislation differs across countries is another primary goal of this article. The research is important because illegal online activity, especially CSAM, is a global issue that crosses international boundaries. The authors sought to identify patterns that could improve law enforcement responses and highlight the need for stronger international cooperation (pg. 2).

The researchers used a quantitative and comparative approach. First, they analyzed 17 years of SafeLine data, from 2003 to 2019. During these years of operation, there were over 34,000 reports made of illegal online content (pg. 3). They were then categorized by type, including CSAM, hate speech, and personal data violation (pg. 3), to identify trends over time. Next, they compared SafeLine data with global data from INHOPE (an international network of internet hotlines) to evaluate how trends in Greece aligned with global patterns (pg. 3). The authors also conducted a legal analysis of CSAM laws across multiple countries to compare differences in punishments and how they define the crimes (pg.7). The authors also utilized data from the Voyager system (the ATLAS dataset) to identify connections between the surface web and the darknet (pg. 5).

The authors found that 23% of the reports made on SafeLine pertained to CSAM, while the majority involved personal data violations (pg.3). Additionally, they found that the reports of CSAM increased steadily over time, with the average rate being around 14% annually (pg. 4). This surpassed every precedent in Greece, which confirmed that there had been an increase in incidents globally. During the cross-examination of SafeLine and Voyager, there was found to be a strong connection was found between the surface web and the darknet. Around 50% of the domains reported to SafeLine were also discussed in the darknet forums, showing that illegal content is often shared across both platforms (pg.6).

Typically, CSAM material will be put on the surface web in password-protected websites, and the password is shared on darknet forums and networks, further contributing to the distribution of CSAM material (pg. 6).

The authors concluded that reporting systems like SafeLine and international systems such as INHOPE are important tools in eliminating illegal online activity (pg. 11). They also concluded that the surface web and the darknet are closely connected, with a symbiotic relationship, as they both aid each other (pg. 11). The internet has no national borders, laws, or framework, so the authors concluded that systems like SafeLine and INHOPE are very beneficial in addressing the crimes that are occurring online (pg. 11). Since current legal frameworks are inconsistent from country to country, enforcement is difficult. The authors argue that a more unified and global approach to legislation and enforcement is necessary to effectively reduce CSAM and other illegal online activities (pg. 11).

One of the major limitations of this study is the heavy reliance on SafeLine, which is a hotline in Greece only, making it hard to generalize the findings, as every country is different. However, the comparison they did to other hotlines makes up for some of this limitation. Another limitation is that with the reliance on SafeLine, the authors are simply looking at what is reported, which does not account for all illegal online activity, leading to a lack of depth in the analysis. The last main limitation is that the study looks at multiple different countries; while this is great for comparison statistically, there are some flaws in how CSAM and illegal online activity are defined. This can lead to a misconstrued interpretation of results.

6. Lahtinen, H.-M., Honkalampi, K., Insoll, T., Nurmi, J., Quayle, E., Ovaska, A. K., & Vaaranen-Valkonen, N. (2025). Investigating the disparities among child sexual abuse material users: Anonymous self-reports from both charged and uncharged individuals. *Child Abuse & Neglect*, 161, 107299. <https://doi.org/10.1016/j.chiabu.2025.107299>

This study focuses on examining the difference between individuals who self-report having been charged for sexual offenses against a minor and those who do not (pg. 1). The authors aimed to get a better understanding of behavioral, motivational, and individual characteristics of both detected and undetected CSAM users, especially those operating on the dark web. This research is important



because most CSAM users are never caught by law enforcement, meaning current knowledge is largely based on convicted offenders (pg. 1). The authors highlight that this creates a gap in understanding the broader population of offenders. Additionally, the growing rate of CSAM makes it critical to study patterns of use and risk factors to improve prevention and intervention strategies. The authors did not include a hypothesis in this study as they are conducting an exploratory approach due to the lack of studies on the two darknet populations (pg. 3).

The method of this study is a quantitative research design. The researchers began by creating an anonymous survey collected from individuals accessing CSAM on the dark web (pg. 3). Participants were recruited through the [Ahmia.fi](https://ahmia.fi) search engine, where users searching for CSAM were redirected to a voluntary survey. From July of 2023 to March of 2024, the researchers collected over 3700 responses; however, the final sample was 2384 participants, after eliminating those who did not answer truthfully or neglected to answer if they had been charged for sexual offenses (pg. 4). The sample contained mostly young males, from ages 18–34. From there, the participants were divided into three groups: those charged with sexual offenses against children (19.9%), those charged with offenses against adults (26%), and those with no charges at all (54.1%) (pg. 4). One major note is that they were very careful in not identifying the subjects, because in Finland it is mandatory to report any suspected crimes against children to the police. After the ethical considerations and sampling selection, the researchers utilized multinomial logistic regression analysis to examine how different behaviors, motivations, and characteristics predicted group membership. The survey included questions on sexual interests, CSAM usage patterns, grooming behaviors, prior criminal activity, and motivations for accessing CSAM (pg. 4).

