AGE AND CIRCUMSTANCES OF ONSET TO CHILD SEXUAL ABUSE MATERIAL VIEWING AND CHARACTERISTICS OF CONSUMERS: FINDINGS FROM AN ANONYMOUS SURVEY OF INTERNET USERS

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Abstract

Recent evidence suggests that the number of child sexual abuse material (CSAM; known legally as 'child pornography' in some countries) images and videos detected on popular online communication platforms has grown exponentially in the last decade. In 2021, for example, the National Center for Missing and Exploited Children (NCMEC) received a record-breaking 29 million reports of CSAM from electronic services providers like Meta and Google. This represented a 35% increase in reports following the previous year, and one CSAM report can contain multiple abusive images or videos of children. Research suggests that child sexual abuse and CSAM offending has tragic short- and long-term impacts on victims depicted in the material.

Most research into individuals who consume CSAM is based on criminal justice or treatment samples, usually post-arrest. However, research has shown that most victims of child sexual abuse delay or never disclose their abuse to anyone, and international research suggests that there may be similar problems with reporting and detection of CSAM offending. Consequently, a large proportion of people who view, share, or produce CSAM may remain undetected in the community, and under-researched. It is important to address this gap in research as there are likely differences in the patterns of behaviour between CSAM consumers identified through criminal justice samples and those in the community. Given the rapidly growing number of CSAM reports received by non-profit clearinghouses like the NCMEC, we need to learn more about CSAM consumers in the community, in order to prevent and disrupt this offending and reduce its devastating impacts on victims.

A small handful of studies surveying community-based samples of CSAM consumers have explored psychological and other background characteristics of these individuals. Yet, little is known about the age and circumstances of onset to CSAM viewing and whether accidental exposure can lead to subsequent intentional use. Even less is known about whether engagement with self-generated sexual material among adolescents (i.e., 'sexting') is associated with viewing CSAM online.

This study aimed to address these important research gaps by analysing data from an anonymous online survey of 5,512 adults of all ages and genders in five different countries, most of whom had viewed adult pornography. A total of 742

(13.5%) survey participants self-reported viewing CSAM; 77% were male, 19.5% were female and 3.5% identified as another gender. First, the study explored the age and circumstances of onset to CSAM viewing. Well over half (71.2%) of the CSAM viewers first discovered the material before they were 18 years. Similar proportions were observed for first exposure to atypical adult pornography (BDSM or bestiality) prior to 18 years. Results from survival analysis indicated a significant difference between age of first CSAM exposure across age cohorts (p <.001); those aged under 40 years first viewed CSAM at younger ages. The study showed that children and adolescents of all genders who view CSAM mostly discover it by accident (65%) and predominantly when they are alone (76%). Further, just under half (45%) of CSAM viewers who first discovered CSAM by accident (including someone showing/sending it to them) went on to intentionally view it again.

Second, the study examined the characteristics of individuals who self-reported ever viewing CSAM, by comparing them with self-reported non-CSAM viewers in a series of logistic regression models. Fifteen predictor variables were significantly associated with ever viewing CSAM. The strongest predictors were viewing bestiality pornography, willingness to have sexual contact with a child (aged under 10 years, or 14–15 years) and visiting paedophilia chat forums online.

Third, small minorities of CSAM viewers reported ever sharing or producing CSAM, while a more notable proportion reported that they were willing to have sexual contact with a child if they had the opportunity. Several characteristics were found to be associated with sharing/producing CSAM and willingness to have sexual contact with a child; most notably, visiting paedophilia chat forums online.

Finally, the study investigated whether engagement with self-generated sexual material (i.e., 'sexting') was associated with viewing CSAM among adolescents under 18. A third of respondents reported that they had received SGSM, and had been asked to send SGSM, from/by a minor, when they were a minor. Most respondents (71.9%) who were asked by another minor to send this material said that they did so, while a small minority (8.8%) said they had recorded sexual activity with another minor when they were also a minor. The study found that respondents who reported receiving or being asked to send self-generated sexual material from/by a minor or who recorded sexual activity when they were a minor were significantly more likely to report ever viewing CSAM.

The findings suggest that the age of first exposure to CSAM has decreased over time and that more adolescents are discovering this material now than in previous generations. Moreover, engagement with self-generated sexual material among adolescents may normalise viewing of CSAM, and vice versa. Because of this, the thesis argues that relying principally on law enforcement to detect and disrupt CSAM consumption is not sufficient for preventing children from being sexually abused and exploited or being exposed to CSAM. Rather, it is crucial to supplement the work of police by placing increased effort into situational crime prevention approaches, including primary and secondary prevention, which prevent CSAM exposure and escalation of offending. The thesis discusses some of these approaches in light of the study findings, including automated removal of CSAM from the Internet, age verification for accessing pornography online, education for parents, children and teachers, anonymous support/intervention for adolescents/young people, and deterrence in the form of online video campaigns and pop-up warning messages on websites. It is noted that tech platforms need to be proactively involved in many of these measures if they are to successfully protect children from harm.

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List of acronyms and terms

CSAM	Child sexual abuse material
CSA	Child sexual abuse
NCMEC	National Center for Missing and Exploited Children
SGSM	Self-generated sexual material

Description of terms

Term	Description
Self-generated sexual material	Recording, sending, receiving, or being asked to send sexual images or videos (also known as sexting).
Contact CSA offenders	Offenders who sexually abuse children in person.
Dual offenders	Offenders who engage in both CSAM and contact CSA offending.
Sharing CSAM	Distributing or trading CSAM.
Producing CSAM	Creating photos or videos of children being sexually abused/exploited.
Electronic service provider	Company that provides a platform (e.g., Meta, Microsoft) that can be used by members of the public.

Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature:

Date: 22/09/2022

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Chapter 1: Introduction

1.1 CHILD SEXUAL ABUSE MATERIAL OFFENDING

Warning: this thesis contains descriptions of child sexual abuse and exploitation that may be distressing to readers. You are advised to stop reading now if you are concerned that this material will upset you. If you decide to keep reading the thesis, and while doing so you become distressed, please stop reading and seek support/counselling.

In October 2019, the UK's National Crime Agency revealed it had uncovered a global "child abuse ring in which paedophiles in at least 38 countries gained 'loyalty points' for uploading abuse videos to a dark website" (Spillet 2019). The site, *Welcome to Video*, contained 250,000 videos of children being sexually abused, 45 percent of which were new to authorities, according to the National Center for Missing and Exploited Children in the United States (Voreacos 2019). Upon entering the site users were coached on how to earn points by uploading new material, which they could use to download videos of children being sexually abused. The instructions read,

> "Do not upload adult porn over 15 years. When you upload video, you get 3 points. If someone downloads your video, you get 2 points" (Voreacos 2019).

Globally, police made 337 arrests of users of the site, from which over one million videos had been downloaded. A 23-year-old Korean man who ran the site from a server in his bedroom was jailed in Korea and faced extradition to the United States. Seven men in the United Kingdom were arrested for using the site, including a 22-year-old man from Surrey, who appeared in a video on the site raping a young girl. United States officials raided the homes of 92 alleged site users including a Georgian man who recorded the abuse of two children in his own bathroom and uploaded the video to the dark web site (Voreacos 2019).

This thesis begins by describing this case, in order to demonstrate the evolution of child sexual abuse material (CSAM; also referred to in some countries in legal terminology as 'child pornography') — from the pre-Internet days of hard copy pictures shared via postal mail or in person, to the availability of sites on the dark web like *Welcome to Video*, where individuals are encouraged to upload their own abusive

material of children. Nowadays, those seeking imagery of children being abused are not required to associate with criminals face-to-face; they can upload and download images of children being abused from the comfort of their own home.

Despite the growing number of abusive materials on the darknet, however, staggering amounts of CSAM are detected on popular Clearnet websites and platforms (NCMEC, 2022; Teunissen & Napier, 2022a). Their growth have vastly enhanced the ease with which this material can be shared and viewed (Bursztein et al., 2019). Smartphones and other devices with cameras have made the production of this material practical and efficient, and consequently there is more material available and easily accessible. While commonly recognised that children and adolescents now have greater access to pornography due to the Internet (Lim et al., 2017), new evidence suggests many CSAM offenders on the darknet first discover the material during adolescence (Insoll et al., 2021). However, there is currently very empirical research that supports these recent early findings. Nor is there research that explores in more details the onset of CSAM offending and its association with behaviours such as sexting and the consumption of atypical adult pornography.

1.1.1 Legal definition

In Australia, laws covering adult pornography and CSAM have been in place under Commonwealth Law since 1901 (Boxall et al., 2014). CSAM offending relates to those who view, access, download, manufacture or distribute any type of sexual material depicting children under the age of 18 years, in the form of images or videos. Australian Commonwealth legislation (see *Criminal Code Act 1995,*[1] *Crimes Act 1914*[2] and *Customs Act 1901 (Cth)*[3]) creates a number of offences that relate to CSAM, which focus on the use of telecommunication services such as the Internet, email, mobile phones to view, copy, download, send, exchange and make available for viewing, copying or downloading CSAM (Commonwealth Director of Public Prosecutions, 2015). Other western countries have similar laws relating to CSAM. In the United States, for example,

[1] See *Criminal Code Act 1995* (Cth) s 273.6, 471.19, 471.20, 474.22, 474.22A. 474.23, 474.23A, 474.24A.
[2] See *Crimes Act 1914* (Cth) s 273.1, 273.6, 471.19, 471.20.
[3] See *Customs Act 1901* (Cth) s 233BAB.

> Federal law defines child pornography as any visual depiction of sexually explicit conduct involving a minor (persons less than 18 years old). Images of child pornography are also referred to as child sexual abuse images (Department of Justice, 2015).

In 2019 the *Crimes Legislation Amendment (Sexual Crimes Against Children and Community Protection Measures) Bill 2019* was introduced by the Australian Commonwealth Government, which replaced the term 'child pornography' with 'child abuse material'. The former term is viewed by law enforcement and those in the child protection sector as an incorrect description of the crime that implies consensual sexual activity. The updated term describes the imagery for what it really is: photos and videos of children being abused.

1.1.2 Impact on victims

The production, sharing and viewing of CSAM is a crime that has devastating impacts on the victims. Contact child sexual abuse is associated with a range of short and longer term adverse outcomes for victims including mental health sequalae, substance abuse and increased risk of re-victimisation and offending in adulthood (Cashmore & Shackel, 2013; Ogloff et al., 2012). Research indicates that recording of sexual abuse and sharing of the imagery causes victims additional and unique impacts to the contact sexual abuse. This can include trauma, psychological harm, fear, being forever haunted by the images/videos, guilt and shame (Gewirtz-Meydan et al., 2018; Salter et al., 2021). Victims depicted in CSAM can feel repeatedly victimised each time someone views their abusive material (Gewirtz-Meydan et al., 2018). The Canadian Centre for Child Protection surveyed 128 adult survivors of CSAM offending. They found that 70% of respondents reported constantly worrying about being recognised by someone who had viewed the CSAM showing their abuse, while 30% said they had been recognised by someone online or in-person who had seen their abusive imagery (Canadian Centre for Child Protection, 2017). Another survey of adult CSAM survivors found that half of respondents were worried they would be recognised or that people viewing their abuse imagery would think they were willing participants (Gewirtz-Meydan et al., 2018).

1.1.3 Growth of CSAM

It is currently impossible to know the true amount of CSAM available on the Internet. The National Centre for Missing and Exploited Children (NCMEC) operates the CyberTipline in the United States, to which organisations and members of the public report discovery of online exploitation of children, including CSAM, child sex trafficking and online grooming (NCMEC, 2022). A study that involved a longitudinal analysis of NCMEC data found that the volume of reports grew by a median of 51% per year from 1998 to 2017, concluding that an exponential growth in CSAM reports coincided with a growth in online sharing platforms (Bursztein et al., 2019). In 2021, the number of CyberTipline reports sent to NCMEC by electronic service providers like Meta increased to 29.3 million[4], which equated to 84.7 million CSAM files (NCMEC, 2022). Anecdotal information from police investigations suggest that as new online sharing platforms are created and their functions enhanced, they create more opportunity for CSAM to be easily shared (BBC News, 2019). Consequently, more CSAM incidents are reported by the platforms to clearinghouses such as NCMEC.

Similarly, the Canadian Centre for Child Protection (C3P) runs Project Arachnid, a webcrawler tool that detects CSAM. In just under three years (from 2016–2019), Project Arachnid detected 13 million images suspected to be CSAM, and issued almost five million removal notices to electronic service providers (C3P, 2019; Project Arachnid, 2020).

According to a media report, a detective with the Victorian Joint Child Exploitation team in Australia reported a 34% spike in distribution of CSAM from Victorian IP addresses between 2019 and 2020, which coincided with the first COVID-19 isolation period (March to May) in 2020 (Vedelago, 2020). Victorian police speculated that having more children and offenders at home and online during that time created a breeding ground for child exploitation (Vedelago, 2020). Europol voiced concerns that increases in distribution of CSAM on the Internet during the

[4] In 2021 NCMEC's CyberTipline received 29.3 million reports, of which 29.1 million "were from Electronic Service Providers that report instances of apparent child sexual abuse material that they become aware of on their systems" (NCMEC, 2022: 1).

COVID-19 isolation period may have stimulated demand for production of new abusive material (Europol, 2020).

It is therefore currently not possible to know how much CSAM is available on the Internet. However, the information cited above suggests the availability of CSAM on the Internet is widespread and increasing.

1.1.4 How much CSAM offending is detected?

It is possible that substantial proportions of individuals who view, share or produce (create abusive images/videos) CSAM remain undetected in the community, although few empirical studies have tested this hypothesis in a robust way. Victimisation surveys and analyses of administrative data have shed light about reporting rates for sexual assault against adults and children. In the 2020–21 *Crime Victimisation, Australia* report, which is based on an annual survey of over 8,000 Australians, only 22% of adults who experienced sexual assault in the 12 months prior to the survey said they reported the most recent incident to police (ABS, 2022). Similarly, two studies – one based on interviews with victims and their parents, another based on analysis of treatment and police data – found that most child victims delay or never disclose child sexual abuse to others, including authorities (Hershkowitz et al., 2007; London et al., 2005).

The situation is likely similar for CSAM offending. In semi-structured interviews with 28 professionals working with victims of child sexual abuse in Germany, respondents indicated that the number of unreported cases of CSAM was higher than the number of unreported cases of contact-only child sexual abuse (von Weiler et al., 2010). Reasons cited by victims for not disclosing CSAM victimisation included "feelings of 'guilt' and the 'fear of the threats of the perpetrator'" (von Weiler et al., 2010, p. 213). Another study involved an anonymous online survey of 175 male adults whose location was unknown (Ray et al., 2014); when asked, none of the 41 respondents who reported viewing CSAM said they had ever been arrested by police for CSAM offences (Ray et al., 2014).

Further, the global nature of this crime and the technological and legal challenges for police in verifying the origin of material and identifying victims and offenders present further barriers to detection (Broadhurst, 2019; Virtual Global Taskforce, 2019). The last decade saw increases in online messaging platforms (Bursztein et al.,

2019), use of the dark web, and enhanced encryption and anonymisation technology (Virtual Global Taskforce, 2019). The constantly evolving methods to view and share CSAM, and to do so anonymously, make it increasingly difficult for police to detect it (Virtual Global Taskforce, 2019). This point was articulated by an Australian detective with the Victorian Joint Child Exploitation team: "There are 17,000 police in Victoria and I reckon if we put them all onto JACET [the joint child exploitation team] we still wouldn't make a dent in the offending. I'm not kidding" (Vedelago, 2020). It is plausible to assume then that a substantial proportion of CSAM offenders remain undetected in the community, although the figure is currently unknown.

The aim of any policy or practice initiative in the child sexual offending space should be to reduce the number of children who are sexually victimised in any way. Once offenders are detected for these crimes, child victims have already been harmed (Canadian Centre for Child Protection, 2017). Thus, focusing on preventing people from committing these crimes in the first instance would be considerably beneficial to current and potential victims. However, initiatives that aim to do so cannot be developed without first understanding CSAM offending, particularly among individuals in the community (i.e., not identified via criminal justice samples), which this study aims to do.

1.2 AIMS OF THE STUDY

The research questions for this PhD were informed by an exhaustive review of the literature on contact child sexual abuse (CSA) offending and CSAM offending, which is presented in Chapter 2. This includes meta-analyses and primary empirical research into demographic, psychosocial and other background characteristics of CSAM offenders, and the differences between CSAM offenders and other populations (e.g., contact CSA offenders, non-offending samples). This review identified important gaps in the existing research, which formed the six PhD study research questions below.

1. What is the age of first exposure to CSAM and atypical forms of pornography (i.e., S&M/bondage, bestiality), and is the age of first CSAM exposure decreasing?

2. What are the circumstances surrounding initiation (onset) to CSAM viewing and does accidental discovery of CSAM lead to subsequent intentional viewing?
3. What background and behavioural characteristics are associated with viewing CSAM, and how does this differ by gender?
4. Among CSAM viewers, what are the characteristics of those who share and produce CSAM and are willing to sexually abuse children in person?
5. What characteristics are associated with sexting among adolescents and is sexting a predictor for viewing CSAM?
6. How do pornography and CSAM viewers perceive illegality of the material?

The present study aimed to fill some of the key research gaps identified in previous studies by:

- recruiting CSAM viewers from the community to participate in an anonymous online survey; and
- asking questions that will help inform situational crime prevention measures aimed at disrupting and preventing CSAM offending.

In doing so, the study sought to better understand the reasons why people view, share and produce CSAM, the risk factors for doing so, and the circumstances surrounding onset of CSAM exposure. It was anticipated that adopting an online survey methodology would strengthen the study, by:

- Reducing the potential for interviewer bias; and
- Encouraging honest responses due to anonymity.

1.3 THESIS OUTLINE

This thesis comprises eight chapters. Chapter 1 has provided an overview of the research aims and the rationale of the study that the thesis is based on.

Chapter 2 presents a review of the key research conducted to date that is relevant to the study research questions. This includes empirical research conducted on the characteristics of CSAM consumers; age and circumstances of first discovery of CSAM and adult pornography; characteristics and risk factors for sharing and producing CSAM; and engagement with self-generated sexual material among

adolescents, otherwise known as ‘sexting’. Lastly, Chapter 2 outlines the theoretical framework for the thesis.

Chapter 3 provides a detailed overview of the methodology adopted by the study. This includes the measures used in the survey, design of the survey, participant recruitment strategy, descriptive analysis of demographic characteristics of survey participants and the key statistical methods used.

Chapter 4, the first results chapter, examines the characteristics of respondents who reported viewing CSAM, including demographic, background, and behavioural characteristics.

Chapter 5 addresses the study research questions relating to age and circumstances of first exposure to CSAM. It presents analysis on whether the age of first exposure to CSAM differs significantly across age cohorts, and the characteristics of individuals who continue to view CSAM after first exposure.

Chapter 6 examines the characteristics of respondents who reported sharing and producing CSAM, by comparing them to those who reported only viewing CSAM. This includes comparing the background and behavioural characteristics of these two groups.

Chapter 7 presents results from survey questions relating to engagement with self-generated sexual material (sexting) among adolescents. The first analysis in this chapter examines characteristics of respondents who have engaged in this behaviour. The second analysis investigates whether engagement in self-generated sexual material among adolescents is associated with viewing CSAM.

Chapter 8 is the discussion chapter of the thesis; it considers the key findings of the PhD presented in chapters 4–7 in relation to previously published literature, and discusses their implications for policy, prevention, and practice. This final chapter focuses on implications for disrupting and preventing CSAM offending, viewed through a situational crime prevention lens.

Chapter 2: Background

2.1 ONSET TO CSAM OFFENDING

In the introduction chapter to this thesis (Chapter 1), the problem of CSAM offending was discussed, including the sizeable and increasing amount of this material detected on the Clearnet and the dark web. It was emphasised that this is a global crime that can have profound adverse impacts on victims whose sexual abuse is recorded and shared with other individuals online. To develop initiatives to prevent and disrupt this behaviour in the community, it is important to understand how and when individuals first discover CSAM and how they continue to consume it. This section will focus on onset to CSAM offending; specifically, the two research questions below will be explored.

- What is the age of first exposure to CSAM and atypical forms of pornography, and is the age of first CSAM exposure decreasing?
- What are the circumstances surrounding initiation (onset) to CSAM viewing and does accidental discovery lead to subsequent intentional viewing?

In their work on contact CSA offending, Wortley and Smallbone (2006) stress the importance of learning about the circumstances surrounding an individual's initiation to offending. They note that learning about the factors or emotional triggers leading up to the event has helped inform prevention initiatives for reducing contact sexual offending. They suggest the same needs to be studied of CSAM offending and in their later work (Wortley & Smallbone, 2012) suggest that in order to develop effective prevention methods for CSAM offending, specific gaps in the research need to be filled, one of which relates to onset. They note that,

> The first offence is special. At this point, the offender has no routine modus operandi and may not even have formed an established sexual attraction towards children; that may come as a consequence of offending. Therefore, preventing the onset offense is particularly important, and it may also be the easiest offense to prevent. We think the same principles are likely to apply to ICP [Internet child pornography] offenders. Research needs to establish how and why people commit their first ICP offence and to track the psychological

> and behavioural progression—where progression does occur—to pathological levels of offending, (Wortley & Smallbone 2012, p 127).

Further, (Wortley & Smallbone, 2006, 2012) postulate that while detection of CSAM offenders, as well as the risk of arrest, may have deterrent effects, there is likely a significant proportion of CSAM offenders who may not be detected. Considering this, they argue that prevention of CSAM offending before it occurs is seen as a more viable option and should be a priority. The Introduction chapter of this thesis highlighted the significant barriers to detection of CSAM offending by police, relating to the staggering amount of material available online, encryption technologies and anonymity provided by the Internet (Broadhurst, 2019; Teunissen & Napier, 2022a; Virtual Global Taskforce, 2019). This likely results in most CSAM offending remaining undetected in the community, and many abusive images/videos remaining on websites for anyone to view. Therefore, this thesis argues that greater focus should be placed on understanding how/why individuals first encounter and continue to consume CSAM, as this is critical in learning how best to prevent and deter this behaviour on the large scale that is urgently required. The next section below will examine the available literature on how/why individuals first encounter and continue to consume CSAM, a topic that very few studies to date have focused on.

2.1.1 Circumstances of first exposure to CSAM

Empirical research that investigates circumstances of first exposure to CSAM is currently scarce. One study (Westlake & Bouchard, 2016) analysed ICT systems to track broad networking of CSAM. The study used a custom designed webcrawler to investigate the dynamics of CSAM distribution, and how online networks evolve and are structured. They began with known child exploitation seed websites; the authors programmed the webcrawler to follow hyperlinks to connected websites and analysed ten networks of over 300 websites each over a period of 60 weeks. This amounted to analysis of over 4.8 million unique webpages. They found that child exploitation-related websites were not commonly linked (via hyperlink) to websites of a similar nature. This is concerning as it implies people searching various other (potentially legitimate) websites may ‘come across’ links to CSAM sites by accident, which could trigger first time viewing. According to the authors, a limitation of the method was the use of faction analysis, which assumed that each website belonged to only one community, whereas individuals may belong to multiple, partially overlapping

communities. Further, it was unclear whether every website analysed as part of the study was used for dissemination of CSAM. Nevertheless, their findings align with studies on first time adult pornography exposure, where survey respondents have reported discovering harmful (e.g., violent) pornography by clicking on links or videos that pop up on other websites (BBFC, 2019).

Westlake and Bouchard (2016)'s finding was supported by Insoll et al. (2021), who surveyed 8,484 darknet CSAM viewers between 10 December 2020 and 11 August 2021. To the author's knowledge, this is the only study of its kind. When individuals entered search terms relating to CSAM on a darknet search engine, they were presented with the option to complete two surveys: *Help us to help you* (n = 5,171) and *No need for help* (n = 3,313), both developed by the not-for-profit organisation in Finland, Suojellaan Lapsia ry/Protect Children. No demographic details (e.g., gender, country of residence/birth) were collected in the survey. The authors found that 70% of respondents from the *Help us to help you* survey viewed CSAM or illegal violent material before they were 18 years; 39% were 13 years or younger (Insoll et al., 2021). Further, half of respondents (51%) reported first viewing CSAM or illegal violent material accidentally, as suggested by Westlake and Bouchard (2016). The remaining 49% first viewed this material through: social connections; searching actively for other hard-core material; searching actively for CSAM/illegal material; or other means.

The findings from the Protect Children study (Insoll et al., 2021) are concerning, as they suggest that many individuals who use the darknet to view other material are discovering CSAM accidentally, and during adolescence. Given this study was a survey of individuals who intentionally searched for CSAM on the darknet, it may be biased to more extreme or technically knowledgeable internet users who have viewed CSAM more than once. Such individuals may have different characteristics from those who, for example, accidentally discover CSAM on the Clearnet. Further, the study did not collect information on gender or location of respondents. It is important to ask similar questions of CSAM viewers on the Clearnet, including demographic information, to understand whether the same patterns and behaviours are observed.

Apart from the study by Insoll et al. (2021), there is little research focused on age and circumstances of onset to CSAM and other atypical pornography. However,

research into onset to adult pornography can provide valuable insights. Of relevance is research that suggests the age of exposure to mainstream adult pornography has decreased over time, resulting in cohort differences, and much of this exposure is unwanted or accidental. For example, Madigan et al. (2018) conducted a meta-analysis that examined 31 studies (n = 37,649) focused on unwanted online sexual exposure in youth aged 12 to 16.5 years, conducted between 1990 and 2016. Unwanted (and accidental) online sexual exposure was defined as: "exposure to sexually explicit pictures and/or videos via pop-up windows, spam emails, Web site links, etc., without seeking or expecting sexual material" (Madigan et al., 2018, p. 134). The authors found that one in five (mean = 20.3%) youth had experienced unwanted online sexual exposure.

Females may experience unwanted exposure to pornography at a higher rate compared with males. In an anonymous survey of 1,031 university students in Ohio, United States (Camilleri et al., 2021), females were significantly more likely to be exposed to pornography unintentionally (45.3% vs. 32.9%) than males. Males were more likely to report 'personal curiosity' when asked how first-time exposure to pornography occurred (45% vs. 35%).

Other research finds that males onset to pornography earlier than females, and that the age of first exposure to pornography is decreasing. A study by Lim et al. (2017) administered an online survey to a convenience sample of 941Victorians aged 15–29 years (January to March 2015), finding that 87% of respondents reported ever viewing pornography (no specific definition of pornography was provided in their survey). They found that frequent pornography viewing (weekly or more often) was associated with, among other factors, male gender, younger current age and higher. The median age of first pornography viewing was 13 years for males and 16 years for females, which is supported by Camilleri et al., reviewed above, finding that males were more likely to report an earlier age of onset.

Lim et al. (2017) also found that younger age at first pornography exposure was significantly associated with younger current age at time of survey, which suggests that individuals are viewing pornography at increasingly younger ages. Similarly, McKee et al. (2008) conducted a survey of over 1000 adult consumers of pornography of all ages in Australia. They found that 77% of those aged 18–25 years versus 37% of those aged over 66 years had first viewed pornography (defined only

as ‘pornography’) before they were 16 (McKee et al., 2008). There was important information missing regarding the study, such the authors’ recruitment methods, and the analysis of the data did not include significance testing to compare the age cohorts with one another. Nevertheless, it showed descriptively that greater proportions of younger age cohorts had viewed pornography prior to the age of 16.

