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ORIGINAL ARTICLE

A Systematic Review of the Education and Awareness Interventions to Prevent Online Child Sexual Abuse

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Abstract
Online child sexual abuse is highly prevalent in current society, in part, due to how technologically advanced children and adults have become. While much of the focus has been on perpetrator intervention, it is prudent to consider responses safeguarding children from potential perpetrators. Therefore, this review aimed to identify all the available empirical research on the prevention methods linked to education and awareness to determine the approaches' effectiveness, successes, and failures to aid future interventions. Databases were systematically searched for studies published between 2000 to 2020. Nine studies providing different prevention methods for online child sexual abuse were selected. A total sample of n = 672 and a descriptive approach was used for this study. While the interventions seemed to improve knowledge retainment of online safety, there was no significant change for risky online behavior. These findings provide specific suggestions for future interventions, particularly those focusing on risky online behaviors.

Keywords Online child sexual abuse · Prevention · Interventions

Introduction

According to Finkelhor (1999), child sexual abuse (CSA) is a sexual interaction with a child when the partner has a significant age or maturity difference, has authority over the child, or uses violence or trickery. Pereda et al. (2009) estimated that globally, 7.9% of boys and 19.7% of girls had experienced sexual abuse before age 18.

Online child sexual abuse (OCSA), a form of CSA, is becoming more prevalent due to the technological advancement of our society. Jones et al. (2012) surveyed minors from the US and determined that 9% had received sexual solicitations from adults, 11% had experienced online harassment, and 23% had been exposed to pornography. Similarly, in Spain, 12.6% had received sexual requests from an adult through the internet during the last year, and 7.9% had some sexual interaction online with an adult (De Santisteban & Gámez-Guadix, 2018). Today, with 53% of children as young as 11 having smartphones with internet access (Rideout & Robb, 2019), accessibility to communicate with one another has dramatically increased. OCSA can come in many forms, including sexual harassment, solicitation, grooming, and exploitation (Quayle et al., 2012). While these forms of abuse can start purely online, the abuse can continue offline and vice versa.

While the image of a perpetrator is mainly that of an adult, the World Health Organization (1999) emphasizes that CSA could also define a child as a perpetrator; if the young person holds a position of responsibility, trust, or power over another child, and if the action is only satisfying the perpetrator's needs. An example of this peer-on-peer OCSA would be cyberbullying and sexting. Sexting consists of exchanges of nude or semi-nude photos or sexually suggestive text circulated between peers through any messenger on their phones (Lenhart, 2009). Perpetrators can send and spread this message to others, using the image or text as a threat to cause shame and embarrassment (Larrañaga et al., 2018).

Understandably, OCSA has significant negative repercussions. Hamilton-Giachritsis et al. (2017) determined that OCSA was associated with depression, self-blame, self-harming behavior, problems at school, anxiety, and sleeping difficulties. Say et al. (2015) also reported that victims were 4.21 times more likely to develop a mental health problem.

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Given the severity of the problem and the depth of adverse outcomes, it is prudent to prioritize OCSA prevention measures. Knack et al. (2019) concluded that three different types of prevention for CSA can be applied to OCSA: primary, secondary, and tertiary. Primary interventions focus on worldwide initiatives for the general population, secondary preventions focus on the perpetrator or an at-risk child, and tertiary preventions concentrate on the perpetrators who have already offended or children who have already been victims. With first-time offenders making up 95% of CSA cases (Sandler et al., 2008), and research suggesting that it can take up to 10 years before a perpetrator commits CSA (Piché et al., 2018), it appears that primary prevention has a more pivotal role in stopping OCSA. Law and legislation are a crucial part in helping this primary prevention. For example, in the UK, the 'sexual communication with a child' offense was introduced to the Serious Crime Act in 2015 (Pegg, 2017), allowing an adult to be charged if they are communicating online with a child to obtain sexual gratification. Innovative software can also help prevent OCSA, where parents can block inappropriate websites (NetClean, 2018). While both are important, improving the education and awareness around OCSA may be the most immediate tool to help with prevention. The World Health Organization (2020) suggests that programs that build awareness and teach skills to help children understand OCSA are promising and effective.

