



The Increasing Use of Generative Artificial Intelligence (AI) in the Creation of Online Child Sexual Abuse Material: Child Victims and Offenders

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Abstract

Aim: The study ‘The Increasing Use of Generative Artificial Intelligence (AI) in the Creation of Online Child Sexual Abuse Material: Child Victims and Offenders’ paper aims to explore the question of how the spread of generative artificial intelligence (including ‘deepfake’ technology) exacerbates the problem of creating and sharing online child sexual abuse material. The paper pays particular attention to the characteristics and circumstances of victimisation and youth offending, as well as to the social, legal, and criminological challenges arising from the expansion of generative AI.

Methodology: Systematic review and analysis of recent Hungarian and international literature, research and other reports, as well as relevant statistical data. The analysis is further complemented by case studies and by the presentation and comparative examination of national and international examples.

Findings: The advance of generative artificial intelligence radically increases the volume of digitally created, sexually explicit, realistic images of children. The simplification and easy accessibility of increasingly user-friendly applications facilitate child perpetration and victimization worldwide. Despite global efforts, adequate international and national legal, law enforcement, and prevention tools remain inadequate. Effective online child protection and criminal justice

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strategies therefore require differentiated, prevention-oriented, system-level and interdisciplinary solutions that deliberately take account of children's diverse situations and sociodemographic characteristics.

Value: The study provides a comprehensive analysis of a rapidly evolving and pressing child protection, law enforcement, and legislative challenge through a criminological lens. Drawing on up-to-date academic and grey literature and evidence, it highlights the need for differentiated, child-centred, preventive, context-, age- and gender-sensitive interventions. It provides reference points for the development of effective strategies to tackle online child sexual abuse material in the age of generative artificial intelligence.

Keywords: generative artificial intelligence; online child sexual abuse; online child protection; cybercrime

Relevance of the Topic

The aim of the study is to explore, through scientific methods and in an exploratory manner, what is known about the spread of generative artificial intelligence (including 'deepfake' technology) in relation to the creation and sharing of online child sexual abuse material, utilizing available Hungarian and international literature, reports, and statistics. It analyzes certain characteristics and circumstances of becoming a victim and a child offender, including the normalization of creating and sharing sexually explicit content among children, the gender dimensions of the phenomenon, and the lack of available topic-specific knowledge and digital competence development programs focusing on generative AI. The timeliness of the topic is given by the fact that the number of child pornography offenses committed on the open internet, for example on social media platforms, using this rapidly developing, increasingly accessible and manageable technology, is growing both in Hungary and globally (IWF, 2025; Biztonságosinternet, 2024; NMHH, 2024), which in some countries can affect up to hundreds of thousands of offenders and victims. To address the problem, the European Parliament overwhelmingly voted in June 2025 for a directive that would criminalize the creation, possession, and sharing of AI-generated materials depicting child sexual abuse (Armangu & Lory, 2025). However, legal tools can restore the caused harm to no extent or only to a very small extent (Gosztonyi & Lendvai, 2024). Therefore, the study examines what aspects should be considered when seeking primarily preventive, differentiated, and targeted solutions. It takes into account that an increasing number of offenders – including children under 18 – are exploiting

the opportunities provided by generative AI (Biztonságosinternet, 2024; IWF, 2024; NMHH, 2024), effectively manipulating, extorting, and abusing children through specific and ‘user-friendly’ applications, thereby increasing the workload of crime prevention, law enforcement, and victim protection organizations in terms of volume, resource requirements, and complexity.

The Prevalence of Online Child Sexual Abuse Material

The significant amount of time spent online and the characteristics of social media platforms contribute globally to the increase in the volume of online child sexual abuse material, causing numerous negative consequences, including even lifelong trauma and difficulties for victims and their relatives (Parti & Szabó, 2024; Meggyesfalvi, 2024). On social media platforms, harmful and illegal content becomes organically integrated into the content structure of the platforms (Meggyesfalvi, 2021), and their technical characteristics facilitate the possibility for users to easily and quickly share a significant volume of recordings containing sexual abuse. The prevalence of harmful content is supported by a research study involving 10,000 young people, which demonstrated that children regularly and in large proportions encounter content presenting extreme violence, brutality, or sexual abuse without any search intent (Youth Endowment Fund, 2024). Thanks to their algorithms, if social media platforms see such content, the applications recommend even more similar content to them. If a piece of content is shocking, provocative, or evokes another strong emotion – thus generating high interaction – then even if it is harmful, algorithms default to automatically amplifying it and delivering it to a wider audience.

