Article

Child Sexual Abuse Material Online: The Perspective of Online Investigators on Training and Support

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Abstract The development of online technologies in recent decades has led to the proliferation of the distribution, consumption, and sale of child sexual abuse material (CSAM) online. This trend has arguably also contributed to the sexual abuse of children offline. In this context, many organizations, including financial institutions and police agencies, have invested human, financial, and technological resources to address this problem. Combining statistics on recent crime trends with data collected from online police investigators suggests the critical need for this phenomenon to be taken more seriously on a global scale. Using data obtained from interviews conducted with online CSAM police investigators across several Australian police agencies, this study presents a detailed view of what is needed to best support police work in this domain. The most frequent responses obtained from investigators grouped around three dimensions: (1) knowledge and skills related to the tools used during investigations, such as computers, information technology, the Internet, and legislations; (2) knowledge related to offenders, how they operate, and how investigators should interact with them virtually; and (3) mental health wellbeing of investigators.

Introduction

The development of online technologies in recent decades has led to the proliferation of the distribution, consumption, and sale of child sexual abuse material (CSAM) online. Historically, CSAM tended to be produced by individuals with direct physical access to victims and distributed in hard-copy formats (e.g. magazines, physical films, and photographs) (Jenkins, 2001; Wortley and Smallbone, 2012). Over the last two decades and more, the Internet has dramatically transformed how CSAM is produced, distributed, and accessed by offenders by providing them with an easy and anonymous access to CSAM content (Jenkins, 2001). This context is only generating opportunities for 'new' or chronic offenders to engage in CSAM-related activities, which in turn can also boost organized crime in general. The large quantity of CSAM on the Internet available to offenders is distributed on either the open web or the dark web. The open web (or clear web) comprises information posted on the unencrypted world wide

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web (e.g. Westlake *et al.*, 2017). It involves the portion of the Internet that is indexed by search engines and is more directly accessible by members of the public (Weimann, 2016; Martin *et al.*, 2020). Traditional search engines, such as Google, are used to access CSAM. The content is hosted on web servers that provide information about the physical location of the materials and a degree of detail about the site operators (Andress and Winterfeld, 2013). The open web is arguably the segment where offenders will directly interact with victims on different platforms, such as Facebook, Instagram, and Snapchat.

The Internet provides offenders with another virtual space for CSAM activities that are rapidly expanding through what is called the dark web. In contrast to the open web, the dark web refers to the segment of the Internet that is hidden from the general public whereas (Weimann, 2016; Holt *et al.*, 2020). Importantly, individuals cannot directly access the dark web through traditional search engines, such as Google. Individuals must utilize special Internet browsers, such as The Onion Router (Tor) or I2P to enter the dark web (Weimann 2016; Martin *et al.*, 2020), which requires a minimum of information technology knowledge (Leclerc *et al.*, 2021a,b). These software tools operate by randomly routing users' Internet Protocol (IP) traffic through other users' IP addresses, effectively reducing the risk that an individual's online behaviors can be identified (e.g. Westlake, 2020). Regarding to Tor specifically, the traffic may be routed through relays and not other users' IP addresses. Thus, the dark web involves offenders interacting with offenders and larger communities of offenders to access and share CSAM content, which also suggests that Tor is likely used by offenders mainly.

A recent report (IWF, 2019) confirmed the existence of 132,676 URLs or web pages to contain, link to, or advertise child sexual exploitation material across 4,956 domains traced to 58 countries—'a 27% increase since 2018'. In addition, the report confirmed the identification of 288 new dark web sites selling this material—'an increase of 238% since 2018'. Most sites were also assessed by the IWF to be commercial and only accept payment in virtual currencies. Furthermore, according to the IWF, the last several years have seen the greatest overall rise of darknet markets engaged in the sale of this material. Similarly, a recent report from the Egmont Group of Financial Intelligence Units (2020) indicated that the growth in online streaming of child sexual exploitation for financial gain has been facilitated by the expanding reach of 4G, and recently 5G, in many parts of the world including developing countries. This new technology facilitates networking between offenders and enables the exploitation of children's use of social media platforms (see also Brown *et al.*, 2020). Critically, live streaming can also lead to offenders travelling to other countries to sexually exploit children, commonly known as child sex tourism, and even extend to human trafficking (ICMEC, 2021). Finally, offenders driven by purposes, such as consumption and distribution of CSAM, may develop the interest to produce CSAM themselves, which generates sexual abuse of children with contact (Krone, 2004; Leclerc *et al.*, 2021a,b).