The findings from these studies (Camilleri et al., 2021; Madigan et al., 2018; McKee et al., 2008) suggest that individuals are discovering mainstream pornography at increasingly younger ages, and it is common for first time exposure to be accidental and unwanted. While evidence from one rare survey of CSAM consumers in the community suggests a similar pattern of first exposure to CSAM (Insoll et al., 2021) (see Table 2.2), further empirical research is required that examines first time CSAM exposure. This is especially urgent given the large amount of CSAM currently available and growing on the Internet, including on popular social media platforms (Europol, 2020; NCMEC, 2022).

Motivations for seeking out CSAM

The paucity of literature focused on the specific circumstances surrounding circumstances of first exposure to CSAM was highlighted in the last section, and has been noted by other researchers (Hunn et al., 2020; Wortley & Smallbone, 2012). However, some studies have qualitatively analysed CSAM offenders’ self-reported reasons for accessing/sharing CSAM, which is helpful in understanding the factors that lead to first-time exposure and continued use of CSAM. Three studies focused on self-reported motivations/explanations for CSAM offending among police and treatment samples, outlined below.

First, Seto et al. (2010) analysed case files from two separate samples of convicted CSAM offenders in Canada; the first were interviewed by police as part of an interrogation before they were convicted (n = 50); the second were assessed by clinicians after their conviction (n = 34). Offenders in the police sample were arrested for CSAM offences between the years 2001 and 2007, and those in the clinical sample were assessed between the years 2001 and 2008. The authors analysed the interview/assessment data with a focus on the explanations provided by the offenders for engaging in CSAM offending.

A large proportion of offenders in each sample cited three or more explanations for accessing CSAM. Substantial proportions in both the pre- and post-conviction

samples reported a sexual interest in children or CSAM (46% and 38% respectively), accidental access (40% and 32% respectively) and curiosity (40% and 27% respectively) as explanations. Small proportions of offenders also reported the following reasons for accessing CSAM: Internet/pornography addiction; viewing CSAM as a substitute for contact sexual offending; indiscriminate sexual interests; or their general interest in generating collections. Claiming Internet pornography addiction was the only explanation given for which the proportions of the pre- and post-conviction group differed significantly (10% vs 29%). Contrary to the authors' hypotheses, the two groups did not differ significantly in whether they cited sexual interest in children or curiosity or accidental access as reasons.

However, it is important to ask the same questions of CSAM users in an anonymous online survey with arguably less potential for interview and sample bias, rather than in a criminal justice setting. This is because offenders interviewed by police and treatment providers may underplay their responsibility in their offending to appease the interviewer in a face-to-face setting (Newman et al., 2002). This may particularly be the case with offenders who were interviewed by police pre-conviction, as these individuals may attempt to lie about their offending (Hartwig et al., 2005) to avoid conviction or to receive a lighter sentence. Seto et al., acknowledged these limitations of their methodology, and that they had no control over how the information was collected or whether this differed across the two samples. Despite these factors, the study provided an early insight into the potential motivations for individuals to access CSAM, when little research had been conducted in this area.

In the second study, Merdian et al. (2013) disseminated an anonymous electronic survey (via a portable device) to sex offenders recruited from community sex offender treatment centres and prisons in multiple locations across New Zealand. Criteria for inclusion were being adult (18+), male, English speaking, and having no intellectual impairment that would affect respondents' ability to provide informed consent. The study recruited 22 CSAM offenders and 17 mixed offenders who had committed both CSAM and contact CSA offence (n = 39). Offenders who admitted to ever viewing CSAM were asked, "Why do you think you started viewing child pornography?" They kept the question simple and open-ended, which was intended to, "reduce cognitive efforts and thus attempts for impression management," (Merdian et al., 2013, p. 4). Seven respondents did not provide a direct explanation. For respondents who provided

an explanation, the authors analysed responses thematically, which elicited three main themes:

1. Explanations referring to initial triggers of the behaviour;
2. Sexual explanations; and
3. Emotional reasons.

Most respondents' explanations (54%) fell into one theme, while the remaining (46%) cited explanations that fell into multiple themes.

*Initial triggers (*n = *9)*

Two 'initial trigger' explanations were identified, which included stumbling on CSAM by accident while looking for adult pornography and seeking CSAM out of 'curiosity'. As noted by the authors, some respondents appeared to use the term 'curiosity' to describe paedophilic interest. For example, one respondent answered that they viewed CSAM due to: "Curiosity to see the development of the young girl into the young woman" (Merdian et al., 2013, p. 8).

*Sexual reasons (*n = *29)*

'Sexual reasons', was the third explanation, broken up into two sub-themes in the responses: (a) sexual identity (*n* = 20) and (b) progression from legal material (*n* = 9). Regarding sexual identity, most respondents (*n* = 13) cited an attraction to children as a reason for viewing CSAM. Some respondents were motivated by a lack of sexual ability (e.g., impotent) and hoped finding such images would help this, while others were motivated by a lack of sexual experience or lack of sexual partner. One respondent said he thought that because children also lack sexual experience, they would not reject him. In the second subtheme, 'progression from legal pornography', some respondents claimed they began viewing legal pornography, and began seeking more extreme and shocking images, often involving younger and younger victims that then led to viewing CSAM.

*Emotional reasons (*n = *16*)

Emotional reasons were identified as either detached/passive emotions (*n* = 1) (other problems in the individual's life overpowered any reflective thoughts he had on

the CSAM he was viewing) or positive emotions (n = 15) (a source of relief, power/control, distraction from problems and 'shock value' of material). A limitation of the study was that the authors placed some ambiguous responses in groups, potentially so they fit somewhere, whereas these could have been in a separate category. For example, one respondent said: "Confusion around my sexuality and feelings of hate," (Merdian et al., 2013, p. 10), which could be interpreted as positive or negative. This is also a limitation of using open-ended responses in an electronic survey, as opposed to a face-to-face interview where the researcher could have probed or asked for clarification on some responses. On the other hand, use of electronic surveys for sensitive questions is found to elicit more honest responses (Newman et al., 2002) and likely the reason the research provided a useful and unique insight into reasons for viewing CSAM.

Lastly, Merdian et al. found that CSAM offenders who also committed contact CSA offences were more likely to admit a sexual interest in children. Although, given no percentages were provided for CSAM offenders and no results from statistical tests were provided, it is difficult to determine the reliability of this finding. However, the finding does align with previous evidence that mixed contact CSA/CSAM offenders are the most paedophilic (Babchishin et al., 2011, 2018; Henshaw et al., 2018).

The third study qualitatively examined the motivations for onset to, and continuing engagement with CSAM (Knack et al., 2020). The authors conducted semi-structured interviews using mostly open-ended questions with 20 adult males aged between 28 and 70 years, who were receiving treatment at a sexual behaviours clinic at a Canadian mental health centre. Most had been charged or convicted for a CSAM offence (n = 18), while two had not been charged but were seeking help to stop CSAM viewing. The authors asked participants questions about their reasons for beginning and continuing to view CSAM. An inductive qualitative analysis of responses elicited four major motivational themes: (1) Sexual gratification; (2) Emotional self-regulation; (3) Behavioural facilitation; and (4) Behavioural maintenance.

The study was qualitative in nature and numbers or percentages were not provided. The first respondent group reported sexual gratification as a motivation for viewing CSAM, broken up into three subthemes; (a) Lack of adult sexual partners; (b) Sexual interest in taboo (e.g., atypical/illegal content); and (c) Sexual interest in children. Some reported a sexual interest in children that began when they were

themselves children, only as they became older the children they were attracted to did not.

The second theme identified as a motivation for CSAM viewing related to emotional self-regulation. Several participants reported viewing increasing amounts of legal Internet pornography to cope with negative emotions, which was followed by viewing of CSAM. Emotional self-regulation experienced by participants was broken up into two subthemes; (a) Interpersonal problems; and (b) Depression and stress.

The third theme related to behavioural facilitation, which was broken down in to three separate motivations for viewing CSAM; (a) Escapism; (b) Seeking novelty; and (c) Habituation. A fourth subtheme – (d) Hyperfocused sexual arousal, described by the authors as "intense sexual preoccupation" (Knack et al., 2020, p. 109), appeared to precipitate or be associated with the former three behavioural facilitation subthemes.

The authors (Knack et al., 2020) suggest that their findings present an argument for primary and secondary prevention initiatives to prevent CSAM viewing before it first occurs or before it escalates. This is because the motivational pathways for viewing CSAM reported by participants in their study could be intervened at various points in a person's life. Some motivations, for example having a sexual interest in children (also reported by other research (Merdian et al., 2013; Seto et al., 2015; Sheehan & Sullivan, 2010)), could be intervened in at the childhood level. Others, for example factors relating to emotional self-regulation and behavioural facilitation (e.g., reducing adult pornography use) could be intervened during adolescence and adulthood through education, messaging campaigns and psychological treatment and support.

The main limitations for Knack et al.'s study is that it recruited a sample of individuals most of whom were charged or convicted for a CSAM offence, and who enrolled voluntarily in group therapy sessions. First, their sample is not representative of undetected CSAM offenders in the community, and second, their sample may have been impacted by selection bias due to all the respondents' voluntary enrolment in treatment. Treatment samples of individuals who have been detected for offences may have different characteristics to non-treatment and non-detected samples in the community (Seto et al., 2015). However, given the scarcity of research into motivations or onset to CSAM offending, this study provides a valuable contribution to the knowledge on these types of offenders.

In their large body of work on sexual offending, Wortley and Smallbone (2012) suggest environmental factors such as opportunity to access CSAM via the Internet are likely to play a large part in offending. They examine CSAM offending from a situational crime prevention perspective, proposing this type of offending is driven by the person-situation interaction, which divides triggers for CSAM offending into two components:

- person (individual) factors; and
- situational factors.

Individual factors relate to the psychological or criminogenic need for offending. Situational factors relate to the environmental factors that can trigger a person to offend, such as Internet access/use and opportunity for CSAM offending, which has become high since the advent of the Internet. Other researchers support this notion:

> Specifically, the ease of access to online child pornography may contribute to a new group of offenders who succumb to temptations that they would have otherwise controlled (Babchishin et al., 2015, p. 46).

Considering Wortley and Smallbone's (2012) theory, studies that investigate the circumstances or motivations behind first time or continued CSAM offending have identified mostly individual factors such as emotional reasons, sexual gratification/sexual interest in children, and behavioural reasons (Knack et al., 2020; Merdian et al., 2013; Seto et al., 2010). To a lesser extent, studies have identified situational triggers, such as accidental discovery (Insoll et al., 2021; Merdian et al., 2013; Seto et al., 2010).

However, aside from Insoll et al. (2021) (see section 2.1.1, and Table 2.2), these studies are based on interviews with detected or treated CSAM offenders. Research has found that CSAM offenders who are detected by police tend to have large collections of the material (commonly over 100 images or videos, sometimes over 10,000) (Fortin & Proulx, 2019; Seto et al., 2010). For example, among a sample of 40 offenders detected by police for possessing CSAM, 175,014 CSAM images were found on the offenders' hard drives collectively (Fortin & Proulx, 2019). This indicates that at the stage of police detection, CSAM offending has often already escalated to a high level in terms of quantity of material accessed. Conversely, many undetected

CSAM consumers in the community may be at earlier stages of offending or onset to offending, including being exposed accidentally (Insoll et al., 2021).

Further, the studies reviewed earlier in this section on motivations for CSAM offending (Knack et al., 2020; Merdian et al., 2013; Seto et al., 2010) did not specifically ask how respondents first discovered CSAM. Knack et al. (2020), for example, asked (mostly) detected CSAM offenders, why they think they started or continued to view CSAM. Because this question was about motivation for CSAM engagement, the responses centred around intentional CSAM viewing, and less so around the circumstances of first time CSAM exposure. It is important to study circumstances of first exposure to CSAM, particularly among community samples of Internet users. This would include whether individuals were alone at the time, whether they deliberately sought out material or stumbled across it by accident, the difference between intentional and accidental first-time viewers and whether subsequent CSAM engagement occurred after accidental first-time viewing.

Lastly, given recent research showing the high prevalence of pornography use among adolescents and young people (Lim et al., 2017; Mattebo et al., 2013; Svedin et al., 2011), and evidence (although scarce) that some adolescents view CSAM (Insoll et al., 2021; Seto et al., 2015; Svedin et al., 2011), it is important to learn more about first time CSAM exposure among adolescents. Exploring this will be invaluable to initiatives that target adolescents and young people's potential exposure to CSAM and other harmful pornography. This thesis attempts to follow on from the research reviewed above (Insoll et al., 2021; Knack et al., 2020; Merdian et al., 2013; Seto et al., 2010) by examining the age and circumstances of first time CSAM exposure among a community sample.

2.2 CHARACTERISTICS OF CSAM OFFENDERS

Aside from exploring how and when individuals first discover CSAM, it is important to also understand the characteristics of individuals who engage with CSAM. Knowing this information will help inform initiatives and policies aimed at reducing demand for this harmful material in the community and prevent escalation to more serious offending. This section will review available research that is relevant to the following research questions in this PhD:

- Among CSAM viewers, what are the characteristics of those who share and produce CSAM and are willing to sexually abuse children in person?
- What background and behavioural characteristics are associated with viewing CSAM, and how does this differ by gender?

2.2.1 Differences between CSAM offenders and contact CSA offenders

A key focus of the early literature into CSAM offenders (particularly those who view and share CSAM online) was to examine whether they are different to individuals who commit contact child sexual abuse (CSA) offences in person. This is important to examine for a variety of reasons, including the management and treatment of these offenders after they are detected. For example, reducing reoffending is a key aim of many psychological sex offender treatment programs (Schmucker & Lösel, 2017), therefore examining rates of reoffending between different offender types is important (Seto & Eke, 2015). Other behavioural and background characteristics are similarly important for developing prevention programs aimed at undetected offenders or those at risk of offending in the community.

Many individual studies have been conducted that examine the difference between CSAM offenders and contact CSA offenders; systematic reviews and meta-analyses have proved a valuable resource for reporting findings/effects from the multiple studies. For example, Babchishin et al. (2015) conducted a meta-analysis of 30 studies produced between 2003 and 2013 from the United States, Canada and the United Kingdom. Most samples in the studies were selected based on official charges or convictions (94% of CSAM offenders, 91% of contact sexual offenders and 81% of mixed offenders). A minority of studies used self-report or other sources such as accusations (23% of CSAM offenders, 17% of contact sexual offenders and 38% of mixed offenders). The study compared individuals identified as CSAM-only offenders with contact CSA offenders and 'dual offenders' (those who committed both CSAM and contact CSA offences). The authors found that CSAM-only offenders differed significantly from contact CSA offenders and dual offenders on a range of characteristics, particularly regarding access to children, sexual deviance and antisocial traits.

Contact CSA offenders were more likely than CSAM-only offenders to have:

- access to children;

- emotional identification with children;
- cognitive distortions (e.g., 'children are sexual beings');
- victim empathy deficits;
- a detached approach to romantic relationships;
- a greater number of prior offences;
- higher scores on measures of antisociality;
- greater problems with supervision;
- indicators of a severe mental illness; and
- childhood difficulties and abuse.

CSAM-only offenders, on the other hand, were more likely than contact CSA offenders to:

- be younger;
- have a higher income and higher education;
- have greater sexual deviancy;
- have problems with sexual preoccupation and sexual self-regulation;
- have greater barriers to contact CSA offending (e.g., less cognitive distortions).

The study also compared CSAM-only offenders with dual offenders (CSAM and contact CSA). Dual offenders were more likely than CSAM-only offenders to have:

- access to children;
- a sexual interest in children;
- prior violent offences;
- substance abuse problems; and
- sexual regulation problems.

Dual offenders were also more likely to engage in low commitment sex (e.g., frequent partners) and report childhood difficulties (e.g., childhood conduct issues) and abuse (e.g., sexual abuse, physical abuse). However, CSAM-only offenders were more likely than dual offenders to participate in paedophilic social networks or to have

other negative social influences. Interestingly, contact CSA offenders and dual offenders were more likely than CSAM-only offenders to have access to children. This supports the argument of researchers focused on situational crime prevention, that situational factors play an important role in child sexual abuse (Smallbone & Cale, 2016; Wortley & Smallbone, 2006, 2012). Smallbone and Cale (2016), for example, argue that individual factors (personal/background characteristics) alone are not sufficient for explaining sexual offending. Rather, they argue, sexual offending occurs when individual factors (e.g., sexual interest in children) interact with situational factors (e.g., access to children).

In an individual study published after Babchishin et al. (2015), Henshaw, Ogloff and Clough (2018) linked data from corrections agencies with policing and mental health records in Victoria, Australia. They compared CSAM offenders (n = 456) with contact CSA offenders (n = 493) and dual offenders (n = 256). They found that CSAM-only offenders differed significantly to contact CSA offenders on eight of ten key characteristics measured. Contact CSA offenders were more likely than CSAM-only offenders to have committed a higher number of sexual offences, have offending versatility, have a history of physical violence and intermediate violence (fear/intimidation) and have committed only sexual-related offences. In contrast, CSAM-only offenders were more likely than contact CSA offenders to be of Australian ethnicity (no further detail was provided on this definition), have a higher education and have a paraphilia diagnosis (sexual deviance). Dual offenders (CSAM and contact CSA offending) were found to be a high-risk group with high levels of antisociality and sexual deviance, and thus a greater need for treatment.

The two major studies above (Babchishin et al., 2015; Henshaw et al., 2018) align on several findings and provide robust evidence that detected CSAM-only offenders differ from detected contact CSA offenders and dual offenders on a range of characteristics. Among these, less antisocial characteristics and higher sexual deviance stood out as key factors that distinguished CSAM-only offenders from contact CSA and dual offenders. Similarly, a later review of available evidence, including the studies noted above, found that CSAM offenders tend to have a sexual interest in children, score low on antisocial characteristics (e.g., criminal history) and pose a low risk of reoffending after detection (Babchishin et al., 2018).

That CSAM offenders have a sexual interest in children is a common finding. In several studies for example, notable proportions of CSAM offenders reported having an interest in sexual contact with a minor (Ray et al., 2014), or sexual interest in CSAM and/or arousal towards children (Howitt & Sheldon, 2007; Merdian et al., 2016; Seto et al., 2010). Further, Howitt and Sheldon (2007) found that CSAM offenders had more cognitive distortions or 'beliefs' that children are sexual beings than did contact CSA offenders. Importantly however, Howitt and Sheldon (2007) suggested there is likely a substantial proportion of Internet sex offenders whose offending is driven by fantasy, rather than contact sexual gratification with victims. Similarly, as suggested by Seto et al. (2011)'s meta-analysis, the authors suggest there may be a distinct subgroup of CSAM-only offenders who pose relatively low risk of committing contact sexual offences in the future. This supports the typological work of Merdian et al. (2016) and Krone (2004).

However, the studies reviewed above are largely based on detected offenders, which has its limitations. For example, Ray et al. (2014) found that none of the 41 self-reported CSAM viewers recruited via websites and bulletin boards for an anonymous survey said they had been detected by police for CSAM-related offences. In another survey of 133 victim/survivors of CSAM offending, only one in four (23%) of the CSAM incidents were reported to the police or a child welfare agency, and approximately one-third of victim/survivors of CSAM said they always refused to talk to anyone, including police and counsellors, about their abusive imagery (Gewirtz-Meydan et al., 2018). Further, police face challenges with tracing the origin of CSAM and the individuals who view it due to advances in technology and the anonymity provided by the Internet (Broadhurst, 2019; Virtual Global Taskforce, 2019). Thus, most research on CSAM offenders published thus far is biased towards detected offenders and likely excludes a large and important group of undetected CSAM consumers in the community.

2.2.2 Link between CSAM and contact CSA offending

One rare study examined the risk factors for seeking to contact children online among CSAM offenders surveyed anonymously in the community. Insoll et al. (2022) administered a survey to 1,546 individuals who searched for CSAM on the dark web, which was a subset of the same sample used in Insoll et al. (2021) (see section 2.1.1, and Table 2.2). The study found that 42% of respondents reported seeking direct

contact with children through online platforms after viewing CSAM or illegal violent material, and 58% reported feeling concerned that viewing of CSAM or illegal violent material could lead to sexual acts against a child or adult. The study found that the following characteristics increased the likelihood of contacting children online after viewing CSAM or illegal violent material:

- viewing CSAM or illegal violent material more frequently;
- an older age of first exposure to CSAM or illegal violent material;
- having viewed CSAM depicting toddlers and infants;
- had 'thoughts about self-expressing' prior to viewing CSAM or illegal violent material; and
- being in contact with other consumers of CSAM or illegal violent material.

There were limitations with the study, including that it did not measure contact CSA offending, rather, attempts to contact children online. While it was assumed that this meant for sexual purposes, it was not specified in the survey question. Further, the study did not distinguish between viewing CSAM and viewing illegal violent material, therefore some respondents may have related their responses to viewing of violent adult content. Lastly, as this survey targeted CSAM consumers on the dark web, it may be biased towards more extreme offenders who are willing to take certain measures to hide their identity. Nevertheless, there is very little research available that examines the link between CSAM offending and contact CSA offending, and the 2022 study by Insoll et al. gained insights from a hard-to-reach population of CSAM consumers, including identifying risk factors for seeking contact with children online. Research is required that builds on these limitations, including distinguishing between viewing of CSAM and adult content.

As demonstrated, there is a paucity of studies that examine risk factors for contact CSA offending, or willingness/desire to do so, among CSAM consumers in the community that may not have been detected by police. This knowledge gap is particularly apparent regarding CSAM consumers surveyed through the Clearnet, which the present PhD study aims to address.

2.2.3 What are the characteristics of CSAM consumers in the community?

The previous section reviewed the evidence base on the differences between contact CSA offenders and CSAM offenders. This section will review relevant literature to investigate which people in the community are more likely to view CSAM. As noted in section 2.2.2, most studies conducted thus far focus on detected CSAM offenders, often comparing them to contact CSA offenders. It is important to compare CSAM consumers in the community with non-offender samples, to learn more about their unique traits. A handful of studies have done so – although these are a minority in the CSAM offending literature – and are outlined below.

First, Svedin et al. (2011) analysed data from a large-scale survey of 2,015 Swedish senior high school students (mean age 18.2 years) to examine associations between frequent pornography use and several behavioural and background characteristics. Although the sample included females, most analyses were conducted on males. The survey was part of a larger study, the Baltic Sea Regional Study on Adolescent Sexuality. Pornography was defined as pornographic magazines, films or pornography on the Internet. Frequency of pornography use was measured as 'once' (in their life), 'once or twice a year', 'some time each month', 'some time each week' or 'more or less daily'. Almost all (97.8%) male participants reported viewing pornography. The sample consisted of 200 frequent pornography viewers (those who watched it 'more or less daily'), and 1,661 non-frequent pornography viewers. Frequent pornography viewers were significantly more likely to report ever viewing pornography involving sex with violence or force (29.5% vs 10.8%), sex with animals (30% vs 10.2%) and CSAM (sex between adults and children under 15 years) (17% vs 3.1%).

The study by Svedin et al. (2011) suggests that among adolescents and young people, viewing CSAM may be part of a pattern of behaviours involving seeking out/viewing atypical and illegal sexual content online. Further, there may exist a sub-group or typology of adolescent males who tend to engage in risky and illegal behaviours more so than other adolescent males. The findings suggest that frequent viewing of adult pornography may also be a risk factor for progressing to increasingly harmful types of pornography including CSAM.

Following from Svedin et al. (2011), Seto et al. (2015) analysed the same data from the Baltic Sea Regional Study on Adolescent Sexuality. Their sample comprised

1,978 young Swedish men aged 17–20 years. The study investigated the prevalence, correlates and risk factors for CSAM viewing, defined as ever viewed 'pornography with sex between adults and children'. Eighty-four (4.2%) male participants reported ever viewing CSAM. It is possible that this proportion would have been higher had the definition of CSAM been more inclusive of all types of CSAM (e.g., children alone or with other children). The authors used a multivariate logistic regression model to examine whether several variables predicted CSAM viewing. The variables were derived largely from research into contact CSA offending, due to the lack of CSAM-related research at the time. The strongest predictors of ever viewing CSAM were ever viewed violent pornography and self-reporting interest in having sex with a child. Other variables found to be significant predictors of CSAM viewing included frequent pornography use, ever had sex with a male, perception of children as seductive and having friends who had viewed CSAM. The last predictor suggests that peer influences can be a risk factor for an adolescent viewing CSAM. Similarly, other research has found peer influences to be important factors in decisions to send self-generated sexual images among adolescents (Del Rey et al., 2019; National Campaign, 2008).

While the study by Seto et al. found that experiencing sexual victimisation was associated with CSAM viewing in univariate analysis, the association did not remain a predictor in the multivariate analysis. This suggests that effects of sexual victimisation on CSAM viewing are not independent of other variables (included in the study's model) relating to sexual interests or antisocial behaviours, and in fact may be mediated by these variables. According to the authors, the predictors identified by the study were consistent with models of contact CSA offending that identify anti-sociality and sexual deviance as predictors of sexual offending (Seto et al., 2015).

The definition of CSAM used by the two above studies (Seto et al., 2015; Svedin et al., 2011) were narrow and thus excluded abusive material depicting sexual activity or explicit/nude posing involving one or more children and no adults. Further, female respondents were not examined and more research should investigate this behaviour among females and other genders, given the sizeable and increasing amount of harmful material including CSAM detected on popular Clearnet platforms (NCMEC, 2022). Nevertheless, these were the only two studies (that the author could identify) that examined CSAM viewing among a representative sample of older adolescent males in the community and can teach us a great deal about behaviours among this group.

Three additional studies focused on the psychological characteristics of CSAM consumers compared to non-CSAM consumers in the community, by testing participants on the Big Five personality traits (conscientiousness, agreeableness, extraversion, neuroticism and openness). The first by Seigfried et al. (2008) analysed responses from an anonymous online survey that was advertised on chat rooms, bulletin boards and email discussion forums. Over 300 participants completed the survey, 30 of whom self-reported using CSAM, defined as knowingly searching, accessing, downloading, or exchanging/sharing pornographic materials featuring or involving individuals under 18 years. Important to note that the study only included people who 'knowingly' searched for or accessed CSAM, thus excluding those who may have stumbled across it by accident but still viewed it. The study was the first to identify female CSAM users in the community, although had a very small sample size (n = 10; vs n = 20 male CSAM users).

Seigfried et al. (2008) found that CSAM consumers were more likely than non-CSAM consumers to be male minorities (versus white) and score higher on exploitative-manipulative amoral dishonesty traits and lower on moral choice internal values. Regarding the latter finding, the authors suggest that CSAM users may have differing moral and personal values to non-CSAM users in terms of what is 'right and wrong'. These findings support the notion that by engaging with CSAM, an individual is showing less restraint regarding engaging in behaviour that is either illegal or considered morally unacceptable by society. Important limitations with this study (Seigfried et al., 2008) are its small sample size of CSAM users and that it grouped CSAM viewers with CSAM exchangers, whereas there may be important psychological and other differences between these two subgroups. Lastly, given that the global location of participants was unknown some CSAM users may have resided in countries where age of consent is younger than those in the Five Eyes nations (United States, United Kingdom, Canada, Australia and New Zealand)[5], for example, the Philippines (Gupta, 2022)[6], thus impacting on their moral choice and other scores.

[5] The Five Eyes alliance is "an intelligence sharing arrangement between five English-speaking democracies: the US, UK, Canada, Australia and New Zealand" (Gardner, 2021).
[6] In March 22 President Rodrigo Roa Duterte approved a legislative amendment that raised the age of consent in the Philippines from 12 years to 16 years (Gupta, 2022).