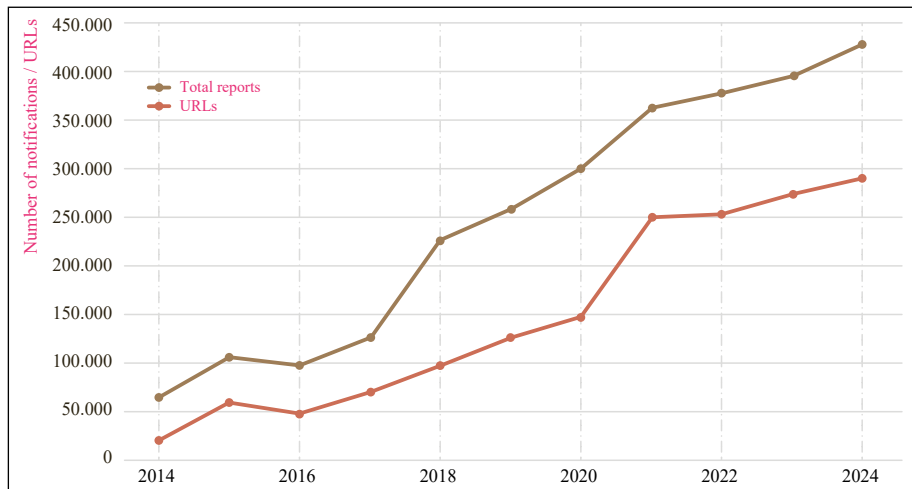
According to a comprehensive research study examining the global prevalence of the phenomenon conducted by Childlight (2025), sexual exploitation and abuse against children in the digital space are present in every country where relevant measurements have been carried out, and in the year preceding the research, more than 300 million children under 18 became victims worldwide. During the examined period, one in eight children globally experienced an online solicitation for sexual purposes, including unwanted sexual conversations, the non-consensual exchange of sexually explicit messages and recordings, and requests for unwanted sexual acts initiated by peers. Similarly, one in eight children experienced sexual images or videos of them being created or distributed without their permission, or being shown to them (Childlight, 2025).

The prevalence of the problem is demonstrated by the fact that the number of reports concerning content depicting the sexual abuse of children increased

globally by 87 percent from 2019 to 2023, affecting up to 20 percent of all children in some countries (WeProtect, 2023). According to an international research study from 2021, more than one-third of today’s young people were asked during their childhood to do something sexually explicit in the online space, and more than half experienced some form of sexual abuse in cyberspace (Economist Impact, 2021). According to the February 2025 research report of the leading British organization researching the topic, the Internet Watch Foundation (IWF), 2024 has so far been the worst year regarding the availability of online content containing the sexual abuse of children. According to their measurements, the occurrence of these illegal contents showed an 830 percent increase compared to the level measured in 2014. In the processed period, the number of URLs containing images of the sexual abuse of children rose from 31,266 to 291,273, and the total number of processed reports rose from 74,119 to 424,047 (IWF, 2025).

Figure 1

Suspected and confirmed recordings depicting the sexual abuse of children.



Source. The author’s own editing based on the data of IWF, 2025.

The online distribution of content depicting sexual child abuse, designated as prohibited ‘pornographic recordings’ under Act C of 2012 on the Criminal Code (Btk.), is significantly facilitated by technological development, while it can be extraordinarily traumatic for victims and carries a high probability of causing irreversible negative consequences for the physical and mental development of the affected children (Balla et al., 2023; Bolyky & Sárík, 2023b; Garai, 2021;

Meggyesfalvi, 2023; Parti & Szabó, 2024; Szabó & Csapucha, 2020a; Virág & Szabó, 2023). The Hungarian legislator also highlighted that ‘the abuse of children is unacceptable,’ and ‘crimes against the freedom of sexual life and sexual morality committed to the detriment of children belong among the most repulsive crimes,’ meaning that in such cases, the proceeding authorities must at all times ensure the effective enforcement of children’s rights and the consideration of the paramount interests of the child (Garai, 2021).

Based on data from the Unified System of Investigative Authorities and Prosecution Criminal Statistics (ENYÜBS) operated by the Ministry of Interior, the number of registered crimes related to child pornography in Hungary has also shown a significant increase in recent years: according to the 2023 ENYÜBS data, 299 children aged 0–13 and 118 children aged 14–17 became victims of child pornography crimes. In 2023, the number of victims in the 0–13 age group doubled compared to previous years, making it the third most frequent crime in this age group (Hintalovon, 2024). The majority of the victims were girls, and the perpetrators of the crimes committed to their detriment frequently emerged from among their peers within institutions, such as in schools or children’s homes.

According to the Hungarian Btk., not only recordings depicting real persons but also the realistic representation of non-existent person(s) qualifies as a pornographic recording. The term ‘realistic’ refers to a representation that is deceptively similar to reality, based upon which it cannot be and is not expected to be judged whether the depicted person exists, meaning the regulation does not extend, for example, to possible representations in cartoons or paintings (Mezei, 2021); at the same time, it applies to realistic recordings created with the help of digital technologies, such as through the use of generative artificial intelligence. Any representation of existing minors that is severely indecently open regarding sexuality, purposefully aimed at the arousal of sexual desire – including those created with the help of artificial intelligence – is also punishable.