The increase of child sexual exploitation online is not surprising as offenders have access to various technologies, such as digital cameras, webcams, and smartphones, that enable them to create CSAM and upload the material onto the Internet with little cost and effort (see Wortley and Smallbone, 2012). Additionally, for many offenders, the Internet provides them with an opportunity to engage with or even create communities of offenders (see Jenkins, 2001; Holt *et al.*, 2010; Savoie *et al.*, 2021). These communities further reinforce sexual interests in children and provide advice to newcomers on how to protect their identity while interacting with CSAM, among other things. Offenders actively participating in these communities can be rewarded by obtaining a higher status and in return, gain access to CSAM depicting sexual activities with children that many offenders do not have access to (see also Fortin

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et al., 2018; Leclerc *et al.*, 2021a). This process arguably encourages the production of CSAM (Holt *et al.*, 2010).

Given the range of CSAM offenses engendered by the Internet (see Krone, 2004), it is imperative that police agencies have all the resources needed to support their efforts to stop these offenses. Using data obtained from interviews conducted with online CSAM police investigators across several police agencies in Australia, this study presents a detailed overview of their perspective on what is needed to best support them in this domain. The findings highlight: (1) the skills/knowledge required to effectively investigate CSAM online, (2) the challenges preventing investigators from addressing CSAM online more effectively, and (3) training and support that the organization could provide to investigators for best addressing CSAM online.

The challenges related to CSAM online police investigations

Powell *et al.* (2014a) conducted in-depth qualitative interviews with Australian CSAM police investigators on the challenges involved in their investigations. Three main themes were discussed by investigators: (1) work relationships, (2) workload and resources, and (3) physical environment.

Regarding work relationships, participants indicated that team leaders have a critical role to play in supporting the investigators. However, many participants revealed that their team leader appeared more concerned by budget priorities for instance and would benefit from participating actively in some CSAM cases. In addition, participants indicated that high staff turnover prevents the ability of forming strong relationships while creating additional work (e.g., have to bring new staff up to speed on investigations). Finally, participants also revealed that relationships with professionals outside their team (e.g. prosecutors) can generate stress especially given the success of cases depends on their collaboration.

As for workload and resources, challenges related to work volume and insufficient time and resources to manage CSAM cases effectively were discussed by participants. For instance, participants referred to the importance of having up-to-date computer hardware for backing up large volumes of material and keeping up with offenders. Another workload-related factor was staffing adequacy. Almost all participants felt that the number of CSAM investigators was inadequate for meeting the workload at any given time due to inadequate recruitment of CSAM investigators and frequent secondment of investigators to other policing duties, for example. Finally, participants reported the inappropriateness of certain job requests, coupled with a lack of funding allocated to CSAM investigations, as an important challenge. Participants noted for example that carrying out unrelated policing duties (e.g. security work at a festival) or performing administrative duties delegable to less-specialized staff pulls them away from CSAM investigations.

The physical work environment was also reported to represent a challenge by participants, which included concerns over the suitability of open-plan workspaces because they do not offer privacy for making urgent phone calls, viewing content, or allowing forensic analysts and other CSAM staff to examine material in a secure, distraction-free environment. Discomfort including poor ventilation and excessive ambient heat emanating from the computers was also reported by participants.

Based on their review of international research on CSAM, Holt *et al.* (2020) identified four core challenges for online CSAM investigators. Consistent with Powell *et al.* (2014a), technology issues emerged as the first main challenge. Indeed, technological innovations are emerging constantly, which not only includes new encrypted communications applications like Telegram but also new social media platforms. Parallel to this is also the

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rapid increase of adolescents (and even children) owning a mobile phone and engaging on the multitude of social media platforms. All these factors benefit offenders who cannot only find tools to engage with CSAM with limited risk of apprehension but also have ready access to an ever-expanding pool of potential victims to produce it.

As noted by Holt *et al.* (2020), the challenge of the sheer quantity of CSAM constantly appearing online is essentially impossible to stop or remove. Faced with such a high volume of CSAM online, online CSAM investigators must identify, select, and prioritize the most serious cases among many cases (and this is without considering the time and effort that is spent on investigating one case once this case has been selected for further investigation). Related to this is also the lack of human resources and human capabilities to investigate CSAM (Powell *et al.*, 2014a). CSAM, although considered one of the most serious crimes, is only one of the many crimes for which police organizations are deploying investigators to stop and prevent. In other words, there is very limited capacity for police organizations to address the volume of CSAM that is associated with a growing number of unidentified offenders. This context makes the other following challenges critical to address.