The results showed varying differences between groups. While most of the sample had not been charged with any offenses, there were many who were. Almost 14% of men were charged with sexual offenses against children, and around 20% of women were charged with sexual offenses (pg. 4 & 5). Individuals with prior charges were more likely to have a history of violent offenses, engage in grooming behaviors, seek physical or online contact with children, and search for more extreme content, including material involving younger children (pg. 5). Individuals in the charged groups were significantly more likely to have contacted

children and viewed CSAM regularly compared to the no-charge group (pg. 6). Additionally, nearly half of all participants reported sexual interest in children, and many reported escalating behaviors after exposure to CSAM (pg. 6).

The authors concluded that there are clear and important differences between CSAM users based on their criminal history, behavior, and motivations. They emphasized that certain factors, such as antisocial behavior, prior violence, and grooming, significantly increase the risk of committing sexual offenses (pg. 6 & 8). The study also highlighted that many CSAM users continue risky behaviors even after being charged, suggesting a high risk of reoffending. The authors argue that understanding these differences is essential for improving risk assessment, prevention strategies, and treatment programs for offenders (pg. 8). Overall, the findings support the need for targeted interventions and early prevention efforts, especially for individuals showing high-risk patterns (pg. 8).

The limitations in this study rely on self-reported data, which may be inaccurate due to dishonesty or social desirability bias. Although anonymity was used to encourage honesty, some participants may have withheld or misrepresented information (pg. 9). Another limitation came from Finland's mandatory reporting; due to this clause, the researchers avoided asking any questions about demographics, which prevented them from seeing the demographic effects (pg. 9).

7. Lätth, J., Joleby, M., McMahan, A., Luke, T. J., & Rahm, C. (2026). Child sexual abuse material users on the darknet: Psychiatric morbidities related to offence behavior. *Sexual Abuse*, 38(1), 3-22. First published Online May 29, 2025.
<https://doi.org/10.1177/10790632251347562>

This study was done to better understand the psychiatric characteristics and mental health conditions of individuals who use child sexual abuse material, specifically those who are not convicted and operate anonymously on the darknet (pg. 1). Additionally, the study explores the connection between atypical sexuality and aspects of CSAM offense behaviors (pg. 2). Since previous studies focus on convicted offenders, the authors are looking to contribute to past literature by adding perspective. By examining both sexual pathologies (like pedophilic interest) and other mental health conditions that may be associated with CSAM



use. The study also sought to examine how psychiatric factors relate to specific offending behaviors, such as how long individuals view CSAM, the severity of the material, and the age of the children depicted (pg. 2). This is important because CSAM use is increasing globally and does serious harm to children, also increasing the need for understanding risk factors.

This study used a quantitative research design with a sample of 160 adult participants. Participants were recruited anonymously through the darknet and related online platforms (pg. 6). To be included, participants had to be at least 18 years old and have viewed CSAM within the past week (pg. 6). Data were collected through online questionnaires and structured clinical interviews, including tools such as the Hypersexual Behavior Inventory, ADHD, and autism screening behaviors like time spent viewing CSAM, severity of content using the COPINE scale, and the age of the youngest child viewed (pg. 10). The researchers used linear mixed-effects regression models to analyze relationships between psychiatric traits and CSAM-related behaviors (pg. 10).

The results showed that multiple psychiatric conditions were common among CSAM users. A large proportion of participants reported pedophilic interest (85%), hypersexuality (74%), autism traits (50%), ADHD traits (37%), as well as symptoms of depression and anxiety (pg. 11). In addition to examining the conditions, the researchers also found relationships between psychiatric traits and offending behaviors. Hypersexuality was linked to spending more time viewing CSAM, zoophilic interest was associated with more severe content and younger children, and pedophilic interest was associated with viewing younger children (pg. 11). These relationships were statistically significant, though generally small to moderate in strength; overall, sexual and non-sexual mental health factors connected to CSAM use patterns.

The authors concluded that CSAM users, especially those having gone undetected by law enforcement, have complex psychological profiles that include both sexual and broader mental health issues (pg. 16). The authors emphasize that focusing on pedophilia and hypersexuality is not enough (pg. 15), and a wider range of conditions must be explored when determining risk factors and treatment. The study suggests that mental health services and prevention programs should address multiple factors, including ADHD, depression, anxiety, and many other

conditions. The authors also highlight the potential role of healthcare systems in identifying individuals at risk before offenses escalate (pg. 16). Overall, the study supports a public health and clinical approach to preventing CSAM-related offenses, rather than relying solely on criminal justice responses (pg.17).

The authors acknowledge several limitations. The first is the reliance on self-reported data, for which measures were taken to ensure anonymity (pg. 17). This is a limitation, as data could be biased due to dishonesty or underreporting, given the nature of the topic. Another limitation is that the sample was done on anonymous, help-seeking darknet users, which limits the generalizability of the findings to all CSAM users. These individuals may differ from those who are not seeking help or those in other environments (pg. 18).