According to the Child Molestation Research and Prevention Institute (n.d.), 95% of sexual abuse is preventable through education and awareness. To the best of the researcher's knowledge, this current study is the first peer-reviewed systematic review that focuses on interventions directed to educate children, to prevent OCSA. Mishna et al. (2011) is the only systematic review that was found to be similar; however, their focus was on cyber abuse interventions on youth rather than specifically OCSA. The study mentioned above found significant results related to increasing internet safety knowledge; however, there were no significant findings for decreased online risky behavior. There remains a gap in the current research on the effectiveness of interventions related to prevention through education and awareness (Finkelhor et al., 2014).

Aim

This systematic review will analyze the existing literature on primary prevention methods and programs for OCSA. Studies that address cyberbullying will be included if they contain an OCSA component. Specifically, the aims are: 1) Identify the available empirical research that addresses prevention methods of OCSA that can educate and create awareness for children; 2) Synthesize the research to determine how effective these strategies are; and 3) Identify the gaps in the literature to determine their effectiveness, successes, and failures to aid in the development of future interventions.

Method

Protocol and Registration

A systematic review protocol was published in the Social Science Protocol Journal (Ryckman et al., 2020).

Search Strategy

A systematic review was conducted following the PRISMA guidelines (Möher et al., 2009). The complete search was conducted between 04/03/2020 and 06/03/2020 using the following databases: Scopus, Web of Science, Ovid (MEDLINE, EMBASE and psycINFO), CAB Abstracts, ProQuest Dissertations, and Theses Global, ProQuest Social Service Abstracts, and ProQuest Sociological Abstracts. Each database was searched using the following terms in the title, abstract, and keywords: (Prevent* OR Interven* OR Program* OR Educ* Or Aware*) AND ("online sexual abuse" OR "technology-assisted sexual abuse" OR "online child sexual abuse" OR "online adolescent sexual abuse" OR "online sexual exploitation" OR "technology-assisted sexual exploitation" OR "online sexual violence" OR "technology-assisted sexual violence" OR "grooming" OR "online sexual solicitation" OR "technology-assisted sexual solicitation" OR "child* pornography" OR "sexting").

The following types of studies were included in the review: empirical studies, literature reviews, and case studies (or small sample designs) published in peer-reviewed journals; published in English or Spanish; and published between 2000 to 2020.

It was determined to exclude papers that were: grey literature without peer revision, professional opinions, letters, notes, essays, editorial publications, books, and chapters. It was also determined to exclude papers that were: not related to OCSA; and not focused on prevention or intervention or the potential victims (e.g., programs directed to likely offenders).

Search Results and Data Extraction

The program 'EndNote' was initially used to extract the searches, identify and remove duplicates. The data was transferred onto Microsoft Excel, where two independent researchers assessed the articles to determine if the inclusion and exclusion criteria

had been met, in addition to calculating the Cohen's Kappa coefficient (κ) throughout to assess the inter-observer reliability. The researchers went through the titles (κ = 0.94), the abstracts (κ = 0.68) and the full texts (κ = 0.98). After this, the references were screened and discussed between two researchers. The overall research agreement was κ = 0.84. See Fig. 1 for study selection details. If there were discrepancies after discussion, the third researcher was consulted. Nine papers were selected, with one being a systematic review that included two relevant prevention programs, resulting in a total of ten programs for analysis.