The other two challenges are the increased dependence on the private industry to identify and manage CSAM and the need to up-skill CSAM investigators. Coupled with continuous technological innovations, increasing dependence on the private industry to identify and manage CSAM suggests that online investigations are difficult to successfully conduct. In the end, how CSAM is perceived as a problem that requires concerted efforts by communities, government agencies, corporate organizations, and police must be clearly explicated. In any context, police organizations are arguably among the best positioned to have a direct impact on addressing and reducing CSAM, which supports the allocation of the resources needed to boost the capacity of CSAM police investigators.

Holt *et al.* (2020) also indicated that police organizations and industry bodies must better collaborate to be efficient in addressing CSAM, which brings the question of up-skilling CSAM investigators. Previous studies have found that online investigators often do not have the skills, training, or equipment to effectively investigate cybercrimes (e.g. Lee *et al.*, 2019). This is not to say that online investigators have no skill, training, or equipment to address cybercrimes but rather that the skills must be learnt, the training provided to them, and the equipment updated constantly. For instance, technological innovations do not only generate new CSAM opportunities, but also constrain police's capacity to rapidly investigate CSAM cases. In other words, with technological innovations come the need for training investigators to keep up with the pace of technology and collaborate with industry bodies in the technological sector. In addition, as offenders utilize new methods to consume, distribute, produce, and sell CSAM online to avoid apprehension, online investigators must constantly learn how offenders operate and innovate, and then adapt their investigative strategies to disrupt CSAM activities (Cale *et al.*, 2021).

The impact of online CSAM investigations on investigators

One challenge facing CSAM online investigators specifically involves the negative consequences generated by working in this field over long periods of time. There is evidence that CSAM investigators may experience adverse psychological outcomes (e.g. secondary traumatic stress and burnout) due to the nature of these investigations (e.g. Perez *et al.*, 2010; Burruss *et al.*, 2018; Seigfried-Spellar, 2018). Using the same sample of investigators (see Powell *et al.*, 2014a), Powell *et al.* (2015) specifically examined the investigators' perceptions of their reactions to viewing CSAM content. It should be noted that the CSAM content viewed by investigators can vary

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substantially between cases. It may include images/videos of males/females of any age (0–17 years old) and depict anything from body images to sexual activities between an adult man and a child or even the rape and torture of a child. CSAM images may also contain both sexes of offender and victim and in any combination, which includes children abusing other children. The results indicated that CSAM investigators experience significant emotional, cognitive, social, and behavioural consequences as a result of viewing CSAM. Even though the study indicated that the degree of negative consequences varied markedly across individuals, types and content of material, and viewing context (with variation also based on individual, case-related, and contextual factors), some negative impact on the wellbeing of investigators is likely to occur at some point in their career.

In terms of consequences, participants reported short-term reactions of disgust and anger, and long-term reactions reflecting anger as the dominant emotional response to stressful situations (Powell *et al.*, 2015). Other symptoms included secondary traumatic stress disorder (e.g. intrusive imagery, flashbacks, nightmares, and social withdrawal), increased generalized distrust of people, over protectiveness of children, and difficulty in relationships with partners and children. Due to their role, participants also indicated experiencing desensitization to viewing CSAM. These findings are consistent with international research that reported higher emotional fatigue, burnout, and secondary trauma for investigators due to their exposure to CSAM content (e.g. Perez *et al.*, 2010; Burns *et al.*, 2008; Brady, 2017; Burruss *et al.*, 2018). Most recently, a recent study suggested that frequent viewing and analysis of CSAM content can affect content investigators' wellbeing, mental health, and quality of life, as well as their work competence, satisfaction, and productivity (see Steiger *et al.*, 2021).

These negative consequences on police investigators have been previously reported among those who work directly with sexual offenders more generally, such as clinical therapists (e.g. Elias and Haj-Yahia, 2016). In the study of Elias and Haj-Yahia (2016) for instance, many participants also reported emotional burnout over time. One participant referred to the cumulative effect of working in this field: 'Work with sex offenders is altogether an emotional burden, even an overload, and to this day when I think about those offenders at home, I can't disengage, even after work.' (Elias and Haj-Yahia, 2016, p. 10). Others referred to fears, anxieties, nightmares, and mental images of what offenders have done as responses that accumulated over time.

Participants in the study of Elias and Haj-Yahia (2016) also reported various interpersonal consequences, such as intrusive thoughts, mood shifts, daily fears, high anxiety, suspicion of others, and traumatic symptoms (e.g. nightmares). Those who have children may develop a negative attitude towards others and strangers and develop a sense of concern over their children that may become uncontrollable and excessive. Some participants indicated that working with sex offenders has had a negative influence on the nature and quality of their relationship with their partner. Many participants further reported a loss of quality of life, which may include loss of productivity at work, serious mental health problems, and addictive behaviours.