8. Lehmann, R. J. B., Blokland, A., Schmidt, A. F., Gnielka, F. M., Huikuri, S., Gannon, C., ... Reichel, R. (2026). Polling Pedophilic Preferences: Analyzing Responses to User-Generated Member Polls on a Darknet Child Sexual Abuse Forum. *Deviant Behavior*, 47(4), 613–634. First published online: 23 Jan 2025
<https://doi.org/10.1080/01639625.2025.2453813>

This study explores the preferences, behaviors, and social dynamics of individuals participating in a darknet forum focused on child sexual exploitation. The authors explain that traditional research on sexual interest in children often depends on surveys or forensic samples, which can be limited by social desirability (pg. 1). Due to this, there is still limited knowledge about how these online communities naturally function. The authors are adding a new perspective to the literature by designing a new approach: user-generated polls from a darknet forum. These polls were not created for research purposes, which makes them especially valuable because they provide a more natural view of what users discuss and prefer (pg. 4). The goal of this study is to examine how sexual interests, child-related preferences, and content choices are communicated and normalized inside these digital communities (pg. 4).

The researchers conducted a secondary descriptive analysis of data taken from a large TOR-based darknet forum dedicated to discussions about boys and the sharing of abuse material (pg. 4). The forum has almost 100,000 registered members, a rather large online community. The data consisted of 12 active user-



generated polls, along with the number of votes, views, and related user comments (pg. 5). The data was collected observationally, with no researchers participating in the polls or being exposed to dangerous online content. The data was observed by an experienced law enforcement agent who specializes in darknet investigations. The polls were grouped into four main themes based on content: forum-related topics, age of attraction, child sex cues, and CSAM preferences (pg. 5). The researchers used a descriptive content analysis, supported by qualitative examples from comments to provide context; comments were used to help explain how members understood and discussed the poll topics (pg. 5).

The results showed clear patterns in the preferences expressed by forum members. Polls about the age of attraction suggested that many users focused on early pubescence (around the age of 12), which was described as the “sweet spot” (pg. 6). Other polls showed that participants were primarily attracted to boys under 18, with few participants reporting attraction to girls or adults (pg. 6). Polls about child sex cues revealed strong attention to specific body features, clothing, and appearance. Users often focused on the penis, butt, and face, with some focusing on things like underwear style, hair color, and eye color (pg. 7 & 8). The study also found that many users preferred CSAM involving two boys with an age gap, while others preferred content showing a boy with a man (pg. 11). Additionally, some participants discussed wanting extreme content, saying the forum rules should be loosened to allow material involving toddlers, babies, and abusive content (pg. 13).

The authors concluded that darknet forums normalize and reinforce deviant sexual interests. They argue that these polls reveal not only individual preferences, but also ways these preferences are socially validated and sustained through online interaction (pg. 18). These forums don’t just host illegal interests; they reinforce them and escalate them. The authors also concluded that online communities like this forum are important because they reveal how sexual interests in children are communicated openly when users feel protected by anonymity (pg. 15 & 18). The findings suggest that age, childlike physical cues, and realism in abuse material are important within these communities (pg. 16). Overall, there is a social structure in forums that contributes to the normalization of harmful behavior.

The first limitation in this study is that the forum consists of self-selected forum users, which may overrepresent the most active and extreme members of the community (pg. 18). Additionally, only a small portion of forum members voted in each poll; the results may not represent all the users on the platforms. The second limitation is that the polls are user-generated, rather than researcher-designed; the questions were not created with scientific rigor (pg. 18). The researchers also cannot confirm that each poll vote came from a different person, as users can log out and log back in under a different account. The final limitation is that the forum is very specific, focusing only on boys, which may not generalize to broader offender populations or other platforms (pg. 18).

9. Ngo, V. M., Gajula, R., Thorpe, C., & McKeever, S. (2024). Discovering child sexual abuse material creators' behaviors and preferences on the dark web. *Child Abuse & Neglect*, 147, 106558. <https://doi.org/10.1016/j.chiabu.2023.106558>

This study explores the growing problem of CSAM on the dark web and the difficulty of detecting and analyzing it due to anonymity, large data volume, and use of coded language by offenders (pg. 2). The authors emphasize that CSAM is a global issue that causes long-term psychological and emotional harm to victims and creates challenges for law enforcement agencies. Traditional manual detection methods are insufficient, especially given the scale and complexity of dark web content (pg. 2). The purpose of this study was to develop an automated system using machine learning and deep learning techniques to detect CSAM text and uncover patterns in offender behavior, victim characteristics, and platform usage (pg. 2).