Escalating Challenges Due to Generative Artificial Intelligence

The rapid technological development that occurred in recent years has intensified the demand for recordings depicting sexual abuse against children and their increasingly uncontrollable spread. This is demonstrated by the fact that while ‘traditionally’ these contents were largely available on the dark web or hidden forums, today a significant portion is easily accessible on the open, ‘visible’ net to anyone, adult or internet-using child alike (IWF, 2024). The production of content depicting the sexual abuse of children with artificial intelligence has

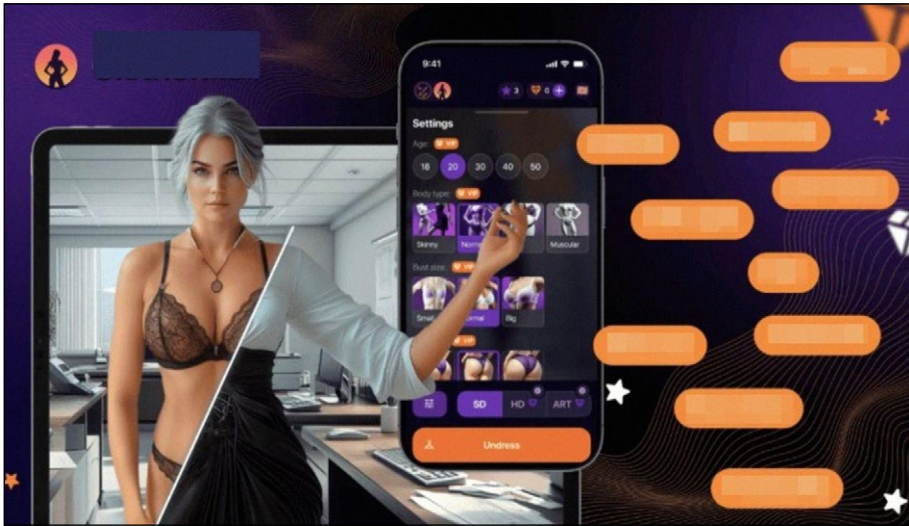
intensified in recent years and has received greater scientific attention globally as well (Davy & Lundrigan, 2024). Although the dangers of recordings manipulated by earlier computer algorithm-based technologies were already emphasized in scientific works (Mezei, 2021), the accelerating rise of applications based on generative artificial intelligence, as part of developing digital technologies, is exerting a growing impact on children becoming online victims and offenders.

Experts classify online services that enable the ‘user-friendly,’ artificial intelligence-based production of pornographic content, and which easily bypass the consent of the subjects, into two categories. Services capable of creating fully synthetic, sexually explicit content belong to the first category, while the second category consists of so-called ‘nudifying’ applications, which manipulate existing images to transform them into versions that appear naked (IWF, 2023). In addition to these, complex, sophisticated models are available for individuals active in organized criminal groups; these models are specifically programmed and fine-tuned to generate recordings depicting sexual abuse against children using artificial intelligence, often for commercial purposes.

Simpler mobile applications that can be easily managed and accessed even by a child belong to the ‘user-friendly’ category, allowing the rapid production of unlawful and traumatic content against the freedom of sexual life and sexual morality without any particular technological knowledge. The proliferation of applications enabling image manipulation with such simpler, for example, ‘nudifying’ technology is relevant and particularly alarming from a child protection perspective because they shockingly easily allow the commission of child pornography crimes in previously unimaginable quantities – for adults and those under 18 alike – even during the very first trial of the application or through activity in an online group.

Figure 2

Advertisement of a 'nudifying' application (illustration).



Source. URL1

During a South Korean scandal uncovered in 2024, affecting more than five hundred public education and higher education institutions, it was revealed, for example, that high school and university students nationwide uploaded huge numbers of photos of female acquaintances, classmates, and teachers to social media and messaging service groups, and then asked group members to create realistic 'deepfake' pornographic images and videos from them, which they could then download and forward to their peers (MacKenzie & Choi, 2024). These online activities were systematically organized, including a Telegram channel with 220,000 members where users shared AI-generated illegal images with each other (Smith & Brake, 2024), and more closed groups, such as a group focusing on a given high school, consisting of minor students, which had more than two thousand members (MacKenzie & Choi, 2024). According to a statement issued by the police during the investigation of the scandal: at a certain point, 83.7 percent of the arrested persons were under 18, including at least seventy-one children between 10 and 13 years of age (Lee, 2024; Smith & Brake, 2024).