A 'first of its kind' research report focused on health and wellness among online child sexual exploitation employees was published in 2020 by the Virtual Global Taskforce (see Duval *et al.*, 2020). It noted the relative dearth of research available to understand the impacts of this type of police work on investigators. Findings are mixed (Powell *et al.*, 2013; Tomyn *et al.*, 2015) as there is undoubtedly a complex interplay between stressors and health outcomes that results from the unique relationship between policing duties, the police environment, and psychological harm in this specific context (Duval *et al.*, 2020).

Aim of the study

The key objective of the overall project from which this study formed one component is to build

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capacity for investigators and police organizations to disrupt CSAM online. In a previous study, we have conducted a crime script analysis to identify the detailed step-by-step process undertaken by offenders operating on the dark web (Leclerc *et al.*, 2021a,b). In the current study, the core aim is to provide insights to police organizations on the perspective of CSAM online investigators themselves on their work, with the ultimate goal of further building capacity to combat CSAM online. We collected data through interviews with online investigators on the three following dimensions: (1) what they believe are the skills and knowledge required to conduct CSAM online investigations successfully; (2) what they believe are the challenges preventing them from investigating CSAM online successfully, and (3) what they think should be provided by police organizations in terms of training and support to successfully combat CSAM online. To our knowledge, no empirical study to date has examined the perspective of CSAM online investigators on training and support that should be provided by police organizations to build capacity.

Methods

Sample

Australian policing jurisdictions were invited to participate in a project funded by the Australian Institute of Criminology (AIC) to examine how offenders operate to distribute and produce CSAM online. We recruited 11 online investigators from the Queensland Police Service, 5 from the South Australian Police, 4 from th), and 9 from the Western Australian Police ($n = 29$). The average time investigators had been employed by the police at the time of the study was 18.29 years. These investigators had spent an average of 3.69 years working in the field of CSAM prior the current study. They also had previously worked in the field of sexual assault for 4.55 years on average before moving to CSAM. Five investigators had never worked in the field of sexual assaults beforehand. The average age of investigators was 42.45 years old. As for gender, 20 investigators were male (69%) and 9 were female (31%). Two participants had only worked as part of a larger team in CSAM online investigations (i.e. they had never worked in an individual capacity on online CSAM investigations).

Procedure

Originally, to address the rise of CSAM in Australia, the AIC initiated a funding scheme to support multiple CSAM projects in the country—the current project was funded under this initiative. University ethics approval and approval from each of the research committees from the participating police jurisdictions were obtained. Each police jurisdiction was first approached through a contact person (e.g. team leader of online operatives) who assisted with the recruitment phase of the project. Then, after approaching potential participants, the contact person provided us with a list of online investigators who agreed to participate in the project. The voluntary nature and independence of the research, as well as the confidentiality of individual responses, was communicated to participants and informed consent was obtained. No potential participants refused to participate in the project.

Data collection and analytical strategy

Online investigators participated in a semi-structured interview on understanding how offenders operate to distribute and produce CSAM online (Leclerc *et al.*, 2021a). As part of the interview, investigators were also asked to share their perceptions via open-ended questions pertaining to their role. The questions asked were the following: (1) What are the skills/knowledge required to effectively investigate CSAM online? (2) What are the challenges that are preventing you from investigating CSAM online effectively? and (3) What

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training and support could the organization provide to assist you in addressing CSAM online? It should be noted that participants had the opportunity to provide multiple responses to each question. These interviews were completed by the first and fourth authors. Responses provided to these questions were entered into an Excel spreadsheet for analysis.

Results

The responses obtained from CSAM investigators ($n = 29$) are summarized below according to the questions asked during the interview. Table 1 summarizes the responses obtained to the first question about the skills and knowledge required to effectively investigate CSAM. The most frequent responses obtained from investigators showcased the importance attributed to social engineering (i.e. communication skills for interacting with offenders) (48%) and computer-based/information technology knowledge and skills to assist them in navigating the Internet (38%). These responses were followed by knowledge and skills on how to conduct CSAM investigations (24%), knowledge of legislation relevant to CSAM investigations (21%), and knowledge of the different types of sexual offenders and victims and how sex offenders operate to commit their crimes (17%). The investigators (14%) also reported the importance of emotional resilience (e.g. ability to deal with dark subject matter, managing frustrations and failures), knowledge of the various social media platforms used by offenders, and having previous experience and skills as a police investigator before conducting online CSAM investigations. Finally, 10% of investigators reported that inter-agency collaboration and teamwork skills were necessary and one investigator indicated the importance of being motivated to work in this field (3%).