The researchers analyzed a large dataset of over 353,000 posts from eight darknet forums collected in 2022, with the assistance of ATLAS (pg. 3). They developed a CSAM detection system using supervised machine learning and deep learning models, including Naive Bayes, Logistic Regression, Support Vector Machine, etc (pg. 5 & 6). They created a manually labelled dataset of over 4,000 posts for training and testing. The system used different techniques and embeddings to process text and evaluate performance (pg. 4). In addition to



classification, the study extracted metadata such as victim age, nationality, forum topics, and social media platforms. This allowed researchers to analyze behavioral patterns of CSAM creators and victims across forums (pg. 6).

The findings showed that machine learning models performed better than deep learning models for this dataset. The SVM model achieved the highest precision and accuracy, while Naive Bayes had the highest recall (pg. 7). The system identified approximately 63,000 CSAM posts and around 10,000 CSAM creators across the forums (pg. 8). The analysis also revealed behavioral patterns. CSAM creators frequently used platforms such as Omegle, Skype, YouTube, Instagram, and Telegram (pg. 15). Victims mentioned were between ages 12 and 13, with common nationalities including British, Russian, and American (pg. 14). Additionally, creators tended to focus on specific forum topics like “video” and “webcam”, indicating preferred content types and interaction methods (pg. 15). These findings provided a clearer picture of how CSAM networks operate on the darknet.

The authors concluded that their machine-learning model is effective in identifying CSAM content in real time and can significantly support law enforcement and child protection agencies. Aside from detection, the system provides valuable insights into offender behavior, victim characteristics, and the platforms used to distribute CSAM (pg. 18). The study highlights that combining artificial intelligence with metadata analysis can enhance investigative efforts and improve prevention strategies. The authors also emphasized that different models serve different purposes (pg. 17). Overall, the research demonstrates the importance of technological innovation and cross-agency collaboration in combating CSAM on the darknet.

This study focuses heavily on the quality and language of the dataset (only exploring English posts), which can impact generalizability (pg. 16). Secondly, the models were not completely accurate, meaning some CSAM content could be misclassified. The third main limitation expressed was that metadata extraction relied partly on keyword matching, which may miss important information or misinterpret content (pg. 16).

10. Owens, J. N., Clapp, K., Craun, S. W., van der Bruggen, M., van Balen, I., van Bunningen, A., & Talens, P. (2023). Analysis of topic popularity within a child sexual exploitation Tor hidden service. *Aggression & Violent Behavior*, 68, 101808.
<https://doi.org/10.1016/j.avb.2022.101808>

This study was conducted to better understand offender behavior within the darknet CSAM communities, specifically those operating on Tor. Since accessing these platforms is illegal, most existing knowledge comes from law enforcement, not academic research (pg. 1). This gap creates a lack of understanding of how offenders interact, what content they prefer, and how these communities function. The researchers aimed to analyze which types of content are most popular and identify patterns in how users engage with material (pg. 2). The goal was to provide data that could help law enforcement, legal professionals, and clinicians better understand offender behavior and improve prevention and intervention strategies (pg. 3).

The study analyzed data from a Tor hidden service that was seized by law enforcement (pg. 3). The site had over 400,000 registered members and over 200,000 active accounts before it was shut down. The researchers examined activity during a 13-day monitoring period, which included about one million logins from 100,000 users (pg. 3). The dataset included over 10,000 threads across 54 sub-forums and about 100,000 links to downloadable material; approximately 67,000 links were clicked on by members attempting to download content (pg. 4). Researchers measured engagement using three key terms: views, downloads, and “thanks.” Since researchers did not have access to the material, one author coded a syntax to help categorize all interactions appropriately (pg. 4). Thread titles were coded for specific descriptors, including, but not limited to, types of acts and age categories. Statistical analyses were used to determine which factors predicted higher engagement (pg. 4).

The study found very high levels of user engagement. On average, threads received over 10,000 views, around 900 attempted downloads, and 12 “thanks” per thread (pg. 5). Additionally, certain types of content were significantly more popular. Threads containing specific descriptors (explicit acts and particular age categories) were more likely to receive higher views, downloads, and engagement (pg. 5). There was also a strong relationship between views, downloads, and



“thanks,” showing that users who engage in one way are likely to engage in others (pg. 5). The results showed that users were not randomly browsing but intentionally searching for and interacting with specific types of content, indicating deliberate and targeted behavior within the platform (pg. 5).

The authors concluded that darknet CSAM communities are organized environments where user behaviors are intentional and preference-based (pg. 6). Engagement metrics such as views, downloads, and “thanks” provide insight into what types of material are most in demand. The study also found that even small interactions can reinforce and normalize harmful behavior within these communities (pg. 6). This contributes to continued demand and distribution of exploitative material. These findings are important because they offer evidence that can assist law enforcement and practitioners with a better understanding of their behavior (pg. 7).

There are a few limitations mentioned in this study. The first being the short period of time that the Tor service was active. At the time, this was the largest site, but there were others active that weren’t being monitored, which could have impacted the number of site members and how often they visited (pg. 7). Another limitation is that the study focuses on thread titles and not actual content, meaning there could be some uncertainty about whether titles accurately reflected the material (pg. 7). Lastly, the platform that was examined was an “open board”, meaning that users did not have to upload to participate, which does not account for all sites and behavior patterns.