Following this, Seigfried-Spellar (2013) similarly focused on psychological characteristics of CSAM consumers in the community. Following on the work of Seigfried et al. (2008) Seigfried-Spellar (2013) administered a second anonymous online survey by advertising on bulletin boards, chat rooms, discussion forums and social media websites. The study recruited participants from four specified countries (United States, United Kingdom, Canada and Australia) where it is illegal to possess, distribute or produce CSAM. Respondents were defined as CSAM users if they reported at least one of the following behaviours: knowingly searched, accessed, downloaded or exchanged pornographic materials featuring individuals under the age of 18 years. Of the 257 survey respondents, 16 (6%) self-reported viewing CSAM, a notably small number with which to compare with a comparison group in statistical tests, which the authors did. The study administered the Five-Factor Model Rating Form and the Moral Decision-Making Scale as part of the survey. CSAM consumption was positively correlated with agreeableness and negatively correlated with social values. The latter finding on social values suggests that CSAM users are less likely to consider whether their behaviours are morally or legally acceptable than non-CSAM users. However, the small sample size of CSAM users (n = 16) in the study may have hampered adequate statistical power. This could be an explanation for the finding on agreeableness, which was unexpected by the authors.

Later, Seigfried-Spellar and Rogers (2013) anonymously surveyed a sample of 630 adult respondents online, of which 33 reported viewing or sharing CSAM. They found that CSAM consumers were more likely to have viewed bestiality pornography than non-CSAM consumers in the sample. This differed from Seto et al. (2015) (outlined earlier in this section; also see Table 2.2), who found that viewing bestiality pornography (depictions of sex between humans and animals) was not associated with viewing CSAM. However, Seto and colleagues found that viewing pornography depicting sex with violence or force was associated with viewing CSAM. The differences in samples and recruitment methods (i.e., a school-based survey of young males aged 17–20 (Seto et al., 2015) vs. an anonymous survey of adult Internet users of all ages/genders (Seigfried-Spellar & Rogers, 2013)) likely contributed to these slightly conflicting findings regarding the link between viewing bestiality pornography and CSAM. In explanation, young males aged 17–20 may have different behaviours to older adults in multiple age categories. Further, the study sample in Seigfried-

Spellar and Rogers was very small, therefore their findings should be viewed with caution.

Lastly, Ray et al. (2014) recruited 175 adult male participants via advertisements on a variety of websites including newsgroups and chat forums to complete a survey on 'problematic pornography use'. Participants were asked if they had 'ever viewed child pornography or images/videos of individuals who appear to be less than 18', to which 37 (21%) answered yes. The authors compared CSAM viewers with non-CSAM viewers on a range of demographic, personality and behavioural characteristics. Frequent pornography use was not found to be associated with CSAM viewing, unlike two previous surveys of community samples (Seto et al., 2015; Svedin et al., 2011) (see Table 2.2). However, men who scored high on sensation seeking (via the *Non-sexual experience seeking scale* (NESS) and reported frequent pornography use (defined simply as 'pornography') were the most likely to report viewing CSAM. For respondents who scored high on sensation seeking, their likelihood of viewing CSAM increased with the number of reported hours spent viewing pornography. A possible explanation for this finding suggested by the authors is that those who engage in frequent pornography use are also exposed to the Internet and potential deviant influences more regularly.

The study found no differences between the two groups on antisocial characteristics (Ray et al., 2014). However, they found that CSAM viewers were significantly more likely than non-CSAM viewers to say that they would engage in sexual activity with a child if they thought they could get away with it (32.4% vs. 7.5% respectively).

2.2.4 Childhood abuse as a risk factor for CSAM offending

The childhood backgrounds of contact CSA offenders have been a topic of interest for many researchers. Research suggests that adolescents who sexually offend are more likely to experience prior childhood trauma including sexual abuse, physical abuse and exposure to domestic violence (Grant et al., 2009; Ogloff et al., 2012; Seto et al., 2010). Studies have found childhood sexual abuse to be one of several predictors of future sexual offending (Glasser et al., 2001) or other types of offending (Ogloff et al., 2012). In an anonymous survey of 182 convicted contact child sexual offenders in Australia, 55% reported having experienced childhood sexual abuse (Smallbone & Wortley, 2001). Another study based on polygraph testing of arrested sex offenders

found more moderate proportions; approximately 30% reported childhood sexual abuse (Hindman & Peters, James, 2001; Simons, 2007).

However, it has been suggested that such findings may be skewed by offenders over-reporting childhood sexual abuse to gain leniency in sentencing or sympathy from clinicians, courts, or parole boards (Simons, 2007). Alternatively, it is possible that some sex offenders under-report in other circumstances where they do not feel comfortable disclosing their victimisation (Simons, 2007). Nonetheless, although most children who are sexually abused do not go on to sexually abuse others in adulthood (Ogloff et al. 2012), there is a consensus in the research that childhood sexual abuse is a risk factor for sexual offending later in life.

Given the increased availability of CSAM on the Internet in recent decades (Bursztein et al., 2019; Europol, 2020; NCMEC, 2022), research has begun to investigate the childhood backgrounds of CSAM offenders who have been arrested or convicted. Taylor and Quayle (2003) were among the first to conduct qualitative interviews with individuals who had been arrested for CSAM-related offences, to investigate their characteristics and offending behaviour. They suggest several broad potential factors that may increase the likelihood of an individual accessing CSAM: "a history of early sexualised behaviour; inadequate adult socialisation; dissatisfaction with current 'persona'; and an acquisition of computer and Internet skills" (Taylor & Quayle, 2003, p. 97). Later, Sheehan and Sullivan (2010) conducted semi-structured interviews with four males convicted of producing CSAM in the UK and adopted interpretive phenomenological analysis to qualitatively explore the nature of their offences. They noted that,

> Research has shown that most [CSAM] perpetrators have early life experiences and significant childhood events which appear to influence their sexual interests and arousal, perceptions and beliefs and future behaviours. These formative experiences tend to create problems with emotional regulation, intimacy, cognitive and sexual preferences and arousal, generating a motivation to sexually offend. In many cases this motivation is then blocked by inhibitors to sexually offend, which are referred to commonly by perpetrators as guilt and/or fear of the consequences of offending. Frequently, those who progress beyond this point use cognitive distortions and abuse-supportive thinking to justify their desires and overcome the inhibitors created by the guilt and fear (Sheehan & Sullivan, 2010, p. 146).

These early qualitative studies suggest that childhood difficulties can influence an individual to engage with CSAM later in life.

A small number of quantitative studies have examined rates of childhood abuse by comparing CSAM offenders with contact CSA offenders. These studies generally find that the latter has higher rates of non-sexual childhood physical abuse, but that rates of childhood sexual abuse are similar between the two offender types. For example, Webb et al. (2007) analysed data from psychological assessments with 90 male CSAM-only offenders (including possessors, sharers/exchangers and producers) in the UK and compared them with data from a matched group of 120 child molesters (contact CSA offenders). Information on the background and psychological characteristics of the offenders were collected. Significant differences were found between contact CSA offenders and CSAM-only offenders regarding rates of childhood physical abuse (25% vs 12%), but not childhood sexual abuse (32% vs 26%).

McCarthy (2010) reported slightly different findings, when they analysed psychological case files from 107 adult male sex offenders, grouped into CSAM offenders (included possessors and exchangers; n=56) and contact CSA offenders (n=51). All had been referred to a sex offender treatment program in the US through the courts or other criminal justice departments. They found no significant difference in likelihood of childhood physical or sexual abuse experienced between contact CSA and CSAM-only offenders.

Babchishin et al. (2011), on the other hand, produced similar findings to Webb et al. (2007) in their meta-analysis of 27 studies, which aimed to determine whether CSAM-only offenders and contact CSA offenders differed on demographic and psychological characteristics. Studies were included if they used an identifiable sample of CSAM offenders post the year 2000, sufficient statistical data to calculate an effect size, at least one demographic or psychological variable, and a suitable comparison group. Most samples were identified by their CSAM convictions, arrests, or charges, with 2 out of 27 identified by self-reported CSAM use. Five studies included females (who comprised only 3%) in the samples, and approximately half of all the CSAM samples also included online grooming offenders. The study found no differences between CSAM offenders and contact CSA offenders in terms of rates of childhood sexual abuse. While contact CSA offenders were more likely to report physical abuse

in childhood than CSAM offenders (41% vs 24% respectively), this difference was only significant in the fixed-effect analysis, not the random-effects analysis.

In the same study, however, Babchishin et al. (2011) compared CSAM and contact CSA offenders with matched samples of the general population, finding that both had greater rates of childhood physical and sexual abuse than males in the general population. At the time of writing, this was one of the only studies identified that compared rates of childhood abuse between detected CSAM offenders and non-offenders in the general population. Similarly, few studies have compared CSAM consumers in the community with non-CSAM consumers to explore their rates of physical and childhood sexual abuse. In the anonymous school-based survey of Swedish males outlined by Seto et al. (2015) (see section 2.2.3, and Table 2.2) found that experiencing childhood sexual abuse was significantly associated with CSAM viewing in univariate analysis, yet not the multivariate analysis.

Given the evidence relating to this topic is scarce and unclear, more research is required, particularly to examine whether experiencing childhood sexual abuse places individuals at greater risk of CSAM offending. This is important to examine because child sexual abuse has been linked with many negative outcomes later in life, thus answering this question will have implications for intervention initiatives aiming to reduce CSAM offending.

2.2.5 CSAM offending and gender

Most published research on detected CSAM offenders finds that these individuals largely tend to be male (Brown & Bricknell, 2018). For example, in the meta-analysis by Babchishin et al. (2011) (see section 2.2.4, and Table 2.2) five out of 27 studies on online sexual offenders included females, who made up less than 3% of the samples. This suggests it is very unusual for females to be detected for these crimes.

However, other evidence suggests more females engage in contact CSA offending than is reported; a review of key literature on female contact CSA offenders suggest these offenders may be underreported due to the ‘culture of denial’ in society (Tozdan et al., 2019). The same may also apply to CSAM offending. For example, two separate studies that surveyed CSAM consumers anonymously in the community reported greater proportions of female CSAM consumers (viewing and/or sharing material) than the criminal justice-based studies, although overall sample sizes were

very small (10 of 30 CSAM consumers were female in Seigfried et al., 2008; 17 of 33 CSAM consumers were female in Seigfried-Spellar & Rogers, 2013). Nevertheless, the findings do indicate that proportions of female CSAM consumers in the community may be greater than is reflected in criminal justice figures, and that more research is required to clarify this.

Just as research is scarce on the prevalence of female CSAM offenders in the community, there is similarly little information regarding the differences between male and female CSAM consumers. One study (Salter et al., 2021) analysed 82 cases where parents produced CSAM (i.e., recorded or took photographs of children being sexually abused) of their own children, and in some cases shared the abusive material with others. These cases involved parents or parental figures who were charged with CSAM offences against their own children as reported in Australian media and legal databases for the period 2009–2019. The study found that female CSAM producers tended to engage in this abuse at the behest of a male partner, whereas male CSAM producers tended to either sexually exploit their own children or purposefully partner with a female who had children, whom they would then sexually exploit.

Bickart et al. (2019) produced some similar findings, when they analysed psychosocial and offence data on 98 females convicted and incarcerated for online sexual offences in the United States. They found that the majority (n = 70/98) of the females' offences involved the production of CSAM for distribution online, most often in collaboration with a male co-offender, and that typically the victim was the female offender's child. They also found that 60% of the female CSAM offenders reported a history of sexual abuse, and 46% reported physical abuse. These rates are higher than reported in previous studies on male CSAM offenders. For example, Babchishin et al. (2011) found that 24.4% of male CSAM offenders had experienced childhood physical abuse and 21.1% had experienced childhood sexual abuse (see section 2.2.4, and Table 2.1). It is possible therefore that female CSAM offenders are more likely to have experienced childhood abuse than male CSAM offenders, although research is required to confirm this. Nevertheless, the limited literature suggests there are distinct differences between males and females detected for CSAM offences.

In summary, little research is available that compares the characteristics of male and female CSAM offenders, particularly those who view and share CSAM. Similarly,

no research could be located that focuses on CSAM offending among other genders (e.g., non-binary, trans), which is an area that requires more research.

2.2.6 Other demographic characteristics of CSAM offenders

Most research that has examined demographic characteristics of CSAM offenders has compared detected CSAM offenders with detected contact CSA offenders or dual offenders. Several of these studies found that detected CSAM offenders were more likely than detected contact CSA offenders to be younger, employed and have higher educational attainment, but less likely to be in a relationship (Janelle. Armstrong & Mellor, 2016; Babchishin et al., 2011; Faust et al., 2015; Jung et al., 2013; Magaletta et al., 2014; Navarro & Jasinski, 2015; Seto & Eke, 2015; Webb et al., 2007). In their meta-analysis Babchishin et al. (2011) found that CSAM offenders (some of whom also committed online grooming offences) were more likely than contact CSA offenders to be younger and Caucasian (see section 2.2.4, and Table 2.1). In support of this, a survey of 466 convicted male offenders in Canada and the United States found that CSAM-only offenders were significantly more likely to be Caucasian (as opposed to African American or other ethnicity) than contact CSA offenders (Lee et al., 2012).

Thus, while there is robust and consistent evidence that CSAM offenders and contact CSA offenders differ on demographic characteristics, the research is less extensive and consistent regarding demographic differences between CSAM offenders and non-offending samples in the community. The second part of Babchishin et al.'s (2011) study (see section 2.2.4, and Table 2.1) was one exception; they found that compared with the general population, detected CSAM offenders were significantly more likely to be younger (mean 38.6 years vs. 46.6 years), unemployed (14.7% vs. 5.8%) have never been married (50.4% vs. 30.9%) and unmarried at the time of study (69.6% vs. 44.8%). CSAM offenders were also significantly less likely to be a racial minority than the general population (8.2% vs. 21.6%). However, there were no differences observed between CSAM offenders and general population on educational attainment.

Conversely, Ray et al. (2014) (see Section 2.2.3, and Table 2.2) found that CSAM viewers did not differ from non-CSAM viewers in the community regarding age, minority status (ethnicity) and education. However, they found that CSAM viewers were significantly less likely to be in a relationship (albeit the correlation was

weak). Therefore, both Babchishin et al. and Ray et al. had consistent findings relating to CSAM consumers being less likely to be in a relationship/married. This finding is also supported by previous research based on criminal justice samples. Such studies found that CSAM offenders are more likely than contact CSA offenders to have social/interpersonal deficits or difficulties (Laulik et al., 2007) and self-report greater emotional loneliness (Bates & Metcalf, 2007) and difficulties with intimate relationships (Laulik et al., 2007; Merdian et al., 2016; Webb et al., 2007). Therefore, it would seem expected that Ray et al. (2014) would have similar findings regarding emotional loneliness/intimate relationships, but on the contrary they found no difference between CSAM viewers and non-CSAM viewers in the community on loneliness and attachment styles. The authors in Ray et al. suggest this may be due to the types of participants that the study attracted (i.e., 'a survey about problematic pornography use'), who may have had similar levels of emotional and intimacy deficits to CSAM viewers. It would be beneficial to investigate these differences between CSAM viewers and non-CSAM viewers in a larger community sample (Ray et al. surveyed 175 respondents, of whom 39 had viewed CSAM).

In summary, the few studies that have compared CSAM offenders with non-offending samples in the community disagreed on whether there were demographic differences between the two groups. However, it was generally agreed that CSAM offenders are less likely to be married/in a relationship, but tend to have similar levels of educational attainment, than non-CSAM offenders in the community.

2.2.7 Characteristics of individuals who produce or distribute CSAM

Production of CSAM relates to when CSAM is created. This can involve an individual recording or photographing a child being sexually abused/exploited (Cale et al., 2021; Salter et al., 2021), or a child being coerced into self-generating sexual photographs or videos of themselves (Powell et al., 2021). Sharing of CSAM refers to an individual sending or showing other individuals' CSAM, usually by uploading the material to the Internet (Seto et al., 2018). Sexual material can also be self-generated by and shared among adolescents with or without consent or coercion, often referred to as 'sexting' (Madigan et al., 2018).

To understand the nature of CSAM distribution, Seto et al. (2018) extracted and analysed two datasets of CSAM stored by the National Center for Missing and Exploited Children in the United States. The study aimed to investigate multiple

research questions, including the trends in actively traded CSAM over time. The first (historical) CSAM dataset comprised of all actively traded cases involving identified victims from 2002 to 2014 (518 cases, which involved 933 victims). The second (modern) CSAM dataset comprised all cased involving identified victims from 2011 to 2014 (1,965 cases where there was one offender and one victim, and 633 cases where there were multiple offenders and/or victims). The study identified a trend towards more egregious sexual content over time and depictions of younger children, with more material involving explicit sexual conduct in recent years. This suggests an increased demand for more images and videos showing severe sexual abuse of children (e.g., sexual penetration, sadism) as opposed to erotic posing.

A later study investigated the characteristics of CSAM that was produced through taking stills from live streamed CSA, and then shared/traded online (IWF, 2018). The Internet Watch Foundation (IWF) is a non-profit organisation that has a hotline and online reporting portal where individuals and organisations can report CSAM. In 2018, the IWF identified 2,082 images and videos of live-streamed child sexual abuse. Their analysis found that 98% of images found were of children aged 13 and under, while 28% were of children aged 10 years and under (IWF, 2018). Following this study, in 2020, the IWF assessed 53,383 confirmed CSAM reports (IWF, 2021). They found that the most common age groups of victims in reported CSAM were those aged 11–13 years (43%), 7–10 years (42%) and 3–6 years (11%). Apart from this study, there is little available evidence on the age of victims depicted in CSAM.

Very few studies have distinguished CSAM offenders who only view material from those who also share with others (sharers) and/or produce their own material (producers). Seigfried-Spellar (2014) recruited 273 respondents to complete an anonymous online survey via advertisements on various sites (chat rooms, bulletin boards, discussion forums, social media), to assess personality and cognitive differences between three subgroups of CSAM consumers. Only 16 (6%) respondents were classified as CSAM consumers; of these, 10 were 'searchers/viewers'[7]; three

[7] Respondents who reported intentionally searching for or accessing child sexual abuse material.

'downloaders'[8]; and three 'exchangers'[9]. Noting that the sample sizes of CSAM consumer types were very small, according to two-tailed significance tests, the three CSAM consumers who shared/traded material were more likely to score highly on conscientiousness, impulsive-seeking and extraversion compared with the ten people who viewed/accessed material only. However, the authors' ability to make firm conclusions from the findings was no doubt hampered by the small numbers in the downloaders (n = 3) and exchangers (n = 3) groups, which were compared to the 10 searchers/viewers. Unfortunately, this study was one of the few that compared CSAM viewers with exchangers and demonstrates the dearth of research in this area. The study recommended that future research should look more closely at the personality differences between individuals who view, exchange, and produce CSAM.

A relatively small number of other studies have examined the characteristics of CSAM producers and distributors. Many of these were summarised by Cale et al. (2021) in a systematic review of 24 studies published between 2010 and 2019. The study reviewed papers focused on production and distribution of CSAM, to explore the characteristics of offenders, victims, and offences. They found studies differed significantly in terms of approach and robustness of methodologies, with some comparing CSAM producers with CSAM viewers or distributors, and others examining case studies of CSAM producers. Generally, however, the authors (Cale et al., 2021) made some conclusions from the review of studies. Two studies based on case studies or descriptive analyses of data relating to CSAM producers suggested they were commonly white males in early adulthood who were employed, had a history of early childhood sexual contact or child sexual abuse, viewed pornography from an early age, and experienced social isolation. Only one study compared CSAM producers with distributors, finding the former was more likely to be aged in their 30s, have drug and alcohol problems and histories of violent and sexual offences.

Further, Cale et al. (2021) found that among detected CSAM viewers, up to one third also shared CSAM, and that producing CSAM was associated with committing contact CSA offences. For some offenders, contact CSA offending was a necessary part of the CSAM production process, while others only produced CSAM online

[8] Respondents who reported intentionally downloading child sexual abuse material.
[9] Respondents who reported intentionally sharing child sexual abuse material with someone else over the Internet.

through a webcam. However, there appears to be very limited studies with adequate sample sizes that compare demographic and background characteristics between CSAM viewers, sharers and producers.

In examining other characteristics of CSAM producers, CSAM victim/survivor surveys have found that substantial proportions of CSAM producers tend to be parents of the victims (42–67%) (Canadian Centre for Child Protection, 2017). Similarly, an analysis of CSAM images stored by the NCMEC (Seto et al., 2018) (described earlier in this section) found that the most highly traded CSAM images online showed pre-pubescent females being sexually abused by their fathers. Reasons for this may be that parents can more easily arrange for their own children to be in locations/situations where they can be alone with them and coerce the child to not report the abuse to anyone (Salter et al., 2021). Indeed, in one CSAM survivor survey, over half of respondents said they were abused by a family member, and a third said that they have never talked about their abusive imagery with anyone, including police and child welfare agencies (Gewirtz-Meydan et al., 2018). Each of these factors may enable CSAM-producing parents to commit and record more severe and prolonged child sexual abuse, material that unfortunately appears to be popular among online offenders (Seto et al., 2018).

However, research that examines the characteristics of cases where parents produced CSAM is particularly rare. Salter et al. (2021) analysed 82 cases where parents produced CSAM (i.e., recorded or took photographs of children being sexually abused) of their own children, and in some cases shared the abusive material with others (see section 2.2.5). They found that in 72% of cases there was a single male perpetrator, in 10% of cases there was a single female perpetrator and in 18% of cases there were both male and female perpetrators. Further, in 52% of cases the biological father was the perpetrator and in 41% of cases the stepfather, a parent's partner or a foster father was the perpetrator. In 28% of cases the female biological mother of the victim was involved in the abuse, the minority (n = 8) of which she was the sole perpetrator, and the majority (n = 15) of which she was a co-offender. There was no information on the proportion of cases in which the biological father was the sole perpetrator versus a co-offender. Victims were predominantly girls under nine years of age.

In just under half of cases (45%) in the study (Salter et al., 2021), perpetrators were also charged with distributing CSAM to others, although there was no information about the nature of the distribution and whether a gender difference was found. While information was not available on whether CSAM production charges were linked to distribution charges among the sample, in most cases it was clear that the distributed material depicted the offender's child. Therefore, there appears to be an overlap between production and distribution, although not all CSAM producers will distribute the material to others. Three 'types' of parental CSAM producers emerged from Salter et al.'s (2021) study:

- The male offender who forms adult relationships and has children of his own to exploit;
- The male offender who forms a relationship with a woman and exploits her children or seeks to obtain children by some other means (eg surrogacy cases); and
- The biological mother who produces CSAM of her children at the behest of males she knows in person or online.

The documented impacts on victims from the study were significant, including self-blame/guilt, grief/loss, fear and trauma. The study indicates that parents, while often targeted for educational programs and campaigns for keeping children safe from online exploitation, may play a larger role in the production of CSAM than is often reported in the media. The study also highlighted the lack of guidance for policy and practice in this area (Salter et al., 2021).

2.2.8 Networking with paedophilic communities online

While early research suggests that contact CSA offenders largely act alone when offending (Elliott et al., 1995; Smallbone & Wortley, 2001), individuals who view and share CSAM tend to do so in collaboration with one another. Research shows that CSAM offenders use specific sites on the darknet and Clearnet for social interaction and sharing of abusive material (Quayle et al., 2012; Tremblay, 2006; van der Bruggen & Blokland, 2021; Wortley & Smallbone, 2012).

Since the early 2000s researchers have highlighted the online cultures that exist to facilitate communication between individuals with a sexual interest in children or CSAM (D'Ovidio et al., 2009; Holt et al., 2010; Taylor & Quayle, 2003). Taylor &

Quayle (2003) discussed their findings from the Copine Project, part of which involved semi-structured interviews with convicted CSAM offenders. The overall aim of the Copine Project was to address children's vulnerabilities in relation to new technologies, particularly CSAM. When discussing their findings, they stated: "Downloaders move through stages in their behaviour, which is directly related to their level of engagement with the Internet" (Taylor & Quayle, 2003, p. 98). They suggest that Internet use increases social ties among offenders by providing virtual, online communities, while simultaneously reducing an offender's level of face-to-face social contact with individuals in the offline world. Another study suggested a similar scenario, describing the online sexual behaviour of CSAM offenders as a form of 'pseudo-intimacy' that may be lacking in their offline life, while at the same time reducing the possibility of social rejection (Elliott et al., 2009).

Although there is little empirical research to corroborate, this thesis hypothesises that visiting sites or chat forums where people share opinions favourable to adult/child sex increases a person's likelihood of engaging with CSAM and contact CSA offending. Qualitative research based on data from individuals detected or in treatment for CSAM offending has found that CSAM offenders possess cognitive distortions, for example that children are sexual beings or that adult-child sexual relations are acceptable (Howitt & Sheldon, 2007; Merdian et al., 2016; Quayle & Taylor, 2002). It has been suggested that such cognitive distortions are either acquired from, nurtured and/or justified by online paedophilic subcultures among which adult-child sexual relations are encouraged and legitimised (D'Ovidio et al., 2009; Holt et al., 2010). In much the same way Edwin Sutherland's (Sutherland, 1947) theory of differential association proposes that through interaction with others, individuals learn values, attitudes, techniques and motives for criminal behaviour, through online paedophilic communities, individuals can 'learn' to engage with CSAM and child sexual abuse.

Similarly, Jung et al. (2012) argue that undetected offenders sharing CSAM on the Internet justify their behaviour online and encourage others to do the same. The authors argue that this type of offending is mostly beyond the reach of law enforcement due to encryption and anonymity provided by the Internet, and because of this offenders feel they can be bold when sharing their opinions online. Bourke & Hernandez (2009) similarly argue that online communities of individuals can be particularly dangerous as they provide social validation and a sense of belonging and

support for people with beliefs and opinions favourable to child sexual abuse and CSAM.

Even more concerning is the anecdotal evidence provided by law enforcement via media articles to suggest that a prerequisite for membership of many CSAM-sharing online communities is the submission of abusive material. The private online CSAM-sharing network W0nderland, for example, required new members to provide 10,000 images of CSAM (Corbin, 2001). This was likely a protective measure to prevent undercover law enforcement agents from becoming members. It may also serve to ensure each member is the 'real deal', and not someone merely looking to observe the online community without necessarily becoming involved in the viewing and sharing of material. In addition, members who provided originally produced material to the W0nderland site gained greater status and respect among the group (Corbin, 2001). Similarly, the Introduction chapter of this thesis highlighted a CSAM-sharing site on the dark web, *Welcome to Video*, which in 2019, the UK's National Crime Agency shut down. The site allowed users from at least 38 countries to gain 'loyalty points' for uploading abuse videos of children to the site (Spillet, 2019).

However, despite much anecdotal evidence and some qualitative indications, there is little empirical research examining a link between online networking on paedophilic chat forums and engagement with CSAM or contact CSA offending. Jung et al. (2012) suggested it would be useful to explore the relationship between online networking behaviour with other paedophiles and contact offending and/or cognitive distortions regarding sexual offending, saying:

> we would expect to find that active engagement in deviant on-line activities to positively correlate with thinking about, planning, and/or direct contact with children. Also, a positive correlation between sexually deviant Internet usage and cognitive distortions supportive of sex offending behaviors is expected (Jung et al., 2012, p. 659).