Table 2 summarizes the responses obtained from CSAM investigators regarding the challenges perceived as preventing them from conducting efficient CSAM investigations. The most frequent responses highlighted the challenges of interacting with foreign social media platforms in terms of policies and difficulties associated with obtaining collaboration during investigations (34%). Related to this, investigators also reported a lack of technological resources necessary to conduct CSAM investigations successfully (e.g. updates on new technologies needed, data analytics, evolution of platforms, and data storage) (31%). Many investigators also referred to management in their own organization specifically. They reported a lack of understanding of CSAM as a phenomenon, a lack of support and resources to manage CSAM, including training, and constraints related to budgets (31%).

Table 1: Skills/knowledge required to effectively investigate CSAM online

Responses	Percentage yes (frequencies observed)
Social engineering/communication skills	48% (14)
Computer-based knowledge and skills	38% (11)
Knowledge and skills on conducting CSAM investigations	24% (7)
Knowledge of legislations	21% (6)
Knowledge on CSAM, types of sexual offenders, and how they operate	17% (5)
Emotional resilience	14% (4)
Knowledge of social media platforms	14% (4)
Previous experience and skills as investigator	14% (4)
Inter-agency collaboration/teamwork skills	10% (3)
Motivation to work on CSAM	3% (1)

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Table 2: Challenges preventing online investigators from investigating CSAM online

Responses	Percentage yes (frequencies observed)
Foreign social media platforms	34% (10)
Management	31% (9)
Lack of technological resources	31% (9)
Limitations of how investigators can conduct their investigations online	28% (8)
Legislations/procedural requirements	24% (7)
Time required to conduct investigations	21% (6)
International collaborations and requests	17% (5)
Wellbeing of investigators	10% (3)
Roster shifts/handover of cases	7% (2)
Administrative tasks	7% (2)
Lack of human resources (investigators)	7% (2)
Lack of knowledge transfer	7% (2)
Short duration of role	7% (2)
Competition between investigating teams	3% (1)
Lack of standardized CSAM training	3% (1)

Several investigators also indicated facing many constraints on the methods they can use to identify and investigate CSAM cases (28%); mostly related to various pieces of legislation and specific procedural requirements (21%), and the time that they need to conduct CSAM investigations (21%). Added to this is the lack of collaboration from international law enforcement agencies and the high volume of international requests to investigate international cases (17%), which points to both the seriousness of the CSAM problem and the need for resources to address it globally. Other immediate challenges reported by the participants included the protection of wellbeing of investigators (10%), excessive administrative tasks and burdens (7%), lack of knowledge transfer between police jurisdictions (7%), lack of CSAM investigators in the organization (7%), roster shifts/handover of cases (7%), and a short duration in the role for some investigators (e.g., 2 years) (7%).

Table 3 presents the responses reported by investigators on training and support that should be provided by their organization from their perspective. More than half of investigators (55%) indicated that social engineering training, mental health/psychological, and wellbeing support as well as training on the types of sexual offenders and how they operate to commit their crimes should be a priority. Other frequent responses provided by investigators included: technology and computing skills training for investigative purposes (24%); training on coping mechanisms and emotional intelligence (EI) resilience related to CSAM (24%); the need to be kept up to date with the new Internet trends and emerging social media platforms (21%); and support regarding knowledge sharing (including knowledge on emerging technological tools and methods to investigate) with other police jurisdictions (14%). Training for the identification of victims (10%), better collaboration with international police agencies (7%), training on relevant legislations (3%), collaboration from prosecutors (3%), the need for a standardized CSAM training across police organizations (3%), finding the 'right' experts for training investigators (3%), and managing how families of victims can be best supported (3%) were also reported by investigators.

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Table 3: Training/support that the organization could provide for addressing CSAM online

Responses	Percentage yes (frequencies observed)
Social engineering training	55% (16)
Training on types of sexual offenders and how they operate	55% (16)
Mental health/psychological/wellbeing support	55% (16)
Technology/computing skills training	24% (7)
Coping mechanisms/EI resilience training	24% (7)
Social media platforms updates training	21% (6)
Knowledge sharing between jurisdictions	14% (4)
Victims' identification training	10% (3)
International collaboration support	7% (2)
Legislation training	3% (1)
Standardized CEM training	3% (1)
Finding right experts for training	3% (1)
Collaborations from prosecutors	3% (1)
Management/assistance for victims' families	3% (1)

Discussion

Using data collected from CSAM online investigators, we explored the following questions: (1) What are the skills/knowledge required to effectively investigate CSAM online? (2) What are the challenges that are preventing investigators from investigating CSAM online effectively?, and (3) What training and support could the organization provide to assist investigators for addressing CSAM online? The following discussion is grouped around the findings obtained across the three questions.