In addition to managing individual offenders, a significant child protection challenge is that illegal explicit recordings depicting children can also be accessed online via subscription systems, even through widely known, mainstream

content-sharing platforms (Crawford & Smith, 2023). Through the profiles of such ‘ventures,’ AI-generated explicit child representations are offered for sale, frequently at different price tiers depending on the nature and detail of the sought content (Crawford & Smith, 2023). Police-documented cases also prove that offenders already create massive amounts of new, illegal content of their victims using easily accessible 3D-graphic software (used, for example, for video game development) and generative AI applications, selling their services in online forums, chat rooms, and legally accessible internet platforms (Rackham, 2025). New technologies have opened avenues toward previously less discussed methods of commission, such as the possibility of interacting with a realistic, three-dimensional avatar of a child in immersive virtual reality, alongside new forms of deception and grooming (Davidson et al., 2024). Regarding child sexual abuse cases committed in virtual spaces, it is currently entirely unclear exactly what qualifies as a legally prohibited pornographic recording, and there is no general guidance on what methods can be used to remove these or investigate them effectively (Parti & Szabó, 2024).

According to Hungarian and international law enforcement agencies, organized international criminal groups operating online have emerged in recent years, dealing exclusively with the distribution of content depicting minors created by generative artificial intelligence. During Operation Cumberland, one of Europol’s first international actions targeting such a group, carried out in February 2025 with the participation of twenty countries, including Hungary, 273 suspectable individuals were identified, 36 people were interrogated or arrested, and searches were conducted at 33 locations, including at the residential addresses of two Hungarian citizens who had purchased access to content made by a Danish offender (police.hu, 2025). The case shed light on the fact that although the police must deal with managing an increasingly large volume of illegal content affecting children, effective action against such crimes is significantly hindered by the lack of appropriate legal regulation (Europol, 2025; Parti & Szabó, 2024).

Europol (2025) therefore emphasized in a communication that the lack of national legislation presents an ‘extraordinary challenge’ for investigators, since the area of AI-based abuse is new and legally less regulated. Current legislative frameworks frequently fail to keep pace with technological development, granting offenders the opportunity to exploit legal loopholes and apply new methods in realizing crimes. Alongside increasing the volume of online child sexual abuse content, the proliferation of AI-created content also intensifies its availability and visibility, thereby making early prevention and victim support work more difficult.

The Prevalence of Content Created with Generative Artificial Intelligence

Research in Hungary related to the application of artificial intelligence currently focuses little specifically on child protection (Társadalomtudományi Kutatóközpont, 2023; Eötvös József Kutatóközpont, 2025). In general, based on a representative research study of the Hungarian population carried out via telephone survey at the end of 2024 (Eötvös József Kutatóközpont, 2025), it can be stated that 34 percent of Hungarian respondents have already used a service based on generative artificial intelligence. However, a significant generational difference in usage was observable: while 58 percent of young people have already tried or use the technology, only 14 percent of those over 65 have utilized this opportunity even once. In another research study conducted in the autumn of 2024 (NMHH, 2025), the relationship between children and AI-based tools and the content generated by them was examined with the involvement of more than a thousand Hungarian young people aged 13–16. It revealed that more than three-quarters of them have already tried an application using generative artificial intelligence at least once. At the same time, although they believed they would recognize artificially created content in most cases, 50.6 percent of the respondents had still believed a piece of content to be real that later turned out not to be (NMHH, 2025). The research also pointed out gender differences: 83 percent of surveyed boys, compared to only 62 percent of girls, found AI-based programs and tools useful and applicable in everyday life, and boys generally considered the technology less dangerous overall.

concrete data examining Hungarian individuals committing crimes against the freedom of sexual life and sexual morality using this technology, and children becoming victims, are currently scarcely available, international trends indicate that threats appearing in the online space with the proliferation of AI use pose an increasingly large problem in Hungary as well. Investigators from the Cybercrime Department of the National Bureau of Investigation dealing with online sexual crimes against children also confirmed that such content and offenders have already appeared in Hungary (Fribék & Molnár, 2024). They drew attention to the fact that AI-generated recordings becoming increasingly lifelike – parallel to the increase in their prevalence – poses an ever-greater challenge for the police, partly because it significantly complicates distinguishing between deepfaked content depicting real victims and manipulated or completely fabricated content.

As the South Korean case also highlights, the prevalence of the problem is likely of a much larger proportion than what can be tracked from official statistics. However, data representing the ‘tip of the iceberg’ are also telling, as they point to international and domestic trends. According to the 2024 data from the

British hotline, the number of reports regarding materials depicting the sexual abuse of children created with artificial intelligence rose by 380 percent in a single year: while 51 such cases were reported in 2023, this number increased to 245 reports in 2024 (IWF, 2024). It is important to note that a single report can contain up to several thousand images. According to a 2024 IWF research study, 3,512 AI-created images displaying child sexual abuse were identified on a single dark web site within one month, and a 10 percent increase was detected in the number of recordings classified into the strictest category (depicting penetrative acts, sadism, or bestiality) compared to the identical period of the previous year. Offenders use generative AI increasingly frequently and effectively to create highly lifelike and increasingly photorealistic audiovisual content depicting the sexual abuse of children. A large portion of these are made through the manipulation of genuine recordings depicting real children, frequently obtained from close family members, or entirely in an artificial manner; experience shows that materials depicting severe, brutal sexual abuse affecting infants and young children are also occurring (IWF, 2024).