Two quantitative studies were located that examined the association between online networking with CSAM offending sites and actual or attempts to sexually abuse children in person. First, Krone et al. (2017) analysed Australian Federal Police criminal history data from a sample of 153 males convicted of child sexual exploitation offences in Australia between 2005 and 2011. They found that being the

facilitator/administrator of an online child exploitation network or sharing and/or producing CSAM was associated with a history of contact sexual offending.

The second study was by Insoll et al. (2021), who surveyed CSAM consumers on the dark web (see section 2.1.1, and Table 2.2). The study found that, among other factors, being in contact with other consumers of CSAM or illegal violent material increased respondents' likelihood of seeking direct contact with children online after viewing CSAM or illegal violent material. Both these studies (Insoll et al., 2021; Krone et al., 2017) indicate that communicating with child sexual exploitation/CSAM offenders online increased the likelihood of attempting to contact children online or committing contact CSA offences.

However, the first study (Krone et al., 2017) was limited in that it analysed the criminal history of a sample of convicted child sexual exploitation offenders, who may have committed other offences that were not detected by police. The second study (Insoll et al., 2021) is based on a sample of CSAM consumers on the darknet, who, given they had made the effort to search for CSAM on the darknet, may have been more progressed than other CSAM offenders in their offending trajectory. Insoll et al.'s study also did not specifically ask whether respondents were seeking contact with children for the purposes of grooming or sexual abuse/exploitation or for other reasons. Further, as neither of these studies included a comparison group of non-offenders, they could not determine whether online networking with CSAM offenders or on paedophilic chat forums increased the likelihood of engaging with CSAM. The present study seeks to build on this work to examine whether online networking with paedophilic communities increases the likelihood of CSAM exposure and/or willingness to have sexual contact with a child.

2.2.9 Summary: Characteristics of CSAM offenders

In summary, what do these studies tell us about the characteristics of CSAM offenders? The key evidence suggests that compared to detected contact CSA offenders, detected CSAM-only offenders are more likely to have contact with online paedophilia networks, score lower on antisocial characteristics (e.g., criminal history) and pose a lower risk of reoffending after detection. Dual offenders were more likely than CSAM-only offenders to have sexual deviance and a sexual interest in children. One meta-analysis also found that contact CSA and dual offenders were more likely to have access to children than were CSAM-only offenders. Lastly, among CSAM

consumers surveyed anonymously in the community, the following characteristics increase their likelihood of seeking out children online: viewing CSAM/illegal violent material more frequently; first engaging with CSAM/illegal violent material later in life; viewing CSAM depicting toddlers or infants; having thoughts about self-expressing prior to viewing harmful material; or being in contact with other consumers of CSAM or illegal violent material.

Among non-offenders in the community, what are the risk factors for engaging with CSAM? Fewer studies were available that examined the characteristics of CSAM consumers in the community by comparing them with non-CSAM consumers. A small number of anonymous surveys of (mostly) males shed important light on the issue, although the samples, methodologies, and findings often differed. Generally, there was agreement among the studies that having a sexual interest in children and viewing adult pornography depicting violence increased the likelihood of individuals in the community viewing CSAM. Higher frequency viewing of adult pornography also increased the likelihood of viewing CSAM, particularly among men who scored high on sensation seeking (e.g., seeking to engage in frightening or exciting activities). Other related findings were mixed; for example, viewing CSAM was found to be associated with viewing of bestiality pornography in some studies, but not others. The conflicting findings are likely due to the difference in samples and recruitment methods between the studies. One study also found that among older male school students (aged 17–20 years), having had sex with a male and having friends who had viewed CSAM increased the likelihood of viewing CSAM.

Next, this section examined the evidence on demographic characteristics of CSAM offenders, finding generally that CSAM offenders and contact CSA offenders differ on a range of demographic characteristics, including age, employment status, educational attainment, and relationship status. Conversely, the few studies that compared CSAM offenders to non-offending samples in the community did not agree on whether there were significant differences between the two groups regarding age, ethnicity or employment. Although, it was generally agreed that CSAM offenders are less likely to be married/in a relationship compared with non-CSAM offenders in the community, but that the two groups have similar levels of education. More research needs to be conducted, on larger samples in the community, to confirm whether other demographic differences exist between the two groups.

This section also examined the link between childhood abuse and CSAM offending, on which the evidence was mixed. Most studies found no differences in rates of childhood sexual abuse between detected CSAM offenders and detected contact CSA offenders, while it was found the latter were more likely to experience non-sexual physical abuse during childhood. Few studies were available that compared child abuse rates between CSAM offenders and non-offending samples in the community. Two studies that did so conflicted regarding differences in rates of childhood sexual abuse between CSAM offenders and non-CSAM offenders in the community.

Next, this section reviewed the evidence on characteristics of CSAM viewers who also produce and distribute CSAM online. Victim/survivor surveys report that a large proportion of CSAM producers are parents of the victims (up to 67%). Examinations of parental CSAM producers find that female offenders tend to sexually exploit children at the behest of a male partner, while male offenders tend to sexually exploit their own children or deliberately partner with a mother whose children he can sexually exploit. The characteristics found to be associated with producing CSAM included being in early adulthood, employed, experiencing early sexual contact or child sexual abuse, early exposure to pornography, drug and alcohol problems and committing violent or contact sexual offences. However, there was a dearth of research available that examined characteristics of CSAM producers and distributors by comparing them with individuals who only view CSAM. Much of the research available was based on case studies or descriptive analyses. Studies that compared CSAM producers or distributors with non-CSAM viewers were rare. There was also scarcity of guidance for policy makers and practitioners in this area.

Finally, two studies suggested that CSAM consumers who network online with other child sexual exploitation/CSAM offenders are more likely to attempt to contact children online or commit contact CSA offences.

As this section demonstrated, there remain important gaps in the knowledge base on characteristics of CSAM consumers. For example, most studies did not examine females who viewed CSAM, and those that did were hampered by very small sample sizes. More needs to be learnt about females in the community who view CSAM, for example whether they are more likely to discover it by accident than males. There is currently very little research examining female CSAM viewers, and such information

can help the development of initiatives that deter CSAM consumption in the community. Further, while two studies (Seto et al., 2015; Svedin et al., 2011) (see Table 2.2) examined a range of background characteristics associated with CSAM viewing in a representative community sample, these were only examined among young male school students (17–20 years). It is critical to examine these characteristics among all age groups and genders of CSAM viewers in the community, as there may be differences between cohorts and groups. The present study aims to address these important shortcomings in the literature.

2.3 WHERE DOES SEXTING FIT IN?

The previous section reviewed the available evidence on the characteristics of CSAM offenders, including arrested/convicted offenders, and those surveyed anonymously in the community. This section will examine existing literature relevant to the research question: What characteristics are associated with sexting among adolescents and is sexting a predictor for viewing CSAM?

Sharing and receiving of self-generated sexual material via smartphone, other devices, or social media, otherwise known as 'sexting', is an increasingly common practice among young people (Lee et al., 2015; Morelli et al., 2017). This can include sexual text, images and videos (Del Rey et al., 2019; Madigan et al., 2018; Morelli et al., 2017), although some studies limit the definition to images/videos (Lee et al., 2015). In this section, 'sexting' refers to sharing of sexual images, videos, or text-based messages, while 'engagement with self-generated sexual material' refers only to sharing of images/videos. Because of the increasing popularity of sexting/engagement with self-generated sexual material, there has been growing policy/practitioner concern and research focus on this behaviour among adolescents under 18 years, with many studies focusing on prevalence.

For example, Madigan et al. (2018) conducted a systematic review and meta-analysis of 39 studies (n = 110,380) that examined the prevalence of 'sexting' (defined as sexually explicit images, videos, or messages) among youth (age range 11.9–17 years), published from 1990–2016. Respondents had a mean age of 15.2 years. The authors found that 14.8% of respondents had received a sext and 27.4% had sent a sext when they were under 18. The study also examined the prevalence of respondents who had forwarded a sext without consent from the recipient; 12% reported that they had

done this and 8.4% reported having a sext forwarded without their consent. Importantly, the prevalence of engagement in sexting increased over time. Thus, while the study found that only small minorities of respondents had received a sext when they were under 18, over a quarter reported sending it, and that this behaviour is becoming more common among adolescents.

While studies asking people about their sexting behaviour generally have not surveyed pre-pubescent children, it is noted in paediatric research that sexual experimentation usually begins in early adolescence (Tulloch & Kaufman 2013). As such, sexting/engagement with self-generated sexual material is commonly reported by adolescents and young people, rather than pre-pubescent children. Further, two studies have found that sexting among adolescents increases with their age, including Madigan et al. (2018; reviewed earlier in this section) and the UK Safer Internet Centre et al. (2017), which will be reviewed in detail in the next section.

Motivations for, and emotional outcomes of sexting

Studies have examined the self-reported reactions to sexting among adolescents under 18 years, finding these respondents report both negative and positive emotional outcomes. For example, a representative survey of 1,424 Australian adolescents aged 14–17 found that 22% of males and 35% of females reported asking, being asked to, showing, or sending (respondents answered 'yes' if they had experienced at least one of each of these scenarios) a nude or nearly nude image or video of themselves to someone else in the last 12 months (UK Safer Internet Centre et al., 2017). When examining specific behaviours, girls were more than twice as likely as boys to have been asked to send self-generated sexual material (22% vs. 8%), significantly more likely to have received it (19% vs. 12%), and slightly more likely to have sent it (7% vs. 4%). This suggests that females are more vulnerable to engagement with self-generated sexual material; in particular receiving the material and receiving requests for the material. Overall, only 5% of participants reported sending images/videos of themselves to someone else, the majority being 17-year-olds. Of 14–17-year-olds who had been asked by a peer to send a nude/nearly nude photo, 60% said they felt uncomfortable and 43% felt disgusted. Other negative emotions included feeling pressured (26%), nervous (26%) and mad/angry (21%). However, a minority also felt flattered (18%) and excited (10%).

Other studies have reported greater positive emotional outcomes from sexting among adolescents. Del Rey et al. (2019) conducted a survey of 2,356 male and female high school students aged 11–18 years in Spain, to examine the emotional impact of sexting behaviour among adolescents. The authors analysed two structural equation models to examine the emotional impact of sexting on respondents, finding that the 'depressed' and 'annoyed' emotional impact to the models was minimal. In explanation, engagement with sexting was not associated with self-reported negative emotions (anger/annoyance, sadness/depression) in the short-term. On the contrary, sexting was associated with feelings of activation (lively, energetic, satisfied, ready, determined, active) among males and females. However, the emotional impact experienced from sexting did differ by gender; according to *t*-tests, boys were more likely to experience positive emotional impacts (feelings of activation) from engagement with primary (sending/receiving a sext) or secondary (having a sext forwarded without consent) sexting. Girls, however, were more likely to experience negative emotions (depressed, annoyed) after experiencing secondary sexting.

Studies have also investigated the reasons why adolescents engage in sexting/self-generated sexual material, finding that perceived benefits and peer pressure/influences appear to play a pivotal role in their motivation to engage in this behaviour. The National Campaign to Prevent Teen and Unplanned Pregnancy, and CosmoGirl.com (National Campaign, 2008) surveyed 1,280 young people in the United States—653 adolescents (13–19 years) and 627 young adults (20–26 years). They found a notable proportion of the adolescent sample (38%) believed sexting would make dating or 'hooking up' with a person more likely, and the most common reason for sexting was that it was a 'fun and flirtatious' activity. They also found that half (51%) of females aged 13–19 felt pressure from adolescent males to send messages containing sexual content. Further, over one in five female (21%) and male (24%) adolescents said they were pressured by friends to send or post sexual messages/material (National Campaign, 2008). Similarly, a survey of 2,356 male and female high school students in Spain (Del Rey et al., 2019) (see previous paragraph) found that engagement with sexting was strongly influenced by a need for popularity among 11–18 year-olds.

Longer term negative outcomes of sexting

The studies reviewed above are limited in that they focused on adolescents' reactions to engaging with sexting at the time when it occurred or soon after, finding that sexting induces emotional reactions among adolescents in the short-term, some positive, some negative. However, in the longer term, this behaviour can have other potentially dire consequences, particularly in relation to sharing of images and videos.

An obvious concern of sharing self-generated sexual material among minors is the illegality, which has resulted in arrests of adolescents in the United States (Strasburger et al., 2019). For example, Wolak et al. (2012) distributed mail surveys to a stratified national sample of 2,712 law enforcement agencies in the United States, which was followed by telephone interviews with police officers. The purpose of the interviews was to gain insight into a nationally representative sample of cases involving 'youth-produced sexual images' that constituted CSAM, which were investigated by police in 2008 and 2009. The study found that an arrest took place in 62% of youth-produced sexual images cases that involved an adult, 36% of aggravated cases (involving malicious, non-consensual, or abusive behaviour) involving youth only, and 18% of cases that were not aggravated and involved youth only. Therefore, adolescents who engage in sexting are at risk of being criminalised for their behaviour.

To address this issue, 27 states in the United States have passed laws that specifically address sexting among minors[10]; several have attempted to introduce legislation that decreases the penalty for minors convicted of CSAM-related offences or ensures they are not placed on a public sex offender register (Strasburger et al., 2019). However, laws regarding sexting among minors vary immensely across the United States, from decriminalisation to misdemeanour charges or prosecution for CSAM with harsh sentences (Strasburger et al., 2019). Similarly, laws in Australia relating to sexting are inconsistent across states and territories. According to Moritz and Christensen (2020), in most Australian jurisdiction, sexting among minors is considered CSAM offending; however, South Australia, Victoria and New South Wales have decriminalised some sexting-related behaviour.

[10] See https://cyberbullying.org/sexting-laws for a detailed account on the laws in each state and what they cover in relation to sexting.

As in many countries, in Australia data are lacking on the number of arrests of minors that have taken place because of sexting. Queensland has shed some light on the issue, namely that it is becoming increasingly common for youth to be cautioned by police for sexting. The Queensland Sentencing Council analysed police and court data on CSAM-related offences in Queensland (QSAC, 2017), finding that from 1 July 2006 to 30 June 2016, 3,035 offenders were dealt with by the criminal justice system for these offences. Of these, 1,470 minors (aged 10–16) years were cautioned by police or participated in a youth justice conference (criminal justice diversion), while 1,565 people (including minors and adults) were sentenced in Queensland courts for CSAM offences. The study found that the number of minors being cautioned or conferenced by the Queensland Police Service for CSAM-related offences increased from 28 in 2006–07 to 331 in 2015–16. According to the Queensland Police Service, most of these offences related to sexting.

Apart from the legal ramifications for adolescents resulting from sexting, other potential negative outcomes relate to 'secondary sexting' (sexual images forwarded to a third party without the person's consent who was in the images) and non-consensual sexting (where the person in the images was not aware or did not give consent to be photographed or recorded). Research shows these practices can cause distress to adolescents, especially females (UK Safer Internet Centre et al., 2017). Anecdotal evidence suggests that once an image is passed on, there is a risk that anyone can see it, including other children, teachers, authorities and online predators (Katzman et al., 2010; Thorn, 2020). Consequently, this can place adolescents at risk of further image-based-abuse (Henry et al., 2019) or online child sexual exploitation (Thorn, 2020), although there is little empirical research available on the prevalence of this victimisation among adolescents as a result of sexting.

Factors associated with sexting behaviour

Because of the potential harms faced by adolescents who engage in sexting, it is important to examine who is most likely to do so, and which factors are associated with this behaviour. Several studies have examined the dynamics and correlates of engagement with sexting among adolescents and adults. These studies have found correlations between sexting, mental health status and potentially harmful behaviours including substance use, pornography use and risky sexual behaviours (Crimmins & Seigfried-Spellar, 2014; Morelli et al., 2017; Mori et al., 2019).

For example, Mori et al. (2019) conducted a meta-analysis of 23 studies (n = 41,723) published between 2000 and 2018 that examined the association between sexting (exchange of sexually suggestive words, pictures or videos) and sexual behaviours or mental health risk factors, among individuals aged under 18 years (mean age range 11.9–16.8 years). They found that sexting was significantly associated with sexual activity, multiple sex partners, lack of contraception use, delinquent behaviour, internalising problems (anxiety/depression), and substance use (alcohol, drugs, smoking). The authors noted that the correlation between sexting, sexual behaviours and mental health difficulties may be due partly to the disinhibitory factors that go hand in hand with sexting, for example drug and alcohol use. They also found that the correlation between sexting and having multiple partners, experiencing internalising problems, and engaging in smoking and drug use were stronger in younger compared with older adolescents (effect sizes weakened as respondents aged), suggesting that younger adolescents may be more vulnerable to the risks associated with sexting.

An Italian-based study (Morelli et al., 2017) also found that sexting was linked to alcohol consumption, as well as pornography use. The focus of the study was a survey to 610 male and female young people aged 13–20 (mean age = 16.8 years), recruited through Italian public schools and universities. The survey asked questions about sexting, pornography use/addiction and alcohol consumption. 'Sexting' was defined as the: "exchange of provocative or sexually suggestive messages, pictures, or videos via smartphone, Internet or social networks" (Morelli et al., 2017, p. 115). They found that sexting was strongly correlated with alcohol consumption and viewing pornography on the Internet among adolescents. Alcohol was also found to mediate the relationship between sexting and pornography viewing. For those who reported low levels of alcohol consumption, the relationship between sexting and pornography viewing was not significant; for those who reported high levels of alcohol consumption, the relationship was strong. They concluded that reducing or refraining from alcohol use could be a protective factor against sexting among adolescents, even where there is frequent pornography use (Morelli et al., 2017).

Similarly, in an online survey of adult undergraduate students, Crimmins and Seigfried-Spellar (2014) found that individuals who reported having unprotected sex, viewing pornography and chatting with strangers online were significantly more likely (2.4–4.5 times) to engage in sexting. However, the present author could not locate

research examining the association between childhood sexual or non-sexual abuse and sexting behaviour among adolescents. Victims of child sexual abuse are found to experience a range of subsequent negative outcomes, including mental illness, substance abuse, re-victimisation, sexual offending and other offending in adulthood (Cashmore & Shackel, 2013; Glasser et al., 2001; Ogloff et al., 2012). Childhood sexual abuse victims are also found to display increased sexualised behaviour in childhood or adolescence (World Health Organization, 2003), hence it would be beneficial to examine whether this behaviour can manifest as engagement with self-generated sexual material. Such research is required as a tool to understand who is at increased susceptibility of sexting behaviour, to inform prevention and education initiatives that can cater to these children/adolescents.

In summary, while adolescents may experience short-term positive emotional outcomes from sexting, engaging in this behaviour can result in adverse outcomes, including legal problems/criminal convictions, image-based abuse, and child sexual exploitation. Female adolescents may be more vulnerable to engagement with self-generated sexual material and experiencing negative emotions relating to secondary/non-consensual sexting. Sexting is also associated with mental health issues and harmful/risky behaviours among adolescence. To help inform education and prevention programs, more research is required that examines factors associated with engagement with self-generated sexual material among adolescents under 18, including whether childhood sexual/non-sexual abuse increases their likelihood of doing so.

2.3.1 Is sexting associated with viewing CSAM among adolescents?

Although engagement with self-generated sexual material among minors constitutes CSAM according to legislation in many jurisdictions globally (QSAC, 2017; Strasburger et al., 2019), it is different to when an adult views or distributes CSAM (QSAC, 2017). Despite this difference, it is possible that engagement with self-generated sexual material among minors could normalise sexual material of children/teens and spark curiosity among adolescents around viewing CSAM online, particularly ‘teen content’. Similarly, viewing CSAM online could normalise and increase susceptibility to engagement with self-generated sexual material among adolescents.

Stop it Now! is a not-for-profit organisation in the UK that provides a confidential counselling service for people concerned about their sexual thoughts towards children or CSAM. In February 2020, the Stop it Now! Director announced that the number of calls to the hotline had doubled since the previous year, stating that, "Tens of thousands of men in the UK are viewing and sharing sexual images of under 18s – these men are our friends, family, neighbours and colleagues. Most are adults, but a significant proportion are teenagers. Many of these men started viewing this illegal material as part of their adult pornography habit," (Stop it Now! UK, 2020). Similarly, in section 2.2.3 of this chapter (see Table 2.2) a study was reviewed that found 4.2% of a sample of Swedish males aged 17–20 years surveyed through schools said they had viewed CSAM (Seto et al., 2015). As outlined in section 2.1.1 and Table 2.2, Insoll et al. (2021) that three quarters of a survey sample of CSAM consumers on the dark web said they first discovered CSAM during adolescence. With these findings in mind, given the evidence that engagement with self-generated sexual material is increasing among adolescents aged under 18 years (Madigan, Ly, et al., 2018; Strasburger et al., 2019), it seems imperative to examine the overlap between this behaviour and CSAM consumption among adolescents.

However, at the time of writing, the author could not locate any published studies that investigated the association between sexting and CSAM consumption among adolescents. Research shows that pornography viewing and frequent pornography viewing is a risk factor for sexting (Crimmins & Seigfried-Spellar, 2014; Morelli et al., 2017) and CSAM viewing respectively (Ray et al., 2014; Seto et al., 2015). Therefore, it would seem likely that engagement with self-generated sexual material is also associated with CSAM viewing among adolescents. Given the explosion of CSAM on the Internet in recent years (NCMEC, 2022; Teunissen & Napier, 2022b), it is crucial that this question is investigated, which the current study aims to do.

2.4 KEY STUDIES

Several studies were located that are relevant to the design, results, and implications drawn from the present study. As these studies will be cited often throughout the thesis, Table 2.1 and Table 2.2 provide an overview of the key information from these studies.

Table 2.1 *Key studies that used mostly criminal justice or treatment samples*

Study	Method	Sample	Main finding
Babchishin et al. 2011 (outlined in section 2.2.4	Meta-analysis of 27 studies published post year 2000, which examined characteristics of (mostly male) online sexual offenders (CSAM and online grooming) in comparison to contact sexual offenders.	Online offenders: *n* = 4,844 Contact sexual offenders: *n* = 1,342 5 of 27 studies included females.	Online offenders differed significantly from contact sexual offenders on a range of characteristics. Male online offenders and contact sexual offenders had greater rates of childhood abuse than males in the general population.
Babchishin et al. 2015 (outlined in section 2.2.1)	Meta-analysis of 30 studies from in United States, Canada and United Kingdom, published between 2003 and 2013, which compared detected CSAM offenders with detected contact sexual offenders.	Ns ranged from 98 to 2,702	Contact CSA offenders were more likely to have access to children than CSAM-only offenders. CSAM offenders had greater access to the internet than contact CSA offenders. Contact CSA offenders and mixed offenders scored higher on indicators of antisociality than CSAM-only offenders.

Table 2.2 *Key studies that used community samples*

Study	Method	Sample	Main finding
Insoll et al. 2021 (outlined in section 2.1.1)	Anonymous online survey of darknet users who entered search terms relating to CSAM on a search engine. Recruited in 2020 and 2021, location of respondents not specified.	5,171 adults who searched for CSAM on the darknet (gender not specified)	70% of respondents from the first survey viewed CSAM or illegal violent material (IVM) before they were 18 years; 39% were 13 years or younger. 51% reported first viewing CSAM or IVM accidentally.
Insoll et al. 2022 (outlined in section 2.2.2)	Anonymous online survey of darknet users who entered search terms relating to CSAM on a search engine. Recruited in 2021, location of respondents not specified.	1,546 adults who searched for CSAM on the darknet (gender not specified)	42% reported seeking direct contact with children through online platforms after viewing CSAM or illegal violent material (IVM), and 58% reported feeling concerned that viewing of CSAM or IVM could lead to sexual acts against a child or adult.
Lim et al. 2017 (outlined in section 2.1.1)	Anonymous online survey to a convenience sample of Australians via social media.	941 males and females aged 15–25 years	Median age of first pornography viewing was 13 years for males and 16 years for females. Younger age at first pornography exposure was significantly associated with younger current age at time of survey.
Madigan et al. 2018a (outlined in section 2.1.1)	Meta-analysis of 31 studies conducted between 1990 and 2016 that focused on unwanted online sexual exposure (e.g., pornography, websites links).	37,649 males and females aged under 18 (12 to 16.5 years)	20.3% of youth had experienced unwanted online sexual exposure.

Table 2.2 (continued)

Study	Method	Sample	Main finding
Madigan et al. 2018b (outlined in section 2.3)	Systematic review and meta-analysis of 39 studies that examined the prevalence of sexting among minors, published between 1990 and 2016.	110,380 males and females aged under 18 (mean age 15.2 years)	14.8% of respondents had received a sext and 27.4% had sent a sext when they were under 18
Ray et al. 2014 (outlined in section 2.2.3)	Anonymous online survey about 'problematic pornography use', recruited participants via advertisements on websites including newsgroups and chat forums.	175 adult males CSAM viewers: *n* = 37 Non-CSAM viewers: *n* = 138	Men who scored high on sensation seeking and reported frequent pornography use (defined simply as 'pornography') were the most likely to report viewing CSAM
Seigfried et al. 2008 (outlined in section 2.2.3)	Anonymous online survey advertised on chat rooms, bulletin boards and email discussion forums (location of respondents unknown).	300 male and female adults CSAM viewers: *n* = 30 Non-CSAM viewers: *n* = 270	CSAM consumers were more likely than non-CSAM consumers to be male minorities (versus white) and score higher on exploitative-manipulative amoral dishonesty traits and lower on moral choice internal values (caution required due to small sample size).
Seigfried-Spellar 2013 (outlined in section 2.2.3)	Anonymous online survey advertised on bulletin boards, chat rooms, discussion forums and social media websites: (United States, United Kingdom, Canada and Australia).	257 male and female adults CSAM viewers: *n* = 16 Non-CSAM viewers: *n* = 241	. CSAM consumption was positively correlated with agreeableness and negatively correlated with social values (caution required due to small sample size).

Table 2.2 (continued)

Study	Method	Sample	Main finding
Seigfried-Spellar & Rogers 2013 (outlined in section 2.2.3)	Panel survey of adults in the United States.	630 male and female adults CSAM viewers: *n* = 33 Non-CSAM viewers: *n* = 627	CSAM consumers were more likely to have viewed bestiality pornography than non-CSAM consumers in the sample (caution required due to small sample size).
Seto et al., 2015 (outlined in section 2.2.3)	Anonymous school-based survey administered to Swedish senior high school students.	1,978 Swedish male school students aged 17–20.	84 (4.2%) reported ever viewing CSAM; strongest predictors of CSAM viewing were frequent pornography viewing, had sex with a male, perception of children as seductive and having friends who had viewed CSAM.
Svedin et al. 2011 (outlined in section 2.2.3)	Anonymous school-based survey administered to Swedish senior high school students.	2,015 males, mean age 18.2 years	All respondents had viewed pornography. Frequent pornography viewers (more or less daily) were more likely to have viewed CSAM, pornography with violence or force, and bestiality pornography.

2.5 THEORETICAL FRAMEWORK

Evidence highlighted in the Introduction (Chapter 1) suggests the availability and consumption of CSAM is increasing and that large amounts of CSAM are flooding the Internet annually (Bursztein et al., 2019; NCMEC, 2022; Teunissen & Napier, 2022b; Vedelago, 2020). CSAM offending is a dynamic global crime that is complex, ever-changing, and fast evolving with technological advancement and improved Internet coverage, and is beyond the capability of law enforcement alone to significantly reduce the problem (Virtual Global Taskforce, 2019).