Quality Assessment

Two of the researchers were responsible for making determinations on study quality based on the information extracted from these studies. Since the research on OCSA and the prevention methods on education and awareness is limited, a broad criterion, based on Mikton and Butchart (2009), was used to evaluate the quality of the papers based on the internal validity of the studies: i) 0 points if the study did not offer results; ii) 1 point if the study offered descriptive results without a comparison group; iii) 2 points if the study offered comparative results (control group vs. prevention/intervention, non-randomized); iv) 3 points if the study was a randomized controlled trial. All discrepancies were discussed with the third researcher, who provided an opinion.

Analysis Plan

A descriptive analysis was conducted, specifically determining the prevention programs' effectiveness and examining the successes and failures. Tables were created to organize the data of the studies, including study characteristics (See Tables 1 to 4).

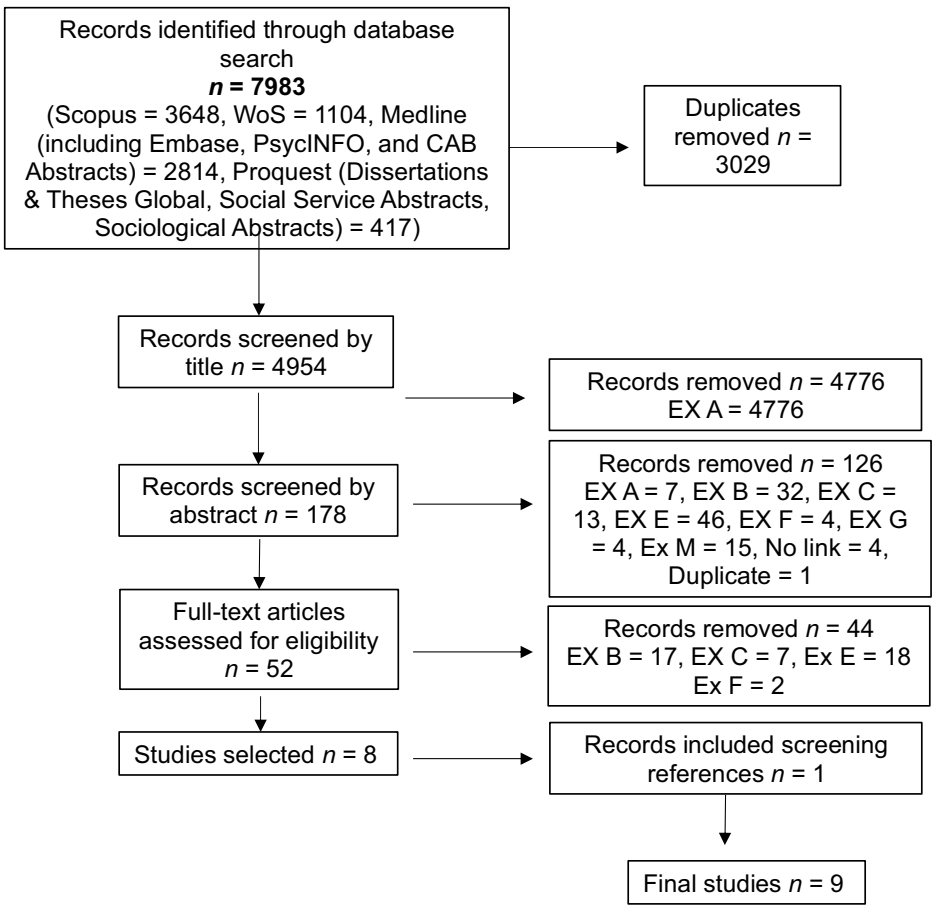

Fig. 1 PRISMA flow diagram of the selected studies

EX A = Title not relevant, EX B = Book or theory, EX C = Not related to OCSA, EX D = Not peer reviewed, EX E = Not a prevention program, EX F = 18+, EX G = Not English/Spanish, Ex M = Multiple reasons

Results

Study and Demographic Characteristics

Altogether, nine studies with ten prevention programs published between 2007 and 2019 were included in the analysis. Three studies were conducted in the UK, two in Belgium, one in Australia, one in Finland, and two in Canada.