In its report, the Hungarian Biztonságosinternet hotline (2024) drew attention to the fact that, according to their experiences, starting from 2023 – in harmony with global trends – the number of reports containing images produced by generative artificial intelligence has increased radically. In their case, 22.8 percent of reported materials depicting the sexual abuse of children (not necessarily of Hungarian origin, or depicting a Hungarian victim) consisted of such content. These were classified into the following three categories: manipulated, sexualized versions of innocent images depicting real children (for example, images shared by parents); manipulated versions of materials depicting the abuse of real children for the purpose of deceiving authorities (for example, recordings depicting a real child with six fingers or three ears); and the representation of presumably non-existent children in sexualized situations, during abuse.

The other Hungarian internet helping service, the Internet Hotline, has observed smaller proportions in its experiences so far, but they also found that although such types of reports are still relatively rare, based on international trends, their number is expected to significantly increase in the near future (NMHH, 2024). Despite the fact that certain forms of artificially created content do not document actual physical abuse, they qualify as harmful legally and morally alike. The creation and distribution of such materials can result not only in new forms of victimization (for example, using photographs of popular adults or child stars to commit the crime, or creating three-dimensional avatars in virtual reality to allow a more ‘interactive’ commission), but can also contribute to the normalization of child sexual abuse.

The experiences of the examined hotline services (IWF, 2024; IWF, 2023; NMHH, 2024; Biztonságosinternet, 2024) clearly confirm that the development of artificial intelligence is playing an increasingly large role in connection with the online sexual abuse of children in Hungary and globally alike. The technology is now present not exclusively as a theoretical risk but as a tool easily accessible for everyday users, a fact supported by the increase in the number of reports regarding generated content arriving at hotlines. It is evident that content made with developing generative AI technology creates opportunities for new forms of criminal commission, complicates the identification of victims using traditional law enforcement methods, and can contribute to maintaining and increasing the demand for sexual abuse against children, as well as widening the circle of offenders. The latter can also be realized due to the diversification of offender motivations, for example, motivating individuals to commit crimes through easy feasibility, financial gain, or peer pressure, who otherwise would not be interested in producing recordings depicting the sexual abuse of children.

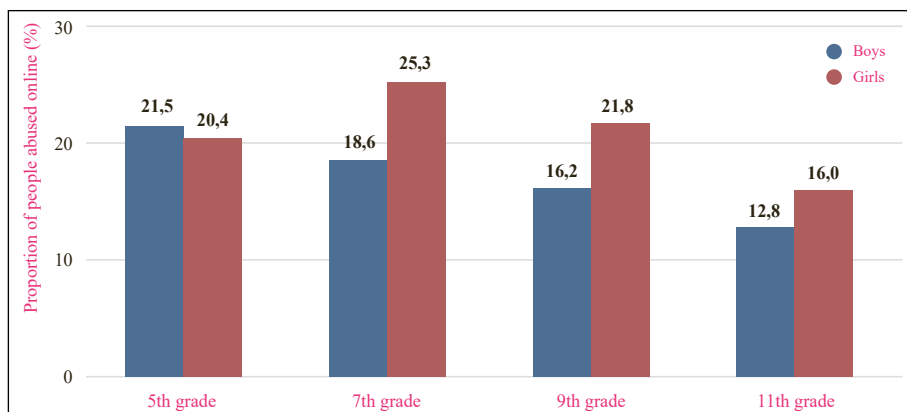
Law Enforcement and Crime Prevention Challenges Regarding Child Offenders

Alongside the South Korean scandal, international news reports in recent years have detailed several European cases where criminal proceedings were initiated because children themselves applied generative AI-based ‘nudifying’ applications to images of other children they knew, subsequently sharing these widely online (IWF, 2023; Meggyesfalvi, 2023b). Although these images created by children are not necessarily made with consciously harmful intent, and offenders are often entirely unaware of the unlawfulness of their actions, once shared, the recordings can easily fall into the wrong hands and end up on sites or forums specifically dedicated to such illegal content. According to experts, it also poses a real danger that criminals may identify the children appearing in the recordings and then use the images to humiliate, silence, or possibly extort the victims (Gerken & Tidy, 2023). According to a research study published in March 2025 (Thorn, 2025), young people who admitted to artificially creating nude images of others considered the utilized applications easily accessible: they stated these can be simply downloaded to smartphones from app stores or used freely by anyone via internet sites or social media interfaces. A nationally representative Hungarian research study (Németh, 2024) found that in 2022, 7.5 percent of surveyed students were both perpetrators and victims of internet bullying at least once, for example, sending or receiving hurtful chat messages,

or having an unpleasant or embarrassing recording made of them and posted online without their permission. Among victims, the proportion of girls was higher across every surveyed grade.