For these reasons, the design of this PhD study was informed by the principles of situational crime prevention. Situational crime prevention draws on rational choice theory, which assumes crime is committed by rational individuals who weigh the benefits against the risks (Cornish & Clarke, 1986). It is posited that: "a complex interplay between potential offenders and the supply of victims, targets and facilitators determines the scale and nature of opportunities for crime" (Clarke, 1997, p. 14). Situational crime prevention assumes that opportunity and perception of risk are important factors in a person's decision to commit a crime; under this assumption, increased opportunity and low perceived risk of detection will result in more crimes being committed. Drawing on this theory, research has outlined situational crime prevention by adopting five measures: (1) reducing the perceived rewards; (2) increasing perceived effort; (3) increasing perceived risks; (4) removing excuses; and (5) reducing provocations (Clarke, 1997; Cornish & Clarke, 2003; Smallbone & Cale, 2016; Wortley & Smallbone, 2012). The examples in Table 2.3, taken from Cornish & Clarke (2003), demonstrate how each principle can be applied to various types of crime.

Table 2.3 *Five guiding principles of situational crime prevention*

SCP principle	Examples
Increasing perceived effort	Target harden (anti-robbery screens, tamper-proof packaging); Control access to facilities (electronic card access, baggage screening); Deflect offenders (dispersing pubs, separate bathrooms for females); Control tools/weapons (disabling stolen cell phones, restrict spray paint sales to juveniles)
Increase perceived risks	Extend guardianship (neighbourhood watch, go out in a group at night); Assist natural surveillance (improved street lighting, support whistle-blowers); Reduce anonymity (taxi driver IDs, school uniforms); Utilize place managers (two clerks for convenience stores, reward vigilance); Strengthen formal surveillance (red light cameras; burglar alarms)
Reduce the rewards	Conceal targets (off street parking, unmarked bullion trucks); Remove targets (removable car radio, pre-paid cards for pay phones); Identify property (property marking, vehicle licensing and parts marking); Disrupt markets (monitor pawn shops, controls on classified ads); Deny benefits (ink merchandise tags, graffiti cleaning)
Reduce provocations	Reduce frustrations and stress (efficient queues and police service, expanded seating); Avoid disputes (separate enclosures for rival soccer fans, fixed cab fares); Reduce emotional arousal (controls on violent pornography, enforce good behaviour on soccer field); Discourage imitation (rapid repair of vandalism, censor details of modus operandi)
Remove excuses	Set rules (rental agreements, harassment codes); Post instructions ('No parking', 'Private property'); Alert conscience (roadside speed display boards, 'Shoplifting is stealing'); Assist compliance (Public lavatories, litter bins); Control drugs and alcohol (breathalysers in pubs, server intervention)

While relevant at the time of publication, some of the suggestions by Cornish and Clarke (2003) are dated and most do not apply to CSAM offending. However, several researchers have built on this model to apply it to methods for reducing CSAM offending (Hunn et al., 2020; Krone et al., 2020; Smallbone & Cale, 2016; Wortley & Smallbone,

2012). In particular, Wortley and Smallbone (2012) note that before the Internet, CSAM was available in hard copy images, produced locally, expensive and difficult to obtain. They argue that many people who view CSAM today are situational offenders, who in the pre-Internet days would not have engaged in CSAM offending but are now tempted by the availability/accessibility of CSAM and the anonymity provided by the Internet. Expanding on this assumption, Wortley and Smallbone suggest that situational crime prevention measures can be adopted to help reduce the opportunity for CSAM offending.

Krone et al. (2020) reviewed five studies, including Wortley and Smallbone (2012) that applied situational crime prevention measures to CSAM offending. They summarised the key recommendations from these studies in relation to each situational crime prevention principle - outlined below.

Increasing perceived effort

Introducing measures that lead offenders to believe that the effort involved in CSAM offending is high. This includes target hardening through educating children, filtering, blocking inappropriate sites and forums.

Increasing perceived risk

Introducing measures that lead offenders to believe that the risk of detection of CSAM offending is high. This includes altering offenders' perceptions that they are anonymous, and making known the presence of law enforcement online, for example through publicising successful police operations targeting CSAM sharing sites.

Reducing rewards

Introducing measures that reduce the availability of CSAM, in turn reducing the reward of attempting to commit the crime. For example, removal of images from the Internet.

Removing excuses

Introducing measures that ensure offenders are aware of the consequences of CSAM offending and that challenge their justifications for offending. The former could be in the form of institutional policies and codes of conduct, automated messages online that pop up on websites, reminding of illegality of CSAM. The latter could be in the form of psychological intervention programs that challenge cognitive distortions adopted by CSAM offenders to justify their offending, for example that 'children are sexual beings' or 'viewing CSAM is a victimless crime'.

Reducing provocations

The authors (Krone et al., 2020) note that the majority of studies they reviewed did not address the fifth situational crime prevention measure, 'Reducing provocations', which is described by Freilich and Newman (2015) as reducing factors in an environment that may provoke offending. As this has not been explored a great deal in relation to CSAM offending, this section will explore this principle in more detail than the others. As stated in Table 2.2, reducing provocations comprises reducing frustration and stress; avoiding disputes; reducing emotional arousal; neutralizing peer pressure; and discouraging imitation (Cornish & Clarke, 2003). Reducing emotional arousal could be in the form of working with children checks (e.g., filtering out those with a sexual offence history), which would remove the temptation from offenders to produce and distribute CSAM. Wortley and Smallbone (2012) also suggest that intervening with vulnerable young people who may be engaging in risky behaviour online could assist with removing provocations.

Research into CSAM offenders supports the notion that provocations can encourage offending, particularly in relation to peer influences. For example, communicating with other CSAM offenders online can increase respondents' risk of seeking out children online (Insoll et al., 2022) (see section 2.2.2, and Table 2.2). Further, having friends who view CSAM can increase respondents' likelihood of viewing CSAM (Seto et al., 2015) (see section 2.2.3, and Table 2.2). Although sexting behaviour among adolescents is a different issue it can still result in, and is considered CSAM offending in many jurisdictions globally including Australia and the United States[11] (Moritz & Christensen, 2020; Strasburger et al., 2019). Sexting is also found to be influenced by peers and a need for popularity (Del Rey et al., 2019; National Campaign, 2008). Thus, it is possible that neutralizing peer influences and reducing other relevant provocations would assist in combatting CSAM offending.

Situational crime prevention has been adopted on a small scale in Australia to prevent child sexual abuse and online exploitation. For example, the eSafety Commissioner and Australian Federal Police provide online education and tools for

[11] In the Australian jurisdictions of South Australia, Victoria, and New South Wales, some sexting behaviours among minors are decriminalised, while other jurisdictions consider it to be CSAM (Moritz & Christensen, 2020). In the United States, 27 states have legislation that addresses sexting among minors; see https://cyberbullying.org/sexting-laws for an overview of laws in each state that relate to sexting and what they cover.

parents, children and educators that teach children how to be safe online and by providing children the tools to protect themselves from becoming victims of online sexual exploitation (Australian Federal Police, n.d.; eSafety Commissioner, 2020). These measures can act as 'increasing perceived effort' and 'removing rewards' for offenders (Cornish & Clarke, 2003; Krone et al., 2020) by preventing children from being coerced into producing and sharing sexual images/videos of themselves. Further, police taskforces into CSAM offending are taking place regularly and are publicised in the media (Australian Federal Police, 2022; Spillet, 2019; Vedelago, 2020), which can increase the perceived risk of CSAM offending. However, given that the number of reports of CSAM being detected on the Internet and reported are increasing dramatically each year (Bursztein et al., 2019; NCMEC, 2022), it is crucial to have a better understanding of additional measures that are needed to address this.

A key element of this thesis follows on from the work of previous authors (Hunn et al., 2020; Wortley & Smallbone, 2012), who argue that the widespread availability of CSAM on the Internet, including on popular social media platforms and search engines (NCMEC, 2022; Teunissen & Napier, 2022a), is facilitating increased exposure to the material among the population. Specifically, this warrants situational crime prevention measures that increase perceived risk and effort and reduce rewards for offenders (Cornish & Clarke, 2003; Krone et al., 2020). Much first time CSAM exposure could be accidental (Insoll et al., 2021) and may lead to intentional CSAM consumption (Hunn et al., 2020), although this has yet to be verified by research. To develop initiatives that prevent first exposure and continuing consumption of CSAM, it is important to better understand this behaviour. The present study draws on the principles of situational crime prevention, by aiming to gain insight into:

- the characteristics of individuals who view, share or produce CSAM;
- the age and circumstances of first exposure to CSAM; and
- how sexting behaviour may be related to consumption of CSAM among adolescents under 18 years.

Investigating these factors is crucial for the development of initiatives that aim to disrupt and prevent CSAM offending.

Chapter 3: Method

Chapter 2 highlighted some of the research and knowledge gaps surrounding CSAM offending, in particular the paucity of studies that focus on community samples of CSAM offenders. While most studies have focused on criminal justice or clinical samples, it is essential to survey CSAM consumers in the community, given they may have different characteristics from criminal justice samples of CSAM offenders. The present study aimed to target this key under-researched group.

An online survey was developed, informed by a thorough review of relevant literature into online (child sexual abuse material, grooming) and offline (contact) CSA offending, to explore the characteristics of undetected CSAM users in the community. The development of specific questions is discussed in greater detail in the 'Measures' section of this chapter (section 3.2). The studies reviewed included meta-analyses and primary empirical research into demographic, psychosocial and other background characteristics of CSAM offenders, and comparisons between CSAM offenders and contact CSA offenders as well as non-offending populations. During this process several gaps were identified regarding the empirical knowledge on CSAM offending. Filling these information gaps is necessary for developing effective prevention, detection and disruption initiatives that aim to protect children from CSA and online exploitation.

3.1 PROCEDURE

The anonymous Online Sexual Behaviour and Pornography Use Survey was advertised online to users of the Reddit platform from August 2019 to September 2021. The study was approved by the University of Sydney Human Research Ethics Committee (HREC) on 30 June 2017 (project no. 2017/373).[12] A pilot of the survey was administered to Reddit users for four weeks over August and September 2019, to test the questions on the target population (n = 367). Minor changes were made to some questions, based on the pilot data. Five versions of the survey were administered during 2019 and 2021. With each version, additional questions were added, all approved by the University of Sydney

[12] The University of Sydney HREC also approved a second element of the study, which would have involved interviews with convicted CSAM offenders in New South Wales prisons. However, due to social distancing policies relating to the COVID-19 pandemic, this component had to be cancelled.

HREC. Version 1 was approved but not administered in the field. This is because significant changes were made to the survey following an in-depth review of key literature and advice from key experts in the field. Following this process, in version 2, questions were inserted about experiences of childhood abuse and onset of CSAM exposure. After the survey had been in the field for six months, additional questions were inserted (i.e., version 3) about reasons for viewing adult pornography, in response to a survey participant who contacted the researcher to suggest that the survey should include these additional questions. Lastly, in 2021 and 2020, after preliminary analysis of the data, several questions were added to the survey (i.e., versions 4-6). The reason for the new questions was that unexpected patterns of behaviour had emerged in the findings, which warranted follow-up questions. These related to subsequent CSAM viewing after first exposure, including post COVID, and questions about sexting among minors under 18 years.[13] Thus, some questions were answered by a subset of the sample.

The survey did not request any identifying information from participants. Using the advertising functions of the Reddit platform, the study restricted the final survey sample to individuals residing in Australia, New Zealand, Canada, the United States and the United Kingdom (Ray et al., 2014; Seigfried-Spellar, 2013) as these are all English-speaking countries that have similar laws and cultural attitudes relating to online sexual exploitation of children (Department of Justice, 2020). Nevertheless, it should be acknowledged that these countries each have cultural, legal, and societal differences. The survey and Participant Information Statement (see appendices A and B) clearly stated that the study was limited to adult participants (18+) who resided in these specific countries. Although not stated, the survey required English comprehension for its completion, given the questions were in English. There were no other criteria restrictions. In light of difficulties in recruiting adequately sized samples of online CSAM consumers highlighted by earlier research (Ray et al., 2014; Seigfried et al., 2008; Seigfried-Spellar & Rogers, 2013), it was decided that the need to maximise the sample size of this hard-to-reach population via recruitment outweighed any geographical differences within the sample.

The survey was advertised on a continual basis from 9 August 2019 to 5 September 2021 (approximately 25 months). Given the varying time zones of countries targeted, no

[13] See Appendix C for a timeline of the changes to each version of the survey.

specific times were chosen in which to advertise the survey. The advertisement stated that people who lived in any of the nominated countries were invited to participate in an anonymous survey about online sexual behaviour and pornography use, and to 'click on the link below' if they were interested. It was expected that this would attract respondents who used pornography. To deter duplicate survey responses, no incentive was offered.

Once respondents clicked on the link, they were diverted to the survey page on the RedCap platform. There, they were encouraged to read the Participant Information Statement, which provided an overview of the study, including that it was voluntary and anonymous. It also explained that neither RedCap nor the University of Sydney could link survey responses to IP addresses and emphasised that participants were not obliged to answer any questions and could stop the survey at any time. It clearly stated that by clicking 'submit' at the end of the survey, respondents were consenting to participate in the research. It was possible that respondents could complete the survey multiple times, which is discussed in section 3.6.

The Reddit platform

The Reddit Platform is a news and social media platform chosen for recruitment of the survey for four key reasons. First, due to its global widespread use, particularly in the countries surveyed in this study. A report by Alexa that examined global website traffic found that Reddit was the fifth most visited site in Australia, the eighth in New Zealand and the sixth in the United Kingdom, US and Canada in 2020 (Alexa, 2020). Secondly, given most previous research has focused on samples of detected CSAM offenders, who tend to be aged over 30 when they are arrested, convicted or treated (Babchishin et al., 2011), this study aimed to target an under-researched cohort of younger CSAM users not defined by being 'detected'. A survey conducted by Statista (2016) found that in 2016, 58% of Reddit users in the US were aged 18–29 years, 33% were 30–49 years, 7% were 50–64 years and 1% were 65+ years. This research indicates that Reddit is most used by younger cohorts of adults aged 18–29 years.

Third, the study aimed to target all genders, given CSAM users who are women and other genders (e.g., non-binary/trans) are under-researched. A population survey conducted by the Pew Research Center found that in 2019, 8% of female adults in the US used Reddit, although the proportion of adult male Reddit users was higher (15%) (Pew Research Center 2019). Lastly, unlike social media platforms such as Facebook, Reddit is a news and web content discussion website and does not display identifying information

of members (e.g., name, date of birth, photographs), which could otherwise spark concern among respondents about their identities being linked to their survey responses. It was anticipated that this factor would help promote both participation and honest responses to sensitive survey questions.

3.2 MEASURES

An online survey was developed, informed by a comprehensive review of relevant literature, to explore the characteristics of CSAM offenders in the community who were not recruited via the criminal justice system. The survey asked respondents a range of questions that aligned with the overall study research questions and are outlined below.

3.2.1 Onset

Research question 1: What is the age of first exposure to CSAM and atypical forms of pornography, and is the age of first CSAM exposure decreasing?

Researchers who have applied situational crime prevention to CSAM and contact CSA offending stress the importance of preventing the first offence; once offending has occurred, a child has already been harmed (Wortley & Smallbone, 2006, 2012). Chapter 2 of this thesis outlined corresponding rationales for preventing CSAM offending before it occurs, including the growing amount of CSAM identified on the Internet (NCMEC, 2022) and the difficulty in detecting CSAM offenders (Virtual Global Taskforce, 2019). Wortley and Smallbone (2012) also highlight the difficulty in establishing a concrete set of situational crime prevention recommendations for CSAM offenders due to the dearth of knowledge on this group. They suggest we need to learn about offending onset—how and why individuals commit their first CSAM offence, and the dynamics of the psychological and behavioural progression to more serious levels of offending, when it does occur. The scarcity of literature focused on the specific circumstances surrounding first CSAM viewing has been noted by others (Hunn et al., 2020; Jung et al., 2012).

To address these knowledge gaps, the survey that was the focus of the present study asked several questions about age of first pornography and CSAM exposure. These questions were placed towards the end of the survey. It was anticipated that beginning with questions on adult pornography (including BDM pornography) would be less inhibiting for respondents as most adult pornography is legal to view in the countries where the survey was distributed, including Australia (eSafety Commissioner, 2021b, 2021a). Similarly, the words ‘pornography featuring [pubescent/prepubescent]

children/teens' was adopted in place of the term 'child pornography', which, arguably, respondents may associate more with criminal behaviour. Only one known survey of CSAM users differentiated between CSAM that featured pubescent and prepubescent children (Ray et al., 2014) (see section 2.2.3, and Table 2.2). The present study followed on from this work to explore whether age of first exposure to CSAM differs by type of CSAM viewed. Questions on viewing other forms of deviant pornography (bestiality and BDM pornography) were included to build on previous research finding that viewing atypical pornography often goes hand in hand with CSAM viewing (Seigfried-Spellar & Rogers, 2013; Seto et al., 2015).

While two previous online surveys asked respondents whether they had ever "knowingly" viewed or accessed CSAM (Seigfried et al., 2008; Seigfried-Spellar & Rogers, 2013), of relevance to the present study were respondents who had discovered CSAM by accident, as well as those who intentionally searched for it. The reason for this was to capture information on whether accidental first-time discovery of CSAM is common and/or can lead to intentional viewing (Hunn et al., 2020).

Lastly, two earlier studies involving anonymous surveys (Seto et al., 2015; Svedin et al., 2011) (see Table 2.2), asked participants if they had ever viewed 'pornography with sex between adults and children'; a definition that excluded CSAM showing one or more children and no adults. The present study sought to overcome this limitation by including a broader definition of CSAM that was not limited to adult involvement in the abusive imagery.

The questions below aimed to capture the aforementioned information.

The survey asked respondents how old they were when they first viewed:

- pornography featuring adults;
- bondage/S&M pornography featuring adults;
- pornography featuring adults and animals;
- pornography featuring pubescent[14] teens/children; and

[14] In these survey questions the following explanations were provided in brackets after the words 'pubescent' and 'pre-pubescent' respectively: 'showing signs of physical sexual development' and 'not physically sexually developed'. It is possible that the former explanation may have been interpreted by

- pornography featuring pre-pubescent children.

The survey also asked about current age at time of survey; for all questions relating to age, respondents were asked to select ranges rather than exact ages to minimise inaccuracies in self-reported ages at the time of survey or time of an event. For example, individuals (particularly older cohorts) may be more likely to recall the age range when they first viewed pornography, rather than the exact age. Current age was reported within age ranges to reduce concern around possible identification, given the sensitive questions asked. For age at first pornography/CSAM viewing respondents were asked to select one of 17 age categories (0–4; 5–9; 10–13; 14–15; 16–17; 18–20; 21–24; 25–29; 30–34; 35–39; 40–44; 45–49; 50–54; 55–59; 60–64; 65–69 and 70+). Age groups up until the age 18 aimed to broadly capture the different stages of childhood and adolescence (e.g., early, mid- and late adolescence (Christie & Viner, 2005). It was important for the study to include narrow age categories in the under 18 groups. This is because knowing the most common ages of first exposure to pornography and CSAM can help inform the development of education, treatment, and prevention programs. Age groups in 18+ categories were kept as narrow as possible to allow for accuracy in analyses while still instilling confidence in respondents that their responses are not identifiable. For current age at time of survey respondents were asked to select one of 12 age categories (18–20; 21–24; 25–29; 30–34; 35–39; 40–44; 45–49; 50–54; 55–59; 60–64; 65–69 and 70+). These age categories replicated the adult categories in the age of first exposure to pornography and CSAM questions, to assist with the flow of the survey and increase ease of responding for participants.

Research question 2: What are the circumstances surrounding initiation (onset) to child sexual abuse material (CSAM) viewing?

Questions were asked about circumstances of respondents' first time viewing CSAM, including how they found the material and who they were with at the time of first viewing. Most questions had fixed response categories. Two questions included an 'other' category with a field for open-ended responses.

Thinking about the first time you viewed pornography featuring pubescent or prepubescent children or teens, how did you first come across the material? [Typed in

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some respondents as postpubescent (i.e., 16–17 years) teens, which is discussed in the limitations section (Chapter 8, section 8.3).

search terms into browser/website; Searched the dark web/net; Someone gave/sent it to me; By accident while searching for adult porn; By accident while on peer to peer site; By accident while on other site(s); Other (Please specify)].

Thinking about the first time you viewed pornography featuring pubescent or prepubescent children or teens, were you with anyone at the time? [Yes; No, I was alone; No, I was alone but chatting to a person/people online; Do not recall]

Who were you with at the time? [Friend(s); Acquaintance(s); Spouse/intimate partner; Sibling; Parent; Other family member; Other person]

After you first viewed pornography featuring pubescent or pre-pubescent children or teens, did you ever intentionally view it again? [Yes/ No]

3.2.2 Characteristics of CSAM consumers

Research question 3: What background and behavioural characteristics are associated with viewing CSAM, and how do male viewers differ from female viewers?

Several studies have investigated characteristics of CSAM offenders by comparing convicted CSAM-only offenders with convicted contact sexual offenders and those who commit both offences (dual offenders) (Babchishin et al., 2011; Elliott et al., 2009; McCarthy, 2010; Reijnen et al., 2009; Webb et al., 2007). However, these studies do not compare characteristics of CSAM users with non-offending, non-CSAM users in the community. Further, they do not distinguish between those arrested/convicted of 'possessing' CSAM and those arrested/convicted of distribution and production of CSAM. Studies that do compare samples of non-detected CSAM users with non-offending samples in the community are limited by small sample sizes (Ray et al., 2014; Seigfried et al., 2008; Seigfried-Spellar, 2013; Seigfried-Spellar & Rogers, 2013) and restriction to young and male only samples[15] (Seto et al., 2015; Svedin et al., 2011) (see Table 2.2).

The present study sought to address the gaps in previous research by investigating correlates and risk factors for CSAM viewing among a sample of over 5000 males, females and other genders in the community. This allowed the study to compare non-

[15] Two studies surveyed Swedish male school students age 17–20 (Seto et al., 2015, 2015). Four studies that surveyed adults had samples sizes of CSAM consumers that ranged from 30–40 respondents (Ray et al., 2014; Seigfried et al., 2008; Seigfried-Spellar, 2013; Seigfried-Spellar & Rogers, 2013).

CSAM viewers with CSAM viewers on a range of background and behavioural characteristics. Survey questions relating to respondent characteristics are outlined below.

Demographics

A number of survey questions were inserted to collect demographic characteristics of respondents: age, gender, relationship status, regular access to children, country of residence, ethnicity, education and employment.

Access to children

The survey asked respondents if they had access to children (*How many children do you currently care for or have regular contact with?*). The decision to broaden the traditional definition of 'own children' or 'children in care' to also include non-biological children that respondents had access to, was derived from anecdotal and empirical evidence suggesting CSAM and contact sexual offenders often prey on other people's children who are known to them. For example, Australian media have reported several arrests of former childcare workers who were producing child sexual abuse material of children in child-care centres where they worked (Bunch, 2020; Hunter, 2020). Similarly, recorded crime figures from the Australian Bureau of Statistics suggest that in 2019, while 28% of all sexual assault victims aged 0–19 years were abused by a family member, half (52%) were abused by a non-family member who was known to the victim (ABS, 2020). This suggests that much sexual abuse occurs at the hands of individuals who have access to children known to them. Further, Babchishin et al. (2011) found that having access to children was a risk factor for contact sexual offending. Thus, this study was interested in whether having regular access to children was associated with producing or sharing child sexual abuse material.

Childhood trauma

Several studies have found associations between childhood sexual abuse and later sexual offending (Glasser et al., 2001; Ogloff et al., 2012; Seto et al., 2010). However, only two studies could be located that measured associations between childhood sexual abuse and later engagement with CSAM, both with varying methodologies, and producing mixed results (Babchishin et al., 2011; Seto et al., 2015). Further, research has found that exposure to family domestic violence can lead to short term and long term negative impacts on children (Briggs-Gowan et al., 2019; Shields et al., 2020; Tucker et al., 2021), although no research could be located that measured its association to later

CSAM offending. Thus, there is still much to be learned in this area. The question outlined below was included in the survey to capture child abuse and other adverse childhood experiences among respondents. Specifically, the question and the first two indicators capturing childhood sexual abuse were adapted from the Childhood Trauma Questionnaire (Pennebaker & Susman, 2013; Radford, 2018).

When you were growing up (before the age of 18), did you experience any of the following:

- *Someone made me do sexual things [Yes/No]*
- *Someone made me watch sexual things [Yes/No]*
- *I was abused or neglected in a non-sexual way [Yes/No]*
- *I was exposed to or witnessed violence in my home [Yes/No]*
- *I was bullied by other kids [Yes/No]*

Mental health, loneliness and pornography use

Previous research based on arrested/convicted offenders has found that in comparison with contact sexual offenders, CSAM offenders are more likely to have experienced mental illness (Merdian et al., 2016; Webb et al., 2007), loneliness, and difficulties with intimate relationships (Bates & Metcalf, 2007; Laulik et al., 2007; Merdian et al., 2016; Webb et al., 2007). The present study aimed to build on this research. While the capacity of the online survey was limited in that it was not practical or feasible to include entire validated psychological scales measuring mental illness and loneliness, two questions were included that were indicative of these two factors. While the limitations in absence of validated scales to measure these factors are recognised, it was still beneficial to measure any indication of mental illness or loneliness. Therefore, questions asked respondents about lifetime experiences of being alone/having no support in times of trouble and seeking treatment for mental health issues.

A third factor was drawn from research based on community samples of young males, which found associations between frequent pornography viewing and CSAM viewing (Seto et al., 2015; Svedin et al., 2011). The present study aimed to test this association further on a larger sample of males and females in the community.

In relation to all three factors – mental health, loneliness and pornography use – the survey asked respondents about ‘events’, which studies in psychology have found are

more accurately recalled than 'feelings' (Barbaro, 2015; Sharot et al., 2004). These questions are set out below.

In the last four weeks before today, on average how often did you view pornography featuring adults? [Did not look at this material; Once a week; Twice a week; Three times a week; Four times a week; Five or more times a week]

Has there ever been a time in your life when you viewed pornography featuring adults five times per week or more? [Yes/No]

Has there ever been a time in your life when you had no one to confide in or lean on in times of trouble? [Yes/No]

Has there ever been a time in your life when you sought medication or other treatment for mental health issues (e.g. depression)? [Yes/No]

Having friends who viewed CSAM

A previous study found that young males aged 17–20 were more likely to have viewed CSAM if they had friends who had viewed it (Seto et al., 2015) (see Chapter 2, Table 2.2). To further explore the relationship between peer influences and viewing CSAM, the question below was included in the survey.

Have you ever had friends who have viewed pornography featuring pre-pubescent or pubescent children or teens? [Yes/No]

Online networking

Previous research has found that people who view and share CSAM tend to network with other CSAM and contact CSA offenders online, who tend to normalise, encourage, and justify the offending and make them feel accepted into a community (D'Ovidio et al., 2009; Holt et al., 2010; Taylor & Quayle, 2003). However, as noted by others (Jung et al., 2012), research is yet to investigate statistical associations between networking with paedophiles online and viewing CSAM or having a desire to sexually abuse a child. One rare exploratory study found that involvement with online CSAM networks was associated with contact sexual offending (Krone et al., 2017). The present study aimed to explore this under-researched area by including the questions below in the survey.

In the last six months before today, on average how often each week did you visit sites or chat forums (including mobile chat apps) where people chat about adult/child

sexual relations? [Once a week; Twice a week; Three times a week; Four times a week; Five or more times a week; Did not visit these chat forums]

Have you ever managed or created a site or chat forum of any type (including Newsgroups, Facebook, WhatsApp) where people chat about adult/child sexual relations? [Yes/No]

Research question 4: Among CSAM viewers, what are the characteristics of those who share and produce CSAM and are willing to sexually abuse children in person?