The total sample collected came to $n = 6720$, with adults making up $n = 286$ of that sample. Within the studies that included control samples, the total came to $n = 2182$. In addition, due to the nature of this review, the sample characteristics from the studies were not consistent in the information provided. The participants were from nine to 56 plus years of age. Adult participants were included in this review when the intervention focused on educating and creating awareness for children on OCSA. The programs were grouped based on the intervention type: if technology was used within the intervention, if a school environment was used without the need or use of technology, if technology was used within a school environment, and if adults were the target audience.

Intervention Descriptions

One intervention included only technology (Table 1): 'Social Connectivity Online Prevention and Experience (SCOPE)' (Davis et al., 2019), which is an online website aimed at children and young adults to increase their awareness of online pornography and sharing of explicit imagery. This study focused on usability rather than whether the participants retained any knowledge or changed their behavior.

Four interventions used technology while being administered in a school environment (Table 2). 'Net detectives' (Wishart et al., 2007), an online role-playing game following a school girl, measured the children's engagement and learning outcomes. This measurement was similar to the 'three educational packages' (Hartikainen et al., 2019), where children evaluated and gave suggestions for improvement. This intervention included a video and discussion, a game, and a mind-mapping exercise based on online safety education. 'The missing program' (Crombie & Trinneer, 2003) is an interactive computer game, including a documentary video, posters, brochures, and a guidebook for teachers and parents, taught over three to four lessons. A research assistant gave the '10-minute presentation' (Schilder et al., 2016) on textual contact, audio-visual contact, social network services, online games, and offline meetings with people met online. These two interventions were measured on whether there was a change in risky behavior.

Four of the interventions were administered in a school setting taught or supervised by the class teacher without the

Table 1 Summary of study characteristics that only use technology in the interventions

Author, Year, Country	Aim	Name of intervention and length	Content of intervention	Target population	Sample characteristics	Measures	Internal validity
Davis et al. 2019, Australia	Determine usability of website	Social Connectivity Online Prevention and Experiences (SCOPE), length not applicable	Information pages on managing personal sexually explicit imagery, pornography use, general online issues, a resource section with links to services and a 'real stories' page with user generated content	Adolescents and young adults	$n = 17$. Age-range = 15 – 27 years	Semi-structured interviews conducted online	1

Internal validity: 0 = study did not offer results, 1 = study offered descriptive results without a comparison group, 2 = study offered comparative results (control group vs prevention/intervention, non-randomized), 3 = study was a randomized controlled trial

Table 2 Summary of study characteristics that have school-based interventions with a technological component

Author, Year, Country	Aim	Name of intervention and length	Content of intervention	Target population	Sample characteristics	Measures	Internal validity
Wishart et al. (2007), UK	Determine effectiveness of intervention	Net detectives, 90 – 120 minutes	Communication with online strangers and meeting them offline	Students aged 9-12 and teachers	Questionnaire was emailed to all schools on the Kidsmart database ($n = 263$). Questionnaires completed ($n = 49$). Teachers interviewed ($n = 37$). Children using "Net Detectives" ($n = 98$). Follow up questionnaires after intervention ($n = 192$)	Email questionnaire, structured telephone interview, follow up semi-structured interview, pupil observation (3 schools), Focus group of teachers, Pupil Questionnaires following observation	1
Mishna et al. (2011), Canada & USA	Determine effectiveness of intervention	The missing program (Crombie & Trinneer, 2003), 4 50-minute lessons	Open chat room conversations, personal email communication with someone on the internet, personal webpage design	Children and youth	Treatment group $n = 181$, control group $n = 157$	Measured changes to online behavior, including disclosing specific personal information and emailing strangers	2
Schilder et al. (2016), Belgium	Determine awareness and behavior post-intervention	Presentation, 10-minutes	Textual contact over the internet e.g., chatting, grooming, cyber bullying, audio-visual contact, social networking sites, online games and offline meetings with people met online	Children in transition to early adolescence	22 classes Control: (Time 1 $n = 355$; Time 2 $n = 360$). Intervention: (Time 1 $n = 457$; Time 2 $n = 459$). Age range 8 – 14	Online risk behavior questionnaire and online risk awareness questionnaire	3
Hartikaine et al. (2019), Finland	Determine favorability of the interventions	Three educational packages, 30-minute per package	The video and discussion: social media and privacy, online friends, and bullying. The game: children's rights. The information search and mind mapping: information safety and security online	Children aged 10-12 years	7 classes at 3 different schools. $n = 135$	Survey after the workshop asking what they liked and disliked about the intervention, if they have any suggestions for improvement and if they felt like they had learned something	1