Figure 3

Proportions of students bullied on the internet at least once during the past few months by gender and grade (N = 6240)



Source. Németh, 2024

Normalization and Knowledge Deficit

In the search for solutions to digital child protection challenges, it is important to consider that even before the proliferation of generative AI, the prevalence of sexually explicit online content – for example, photos depicting intimate body parts, or recordings imitating sexual solicitation – had normalized among young people (Andersson, 2021; NMHH, 2024; Ofsted, 2021). At the same time, despite forward-thinking initiatives, systemic, regular, age-specific sexual health education starting at an early age – prior to the use of digital devices – remains largely absent regarding children’s online intimate interactions, including clarifying the concept of consent and providing understandable, clear guidance regarding the digital sexual self-determination rights of young people.

Analysts from the Internet Hotline reported on their experiences gained during educational activities held for school children, which also covered recordings depicting child sexual abuse, as follows: ‘The most shocking lesson is that these cases, which we rightfully consider extreme and severe, happen to children so frequently that they view them as an everyday phenomenon. Almost

every young person we met has already received an unsolicited intimate picture, been asked for such a recording, or knows someone who has sent an image with sexual content of themselves. Since this happens to them frequently, it becomes almost everyday, therefore they generally brush it off with a shrug, despite the fact that this is neither natural nor acceptable, and moreover, such a situation can cause severe trauma.’ (NMHH, 2024).

Certain research studies found (Ringrose et al., 2021) that for some young people, shared explicit visual content constitutes an important part of the self-narratives formed about themselves and of belonging to the peer community; therefore, it is possible that due to the normalization of these actions, they experience positive or negative motivational forces to carry out such actions, altering their appearance digitally with the help of artificial intelligence. For example, they may feel ‘cool’ if they pose as erotic models on social media platforms, or they may feel like outsiders if they do not create, send, or request intimate content from their underage peers. It is an interesting question whether this behavior is part of an ‘influencer,’ ‘big girl,’ or ‘tough guy’ self-image developed within an everyday environment that culturally accepts hypersexualization, which may actively influence and explain their actions. In any case, the normalization of exposure to explicit intimate content complicates not only the recognition of victimization and the protection of victims but also the prevention of becoming an offender.

While the prevalence of child sexual abuse material generated with AI increases year by year, the boundaries between ‘normal’ and ‘deviant’ adolescent sexual behaviors are increasingly blurring. It poses a difficulty to judge where the natural exploration and experience of sexuality – meaning the exercise of sexual self-determination and the right to privacy – separates from abusive behavior, particularly regarding the creation and sharing of online content. In relation to online peer sexual abuse utilizing generative AI, such as ‘deepfake’ technology, alongside qualitative studies and media-highlighted cases substantiating the spread of the phenomenon, factual research data currently remain scarcely available to help understand and explain how children experience peer pressure and abuse concerning such self-created intimate recordings and child sexual abuse material; what they have learned and understand regarding healthy online sexual behavior, such as asking for and giving consent; and how advancing technology enables or facilitates these (positive and negative) experiences.

The failure of online service providers to assume responsibility (Meggyesfalvi, 2021), the lack of guidance from the (social) media and educational actors, as well as the deficient technological and legal knowledge and guidance of key adults in children’s lives (such as parents and other guardians) lead to

inconsistencies and inequalities in children's victimization and offending patterns, in the focus of authority inspections, and in sentencing practices. Disadvantaged youth may feel isolated in the digital world, which can result in highly vulnerable children being unwilling to seek help or report suffered abuse (Ringrose et al., 2021; Ofsted, 2021). Recent international research has also pointed out that the current practices of governments, social media platforms, and educational institutions do not provide adequately accessible, age-appropriate information about digital risks, contributing to the fact that children often lack sufficient knowledge to make informed decisions about their online activities, including intimate interactions (WeProtect, 2023).

Although it does not address AI use, a research study conducted on a Hungarian sample by Szabó and Csapucha (2020a) is nevertheless interesting, as it confirmed that many young people do not know that by creating, obtaining, or forwarding pictures or videos of their peers under 18, they can be committing a crime. In Hungarian crimes related to child pornography, a well-identifiable group of offenders consists of young people who obtained explicit content during a previous intimate relationship or sexting, typically with the past consent of the victim. A portion of the offenders merely possessed the recordings, while in other cases they were forwarded or publicly shared, for example on social media or in private groups. It has occurred that offenders involved additional young people in the commission. According to the research, their motivation was not a pathological sexual interest, but personal conflicts (e.g., breakups, revenge), curiosity, amusement, or peer pressure. In cases affecting the examined young offenders, it occurred to a significant degree that the victim themselves had created and voluntarily forwarded the pictures or videos to their peer at the time. In the case of the known victims examined in the research, the proportion of self-made child pornographic recordings depicting the victim alone or with a partner was 40%.

Perspectives for Finding Solutions

Important starting points in resolving the online child protection problems exacerbated by the appearance of generative artificial intelligence include the meaningful involvement of children, the consideration of gender dimensions, and the heightened protection of disadvantaged youth. Furthermore, the age-specific, differentiated evaluation of juvenile offenders, alongside suppressing victim-blaming and searching for and promoting system-level solutions, would be crucial.