Sharing and producing CSAM

Chapter 2 reviewed a small number of existing studies that investigated the difference between those who view, share and produce CSAM, emphasising the scarcity of research in this area. Recognising the importance of learning more about CSAM 'sharers' and 'producers' versus 'viewers only', the present study included the questions below.

Have you ever shared or traded pornography featuring pre-pubescent or pubescent teens/children? [Yes/ No]

In the last six months, on average how often each week did you share or trade pornography featuring pre-pubescent or pubescent teens/children? [Less than once a week; Once a week; Twice a week; Three times a week; Four times a week; Five or more times a week; Did not share/trade in the last six months]

As an adult, have you ever recorded or photographed (this can include using a mobile phone or other device) individuals in the age groups below engaging in sexual activity with either yourself, someone else or by themselves? [Yes/ No] [17–18 years; 16–17 years; 14–15 years; 10–13 years; 5–9 years; under 5 years]

Willingness to sexually abuse a child

Seto et al. (2011) conducted a meta-analysis of 24 studies, which focused on the criminal histories of CSAM offenders. They found that 12% of detected CSAM offenders had a past contact sexual offence conviction (mostly against children), while 55% self-reported committing a contact sexual offence against a child in the past. The present study sought to investigate whether willingness to sexually abuse a child is associated with viewing CSAM and a range of other factors. A question on willingness to sexually abuse

a child was adapted from two previous surveys, which were the only studies that the present author could locate that asked this question (Ray et al., 2014; Seto et al., 2015).

Now thinking about the present, how likely would you be to have sexual contact with someone in the age groups listed below, if you had the opportunity? [scale Very unlikely – Very likely] [14-15 years; 10-13 years; Under 10 years]

Research question 5: What characteristics are associated with sexting among adolescents and is sexting a predictor for viewing CSAM?

Research question 5 focuses on the characteristics of those who engaged with self-generated sexual material as a minor (under 18), otherwise known as 'sexting' (Madigan, Ly, et al., 2018; Mori et al., 2019). This research question is also concerned with the association between this behaviour and viewing CSAM.

Although illegal in many countries including Australia and the United States (Strasburger et al., 2019), there are motivational differences between minors who engage with self-generated sexual material, versus adults who view CSAM on the Internet. If an adult views CSAM, legal frameworks in many countries including the five eye nations assumes that the individual knowingly engaged with sexually abusive and harmful material (United States Department of Justice, 2020). Conversely, engagement in sexting among minors may (in some cases) be an exploration of adolescent sexuality paired with naivety or ignorance of the law. For this reason, in two states in Australia (Victoria and Tasmania), sexting was made legal where both parties are under 18 and there is no more than a two year age gap between them (7News, 2020). Similarly, some states in the United states have decriminalised sexting between minors, while other US states treat it as CSAM offending and enforce strict penalties (Strasburger et al., 2019).

Research has found that sexting is linked to viewing adult pornography (Crimmins & Seigfried-Spellar, 2014; Van Ouytsel et al. 2014). However, little is known about whether adolescents who engage in sexting also view CSAM that depicts victims whom they do not know (i.e., not sexting). Given the prevalence of adult pornography viewing among adolescents (Lim et al., 2017; Mattebo et al., 2013) and that a minority also engage in sexting (Madigan, Ly, et al., 2018), paired with the widespread availability of CSAM on the Internet (Bursztein et al., 2019; NCMEC, 2022), it is not outside the realm of possibility that minors are also viewing CSAM. However, this is still largely unknown.

Studies have found that frequent pornography viewing is a risk factor for CSAM viewing among adolescents (Seto et al., 2015; Svedin et al., 2011), and that sexting is linked with adult pornography viewing (Crimmins & Seigfried-Spellar, 2014; Van Ouytsel et al. 2014). Thus, we need to know whether sexting may also be normalising sexualised imagery of children, and if there is an association, which comes first — sexting or CSAM viewing? Given the explosion of CSAM on the Internet in recent years (Bursztein et al., 2019; Europol, 2020; NCMEC, 2022), it was important that these questions were investigated.

Given the large number of questions inserted into the survey on sexting, they can be viewed at Appendix B.

Research question 6: How do pornography and CSAM viewers perceive illegality of the material?

Although sex education in some countries has been broadened to discuss the legal and other harmful ramifications of sexting among minors (e.g., United Kingdom (Jørgensen et al., 2019)), there is little research available on knowledge of CSAM among adolescents. It is possible that some adolescents who discover CSAM online may be ignorant of the harms and illegality of the material. The present study sought to explore the perceived illegality/legality of CSAM among respondents who first viewed CSAM as a minor. The findings will help inform education for children, parents and schools around viewing harmful material on the Internet. The following questions were inserted after asking about first CSAM and other pornography viewing.

At the time did you believe this material was: [Legal to view; Illegal to view; At the time I was not sure]

When you viewed this material, how concerned were you about getting into trouble with the police?

Getting into trouble… [Did not cross my mind; Did cross my mind]

At the time I was… [Not concerned at all; Not concerned; Slightly concerned; Very concerned]

3.2.3 Crosscheck questions

Finally, when administering online surveys to the community, Ray et al. (2010) suggest the inclusion of 'crosscheck validity questions' to help identify false or duplicate

responses. The current study inserted a follow up question relating to employment at the end of the survey, to check data for honesty and consistency.

3.3 ANALYSIS

All survey responses were exported from RedCap to Stata version 16.1 for Mac, where they were analysed. Data were analysed using various quantitative and qualitative methods, outlined below.

To address research question 1 (*What is the age of first exposure to CSAM and atypical forms of pornography, and is the age of first CSAM exposure decreasing?),* it was necessary to examine the age of first CSAM viewing across the age cohorts within the sample of survey respondents. Survival analysis, a method appropriate for 'time to event' data (Schober & Vetter, 2018), was used to estimate the proportion of participants who had ever viewed CSAM by a certain age. Time to event was interpreted as the time it took for respondents to first view CSAM from birth. Differences in the time to first CSAM viewing across the age cohorts were tested for significance using a parametric regression model appropriate for interval-censored survival data (Weibull Regression). Survival analysis was also used to address question 3 (*Is there a correlation between the age of first adult pornography viewing and the age of first CSAM viewing?)* to investigate whether time to onset was similar for adult pornography use and CSAM use.

To answer the second research question, (*What are the circumstances surrounding initiation (onset) to CSAM viewing and does accidental discovery of CSAM lead to subsequent intentional viewing?*), data were analysed both qualitatively and quantitatively. Fixed response categories were analysed descriptively by examining the fixed responses by demographic characteristics of respondents. A logistic regression model was fitted, which measured demographic and background characteristics that were associated with subsequent intentional viewing of CSAM after first time exposure.

Some respondents selected the 'Other' category and entered open-ended responses to the question *How did you first come across [CSAM]?*. The detail provided by these respondents presented valuable insight into young people's initial engagement with CSAM. In particular, very little is currently known about how children and adolescents first discover CSAM. The open-ended responses to the 'Other' category were coded qualitatively using a thematic approach. The present author worked with two researchers to analyse the open-ended responses. Each coder read through the open-ended responses

in their entirety, before meeting to discuss the coding approach. It was decided to focus on categorising responses as intentional and non-intentional exposure to CSAM, given the important policy implications relating to accidental exposure to CSAM among minors. The first researcher coded the responses into several themes and subthemes. After this process the three researchers reviewed and discussed the coding and decided on the final qualitative coding categories, and which responses belonged in each.

Research questions 3, 4, and 5 examined correlates and risk factors for CSAM consumption (viewing, sharing and producing), willingness to have sexual contact with a child, and sexting behaviour among the sample. Multivariate analyses were necessary to measure the effects of the predictor variables on the outcome variables, while controlling for covariates.

A series of binary logistic regression models were fitted, to test the impact of key predictors (demographic, background and behavioural variables (Seto et al., 2015)) on the following variables:

- ever viewed CSAM;
- willingness to have sexual contact with a child; and
- ever engaged in sexting as a minor (sending, receiving, receiving requests to send and recording sexual behaviour).

A binary logistic regression was adopted to test the impact of key predictor variables on the outcome variable 'willingness to sexually abuse a child' (4 point Likert scale; very unlikely – very likely), coded as 'Yes' (very likely, likely) and 'No' (very unlikely, unlikely).

Given the small sample size of respondents who reported shared or produced CSAM or willingness to have sexual contact with a child, associations with these variables were tested using Chi-square test of significance, and Fishers Exact Test where cell counts were less than 5. Potential type 1 errors related to multiple tests being performed were corrected for using the Bonferroni Correction.

Research question 6 explored the perceived illegality of engagement with pornography and CSAM. To address this exploratory question, data were analysed mainly descriptively.

3.4 PARTICIPANT CHARACTERISTICS

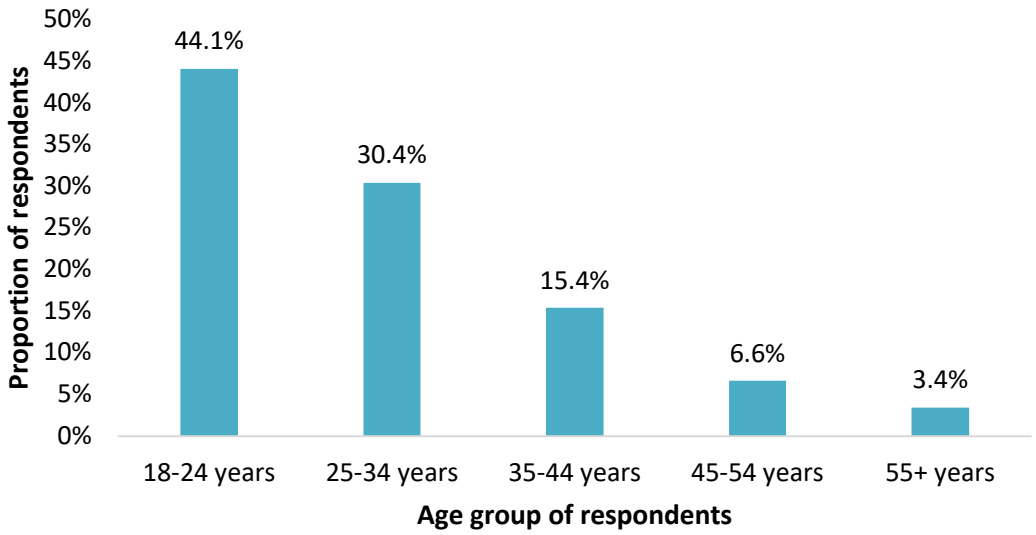
3.4.1 Sample

During the study period there were 10,012 survey queries (the number of people who clicked on the survey link). Of these, 5,600 (56%) respondents submitted their survey responses (i.e., completed the survey); 4,411 (44%) did not submit their responses. Important to note is that the following number of respondents did not answer questions on age of first exposure to adult pornography, BDSM pornography, and bestiality pornography: 9; 16 and 16 respectively. However, sixteen respondents who did not respond to both measures of CSAM viewing were excluded, as these measures formed the focus of the study. This influenced the number of missing responses to questions on age of first exposure to three types of pornography (e.g., number of missing responses was reduced). Two respondents who reported viewing CSAM as part of their work as police officers were excluded from the study, as the study focused on individuals who viewed CSAM for reasons other than investigatory work (i.e., sexual interest, by accident, in abusive contexts). The final sample of those who completed the survey with useable responses was 5,512. Given previous studies have reported low proportions of CSAM viewers in surveys (4–21%) (Ray et al., 2014; Seigfried-Spellar & Rogers, 2013; Seto et al., 2015), the study aimed to recruit at least 5000 respondents. This would permit for sufficient numbers of CSAM viewers for statistical analyses when broken down by age of first CSAM viewing, gender and other characteristics.

3.4.2 Age and gender

The sample was skewed towards males and younger cohorts. Over two-thirds (68.7%; n = 3,784) were male, 28.5% (n = 1,573) were female and 2.8% (n = 155) identified as ‘other’ gender. With all genders combined, the largest proportions of respondents comprised those aged 18–24 years (44.1%) and 25–34 years (30.4%), followed by 35–44 years (15.4%), 45–54 years (6.6%) and 55+ years (3.5%). The distribution across the age cohorts was expected, as the majority of Reddit users (58%) are aged 18–29 years (Statista, 2016).

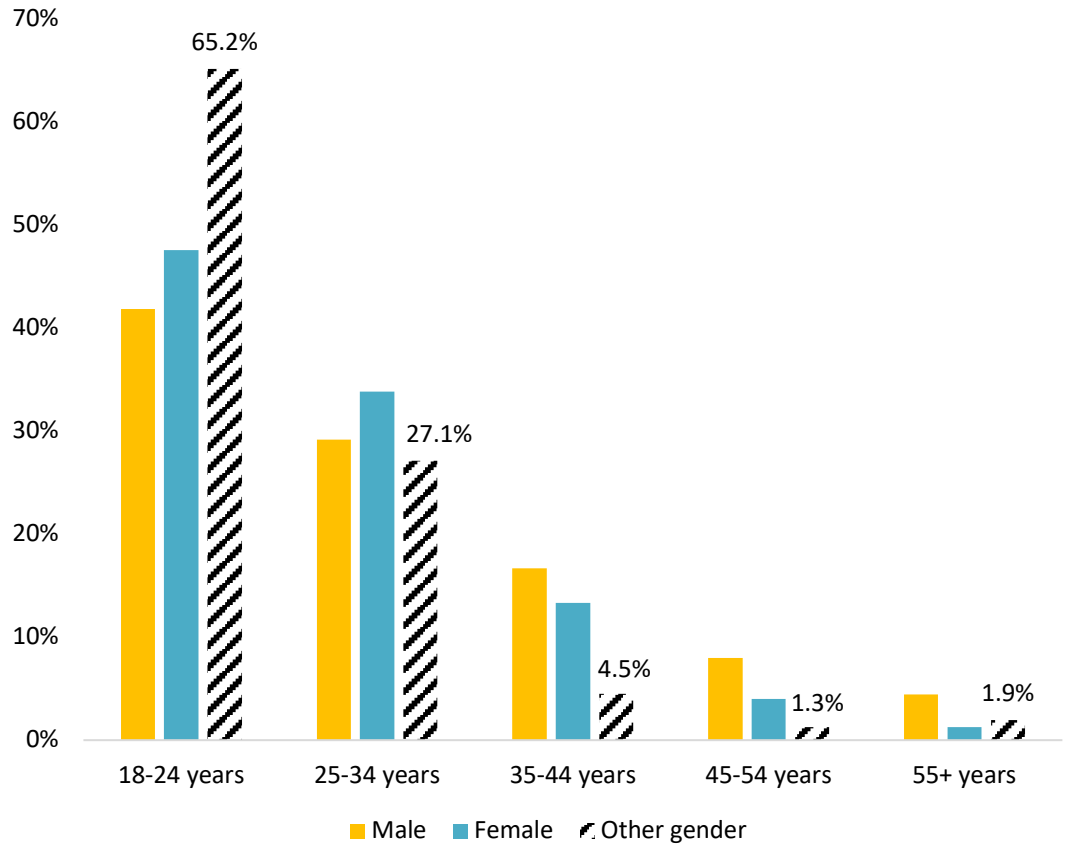
Figure 3.1 *Age Distribution of Survey Respondents*



Note. 2,431 respondents were aged 18–24 years, 1,677 were 25–34 years, 848 were 35–44 years, 366 were 45–54 years and 190 were aged 55+ years.

Figure 3.2 shows the breakdown in gender by age. There were only minor differences in age between male and female respondents (females tended to be slightly younger). However, there was a notably larger proportion of 'other gender' respondents in the youngest age group (18–24 years) compared with males and females; over two thirds (65.2%) were aged 18–24 years, compared with 41.8% of males and 46.7% of females who were in this age group.

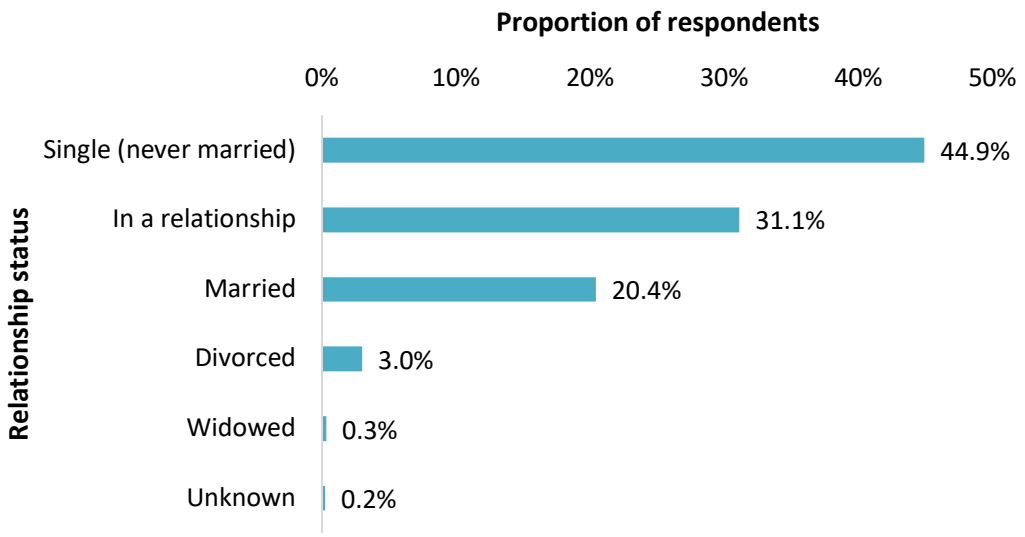
Figure 3.2 *Gender Distribution of Survey Respondents, by Age Group*



Note. 3,784 (68.7%) were male, 1,573 (28.5%) were female and 155 (2.5%) identified as 'other' gender.

Respondents were asked the question: *What is your current relationship status?* Two out of five (44.9%) indicated that they were single (never married), while under a third (31.1%) were in a relationship, and one fifth (20.4%) said they were married. Small proportions said they were divorced (3.0%) and widowed (0.3%) (see Figure 3.3). The large proportion of single (never married) respondents and the small proportion of married and divorced respondents is likely to be indicative of the predominantly young age cohort within the sample.

Figure 3.3 *Relationship Status of Survey Respondents*

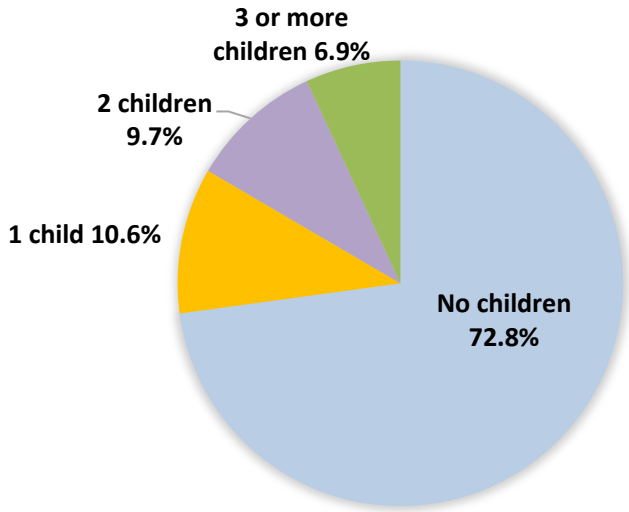


Note. 2,476 were single, 1,716 were in a relationship, 1,125 were married, 165 were divorced; 17 were widowed; and 13 did not respond to the question.

3.4.3 Access to children

Figure 3.4 shows that over 70% of the sample (72.8%) of survey respondents did not have regular contact with, or caring duties for any children. Of the quarter (27.2%) who did have regular access to children, 10.6% had access to one child, 9.7% had access to two children and 6.9% had access to three or more children see Figure 3.4). The high proportion who did not have regular access to children is again likely reflective of the largely younger cohort within the sample. Despite being a young cohort, as all respondents were aged 18+ and therefore less likely to have siblings who were under 18, which may also partly explain the low rates of access to children.

Figure 3.4 *Respondents who Care for or Have Regular Contact with Children*



Note. 3,990 respondents had contact with no children; 580 had contact with 1 child; 530 had contact with 2 children; 378 had contact with 3 or more children; and 34 did not respond to the question.

3.4.4 Country of residence

In the Participant Information Statement and the survey itself, respondents were informed that to be eligible to participate in the study they had to be currently residing in Australia, New Zealand (NZ), Canada, the United Kingdom (UK) and the United States (US). The largest proportion of respondents were residing in Canada (28.4%; n = 1,563) at the time they completed the survey, followed by the UK (27.0%; n = 1,486), Australia (24.7%; n = 1,363), the US (11.8%; n = 650) and NZ (7.8%; n = 432) (see Table 3.1). Eighteen respondents (0.3%) did not answer the question on country of residence. This may be due to concerns over revealing information that could identify respondents, given the sensitive nature of other questions in the survey. However, it is assumed that these respondents resided in one of these five countries because of the instructions provided to respondents and the survey was only advertised in the five countries specified.

The relatively small proportion of respondents residing in the US who responded to the survey was unexpected, given the large population (330 million; US Census Bureau, 2020) and popularity of Reddit in the US (Alexa, 2020). One explanation may be that US residents are particularly cautious in providing sensitive information online. For example, a survey by the Pew Research Center found that 52% of Americans described themselves as 'very concerned' or 'somewhat concerned' about government surveillance of Americans' data and electronic communications (Rainie & Madden, 2015). Similar

research in the remaining four countries of interest to the study was not available at the time this study took place. More research is required to compare the attitudes of Americans to those of residents in other countries.

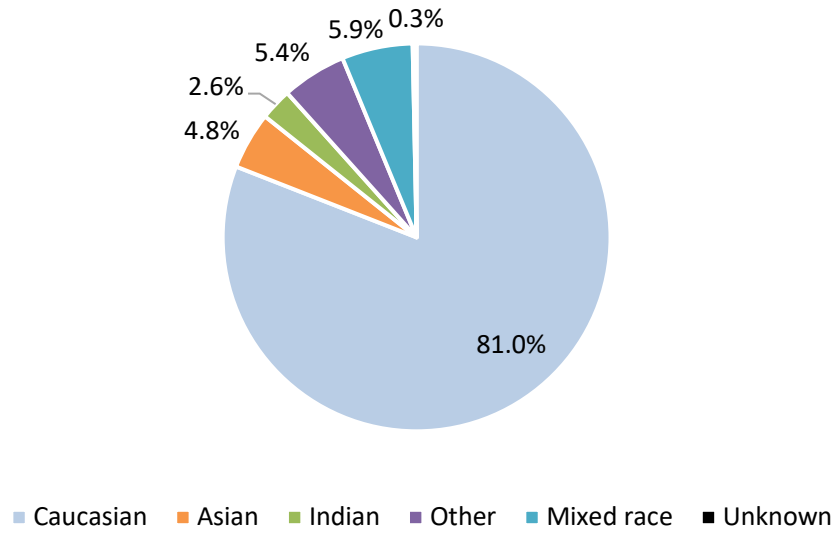
Table 3.1 *Country of Residence of Respondents*

Country	*n*	*%*
Australia	1,363	24.7
New Zealand	432	7.8
Canada	1,563	28.4
United Kingdom	1,486	27.0
United States	650	11.8
Unknown	18	0.3
Total	5,512	100.0

3.4.5 Ethnic background

Respondents were asked to select one of nine different ethnic backgrounds, including 'other' and 'mixed race'. Four categories (Black/African, middle Eastern, Hispanic/Latino and Pacific Islander) were collapsed into the 'other' category, due to small numbers. As shown in Figure 3.5, most respondents (81.2%) identified as white/Caucasian, which may reflect the common ethnic background of Reddit users. For example, a survey in 2016 found that 70% of Reddit users in the US were white (Statista, 2020). The next most common ethnicities among the present sample were 'mixed race' (5.9%), 'Asian' (4.8%) and 'Indian subcontinent' (2.7%). Given the survey was advertised in five different countries, it was beyond the scope of the present study to compare the ethnicity of survey respondents with the distribution of ethnic backgrounds in the populations of these countries combined. However, it is acknowledged that each country has its own unique distribution of ethnic backgrounds.

Figure 3.5 *Ethnic Background of Survey Respondents*



Note. 4,462 were Caucasian/white; 326 were mixed race; 297 were in the 'other' ethnicity category; 263 were Asian; and 146 were Indian.

3.4.6 Employment

The majority of respondents (83.3%) were working or studying at the time of the survey (see Table 3.2). Two fifths (44.3%) were working full time and only 8.5% were working part time. Around 14.8% were unemployed or not working for other reasons at the time of the survey, and only around 1.6% were retired (which aligns with the younger age cohort within the sample). Twelve respondents did not answer this question. It should be noted that this survey was running throughout 2020, including the period when COVID-19 impacted the economies of the five countries included in the survey (from March 2020 onwards). Thus, employment figures of survey respondents may have been impacted by this. Further, due to social distancing restrictions more respondents may have been working from home and thus had less scrutiny by employers, and potentially more time to complete the survey.

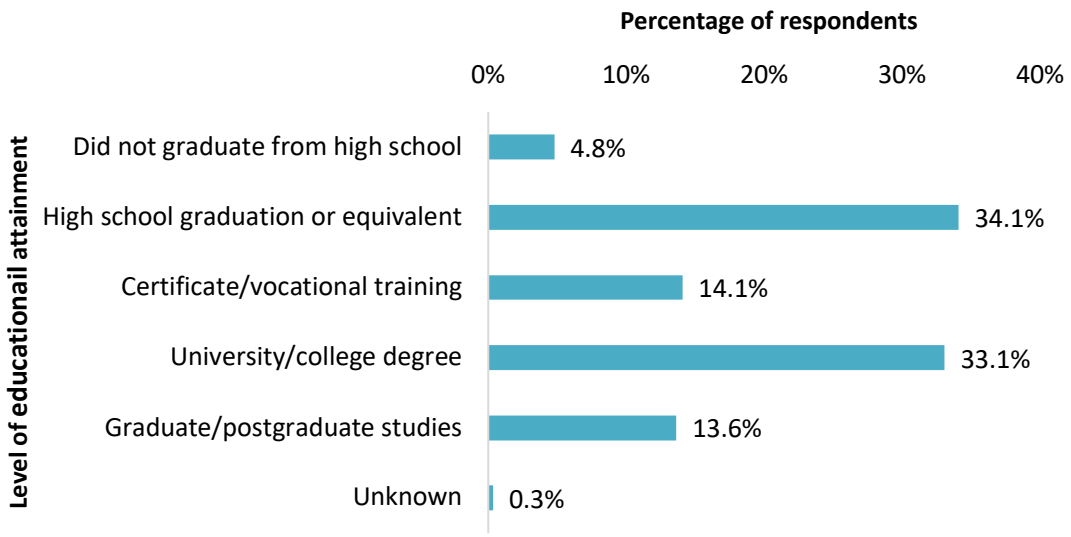
Table 3.2 *Employment Status of Survey Respondents*

Employment status	*n*	*%*
Working full time	2,442	44.3%
Working part time	466	8.5%
Studying	1,076	19.5%
Working and studying	610	11.1%
Unemployed/not working	818	14.8%
Retired	88	1.6%
Unknown	12	0.2%
Total	5,512	100.0

3.4.7 Level of education

Most (60.8%) respondents had completed post high school studies and 4.8% did not graduate from high school. For roughly a third (34.1%) of respondents, high school or equivalent was their highest level of education. This may be explained by the young age of the cohort (44.1% aged 18–24 years), some of whom may not have completed graduate or vocational studies at this time. As indicated in the previous section, around 31% of the sample were still studying at the time of the survey (see Table 3.2). Generally, the majority of the sample had either completed or were currently undertaking post-high school studies at the time of the survey.