11. van der Bruggen, M., van Balen, I., van Bunningen, A., Talens, P., Owens, J. N., & Clapp, K. (2022). Even “lurkers” download: The behavior and illegal activities of members on a child sexual exploitation TOR hidden service. *Aggression & Violent Behavior*, 67, 101793. <https://doi.org/10.1016/j.chiabu.2024.106815>

This study was conducted to better understand behavior within the darknet CSAM communities, specifically focusing on users who do not actively communicate, known as “lurkers.” (pg. 2). Most previous research has focused on offenders already known to the criminal justice system or those who actively post

content online, leaving a gap in understanding hidden users who may still contribute to harmful activity (pg. 2). The authors aimed to explore how both active and non-active members behave on a darknet CSAM platform, especially in terms of browsing, engagement, and downloading behavior. The study sought to provide a better understanding of how these communities function and how all contribute to the spread of exploitative material (pg. 2).

The researchers utilized data from a darknet Tor hidden service that operated for about eight months and had over 400,000 registered members (pg. 3). There were two datasets used for this study: communication data (posts and messages) over the full lifespan of the site, and behavioral “click” data from two weeks, capturing how users navigated the site (pg. 3). The second dataset included about 97,000 active users and tracked over one million logins. Researchers measured behavior using three key variables: time spent on the site, frequency of visits, and actions taken (pg. 3). This approach allowed researchers to analyze both visible behavior and hidden behavior, providing a more comprehensive picture of user activity.

The results showed that only 3.4% of users were actively posting, while 96.6% were “lurkers” who did not communicate publicly (pg. 3). This does not mean that they were inactive, though; the average user spent over 7 hours online (pg. 4). However, this was due to significant outliers who were online for over 500 hours; most users were only online for up to an hour. Users averaged 77 download attempts over the two weeks, and nearly all users who were active for four or more days attempted downloads (pg. 4). The study also found that users frequently navigated specific sub-forums, with the highest activity in categories that focus on themes, which accounted for the largest share of user activity. Overall, the findings demonstrate that even users who appear inactive are still heavily engaged in consuming content.

The authors concluded that “lurkers” play a large role in sustaining these CSAM communities on the darknet. Even though they do not post or communicate, their browsing and downloading behaviors contribute to demand and reinforce the existence of these platforms (pg. 5). The study challenges the idea that only active posters are important offenders, showing that non-communicating users are still involved. The authors argue that “active behavior” should include clicking, browsing, and downloading. These findings are important for law enforcement, as they suggest that individuals cannot claim accidental exposure to these sites (pg. 5). Instead, the data shows that users intentionally and repeatedly engage in



illegal content. The study recommends that investigators focus not only on highly visible users, but also on lurkers who may pose risks as well (pg. 5).

A significant limitation is that only one site was analyzed over a short period of time, limiting generalizability (pg. 6). Additionally, the researchers could not discern what content was connected to the links that were clicked. This means that it is not certain that the users were consuming CSAM material on this platform. However, FBI agents downloaded and reviewed these files and claimed that nearly all the links were related to CSAM material, so the authors are almost positive that clicking the link led to illegal content (pg. 6).

4. Results

4.1 Theme 1: *Intentional User Behavior Patterns*

User behavior on the dark web is not random; it is highly intentional and curated to fit the specific desires of the offenders (Divakarmurthy et al., 2024, p. 12). Evidence shows that users are not passive consumers, but actively engage in browsing, downloading, and interacting with CSAM material, spending copious amounts of time on these platforms (van der Bruggen et al., 2022, p. 3-4). While only a small percentage of users actively post content (3.4%), the majority still contribute through downloading and encouraging other users to continue posting, reinforcing the negative behavior (van der Bruggen et al., 2022, p. 5). Patterns of engagement further demonstrate that usage is not random; instead, it follows identifiable cycles, with many users returning within 24 hours and engaging with content (Divakarmurthy et al., 2024, p. 12).

Additionally, user activity is shaped by preferences and niches. Users seek out content that aligns with their niche of choice and actively consume it (Owens et al., 2023). Despite variation in preferences, there is no complete homogeneity among users, indicating a multifaceted consumption pattern across platforms (Divakarmurthy et al., 2024, p. 9). The interconnected nature of the surface web and dark web also expands access and allows for continued engagement among users; while the dark web gives users access to like-minded individuals, the surface web allows for their initial interactions with CSAM, leading them to the dark web (Divakarmurthy et al., 2024). Participants in CSAM material consumption often lurk

on surface websites like Omegle, Skype, YouTube, and Instagram to consume more content and meet like-minded people (Ngo et al., 2024, p. 15). Overall, these findings highlight how accessibility and platform structure enable sustained and intentional participation. Post-COVID-19, these patterns appear to have intensified, with the pandemic's shift to virtual environments potentially accelerating the migration from surface web platforms to more secure darknet spaces (Berwick & Foldy, 2024).