Internal validity: 0 = study did not offer results, 1 = study offered descriptive results without a comparison group, 2 = study offered comparative results (control group vs prevention/intervention, non-randomized), 3 = study was a randomized controlled trial

need or use of technology (Table 3). The 'I-safe' intervention (Chibnall et al., 2006) includes five lessons on youth empowerment activities in where the study was measuring the effectiveness of knowledge retainment. The 'three educational packages' on content, contact and commercial risks' of online safety (Vanderhoven et al., 2014) focused more on whether the children's awareness, attitude, or behavior would change. These measurements were also seen in the 'CATZ' intervention (Boulton et al., 2016), an intervention where the older students were tasked with teaching the younger students on online safety, where their knowledge of the risks and knowledge of safety were recorded as well as whether they liked the intervention. The study, 'school-based cybersafety programs' (Adorjan & Ricciardelli, 2019) focused on youth discussing what they thought worked well and what they wanted to learn about online safety.

One intervention, 'Stop It Now!' (Hudson, 2018), was aimed at adults (Table 4), specifically parents and those who work with children. This intervention includes five two-hour programs. In this study, the parents were offered 'Parents Protect!' and 'Internet Safety' and 'Sexual Development in Pre & Post Pubescent Children' while the programs 'Professionals Protect!' and 'Preventing Child Sexual Exploitation' were aimed at those who work with children. These focused on whether the participants would retain knowledge and have the confidence to act. Only the program 'Internet Safety' was explicitly related to OCSA.

Effectiveness of the Studies and Interventions

Two interventions were identified as 'mostly effective'; both were deemed as having high internal validity, with most of their aims met. The 'Stop It Now!' (Hudson, 2018) intervention was mostly effective due to the participants increasing their knowledge but recognized that improvement was still needed in understanding when to act. The 'CATZ' (Boulton et al., 2016) intervention was also seen as mostly effective as the older children increased their knowledge on risks and safety, and participants rated the intervention as enjoyable. However, the younger participants only increased their safety knowledge, not risky online behavior.

Four interventions were labeled as 'somewhat effective' in increasing safety knowledge; however, they were found to be ineffective in changing behavior: 'I-safe' (Chibnall et al., 2006), '10-minute presentation' (Schilder et al., 2016), and the 'three educational packages on contact, content and commercial risks' (Vanderhoven et al., 2014). Interestingly, after a four-month follow-up, the participants who watched the '10-minute presentation' increased their risk behavior rather than the desired decrease. Moreover, Davis et al. (2019) only examined the website's usability, with 'SCOPE' determined trustworthy and credible. However, some participants questioned the believability of the stories because the website was designed using stock images. Participants also expressed that the content was better suited for younger teenagers.

Three interventions were inconclusive because their results were too ambiguous to form a conclusion. 'Net detectives' (Wishart et al., 2007), while reporting that students were engaged with the online role-play, only used teacher reports. It was an exciting way to teach the children online safety, but only 27% learned not to trust everything on the internet. The different programs within the 'three educational packages' (Hartikainen et al., 2019) all had mixed reviews on whether they were liked or disliked, with the game concept preferred. This study did not measure its effectiveness. Similarly, in Adjoran and Riccciardelli (2019), the program's effectiveness was not measured due to it being a general discussion on the participants' opinions on school-based interventions. While these two were effective in gaining helpful information in aiding future interventions, they did not provide results regarding how effective the individual interventions were.