Figure 3.6 *Highest Level of Education Completed by Survey Respondents*



Note. 751 respondents had graduate/postgraduate studies; 1,823 had a university/college degree; 776 had a certificate or vocational training; 1,879 had a high school graduation or equivalent; 264 did not graduate from high school; and 19 did not answer the question.

3.5 ETHICS

An application submitted to the University of Sydney Human Research Ethics Committee (USyd HREC) to undertake this study was approved on 30 June 2017. See Appendix C for a timeline of changes to the survey during the study period. An explanation of how confidentiality and risk to participants were addressed is provided below.

First, every effort was made to protect the confidentiality of responses and ensure anonymity to respondents. The survey was hosted on RedCap, a third-party survey platform. Survey responses on RedCap are transmitted in a secure and encrypted form. Connection metadata to RedCap is obscured behind a load balancing proxy which does not store the connection metadata. This means that neither RedCap nor the University of Sydney could discover who specific survey responses were coming from. The Information Page for the survey explained this to potential participants, stating:

> Information you provide is completely anonymous, and your answers cannot be traced back to you. This survey is hosted by the University on a third-party survey platform (RedCap) which offers secure and encrypted data capture. The University of Sydney does not link responses to IP addresses. This means that the

> University only receives the anonymous responses, but cannot find out who specific survey responses are coming from. All your answers are therefore anonymous and strictly confidential.

Second, there were questions in the survey that had the potential to cause psychological distress in participants, particularly around childhood trauma, viewing of illegal pornography and engagement in sexting behaviour. The PIS and captions in the survey emphasised that participants were not obliged to answer any questions and could stop the survey at any time. A list of counselling services was provided in the PIS, and upon completion of the survey.

Although there is a risk that some survey respondents may have become distressed during participation of the survey, the measures outlined above sought to minimise this risk, and provide support to participants if needed. Given this research seeks to better understand how CSAM users commit their offences, the findings can contribute to the development of policies and practices that prevent CSAM from being viewed, shared, and produced. This will help prevent the sexual abuse and exploitation of potential child victims in the future. Therefore, it was decided that the benefits of the research outweighed the potential risk of harm or inconvenience to study participants.

3.6 LIMITATIONS

The most obvious limitation to any survey design is the potential for dishonest or unreliable responses. Previous research has found self-reported offending in research surveys to be generally reliable, which is consistent even when individuals are asked about highly sensitive and socially undesirable behaviours such as offending (Jolliffe & Farrington, 2014). More specific to the present study, anonymous surveys of the community, both online and paper-based, have had success in eliciting self-reported, undetected CSAM offending. Svedin et al. (2011) found that 52 (3.1%) non-frequent pornography and 34 (17%) frequent pornography viewers admitted to viewing CSAM in an anonymous survey. Further, between 53–63 respondents (3.7%) admitted to perpetrating sexually coercive behaviour or sexual assault (Svedin et al. 2011) (see section 2.2.3, and Table 2.2). In Ray et al. (2014), one fifth (21%; $n = 37$), of online survey respondents reported viewing CSAM (see section 2.2.3, and Table 2.2).

Ray et al. (2010) published a paper discussing the legal, ethical, and methodological considerations for studying online CSAM offenders. They argued that research into such

offending would be best conducted using an online survey, as the internet has become a primary target for sharing CSAM, and so is the most appropriate place to target this group for research. Other research has found online surveys are appropriate for targeting hard-to-reach populations such as drug users (Global Drug Survey, 2022). However, it has been noted that a common limitation of online surveys is that they are often not representative of the population they describe and respondents with biases may select themselves into the sample (Andrade, 2020). The present study did not aim to recruit a representative sample and was concerned with the nature of offending rather than prevalence. Further, respondents who used pornography were intentionally targeted for recruitment, to access this hard-to-reach population.

Taken together, past research suggests that anonymous surveys can elicit self-reported offending behaviour from individuals in the community. Further, the study adopted two key measures to encourage honest responses: anonymising the survey and advertising on a platform that did not include identifying information on users' profiles (Reddit). A final measure related to the design of the survey. Questions regarding demographic characteristics and childhood trauma were asked prior to questions relating to pornography use and illegal behaviour. This is because placing sensitive questions at the beginning of a survey can contribute to dishonest responses, non-response or dropping-out of the survey (Australian Bureau of Statistics, 2021). According to the Australian Bureau of Statistics, "If a sensitive survey question is further into a form the respondent is more committed to completion" (Australian Bureau of Statistics, 2021). Lastly, a cross-check validity question relating to employment was included to test for data accuracy (Singh, 2011). It was anticipated that the combination of these factors would encourage and verify honest responses. Further, research has found online surveys to be reliable measures of a person's behaviour or opinions (Buchanan & Smith, 1999; Chang & Vowles, 2013; De Vera et al., 2010). More specifically, studies using surveys have been successful in eliciting sensitive information relating to sexual and CSAM offending (Ray et al., 2014; Seto et al., 2015).

A final limitation is that it was not possible to determine whether respondents completed the survey more than once. This is because RedCap does not have the function to link IP addresses to individual survey responses. This was a positive factor on the one hand, as it ensured that participant responses remained anonymous, but it does mean it was not possible to prevent multiple responding. There was no function in RedCap to

detect duplicate responses and as the survey did not ask respondents for identifying information such as name, date of birth, address/postcode, it was not possible to do this manually (e.g., using Excel's 'Conditional formatting' function). To deter duplicate responses, there was no incentive offered for participation in the study. For this reason, and that the survey was lengthy (approximately 5–20 minutes) and contained sensitive questions that may not have been enjoyable for some respondents to answer, it is unlikely that there were a significant number of duplicate responses, if any.

In summary, the key strengths of this methodology are the anonymity and structure of the survey that encouraged honest responses, the measures developed which were informed by key literature and the chosen recruitment strategy via a platform that has global popularity but does not display identifying information in user profiles. Taken together, these elements present an appropriate and unique design for studying CSAM users in the community that are a hard-to-reach population, and thus learning about the characteristics of this type of offending.

The next chapter provides an overview of findings from analysis of the survey data, specifically the characteristics of people who self-reported viewing CSAM.

Chapter 4: Results: Who views child sexual abuse material?

This is the first of four results chapters in this thesis (Chapters 4, 5, 6 & 7). A summary of findings from each results chapter is provided at the beginning of Chapter 8 - the Discussion chapter. The present chapter compares self-reported CSAM viewers with self-reported non-CSAM viewers on a range of background and behavioural characteristics.

Research question: What background and behavioural characteristics are associated with viewing CSAM, and how does this differ by gender?

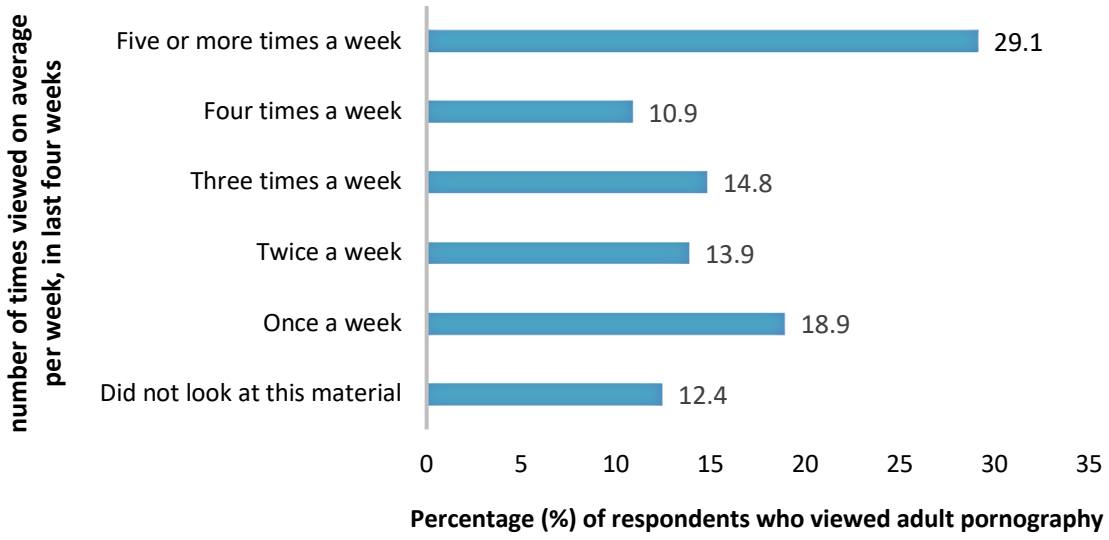
4.1 ADULT PORNOGRAPHY VIEWING

Earlier studies have found that frequent pornography viewing is associated with CSAM viewing among young males (Seto et al., 2015; Svedin et al., 2011) (see Chapter 2, Table 2.2). Therefore, prior to investigating the characteristics of CSAM viewers, this chapter will examine the use of adult pornography among the sample. If the frequency of adult pornography use among the sample is high, this is expected to have implications for findings on the various characteristics of CSAM viewers. For example, if there are few demographic differences found between CSAM viewers and non-CSAM viewers (Ray et al., 2014), this could suggest that CSAM viewers have similar demographic characteristics to frequent adult pornography viewers.

All survey respondents in the study (n = 5,512) were asked how old they were when they first viewed pornography featuring only adults. Of all respondents who answered this question (two participants did not respond), 1.1% (n = 58) reported never viewing adult pornography; and 99.0% (n = 5,452) reported viewing adult pornography at least once. This supports previous research, which has found that majorities of people aged under 30, including adolescents, have viewed pornography (Lim et al., 2017; Mattebo et al., 2013). A second question asked how often on average respondents had viewed pornography featuring adults in the four weeks prior to the survey; one participant did not respond. While 12.4% (n = 678) said they had not viewed adult pornography in the last four weeks, almost half (47.6%, n = 2,592) reported viewing it between one and three

times a week on average, and 29.1% (n = 1,586) reported viewing it five or more times a week on average (see Figure 4.1).

Figure 4.1 *Frequency of Viewing Pornography Featuring Adults*



Note. n = 5,448; 64 respondents (1.2%) did not answer the question on frequency of adult pornography use.

4.2 CHILD SEXUAL ABUSE MATERIAL VIEWING

Two questions in the survey asked respondents how old they were when they first viewed pornography featuring 'pubescent' children/teens and pornography featuring 'pre-pubescent' children (see Appendix A). In this sample of respondents:

- 13.2% (n = 726) reported viewing CSAM featuring pubescent children/teens;
- 5.7% (n = 316) reported viewing CSAM featuring pre-pubescent children; and
- 7.7% (n = 300) reported viewing both types of CSAM.

Responses to the two CSAM measures were combined to produce a single measure for 'ever viewed CSAM'. Of the 5,512 survey respondents in the study, 742 (13.5%) reported viewing at least one type of CSAM.

4.3 MULTIVARIATE ANALYSIS EXAMINING CHARACTERISTICS OF CSAM VIEWERS

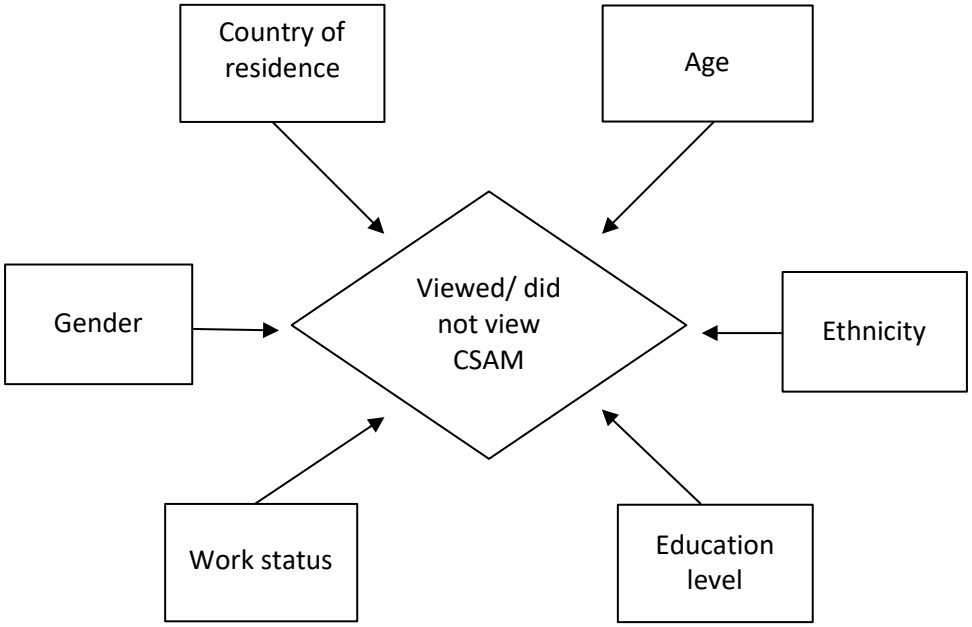
This section compares 'CSAM viewers' (n = 742) with 'non-CSAM viewers' (n = 4,770) in the sample. It should be noted that a majority of respondents in both groups also reported viewing adult pornography at least once; 99.9% (n = 741) of CSAM viewers and 98.8% (n = 4,711) of non-CSAM viewers.

A series of logistic regression models were fitted to explore the association between particular independent variables drawn from theory and literature and ever having viewed CSAM (outcome variable). These 'measures' were outlined in Chapter 3 Method. Including all 24 variables in the same model may have resulted in overfitting (Subramanian & Simon, 2013); further, multicollinearity is common when there are a large number of predictor variables in a logistic regression model (Midi et al., 2010). Some variables such as negative childhood experiences were hypothesised to be on a causal pathway in relation to CSAM viewing but may also have been on a causal pathway with other independent variables in the analysis. Since this is a cross-sectional study, it cannot establish causality. However, the survey included questions about retrospective experiences, including those that may have occurred pre-CSAM viewing (e.g., child abuse). Thus, some variables are hypothesised to be risk factors for later CSAM viewing.

For the reasons outlined above, the independent predictor variables were separated into the following six models: (1) Demographics; (2) Adult relationships; (3) Childhood experiences; (4) Willingness to sexually abuse a child; (5) Pornography use and online behaviour; and (6) Mental health and emotional loneliness. Models 2–6 controlled for the following demographic variables: gender, country of residence, age, ethnicity, education level and employment status. Model adequacy was assessed using several diagnostics, including Hosmer-Lemeshow (2000) goodness-of-fit test and Pregibon's (1979) test for specification error. Likelihood ratio test was used to compare goodness-of-fit of models 2–6 with Model 1 Demographics.

4.3.1 Demographics

Figure 4.2 *Logistic Regression Model 1: Demographics and CSAM Viewing*



Results from logistic regression Model 1 show that the demographic characteristics significantly associated with 'ever viewing CSAM' were country of residence, gender (male, female, other) and age (grouped) at time of survey (see Table 4.2).

Country of residence

Of respondents who reported viewing CSAM (n = 742), 27.4% (n = 203) lived in Australia, 28.1% (n = 208) in Canada, 20.4% (n = 151) in the United Kingdom 12.2% (n = 90) in New Zealand and 12.0% (n = 89) in the United States (see Table 4.1).

When examining the proportion of respondents from each country who had viewed CSAM, residents of the United Kingdom had the lowest proportion of respondents who reported viewing CSAM (10.2%); therefore, in logistic regression Model 1, other countries were compared with the UK. Country of residence was significantly associated with viewing CSAM. Compared with residents of the United Kingdom, residents of New Zealand were twice as likely to report ever viewing CSAM ($p < .001$, $OR = 2.29$), United States and Canada residents were significantly more likely although effect sizes were weaker ($p < .05$, $OR = 1.34$; and $p < .05$, $OR = 1.31$ respectively). Australian residents were 1.5 times more likely to report viewing CSAM than United Kingdom residents ($p < .001$, $OR = 1.55$) (see Table 4.2).

Table 4.1 *Child Sexual Abuse Material Viewing by Country of Residence*

Country of residence	Viewed CSAM		Did not view CSAM		Total	
	n	%	*n*	%	*n*	%
UK	151	20.4	1,335	28.1	933	27.3
Australia	203	27.4	1,160	24.4	1,029	30.1
NZ	90	12.2	342	7.2	334	9.7
Canada	208	28.1	1,355	28.5	825	24.1
USA	89	12.0	561	11.8	301	8.8
Total	741	100	4,753	100	5,494 *	100

* 18 respondents did not answer the question on country of residence. The survey was only advertised to residents of the five countries listed in this table.

It is important to emphasise here (as noted in Chapter 3: Method) that the study sample did not comprise representative samples from the population of each country surveyed. Conclusions cannot therefore be drawn from these findings about the prevalence or likelihood of CSAM use in the five countries surveyed. Findings presented earlier in section 4.1 showed that prevalence and frequency of adult pornography use was high among the present sample. Therefore, these figures more likely reflect the prevalence of CSAM use among frequent users of pornography, who were drawn to the survey. These five countries, otherwise known as the 'Five Eyes alliance', were chosen due to their similar laws relating to the illegality of online sexual offending against children, including CSAM (Department of Justice, 2020). However, there are differences between the five countries relating to police operations, sentencing, public messaging campaigns and treatment availability that may have influenced the results relating to country of residence and CSAM viewing. Analysing such differences was beyond the scope of the present study. Nevertheless, the findings emphasised the importance of controlling for country of residence in the logistic regression models that followed (models 2–6).

Table 4.2 *CSAM Viewing and Demographics (Model 1)*

Predictor	*OR*	*p*	95% CI	Viewed	Did not

				CSAM (%) [a]	view CSAM (%) [b]
Gender					
Female	(reference)			9.2	90.8
Male	1.73	0.000***	1.42–2.10	15.1	84.9
Other	2.09	0.002**	1.32–3.32	16.8	83.2
Age (years)					
18–24	(reference)			11.5	88.5
25–34	1.42	0.001**	1.15–1.74	14.7	85.3
35–44	1.43	0.005**	1.11–1.83	15.2	84.8
45–54	1.03	0.853	0.72–1.48	12.3	87.7
55+	2.15	0.001**	1.38–3.34	21.6	78.4
Country of residence					
UK	(reference)			10.2	89.8
Australia	1.55	0.000***	1.23–1.94	14.9	85.1
NZ	2.29	0.000***	1.71–3.10	20.8	79.2
Canada	1.31	0.018*	1.05–1.65	13.3	86.7
USA	1.34	0.043*	1.01–1.78	13.7	86.3
Ethnic background (dichotomous)	0.96	0.704	0.78–1.20		
Caucasian				13.5	86.5
Non-Caucasian				13.6	86.4
Education					
Did not graduate high school	(reference)			15.3	84.5
Graduated high school	0.94	0.724	0.65–1.35	13.0	87.0
Post high school studies	0.85	0.400	0.59–1.23	13.6	86.4
Employment					
Unemployed/not working	(reference)			15.0	85.0
Working/studying	0.84	0.127	0.68–1.05	13.1	86.9
Retired	0.78	0.452	0.40–1.50	19.3	80.7

Note: Ever viewed CSAM dichotomously coded as 0 = No and 1 = Yes. OR = Odds ratio. CI = Confidence interval.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

[a] Proportion of respondents who had demographic characteristic and viewed CSAM.

[b] Proportion of respondents who had demographic characteristic and did not view CSAM.

Gender

Of those who reported ever viewing CSAM (*n* = 742*)*, over three-quarters (77.0%; *n* = 571) were male, 19.5% (*n* = 145) were female and 3.5% (*n* = 26) identified as 'other gender' (see Table 4.3). Gender was significantly associated with CSAM viewing. After controlling for other demographics, males were approximately twice as likely as females to have 'ever viewed CSAM' ($p < .001$, *OR* = 1.73, 95% [CI = 1.42, 2.10]), as were

respondents identifying as 'other gender' ($p < .01$, $OR = 2.09$, 95% [CI = 1.32, 3.32]) (see Table 4.2).

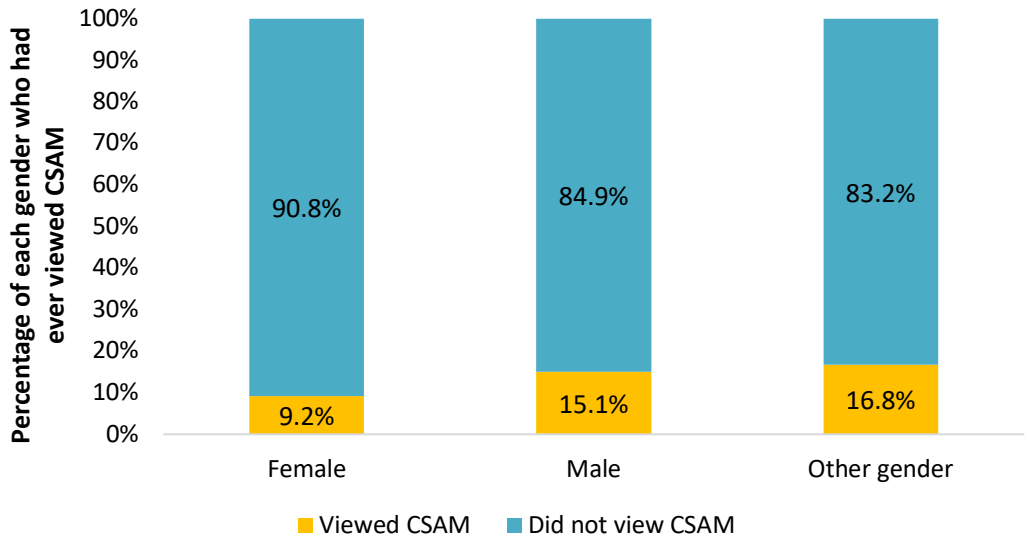
Table 4.3 *Child Sexual Abuse Material Viewing by Gender*

Gender	Viewed CSAM		Did not view CSAM		Total	
	n	%	*n*	%	*n*	%
Female	145	19.5	1,428	29.9	1,573	28.5
Male	571	77.0	3,213	67.4	3,784	68.7
Other gender	26	3.5	129	2.7	155	2.8
Total	742	100	4,770	100	5,512	100

The figures of females who self-report CSAM viewing is higher than research based on criminal justice samples of offenders, which have reported less than 3% of females among CSAM offender samples (Babchishin et al., 2011). The present study is the first to find that individuals who identify as a gender other than male or female are more likely than females to report viewing CSAM. Figure 4.2 flips the variables around to show the proportion of each gender in the study sample who reported ever viewing CSAM. Similar proportions of males (15.9%; $n = 571$) and other gender respondents (16.8%; $n = 26$) reported viewing CSAM (see Figure 4.2).

Females and persons of other gender (e.g., trans, non-binary, other) are evidently viewing CSAM, yet they are not being detected by law enforcement or identified in research at the rate that males are. The latter could be partly due to research design limitations.

Figure 4.3 *Proportion of Each Gender Who Reported Ever Viewing CSAM*



Note. n = 5,512.

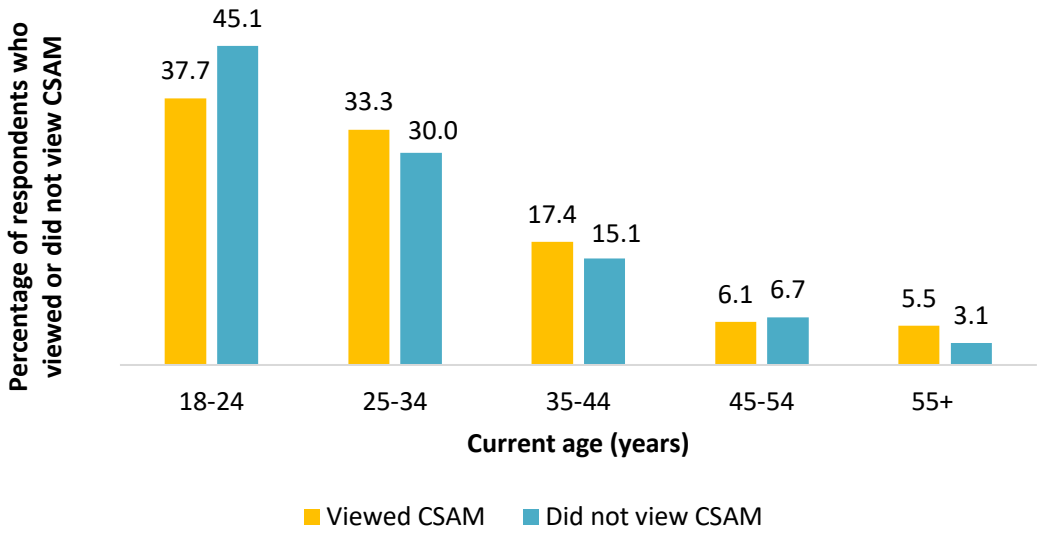
Age

When respondents in all age groups were compared with 18–24-year-olds, respondents in the following age groups at the time of the survey were significantly more likely to have viewed CSAM (see Table 4.2):

- 25–34 years ($p < .01$; $OR = 1.42$, 95% [CI = 1.15, 1.74]);
- 35–44 years ($p < .01$; $OR = 1.43$, 95% [CI = 1.11, 1.83]); and
- 55+ years ($p < .01$; $OR = 2.15$, 95% [CI = 1.40, 3.34]).

Figure 4.3 shows that the age distribution of both CSAM viewers and non-CSAM viewers was similar, with the majority from both groups aged 18–34 years. This distribution mirrored the age distribution in the overall sample (see Chapter 3, Figure 3.1). There were minor differences in age across the two groups. A slightly smaller proportion of CSAM viewers were aged 18–24 years compared with non-CSAM viewers (42.1% vs. 47.7%). On the other hand, a slightly larger proportion of CSAM viewers were aged 35–44 years compared with non-CSAM viewers (17.3% vs. 13.7%) (see Figure 4.3). Overall, this suggests that CSAM viewers were slightly older than non-CSAM viewers, although the difference was significant only for respondents aged 35–44 years when compared with respondents aged 18–24 years (see Table 4.2).

Figure 4.4 *Age Distribution of CSAM Viewers versus non-CSAM Viewers (%)*



Note. n = 5,512.

Ethnic background, education and employment

The results from logistic regression model 1 suggested there were no significant differences between CSAM viewers and non-CSAM viewers regarding ethnicity (Caucasian/non-Caucasian), employment status and education level. The findings related to each of these variables are discussed below.

Ethnic background

Because most of the sample identified as Caucasian (81%; see Chapter 3, Figure 3.5) and the proportions who were in each of the other ethnic groups were small, respondents were categorised into two groups: Caucasian or non-Caucasian. Results from the logistic regression suggested there were no significant differences between CSAM viewers and non-CSAM viewers regarding ethnicity (Caucasian/non-Caucasian) (see Table 4.2).

Respondents who resided in Australia were asked about their Indigenous status; 1,349/1,363 (99.0%) respondents answered this question, with 35 respondents reporting that they were Aboriginal and/or Torres Strait Islander. A chi-square test showed that viewing CSAM was not significantly associated with Indigenous status among Australia-based respondents. Of the self-reported CSAM viewers residing in Australia (n = 202), 4.0% (n = 8) were Indigenous, and 96.0% (n = 194) were non-Indigenous (see Table 4.4).