4.2 Theme 2: Community, Trust, and Social Structure as Key Drivers of Engagement

The social environments of dark web CSAM platforms, like The Onion Router (TOR), play a critical role in sustaining user participation by fostering trust, validation, and a sense of belonging. These platforms are not transactional spaces, but structured communities that allow for interpersonal communication, which reinforces engagement (Kloess & van der Bruggen, 2021, p. 1235). Users often receive social recognition through replies, “thanks,” and various other forms of engagement measures; this cycle creates encouragement for further participation and contribution (Blokland et al., 2024, p. 7; Owens et al., 2023, p. 6). Even minimal interaction can normalize harmful behavior, demonstrating the role of social reinforcement (Owens et al., 2023, p. 6).

Anonymity protection further strengthened these dynamics by allowing users to openly communicate deviant interests without fear of exposure, increasing trust and willingness to engage (Lehmann et al., 2025, p. 15 & 18). These communities also provide a sense of belonging, where individuals connect with others who share similar interests, further validating their behavior (Kloess & van der Bruggen, 2021, p. 1231). Additionally, a small group of highly active users often drives engagement, receiving more attention and influencing participation patterns across the platforms (Blokland et al., 2024, p. 7). These findings demonstrate that the users of these platforms have created more than just a space to consume illicit content; they have created a structured social community to normalize and encourage their behavior (Lehmann et al., 2025). The COVID-19 pandemic may have further strengthened these communities, as increased online isolation pushed individuals to seek connection and validation in virtual spaces, potentially deepening their involvement in these harmful networks.



4.3 Theme 3: Offender Profiles and Risk Factors

User behavior within CSAM environments is shaped by a complex interplay of psychological and behavioral factors, underscoring the need for a deeper analysis of risk. Studies indicate that individuals involved in CSAM consumption often exhibit a range of characteristics beyond sexual interest alone (Lahtinen et al., 2025, p. 6; Lätth et al., 2025, p. 16). These characteristics include depression, anxiety, ADHD, and autism traits (Lätth et al., 2025, p. 11). Additionally, a significant proportion report pedophilic interest and hypersexuality, further contributing to their engagement in these environments (Lätth et al., 2025, p. 11).

Criminal history also plays a key role in risk assessment, as individuals with prior offenses are more likely to engage in grooming behaviors, seek contact with minors, and consume more extreme material, indicating an increased likelihood of recidivism (Lahtinen et al., 2025, p. 5). Patterns of intentional consumption further demonstrate that users actively seek specific content, including material with younger victims, often focusing on early pubescence (Lehmann et al., 2025, p. 6; Ngo et al., 2024, p. 5). However, research in this area faces limitations, including incomplete demographic data and reliance on self-reported information, which may not be accurate (Lahtinen et al., 2025, p. 6 & 9). Offender profiles are complex, emphasizing the importance of comprehensive risk assessment. The pandemic's impact on mental health—including increased rates of anxiety, depression, and social isolation—may have exacerbated some of these risk factors, potentially contributing to heightened engagement in CSAM-related activities during and after COVID-19.

4.4 Theme 4: Barriers to Detection, Intervention, and Research

Efforts to combat CSAM on the dark web face significant challenges due to technological, legal, and research limitations. Strategies such as content removal and platform shutdowns are commonly used; however, research like Blokland et al. suggests that these approaches alone are insufficient. Instead, targeting the social structures (like the trust built among users) and communication (encouragement and “thanks”) that incentivize participation may be more effective in disrupting these online communities (Blokland et al., 2023, p. 11), as these factors are primary drivers in the continued use of dark web CSAM.

communities. Advances in technology, such as machine learning models capable of real-time detection, may provide law enforcement assistance; however, their effectiveness will vary with data quality and implementation (Ngo et al., 2024, p. 18).

Legal and global barriers further complicate intervention efforts, as inconsistencies in international laws and definitions of CSAM set back coordinated efforts (Kokolaki et al., 2020, p. 11). This issue needs global attention, as it is a global phenomenon that harms victims continuously (Ngo et al., 2024, p. 2). The global nature of the internet allows these platforms to persist despite localized efforts to control them (Kokolaki et al., 2020, p. 11).

Research in this area is also limited by issues such as lack of generalizability, reliance on single-platform studies, and language barriers (Divakarmurthy et al., 2024, p. 12; Lehmann et al., 2025, p. 18; Ngo et al., 2024, p. 16). These limitations highlight the need for more comprehensive and multi-platform research. Effective intervention and solutions require a combination of technological innovation, global cooperation and consensus, and improved research practices. The post-COVID landscape has introduced additional complexities, including the migration of criminal activity to mainstream platforms like Telegram, which present new challenges for detection and regulation due to their encryption and scale (Berwick & Foldy, 2024).