Lastly, one program was ineffective, 'The missing program' (Crombie & Trinneer, 2003), due to no significant changes in youths' safety-related attitudes.

What Worked?

Compiling all the studies together creates clear guidance on the successes and failures of the interventions to aid future methods. As seen in Boulton et al. (2016), the 'CATZ' intervention of children actively providing input proved beneficial. This process helped them become engaged, in addition to retaining the information. These findings dovetail with Adorjan and Ricciardelli's (2019) study that children want relevant content. The interventions need to be suitable for different age groups as addressed in 'SCOPE' (Davis et al., 2019) and the 'three educational packages' (Hartikainen et al., 2019), where some of the language and topics used were more suited to specific age groups. Having programs geared towards adults is also beneficial as they need to realize and understand the dangers of OCSA, so they feel comfortable relaying back that information to children. Using technology was seen as a helpful tool within the interventions, as it was able to keep the children engaged, as noted in 'Net detectives' (Wishart et al., 2007). Hartikainen et al. (2019) suggest that the intervention needs to respect the children's media usage, as there was a positive reaction when the intervention involved technology. Other successes noted were having discussions and administering the interventions within a classroom setting. This school setting allows for an intervention to be made mandatory and not voluntary, which was beneficial. Unfortunately, none of the interventions impacted a change in risky behavior, albeit knowledge retainment overall had significantly increased across the studies.

Table 3 Summary of study characteristics that had school-based interventions that does not require technology

Author, Year, Country	Aim	Name of intervention and length	Content of intervention	Target population	Sample characteristics	Measures	Internal validity
Mishna et al., 2011, Canada & USA	Determine understanding and effectiveness of the intervention	I-safe (Chibnall et al., 2006), 5 40-minute lessons	Cyber community citizenship, cyber security, personal safety, predator identification, intellectual property	Children and adolescents	Treatment group n = 1328, control group n = 771	Interviews with teachers, principals, and students. Online student survey and document reviews	2
Vanderhoven et al., 2014, Belgium	Determine awareness, attitudes and behavior of intervention	Three educational packages on content, contact and commercial risks, 60-minute lesson	Provocative content on social networking sites e.g., hate messages and reliable information, communication and instant messages, misuse of data and shared info	Children and adolescents ages 11-19 years	123 classes, n = 2071, age-range = 11-19 years 1. Control 43 classes, n = 682 2. Course on content risks 23 classes, n = 520 3. Course on contact risks 25 classes, n = 730 4. Course on commercial risks 31 classes, n = 489	An online survey measuring awareness, attitude, and behavior. A 4 month follow up.	2
Boulton et al., 2016, UK	Determine effectiveness of intervention	Cross-age teaching zone (CATZ), 4 60-minute lessons	Online risks and how to keep safe from these risks: online strangers, sharing personal information accidental and deliberately, cyberbullying, sharing photos, computer virus	Children at primary school (year 6 and year 4)	n = 291. Age-range 9 – 12. Year 6: intervention n = 100, control n = 46. Year 4: intervention n = 117, control n = 28	Two questionnaires on knowledge of online risks and knowledge of online safety. Asked about the acceptability of the program	3
Adorjan & Ricciardelli, 2019, Canada	Determine effectiveness of school interventions	School-based cyber-safety programs, length not applicable	No specific content was noted due to the study being a discussion of different interventions	Adolescents in schools	n = 115, age-range = 13 – 19	Focus groups	1

Internal validity: 0 = study did not offer results, 1 = study offered descriptive results without a comparison group, 2 = study offered comparative results (control group vs prevention/intervention, non-randomized), 3 = study was a randomized controlled trial