The most frequent responses obtained from participants were grouped around three dimensions: (1) knowledge and skills related to the tools used during investigations, such as computers, information technology, the Internet, and legislations; (2) knowledge related to offenders, how they operate, and how investigators should interact with them virtually, and (3) mental health wellbeing of investigators. The first two dimensions are not surprising as they bring together the two core elements of CSAM interacting in time and space to generate the crime, which is the Internet and sexual offenders themselves. The third dimension refers to the consequences on the mental health wellbeing of police investigators related to their work.

Knowledge and skills related to the tools used during investigations, such as computers, information technology, the Internet, and legislations

The Internet brings an important layer of complexity to investigating traditional crimes—offenders can commit crimes online with a much lower risk of identification and apprehension. Offenders further benefit from the continuous development of technologies, such as IP anonymizers, encryption, and hard drive eraser software to avoid detection and perform criminal activities (Australian Criminal Intelligence Commission, 2017). This reality is reflected in the responses obtained from many investigators. According to them, computing skills (38%) are needed to navigate the Internet and social media platforms as well as knowledge of relevant legislation (21%) related to investigating and collecting evidence on CSAM cases. Operating efficiently on the Internet for investigators also implies having access to the most updated technological resources to conduct their investigations online, accommodate the

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amount of data to manage, store and examine during investigations, as well as sufficient time to conduct the investigations—three challenges reported by investigators (28%, 31%, and 21%, respectively). Even though the literature on this question is limited, these responses are consistent with what has been reported previously (Sanchez *et al.*, 2019). Based on these studies, Holt *et al.* (2020) raised the importance of upskilling CSAM and cybercrime investigators and argued that police organizations must find ways to better connect with the technology sector to train and expand their resources to effectively combat cybercrimes. Sanchez *et al.* (2019) for instance recommended incorporating courses on artificial intelligence, software design, engineering, and data science into digital forensic programmes to provide understanding of low-level concepts in data science.

Another important point to consider is to increase awareness of higher management in police organizations on the importance of providing sufficient resources to the different teams of CSAM online investigators across Australia (see also Sanchez *et al.*, 2019). CSAM online is a specialized field of criminal activities that requires very specific expertise. Thus, it would be a mistake to assume that all police officers and investigators are knowledgeable about CSAM online. Online CSAM is also an ever-increasing phenomenon with dramatic consequences set against a context of competing agendas and priorities for police organizations' resources. It is thus logical to argue for the importance of disseminating to higher management what CSAM online is, how offenders operate, and what is required for investigators to conduct their investigations while protecting their wellbeing. This may perhaps also improve the culture in terms of how CSAM investigation is perceived generally within the organization. One way to achieve this goal could involve organizing a one-day annual event on bringing academic and field experts outside of the organization together to share their knowledge with a team of higher executives specifically. Without raising the awareness of higher management first, it is arguably impossible to ensure that CSAM online investigators have the support and adequate resources and tools to conduct their investigations in a context of competing agendas and priorities.

Knowledge related to offenders, how they operate, and how investigators should interact with them virtually

The second dimension relates to sexual offenders themselves. Knowledge on sexual offenders and how they operate was reported as relevant to investigating CSAM (17%), but most importantly, as a dimension that should be incorporated into future training by police organizations (55%). Disseminating empirical knowledge on sexual offenders and how they operate to sexually abuse children to inform practitioners, therapists, and parents has been argued for and practiced over 30 years (e.g. Lang and Frenzel, 1988; Elliott *et al.*, 1995; Leclerc *et al.*, 2005). Knowledge on how sexual offenders operate and manipulate children has also been critical to inform education or prevention programmes involving victims (e.g. Berline and Conte, 1990), and to develop capabilities of applying situational prevention techniques to child sexual abuse (Kaufman *et al.*, 2006; Wortley and Smallbone, 2006; Leclerc *et al.*, 2009).