Meaningful Involvement of Children in Prevention and Educational Developments

According to Parti and Szabó (2024), one of the most significant challenges in the fight against online child sexual abuse in the era of generative AI is balancing online safety with the privacy and civil liberties of citizens, including children under 18. Therefore, the meaningful involvement of children is indispensable regarding the regulation of technology that affects their lives and will likely influence them at an increasing rate, alongside examining the correlations of their own experiences, feelings, and specific factors such as age, gender, and digital competencies. This would facilitate the creation of effectively usable, specific, and age-appropriate knowledge regarding the impact of advancing digitalization, including AI, on child protection, victimization prevention, and management, such as the creation and sharing of intimate recordings and online child sexual abuse. Furthermore, it would be necessary to update currently available literature, (international) educational materials, and guidelines for educators and parents to recognize and handle peer sexual abuse and violence using generative AI applications, and to distribute informational materials (such as short videos) that are comprehensible for children, avoiding foreign jargon.

As Gosztonyi and Lendvai (2024) also highlight regarding purposefully and intentionally falsified, realistic-seeming content created with AI (in their terminology: deepfakes): removal does not equate to resolving harmful effects, as it does not result in the victim's 'legal situation improving or their reputation being restored.' It is important, therefore, that the focus is partly on prevention – thus preventing the individual from becoming an offender – and additionally, regarding lifelike falsified content produced with AI, it would be recommended to integrate AI literacy, which is receiving increasing international attention, into school curricula alongside internet safety and data protection; and to implement 'a media awareness process and education during which internet users could familiarize themselves, beyond the dangers of the technology, with what steps they can take regarding the identification of deepfaked content' (Gosztonyi & Lendvai, 2024).

Targeted Protection of Disadvantaged Children

The intensive internet use of young age groups affects the methods of committing crimes as well, elevating the significance of digital device ownership and the presence and conditions of internet access. According to a Hungarian study, internet use constitutes a risk factor in juvenile criminal offending particularly

when adult guardianship, primarily parental control, is lacking (Bolyky & Sárík, 2023b). Digitalization can thus pose a danger to children in two ways: on one hand, it increases the risk of victimization (for example, through the easier recording of crimes or negative experiences gained online), and on the other hand, it facilitates becoming an offender. Due to the sense of anonymity and the vastness of the online space, it is more difficult to identify victims (Németh, 2024), and the warning signs of the risk of becoming an offender also differ from those experienced in the physical world. According to a large-sample Hungarian study by Németh and colleagues (2024), 81 percent of Hungarian high school students did not report abuse suffered online; therefore, it is especially important to more accurately identify and specifically reach the nearly one-fifth of students (and their peers absent from public education) who become victims of various types of abuse. When designing preventive programs, identifying and protecting victims, and managing child offenders, it must be considered that for the most vulnerable youth, there is often no adequate parental or guardian support, or public educational intervention opportunity, as these may be children who are multiply disadvantaged, living in specialized child protection care, home-schooled, frequently changing schools, or unable to participate in supplementary (school) programs promoting digital competencies.

Examining the Gender Dimension in the Prevention and Management of the Problem

Sorbán (2020) points out that the social impact of illegally manipulated, sexually explicit recordings ‘extends beyond the harm caused to the individual: the recordings are generally capable of deepening inequalities between certain groups of society, especially between genders.’. Therefore, when developing prevention and intervention strategies concerning content produced or modified with artificial intelligence, examining the gender dimension is essential, whether dealing with juvenile offenders or victims. Social pressure from peers impacts boys and girls differently regarding intimate digital content creation and sharing (McGeeney & Hanson, 2017). Although surveys explicitly filtered for AI-generated or manipulated content are scarce, generally, the gender distribution in the online sharing of explicit intimate content created by minors under 18 shows clear differences in victimization in both international and domestic statistics (Economist Impact 2021; Thorn, 2024; Szabó & Csapucha, 2020a; Hintalovon, 2024; NMHH, 2024; Németh, 2024).

Examining the creation and sharing of explicit content, such as recordings depicting nudity or intimate body parts, Ringrose and colleagues (2021) found

that boys typically participated in the ‘trade’ and exchange of sexualized images, and in collecting and redistributing pictures taken of girls, for example, to gain higher status within the peer group. In addition, it was characteristic of them to send intimate pictures of their private parts as a ‘solicitation,’ thereby attempting to persuade girls to send back self-made pictures of sexual content.

For girls, however, it was found typical that they regularly received requests for self-made intimate content, and they experienced negative incidents because peers tried to influence them by citing pity for the ‘requester,’ obligations, or mutual commitment (e.g., a romantic relationship), or boys threatened them with humiliation, blocking (online disconnection), or the non-consensual redistribution or leaking of the pictures (Quayle & Karen, 2015; Ringrose et al., 2021). Other research confirms that there are significant, gender-based deficiencies in supporting children who suffer online sexual abuse: according to the results of the ECPAT Global Boys Initiative, for example, gender stereotypes related to masculinity, as well as gender-based legislation applicable in certain regions, hinder victims’ willingness to report and ask for help, and in some countries, they make it difficult for boys to be recognized as victims, reducing the supportive opportunities available to them (WeProtect, 2023). Therefore, due to differences in social norms and reporting willingness, latency may be higher in cases affecting boys.