Table 4 Summary of study characteristics that have adult interventions focused on the protection of children and young people

Author, Year, Country	Aim	Name of intervention and length	Content of intervention	Target population	Sample characteristics	Measures	Internal validity
Hudson, 2018, UK	Determine effectiveness of adult interventions	Stop it Now! 120-minute program	Five programs: parents protect, internet safety, sexual development in pre and post-pubescent children, professionals protect and preventing child sexual exploitation	Parents, guardians and child-based professionals	$n = 249$. Questionnaire participants $n = 233$, age-range = 16 – 56+. Interview participants $n = 16$, age-range = 26 – 56+	Self-report questionnaires on knowledge retention, confidence to act and confidence that their actions will make a difference. Interviews on program delivery and content	1

Internal validity: 0 = study did not offer results, 1 = study offered descriptive results without a comparison group, 2 = study offered comparative results (control group vs prevention/intervention, non-randomized), 3 = study was a randomized controlled trial

Discussion

This systematic review successfully examined available research on the education and awareness prevention strategies of OCSA that benefitted the child. It also sought to review the effectiveness of these strategies to support the future development of these programs. The interventions were administered using multiple approaches, with most of them offered in a school-type setting. The majority of the studies appeared to be effective, to some degree, and all provided helpful information for program developers and policymakers in providing the opportunity to shape future interventions.

Across the studies, the quality of study design, the type of intervention, aims, and measures differed. Therefore, a full in-depth analysis was unable to be completed, and one intervention was not recommended over another. For example, several of the studies were specific in determining if the participant had retained information regarding OCSA (Boulton et al., 2016; Hudson, 2018; Schilder et al., 2016; Vanderhoven et al., 2014). In contrast, another study aimed to determine if the children had 'liked' or 'disliked' the intervention without discussing effectiveness (Hartikaine et al., 2019) and another study conducted a simple discussion between the participants (Adorjan & Ricciardelli, 2019). Moreover, only one study provided follow-up results after four months (Vanderhoven et al., 2014). Only two were identified as having high internal validity, as they produced pre-test and post-test results (Boulton et al., 2016; Schilder et al., 2016). It is vital for future researchers to have studies that have results from validated measures and follow design methods such as randomized controlled trials.

For policymakers, and program developers, a running theme throughout the studies that presented as beneficial, was the idea of child engagement, recognizing that the child understands and knows what engages them. The 'CATZ' intervention proved that when the child was participating in the design process of the intervention, there was an increase in knowledge retention. This finding may be due to the child having a better understanding of what interests them and their peers, and they were able to become a stakeholder in their design (Donovan, 2016). Engagement can also be seen in a classroom setting. The teachers are trained to be good educators and know how to present information in a way for children to engage and understand. This already made connection can enhance participation, with increased consistency of affective and cognitive learning (Frisby & Martin, 2010). Also, using an already assigned class where a strong bond between peers pre-exists can create a supportive, communicative, and engaging environment (Dwyer et al., 2004).

Furthermore, using technology within the interventions proved to keep the children engaged, which is understandable

due to technology becoming increasingly prevalent in their everyday lives. Christen (2009) suggests that if a learning environment is similar to how children engage in the world, they will succeed in their education. Moreover, the interventions proved that they needed to be age-appropriate for optimal engagement. For instance, a younger child may need a simple game structure to be engaged, while an older adolescent may prefer a discussion with clear evidence from reliable sources. Policymakers and program developers should consider integrating these ideas when creating prevention strategies for OCSA. However, there may be possible challenges that may occur. When considering technology, while the children are familiar with it, the appropriate use of technology is the very concept intended to be taught. Therefore, this needs to be considered if technology will be used in future interventions. In addition, more training may be required for teachers who are administering these types of interventions due to the traumatizing content of OCSA and the possibility of some teachers not feeling comfortable using technology in their classes (Gomez, 2016).