5. Discussion

This study aimed to understand and further contribute to the existing literature on the dark web and child sexual abuse crimes. This subject yields global concern, as the internet has no borders; therefore, the scope of these crimes cannot be confined to one country or region. This study examined the question: “What do we know about dark web sexual abuse crimes against minors after COVID-19?” The analysis yielded results that aligned with the intended aim of the study. Multiple themes were derived from the thematic analysis: intentional user behavior patterns, community, trust, and social structure as key drivers of engagement, offender profiles and risks, and barriers to detection, intervention, and research.

The analysis revealed that user behavior is not random, but highly intentional and heavily coordinated. These online platforms manufactured social structures and communities for these individuals, reinforcing their behavior and creating a space for them to feel comfortable in their identities. The reinforcement these



spaces create is incredibly dangerous for society. There are many platforms, like TOR, that host and allow CSAM to be distributed, which allow access to content and like-minded people to happen with ease. Globally, dark web CSAM communities create a problem as there is no way to regulate these sites without generating a global consensus on how to combat the issue, another theme found in the text. There is no global consensus on what is considered CSAM and how it should be combatted, specifically in online forums on the dark web (Kokolaki et al., 2020). This lack of consensus allows for the creation and reinforcement of communities that harm children by exploiting them online and distributing CSAM content.

Another theme that was found and addressed was the strength of the dark web CSAM communities. While not everyone is active, there is consistent engagement from most platform users, encouraging their companions to continue the distribution and acquisition of CSAM. In turn, this creates validation in their online participation and confidence that their identities (even while anonymous) will be protected. The last theme explored was user profiles and risk factors. Since users are anonymous, this area is difficult to fully understand, which once again yields global issues. However, many users face serious mental health issues (pedophilia, depression, etc.), which contribute to their preferences and online interactions.

Regarding the research question, the analysis provided a view that examines CSAM crimes on the dark web as systematic and structured, rather than individualistic, as many people believe it to be. To tackle this issue, the social structures of these online platforms must be targeted severely to break down the integrity and trust built in these communities.

The findings also underscore the need to consider the unique context of the post-COVID era. The pandemic appears to have amplified several factors that contribute to CSAM activity: increased online time among minors and offenders, heightened social isolation, mental health strain, and greater reliance on digital platforms for social connection. These changes may have accelerated the migration from surface web platforms to darknet and encrypted applications, as offenders sought more secure environments to share and consume CSAM (Berwick & Foldy, 2024). Understanding these pandemic-related shifts is essential for developing effective, time-sensitive interventions.

When comparing these findings to pre-COVID literature, several key differences emerge. The pre-COVID research characterized darknet CSAM communities as relatively stable, niche environments requiring technical expertise to access. In contrast, post-COVID research suggests these communities have expanded and diversified, with some activity migrating to more accessible mainstream platforms like Telegram and encrypted messaging apps (Berwick & Foldy, 2024). Additionally, the psychological profiles of offenders appear to have become more complex, with higher reported rates of co-occurring mental health conditions (Lätth et al., 2025). These shifts highlight how the pandemic may have fundamentally altered the landscape of online child sexual exploitation, necessitating updated approaches to prevention and intervention.

6. Policy Implications

The lack of policies on this issue creates a challenge for global safety. There are inconsistencies in international laws and definitions of CSAM (Kokolaki et al., 2020), which set back coordinated efforts to prevent these crimes. Global leaders need to come together and address the severity of the crimes, in addition to the speed at which they are increasing. The internet has no boundaries, which allows for less detection of these individuals. Therefore, creating a global definition for CSAM crimes and coordinated intervention would be the best route in moving forward to counteract any future harm to children.

Specific policy recommendations emerging from this analysis include:

1. Investment in Technology and AI Detection: Law enforcement agencies should invest in advanced machine learning and deep learning models capable of real-time detection of CSAM text and metadata across darknet forums and mainstream platforms (Ngo et al., 2024). International cooperation in data sharing could significantly enhance these efforts.

2. Global Legal Harmonization: Nations should work toward a unified international framework defining CSAM and establishing consistent penalties and enforcement protocols. This would close the loopholes created by jurisdictional inconsistencies (Kokolaki et al., 2020).

3. Mental Health and Prevention Programs: Given the high prevalence of psychiatric conditions among CSAM users, public health systems should develop early intervention programs targeting individuals exhibiting risk factors such as



pedophilic interests, hypersexuality, and co-occurring mental health issues (Lätth et al., 2025). These programs could reduce offending before it escalates.

4. Disruption of Social Structures: Law enforcement should target not only content removal but also the communication networks and social incentives that sustain CSAM communities. Disrupting trust, recognition, and community bonds may be more effective than platform takedowns alone (Blokland et al., 2024).

5. Platform Accountability: Regulatory frameworks should require mainstream platforms like Telegram to implement stronger moderation and reporting mechanisms. This includes clarifying legal obligations for encrypted platforms while balancing privacy concerns (Berwick & Foldy, 2024).