The practice of using knowledge on offenders' modus operandi(s) should be expanded to best inform CSAM online investigators, which is consistent with what investigators suggested in terms of training that should be provided but also with the need of developing further social engineering skills (55%). As these investigators are interacting directly with sexual offenders online (hence, the need for social engineering skills), it is logical to argue that they can benefit from learning about the different types of sexual offenders and how they operate online (and offline) to interact with them online; envisage how they can operate at any point in time during investigations; and use this knowledge to think of measures to boost their capacity to investigate, prevent, and disrupt online CSAM

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(Leclerc *et al.*, 2011; Leclerc *et al.*, 2021a,b; Cale *et al.*, 2021; see also Van der Bruggen and Blockland, 2020). Moreover, as offenders utilize a variety of methods to consume, distribute, produce, and sell CSAM online to avoid apprehension, online investigators must necessarily learn how offenders operate and innovate in time, and then adapt their investigative strategies accordingly (Kloess *et al.*, 2017; Leclerc *et al.*, 2021a,b). To boost the capacity of investigators to perform their investigations, any CSAM online tailored programme on how sexual offenders operate could also keep senior investigators updated on the methods of offenders (e.g. crime scripts) and fast track the assimilation (and use) of this knowledge for new recruits while contributing to the safety of children and reduction of CSAM (Leclerc *et al.*, 2021a). We again argue that the value of this knowledge might be underestimated and end up being overlooked in a context of competing agendas and budget constraints, which again brings to light the relevance of obtaining support from higher management.

Mental health wellbeing of online CSAM investigators

The third dimension relates to the mental health wellbeing of investigators. In terms of skills and knowledge, the investigators reported the importance of showing emotional resilience (e.g. ability to deal with dark subject matter and managing frustrations and failures) (14%), which refers to mental health wellbeing. Most importantly, mental health/psychological and wellbeing support as well as training on coping mechanisms and EI resilience related to CSAM online were reported as a critical need to be addressed by police organizations (55% and 24%, respectively). Indeed, the empirical literature indicates that investigators may suffer negative consequences from working in this field, such as secondary traumatic stress disorder (e.g. intrusive imagery, flashbacks, nightmares, and social withdrawal), increased generalized distrust of people, over protectiveness of children, and difficulty in relationships with partners and children (e.g. Perez *et al.*, 2010; Powell *et al.*, 2015; Burruss *et al.*, 2018).

The study by Powell *et al.* (2015) found that the degree of negative consequences experienced by investigators varies across individuals, types, and content of material as well as viewing context (with variation also based on individual, case-related, and contextual factors). This finding implies that the negative consequences can be experienced directly from viewing CSAM content by some investigators but not all investigators. Further to that, Powell *et al.* (2014b) also indicated that most investigators reported a high degree of resilience. However, it should be noted that this study included four participants who indicated experiencing difficulties associated with their work previously and many others were aware of investigators who had moved to another role due to work stressors. In fact, Powell *et al.* (2014b) also highlighted the difficulty for many investigators to identify a decline in personal functioning and that some intentionally suppress expressions of vulnerability. The reaction of these investigators is consistent with the difficulty of identifying the warning signs and the subtle nature of the negative consequences that can emerge in the context of working with sexual offenders (Elias and Haj-Yahia, 2016). In the end, online CSAM investigators also do work directly with sexual offenders. Therefore, the emergence of negative consequences is arguably more likely when several challenges converge in the context of working as an online CSAM investigator.

Police organizations need to improve the psychological support to protect wellbeing of online CSAM investigators (e.g. Powell *et al.*, 2014b). Indeed, Powell *et al.* (2014b) reported a widespread ambivalence towards the available organisational support among investigators regardless of the appointment of a psychologist by the organization. Specifically, the investigators felt that the psychological sessions were focused on meeting administrative requirements rather than the

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investigators needs. In addition, most investigators appeared unwilling to discuss any personal problems with their supervisors despite an 'open door policy' and found the occasional visit of the psychologist unhelpful. Powell *et al.* (2014b) found that this negative attitude towards psychological support was motivated by (1) a discomfort discussing CSAM with the psychologist; (2) the psychologist's ignorance of CSAM; and (3) the lack of acceptance in police culture to seeking help. The investigators further reported an apparent disengagement of higher management from the psychological support process, which in effect, sets up the already 'limited' psychological support to surely fail.