Recent domestic research data also confirms that digital content consumption on online social platforms affects boys and girls differently, having a particularly strong impact on the mental health of the latter, and influencing them, among other things, in how they want to present themselves in shared recordings (NMHH, 2024b). Statistical data indicates that girls become victims of online child sexual abuse to a much greater extent, and the involvement of very young children under 12 is also growing among them (NMHH, 2024; Thorn, 2024). During the South Korean national ‘deepfake’ crisis facilitated by the easily accessible, ‘user-friendly’ generative AI mentioned earlier, as well as during European cases, the victims were primarily girls whose pictures were available online and easily usable for their schoolmates and the wider public alike. While it is visible that examining the gender dimension of the problem and proposed solutions is justified, it is important to emphasize that the possibility of victimization exists for every child, regardless of gender and age; and it is vital to avoid individual victim-blaming in the case of every child.

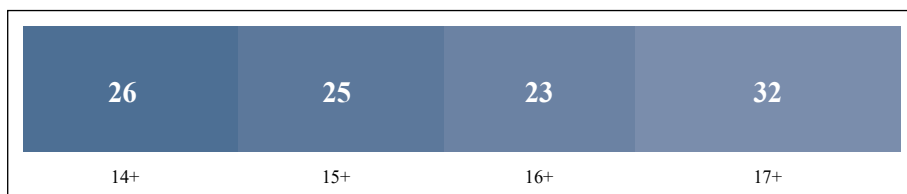
Age-Specific Legal Consequences

According to Szabó (2024) and other co-researchers (Bolyky & Sárík, 2023a), the high degree of juvenile involvement regarding online child sexual abuse material is particularly concerning because, alongside high sentencing tariffs,

an extremely severe legal consequence for them can be the measure of disqualification from occupation, which must be mandatorily applied against all perpetrators of child pornography. Balogh (2025) also highlights that sentencing to life-long disqualification from occupation due to the felony of child pornography makes little or no distinction between child offenders realizing the statutory elements of the crime in relation to their peers and adults sexually exploiting this exact same age group (thereby potentially stripping minors of sexual self-determination regarding recordings made of their sexuality experienced in real or online spaces). Balogh demonstrated in her research that out of 202 cases adjudicated by final court judgments involving child offenders, the court permanently disqualified 106 children from any occupation or other activity in the framework of which they could ever perform the education, supervision, care, or medical treatment of a person under the age of eighteen, or could stand in another position of power or influence over such a person. Balogh (2025) further emphasized that in the case of judgments concerning children, ‘no clear trend of any kind could be demonstrated; it is arbitrary as to which offender in which case the court imposed this punishment on.’

Figure 4

Age distribution of children sentenced to disqualification from occupation for the felony of child pornography, based on final court judgments issued between 01. 01. 2018 and 31. 12. 2024.



Source. Balogh (2025).

Although the law allows the court the possibility to waive this punishment in the case of juveniles in instances deserving special equity, waiving is not automatic, meaning a reckless 14-year-old youth can be haunted by their juvenile act for the rest of their life, preventing them from working in any roles that may result in an educational, supervisory, caregiving, or authoritative influence situation over children. Arguing alongside Balogh for age-specific legal consequences, Sorbán also highlights that ‘unlawful acts related to sexual content can manifest in countless forms in the online space; precisely because of this diversity, no uniformized, uniformly applicable solution can be given to handle this set of problems. Just as unlawful behaviors can take on different forms, the responses given to them must also be differentiated.’ (Sorbán, 2020).

Summary

This study attempts to contribute to the unfolding of a broad social and professional dialogue so that we can formulate fact-based, functional, properly child-involving, disadvantage-conscious, targeted, proportionate and fair, system-level solutions to the continuously worsening problem of online child sexual abuse driven by the advance of generative artificial intelligence (including ‘deepfake’ technology). It demonstrated that while currently available statistics show only the ‘tip of the iceberg,’ generative AI amplifies the prevalence of sexually explicit content depicting children: with the simplification and accessibility of the technology, the entry threshold for becoming an offender and a victim has practically vanished. Through ‘user-friendly’ applications, not only organized criminal groups purposefully utilizing generative AI, but anyone, including children, is capable of producing and distributing illegal content about anyone in large quantities within moments with a few clicks. The study argues that in response to the phenomenon of online child sexual abuse intensifying due to the development of generative AI, it is essential to establish differentiated, prevention-focused professional, legislative, legal application, public education, and child protection system-level solutions that take into account the differences in the complex circumstances and characteristics of becoming a victim and an offender.

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