The findings also highlight the importance of educating not only the children, but parents, adults, and those who work with children. Most current research suggests that it is essential for adults to talk to children about sexuality and sexual abuse (RAINN, 2021). Aljuboori et al. (2021) also reported that good quality family support could prove to be a protective factor surrounding OCSA. Program developers should consider the importance of educating the adult population and creating ways to distribute such interventions effectively.

Disassociations between knowledge acquisition and resistance to behavior change are not uncommon findings in human health research, as shown in various studies on cancer screening, diabetes awareness, osteoporosis, and sexually transmitted diseases (Ajzen et al., 2011). Most of the studies followed a similar pattern; the knowledge retainment of online safety or OCSA increased after the intervention; however, the interventions did not change risky behavior. These findings were similar to Mishna et al. (2011) results. Interestingly, one study (Vanderhoven et al., 2014) reported an increase in risky behavior after four months, rather than the proposed decrease, suggesting that possibly the information made the participants more inquisitive. The authors speculate that a greater awareness of the issues made the participants more likely to report their actions (Schilder et al., 2016). This could also be explained by the adolescent participants, who are going through physical and cognitive changes with new emerging independence, are more likely to take risks and experiment more, even if it can diminish their future wellbeing (McGorry et al., 2007; Patton et al., 2018). More research needs to be conducted around this area to determine whether measuring behavior is too ambiguous or whether it is the intervention themselves that are not effective.

An evident strength of this review is that it is the first systematic review of peer-reviewed literature for education prevention strategies of OCSA. While it was similar to Mishna et al. (2011) systematic review, their study focused on cyber abuse on youth, rather than specifically OCSA. On the other hand, some limitations also need to be addressed. This current review only included studies in English and Spanish. Consequently, all the final selected studies were from economically developed Western countries however Eastern countries, like Thailand, have an extensive problem with online commercial sexual exploitation of youth (Savestanan, 2011). This review also did not include grey literature or research from books, which may have left organizations like UNICEF, who mainly publish in reports, out of our research.

While this review wanted to also focus on peer-on-peer OCSA, only a few of the studies addressed this issue. This finding is concerning because research suggests that 39% of adolescents have sent a sexually suggestive message, with 44% reporting the commonality in the message having been sent to an unintended recipient (GuardChild, n.d.). Additionally, most of the examples that were given presented the victim as a female and the perpetrator as a male, which seems to be a common finding within research (Dobson & Ringrose, 2016). If this sexism is not addressed, students will uphold such assumptions, where the females are always seen as trustworthy, and the males are always seen as untrustworthy. It was also noted that the youngest participants were aged nine throughout the studies. Holloway et al. (2013) suggested that the internet usage of those aged zero to eight has increased, and while they mostly watch online videos, the child can access other areas online. There is an increased practice of posting pictures of young children online, especially from parents. Consideration for developing interventions and education campaigns for all ages is critical.

There are considerable benefits in conducting this research, as it can help educate and raise awareness around OCSA. Time and money can be saved within the criminal justice system, as it can prevent initial and subsequent offenses of OCSA. It can also reduce the strain on mental health services due to avoiding the possible mental health repercussions.

In conclusion, parents, professionals, and community partners cannot be the sole providers of OCSA education to assume that it is enough to protect children from the risks of engaging in unsafe practices involving the internet. Therefore, the suggested future directions for research and practice should have a multi-level or 'whole systems' approach to be effective (Nixon et al., 2012). Magarey et al. (2013, p. 1) suggest "targeting behaviors, attitudes, knowledge, and skills at multiple levels, for example, individuals, teachers/leaders, and environment levels such as neighborhood and school, environment types such as policy and culture" will likely be the most successful approach. Through these different

partnerships, the future of OCSA prevention can be made possible. The impact of OCSA is far-reaching; therefore, so should be the interventions.

Declarations

Conflict of Interest The corresponding author states that there is no conflict of interest on behalf of all authors.

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