Clearly, even though interacting with sex offenders online or being exposed to CSAM material may not trigger negative consequences for some investigators, each investigator is at elevated risk of being affected at some point in their career and this type of work has the potential to permeate their personal lives. Coupled with the current challenges related to the lack of wellbeing support in general and other challenges related to working in this field, investigating CSAM online can result in significant, negative consequences for some investigators. Moreover, losing competent CSAM online investigators due to these problems will further result in negative impacts on the capacity of investigator teams and police organizations to counter CSAM online especially given the low number of investigators operating this field. As such, police agencies should consider how they can offer better psychological support and training programmes that are focused on the specific negative consequences that could emerge for CSAM online investigators. Of particular need is an approach that embraces prevention. Agencies need to be proactive in supporting officers, preparing them for the type of work they will do, and its consequences, rather than waiting for psychological harm to eventuate.

In the current study, the responses obtained from the investigators are consistent with the need of rigorous psychological and wellbeing support as well as building emotional awareness and resilience that could help prevent or manage the emergence of negative consequences generated by working as a CSAM online investigator. Powell *et al.* (2014b) suggested the involvement of trained peer counsellors to maximize the utility of the informal social support as a coping resource already present in certain teams of investigators (Krause, 2009). To build a healthy foundation for wellbeing and resilience, a complementary solution could involve introducing and developing EI at an individual and collective level within teams of CSAM online investigators. Such a programme requires to be adapted to the context of working in the field of sexual offences.

EI refers to one's capacity to identify, understand, and manage their own emotions as well as those of others (e.g. Mayer and Stevens, 1994; Cote, 2014). It involves the development or improvement of various dimensions of EI, such as emotional self-awareness, impulse control, and stress tolerance—all critical to develop effective coping mechanisms and build strong emotional resilience. Individuals with EI are better equipped to neutralize the emergence and manage negative consequences as it offers a critical protective layer for wellbeing. For instance, a recent empirical study indicated that EI predicts employees' psychological empowerment, wellbeing, and quality of care (Karimi *et al.*, 2021). This adds to previous studies indicating that higher EI leads to enhanced psychological wellbeing and higher rates of positive emotional states (e.g. Guerra-Bustamante *et al.*, 2019). EI also influences the success with which individuals interact with their colleagues in the workplace, the strategies they use to manage conflict and stress, and positively contributes to workplace performance (Brackett *et al.*, 2011). Importantly, EI also represents a core lifelong human skill as its positive outcomes extend well beyond the workplace to benefit the personal lives of individuals.

Conclusion

The ultimate objective of this project on online CSAM is to build capacity for investigators and

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police organizations to disrupt this phenomenon. In this study, drawing from the perspective of CSAM online investigators, we were able to examine the skills and knowledge required to conduct CSAM online investigations successfully, the challenges facing online investigators in their role, and the training and support that police organizations should provide them to fight CSAM online. Considering the findings, and previous literature, CSAM online investigators are working in a very specialized field that requires more attention from police organizations to increase their capacity to work efficiently to prevent CSAM while protecting their wellbeing. The evidence currently suggests that CSAM online is only increasing and will continue to do so despite our efforts to prevent and reduce it. Future development in technologies and social media platforms will also continue to provide CSAM offenders with additional opportunities to conduct their criminal activities especially in light of the increasing number of children/adolescents using those technologies. As indicated by Sanchez *et al.* (2019), establishing a continuous funding model to support research in CSAM is arguably necessary.

In this context, different complementary programmes should be provided to address the challenges noted in this study to assist online CSAM investigators. Three specific dimensions were identified through interviews with online investigators, which could be part of these programmes. The first dimension not only involves ensuring that updated technologies are available to online investigators, but that courses on artificial intelligence, digital forensic, and data science for instance should be provided to them. The second dimension involves a tailored programme on sexual offenders, how they operate, and the methods they are using to commit CSAM-related activities to keep senior investigators updated and fast track the assimilation (and use) of this knowledge for new recruits. The third dimension involves building a foundation for wellbeing and emotional resilience that could involve introducing and developing EI specifically adapted to the context of working within a team of CSAM online investigators. For such a programme to take place, there is a need for higher management to engage in training, develop a stronger sense of CSAM and the resources needed for online investigators, and support the programme.

It should also be noted that other challenges will continue to emerge for online investigators, which will need to be considered by all organizations including police and technology providers. For instance, the recent push to have more encryption from technology providers appears to be being conflated with issues around privacy, which has the potential to remove enforcement opportunities for investigators. This represents an additional threat for the future of online investigations and the security and protection of children. Finally, it can also be argued that an urgent need exists for parents, teenagers, communities, and technology providers to develop an adequate level of awareness and understanding of the reality of CSAM online and put it into practice. While it is essential to build capacity of online CSAM investigators, it is also important to think of the best ways to prevent CSAM online from the perspective of potential victims, guardians, and third parties.

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