6. Parental and Educational Interventions: Given that minors are most vulnerable on surface web platforms, parents and schools should receive updated guidance on digital safety, recognizing signs of online exploitation, and fostering open communication with youth about online risks.

7. Research Support: Increased funding for multi-platform, longitudinal, and cross-national research is essential to overcome current limitations in generalizability and to track the evolving nature of CSAM activity post-COVID.

7. Limitations

While this research is important to society, there are limitations that were found while developing this study. The first is the reliance on only three academic databases, as this limits the scope of the research and does not account for all the research done on this topic. A suggestion for future research would be to incorporate various academic databases to ensure an in-depth analysis of this issue is completed. Another limitation is the lack of a clear focus on one specific region or country. While the global research was beneficial for this study and highlighted the challenges of controlling dark web CSAM crimes on a global level, homing in on the area of study may have allowed for more clarity in how these crimes are handled regionally.

The scope of the research was very broad, and another suggestion for future research is to narrow the scope of the research for a more in-depth analysis. The last limitation would be the reliance on single-platform studies, which limits the

generalizability of the study, as one platform's interactions and usage may not be the same as those of other platforms.

Additional limitations include the reliance on English-language sources only, which may have excluded important research published in other languages, particularly from non-Western countries where CSAM activity is also prevalent. Furthermore, the study lacks victim-centered perspectives, as the analysis focused primarily on offender behavior and platform dynamics. Future research should prioritize the voices and experiences of survivors to fully understand the scope and impact of these crimes.

8. Conclusion

This study highlights the complexities of CSAM activity on the dark web. The findings indicate that there has been a community built on dark web platforms, established by user engagement and encouragement. Additionally, users of these platforms fall into various profiles, with mental health and preference being major factors. The difficulty of ending these crimes comes from law enforcement failing to target the social structures assembled by the users. This leads to the continuation of CSAM activity and user involvement. This study contributes to preexisting literature by providing a better understanding of the users of the platforms, as well as the structure of these platforms.

While the study achieved its objectives and contributed to the further understanding of this topic, there are difficulties in researching online platforms, as there are constant changes and unknown structures. This study's analysis emphasized that intervention must come on a global level, with world leaders and law enforcement exploring not only the individual side of these crimes, but also the structure of the dark web communities, as they play a large role in the continuation of the crimes. These structures reinforce harmful behavior, and they should be handled with extreme caution.

Future research should examine multi-platform analyses to examine the various factors that go into dark web crimes against minors and how they develop over time. Another beneficial approach would consist of examining the risk factors for offenders to aid in detection efforts. Longitudinal studies tracking offender behavior before, during, and after COVID-19 would provide critical insights into how the pandemic reshaped CSAM activity. Additionally, future research should explore the role of emerging technologies—such as artificial intelligence, encryption, and



virtual reality—in both facilitating and combating these crimes. Research incorporating victim perspectives and survivor experiences is urgently needed to understand the human cost and inform trauma-informed interventions fully. Overall, this study contributes to ongoing efforts to understand better the role that individuals play in dark web CSAM crimes by conducting a qualitative meta-synthesis of preexisting literature.

STATEMENTS

Ethical Approval

Not applicable. This study is a systematic literature review and does not involve primary data collection from human participants, animals, or sensitive personal data. All data analysed were derived from previously published peer-reviewed articles, institutional reports, and grey literature available in the public domain. No ethical approval was required for this research.

Consent to Participate

Not applicable. This study does not involve human participants, surveys, interviews, or any form of primary data collection that would require informed consent. The research is based exclusively on the analysis of existing published literature and publicly available documents.

Consent to Publish

Not applicable. This manuscript does not contain any person's data, images, or identifiable information. All authors have reviewed and approved the final manuscript for publication.

Data Availability Statement

All data analysed during this systematic review are included in this published article. The search strategy, eligibility criteria, and data extraction protocols are fully documented to ensure transparency and reproducibility. The data-extraction workbook used during the review process is available from the corresponding

author upon reasonable request. No primary data were collected, and no datasets were generated or analysed beyond those reported in the included studies.

Authors' Individual Contributions

Peyton Reese contributed to the conceptualization and methodology of the study, carried out data collection and analysis, and prepared the original manuscript.

Praveenrao Bolli (Corresponding Author) contributed to the conceptualization, provided theoretical guidance and supervision, critically revised the manuscript for important intellectual content, and gave final approval for submission.

Both authors reviewed and approved the final version of the manuscript and agree to be fully accountable for all aspects of the work.

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Competing Interests

The authors declare that they have no competing interests.

Declaration of Generative AI Use

The authors declare that ChatGPT (GPT-5.5-mini) was used in some cases solely for language-related assistance, including grammar checking, spelling correction, and improving manuscript clarity and readability. Generative AI was not used to develop research ideas or contribute to the substantive intellectual content of the manuscript. The authors remain fully responsible for the accuracy, originality, and integrity of the research and the final manuscript.



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