Table 4.4 *Australian Residents Who Viewed CSAM by Indigenous Status*

Indigenous Status [a]	Viewed CSAM		Did not view CSAM		Total	
	n	%	*n*	%	*n*	%
Indigenous	8	4.0	27	2.3	35	2.6
Non-Indigenous	194	96.0	1,120	97.7	1,314	97.4
Total	202	100	1,147	100	1,349 [b]	100

Note. 14 respondents did not answer the question on Indigenous status.

[a] Chi-square test of significance between ever viewed CSAM and Indigenous status was not significant χ^2 (1) = 1.75, $p > 0.05$.

[b] Only includes respondents who resided in Australia at the time of the survey.

As no other studies have been identified that measured CSAM use among Indigenous Australians, this study provides a new finding that among Australian Internet users, Indigenous status appears not to be associated with CSAM viewing.

Education

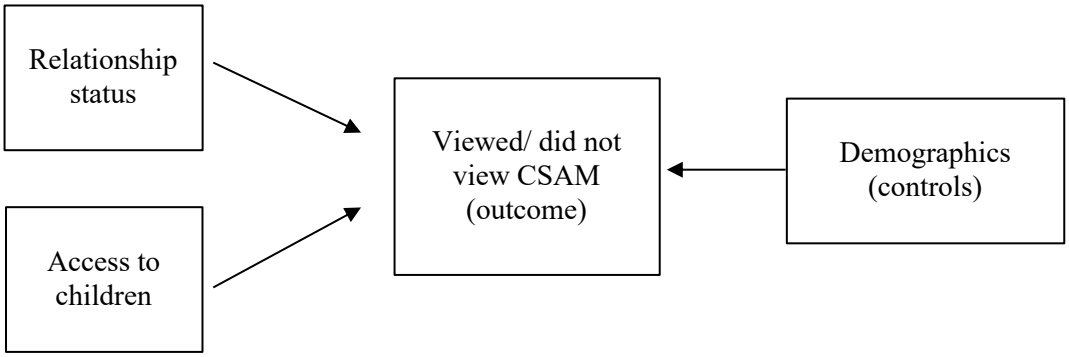
Over half of both CSAM viewers and non-CSAM viewers in the present study had completed post high-school studies (vocational, university/college degree, graduate/postgraduate studies) (61.4% vs. 60.9% respectively). Only a small proportion of CSAM viewers and non-CSAM viewers had not completed high school education (5.5% vs. 4.7% respectively) and just over a third had completed high school or equivalent education (33.1% vs. 34.4% respectively). Overall, both groups were generally highly educated, with the majority having completed post high school studies. There were no significant differences between CSAM viewers and non-CSAM viewers regarding education level (see Table 4.2).

As with educational attainment and ethnicity, there were few differences between the two groups regarding employment status. Similar proportions of CSAM viewers and non CSAM viewers were working or studying (81.1% vs. 83.9% respectively) and unemployed (16.6% vs. 14.6% respectively) at the time of the survey (see Table 4.2). Any minor group differences regarding employment status at the time of the survey were not significant.

4.3.2 Model 2: Adult relationships

Logistic regression Model 2 included demographic variables plus two variables related to adult relationships (relationship status and access to children) (see Figure 4.4). As explained in section 4.3, models 2–6 were compared with Model 1, demographics.

Figure 4.5 *Model 2: Adult Relationships and CSAM Viewing*



Previous research based on criminal justice samples has found that CSAM offenders are more likely than contact sexual offenders to have difficulties with intimate relationships (Laulik et al., 2007; Merdian et al., 2016; Webb et al., 2007). However, these studies compared CSAM offenders with contact CSA offenders. Only one previous study was identified that compared CSAM viewers with non-CSAM viewers in the community on relationship status, finding that CSAM viewers were significantly less likely to be in a relationship (albeit the correlation was weak) (Ray et al., 2014) (see section 2.2.3, and Table 2.2).

The present study found no difference in relationship status between CSAM viewers and non-CSAM viewers. One possible reason for the difference in finding between the present study and Ray et al. may be the countries surveyed in each study. The present study advertised to only five specified countries (see Chapter 3, Table 3.1) with similar laws relating to online sexual offending against children, while in Ray et al. (2014), the country of origin for survey respondents was not collected. Another reason may be that the present study had a younger age cohort. The mean age of Ray et al.'s sample was 31 years, whereas only 24% of the present sample were aged over 35 years (mean age not able to be measured due to age categories provided as ordinal data), while half (46%) were aged 18–24 years and 29% were aged 25–35 years. Ray and colleagues recruited survey participants by targeting paedophilia chat forums, sex addiction sites and

other sites where CSAM viewers were likely to visit. The present study was advertised on Reddit so may have recruited a more diverse sample. Lastly, the online environment is changing rapidly, and the availability of pornography is increasing. It is possible that since Ray et al. (2014)'s study, the demographic of CSAM viewers has changed.

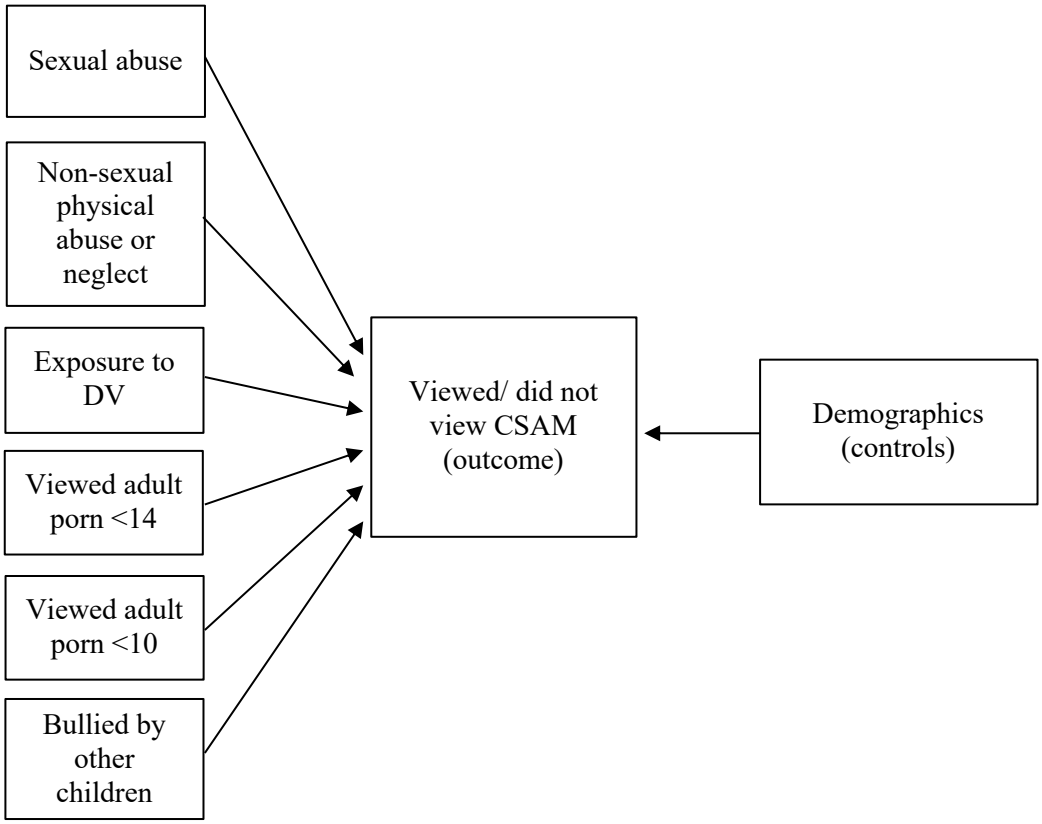
4.3.3 Model 3: Childhood experiences

Logistic regression Model 3 included demographic variables as well as six childhood experience variables (sexual abuse, non-sexual physical abuse, exposure to DV, exposure to adult pornography <14 years and exposure to adult pornography <10 years) (see Figure 4.5). Other research has reported associations between sexual/non-sexual childhood abuse and contact sexual offending in adulthood (Glasser et al., 2001; Ogloff et al., 2012; Seto et al., 2010), and to a lesser extent, CSAM offending (Babchishin et al., 2011). This study therefore hypothesised that these variables would predict 'ever viewing CSAM' in the current study. It also explored whether exposure to violence in the home and bullying (by other kids) as a child was associated with CSAM viewing. Further, research has found associations between early exposure to pornography and negative outcomes later in life such as poor mental health (Lim et al., 2017). Thus, this study explored whether early exposure to adult pornography would also predict CSAM viewing (see Figure 4.5).

The Likelihood-ratio (LR) test was used to determine whether adding the six childhood experience variables (Model 3) significantly improved the fit of the first logistic regression model (Model 1) that contained only demographic variables. Adding the negative childhood experience variables together (not just individually) resulted in a statistically significant improvement in model fit (χ^2 (6) = 161.21, p < .001). In other words, being subjected to (mostly negative) childhood experiences, both of a sexual and non-sexual nature, significantly increased the likelihood that a respondent had viewed CSAM.

Next, the analyses examined which childhood experiences in Model 3 were the most important predictors of CSAM viewing. After controlling for demographics, first viewing adult pornography under 10 years, under 14 years, having experienced sexual abuse ('someone made me do sexual things or watch sexual things') and non-sexual physical abuse under the age of 18 were significantly associated with 'ever viewed CSAM'.

Figure 4.6 *Model 3: Childhood Experiences and CSAM Viewing*



Respondents who reported childhood sexual abuse ($p < .01$; $OR = 1.27$, 95% CI = [1.06, 1.53]) and non-sexual physical abuse or neglect ($p < .01$; $OR = 1.36$, 95% CI = [1.09, 1.68]) were more likely to have ever viewed CSAM than those who did not although effect sizes were small (see Table 4.5).

Respondents who reported first viewing adult pornography at <14 years were twice as likely (17.3% vs. 8.3%) to have ever viewed CSAM as those who did not ($p < .001$; $OR = 2.04$, 95% CI = [1.68, 2.47]). Similarly, respondents who reported first viewing adult pornography under the age of 10 years were approximately twice as likely (24.2% vs. 12.3%) to have ever viewed CSAM than those who did not, $p < .001$; $OR = 1.61$, 95% CI = [1.28, 2.04].

Witnessing violence in the home (DV) and being 'bullied by other kids' (age of other kids not specified) before the age of 18 years were not significantly associated with ever viewing CSAM (see Table 4.5).

Table 4.5 *Ever Viewed CSAM by Predictors in Model 3*

Predictor [a]	*OR*	95% CI	Answered 'yes' and viewed CSAM (%) [b]	Answered 'no' and viewed CSAM (%) [c]
Sexual abuse as child	1.27** [a]	1.06–1.53	17.3	11.7
Non-sexual physical abuse as child	1.36**	1.09–1.68	18.1	12.0
Exposure to adult pornography < 14	2.04***	1.68–2.47	17.3	8.3
Exposure to adult pornography < 10	1.61***	1.28–2.04	24.2	12.3
Exposure to DV as a child	1.08	0.87–1.33	16.9	12.4
Bullied as a child	1.19	1.00–1.42	14.9	11.2

Note: Ever viewed CSAM dichotomously coded as 0 = No and 1 = Yes. OR = Odds ratio. DV = Domestic violence.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[a] Likelihood ratio test significant (comparing Model 3 to Model 1); $\chi^2(6) = 161.21$, $p < 0.001$.

[b] Proportion of respondents who reported childhood experience in first column and viewed CSAM.

[c] Proportion of respondents who did not report childhood experience in first column and viewed CSAM.

4.3.4 Model 4: Willingness to sexually abuse a child

A meta-analysis of 30 studies found that convicted CSAM offenders were more likely to have paedohebephilia (attraction to pubescent children) and paedophilia (attraction to pre-pubescent children) than convicted CSA offenders (Babchishin et al., 2015) (see Chapter 2 section 2.2.1, and Table 2.1). This could be interpreted as a counter-intuitive finding, with the expectation that contact CSA offenders would have a greater attraction to children, which is why they offend in this way. However, researchers who take a situational crime prevention approach argue that situational factors (e.g., access to children) play as significant a role in contact sexual offending against children as individual factors (offender characteristics) (Smallbone & Cale, 2016). In explanation, this assumes that some individuals will only sexually abuse children if the opportunity presents itself and will not take what they perceive as significant risks to do so, for example, abusing an unknown child in a public place. From this perspective, some 'online only' CSAM offenders may possess both individual and situational factors that prevent

them from abusing children in person (e.g., victim empathy, no access to children (Babchishin et al., 2011, 2015)).

However, few studies have examined interest in sex with children among samples of CSAM viewers in the community. In Seto et al.'s (2015) study, Swedish male high school students were asked how likely they would be to have sex with a child if they were certain that no one found out and they would not be punished (see Chapter 2, section 2.2.2, and Table 2.2). They found that self-reported interest (anything except 'very unlikely' on a 5-point Likert scale) in sex with a child under 15 was strongly and significantly associated with viewing CSAM.

Adapted from Seto et al. (2015), respondents in the present study were asked how likely (very unlikely, unlikely, likely, very likely) they would be to have sexual contact with a child in three different age categories if they had the opportunity. This question was purposely worded to reflect a scenario where the situational barriers for offending were removed. The present study was interested in whether CSAM viewers were more likely than non-CSAM viewers to report willingness to offend if they had the opportunity to offend (see Figure 4.6).

Figure 4.7 *Model 4: Willingness to Sexually Abuse a Child and CSAM Viewing*

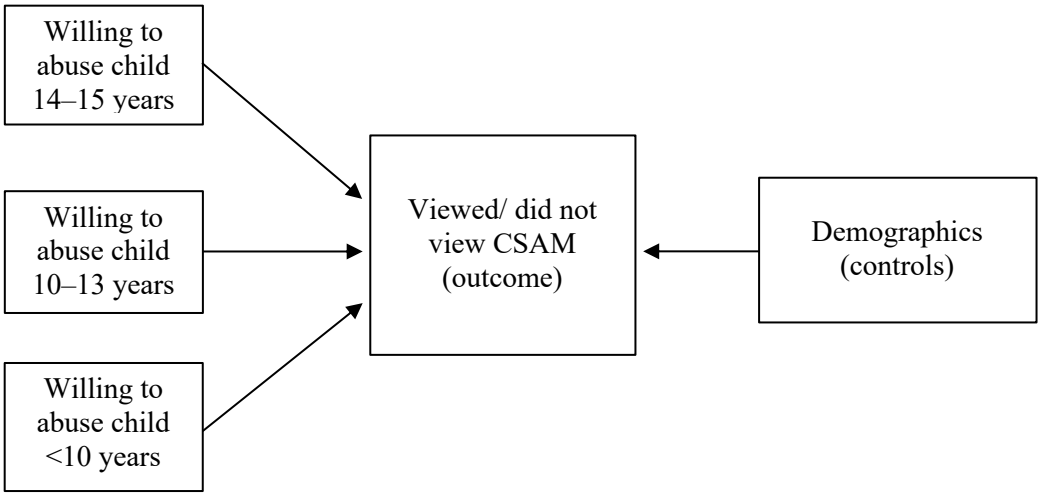
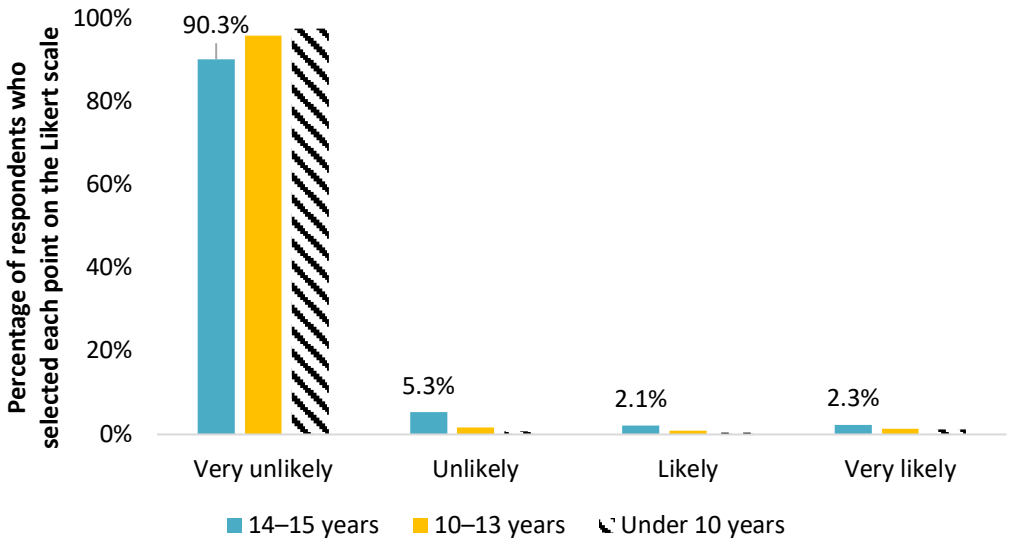


Figure 4.7 shows the Likert scale results from this survey question, relating self-reported likelihood of having sexual contact with children in each age group. It was heavily skewed towards 'very unlikely' for all three age groups of children, and the number of missing responses increased as the age of children in each question decreased

(see Table 4.6). It should be noted that social desirability may have impacted these responses, and thus they should be viewed with some caution. However, the anonymity and structure of the survey aimed to limit unreliable and dishonest responses and larger proportions of respondents reported viewing 'pornography featuring children', which is also illegal.

Figure 4.8 *'How Likely Would You be to Have Sexual Contact with a Child?'*



Responses on the 4-point Likert scale were coded dichotomously as 'willing to have sexual contact' (likely, very likely) and 'not willing to have sexual contact' (unlikely, very unlikely). In Model 4, adding the three willingness to sexually abuse children variables together (willingness to abuse child <10, 10–13, 14–15 years) resulted in a statistically significant improvement in model fit, compared with Model 1 containing demographics only, χ^2 (3) = 123.22, $p < .001$. Thus, being willing to sexually abuse a child of any age <16 years significantly increased the likelihood that a respondent had viewed CSAM.

Table 4.6 '*How Likely Would You be to Have Sexual Contact with a Child?'*

Likert scale	14–15 years		10–13 years		Under 10 years	
	n	%	n	%	n	%
Very unlikely	4,960	90.3	5,271	96.1	5,357	97.7
Unlikely	293	5.3	89	1.6	39	0.7
Likely	114	2.1	52	1.0	21	0.4
Very likely	126	2.3	76	1.4	66	1.2
Total	5,493 [a]	100	5,488 [b]	100	5,483 [c]	100

[a] 19 respondents did not answer this question.

[b] 24 respondents did not answer this question.

[c] 29 respondents did not answer this question.

Examining the effect of individual variables in Model 4, after controlling for demographics, those who reported willingness to have sexual contact with a child aged 14–15 years if they had the opportunity were almost four times more likely to have ever viewed CSAM than those who did not, $p < .001$; $OR = 3.65$, 95% CI = [2.47, 5.38]. Respondents who reported willingness to have sexual contact with a child aged 10–13 years if they had the opportunity were twice as likely to have ever viewed CSAM than those who did not, $p < .05$; $OR = 2.29$, 95% CI = [1.10, 4.79] (see Table 4.7).

Willingness to have sexual contact with a child aged under 10 years was not associated with ever viewing CSAM in logistic regression Model 4. However, it was strongly associated with willingness to have sexual contact with a child aged 14–15; $p < .001$) and willingness to have sexual contact with a child aged 10–13; $p < .001$). Tests for multicollinearity between these three variables indicated there was no evidence of high intercorrelations among these variables (*Variable 1, Tolerance = 0.59, VIF = 1.69; Variable 2, Tolerance = 0.23, VIF = 4.14; Variable 3, Tolerance = 0.30, VIF = 3.66*). Rather, there was a confounding effect on one another in terms of their association with CSAM viewing.

When willingness to have sexual contact with a child aged 14–15 years and with a child, 10–13 years were removed from the model, willingness to have sexual contact with a child aged under 10 years was significantly associated with CSAM viewing. Respondents who reported willingness to have sexual contact with a child aged under 10

years were almost six times more likely to have viewed CSAM than those who did not, $p < .001$; $OR = 5.70$, 95% CI = [3.64, 8.91]. Taken together, the results from Model 4 suggest that willingness to have sexual contact with a child under 16 years in any age group was significantly associated with viewing CSAM.

Table 4.7 *Willingness to Have Sexual Contact With a Child and CSAM Viewing*

Willingness to commit CSA: [ab]	*OR*	*95% CI*	*Willing and viewed CSAM (%)* [d]	*Not willing and viewed CSAM (%)* [e]
14–15 years	3.67***	2.47–5.38	40.8	12.3
10–13 years	2.29***	1.10–4.79	46.9	12.7
<10 years	5.70*** [c]	3.64–8.91	44.8	13.0

Note: Ever viewed CSAM dichotomously coded as 0 = No and 1 = Yes. OR = Odds ratio.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

[a] Likelihood ratio test significant; $p < 0.001$.

[b] Willing to have sexual contact with a child dichotomously coded as 0 = No and 1 = Yes.

[c] When variables 1 & 2, willingness to have sexual contact with child aged 14–15, 10–13 years were removed from Model 4, willingness to have sexual contact with a child under 10 years showed a strong association with viewing CSAM.

[d] Proportion of respondents who were willing to have sexual contact with child and viewed CSAM.

[e] Proportion of respondents who were not willing to have sexual contact with child and viewed CSAM.

Finally, it is important to note that while the variables in Model 4 were associated with CSAM viewing, only a minority of CSAM viewers reported willingness to have sexual contact with a child aged 14–15 years (98, 13.2%); l0–13 years (60, 8.1%); and under 10 years (39, 5.3%). This finding is important as it suggests that most CSAM viewers in the present sample were not willing to sexually abuse a child in person if the opportunity arose. However, it is important to note that self-report responses should be viewed with some caution.

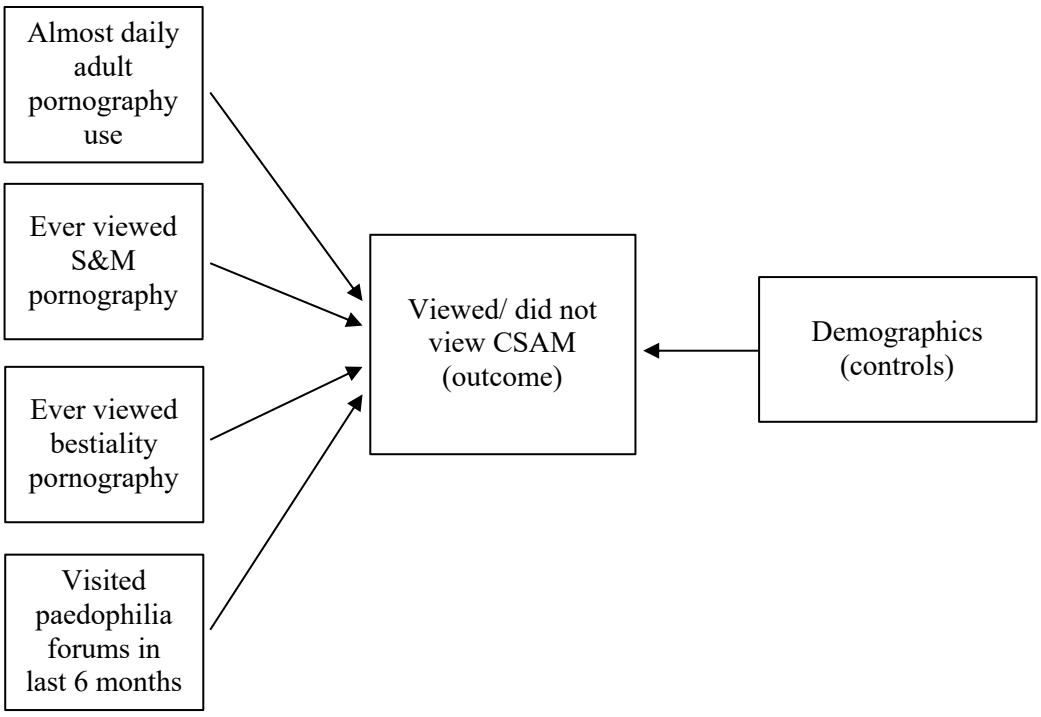
4.3.5 Model 5: Pornography use and online behaviour

In Chapter 2, several studies were reviewed that conducted online surveys of community samples (see Table 2.2). Some of these found that self-reported CSAM use was associated with frequent (‘almost daily’) viewing of adult pornography (Seto et al., 2015; Svedin et al., 2011), and ever viewing atypical pornography in the form of sexual

violence/force (Seto et al., 2015) and bestiality pornography (Seigfried-Spellar & Rogers, 2013). Further, an earlier qualitative analysis of case studies and interviews with offenders found that people who view and share CSAM tend to network with likeminded people online, which can normalise the offending and make them feel accepted into that community (Taylor & Quayle, 2003). Krone et al. (2017) analysed criminal histories of 34 convicted CSAM offenders in Australia for whom information on their online networking behaviours was available. They found that just over a third (12, 35.3%) networked/communicated with others online about internet security and their child sexual abuse/exploitation interests, and under a quarter (8, 23.5%) shared CSAM online.

Thus, Model 5 hypothesised that viewing adult pornography frequently, viewing bondage/S&M and bestiality pornography and visiting paedophilia chat forums online would increase the likelihood of a respondent viewing CSAM.

Figure 4.9 *Model 5: Online Behaviour and CSAM Viewing*



In Model 5, adding the four variables relating to pornography use and online networking behaviour resulted in a statistically significant improvement in model fit compared with Model 1 containing demographics only, $\chi^2(4) = 518.48$, $p < .001$. Online networking behaviour and pornography use variables as a group significantly predicted CSAM viewing among respondents.

When examining individual predictor effects, after controlling for demographics, 'ever viewed S&M pornography featuring adults', 'ever viewed bestiality pornography featuring adults' and 'visited paedophilia chat forums in the last six months' were significantly associated with' ever viewing CSAM'. Respondents who reported that they had viewed bondage/S&M pornography featuring adults were significantly more likely to have ever viewed CSAM although the effect size was small, $p < .01$; $OR = 1.49$, 95% CI = [1.11, 1.99]. It is likely the effect size for S&M pornography was not large since most of the study sample (82.4%) reported that they had viewed bondage/S&M pornography featuring adults. This is an interesting finding in itself, that in a survey advertised as a study about online sexual behaviour and pornography use, the majority (80.8%) of respondents reported viewing S&M pornography and 39.9% reported viewing bestiality pornography.

Respondents who reported viewing bestiality pornography featuring adults were six times more likely to have ever viewed CSAM, $p < .001$; $OR = 6.10$, 95% CI = [5.02, 7.41]. Finally, respondents who reported visiting online chat forums in the last six months, where people discuss adult/child sexual relations were almost four times more likely to have ever viewed CSAM, $p < .001$; $OR = 3.85$, 95% CI = [2.55, 5.80] (see Table 4.8).

The remaining independent variable, viewed adult pornography five or more times per week in the last four weeks, was not associated with ever viewing CSAM. This finding is contrary to two previous studies using community samples (Seto et al., 2015; Svedin et al., 2011) (see Chapter 2 section 2.2.3, and Table 2.2). The present sample was comprised of around 50% of frequent (1 or more times per week) pornography viewers and included all genders and ages from 18 onwards. The other two studies (Seto et al., 2015; Svedin et al., 2011) surveyed only young males aged 17–20 years, of whom a smaller proportion were frequent pornography viewers. These reasons may at least partly explain the converse findings relating to frequent pornography use and CSAM viewing in the present study. However, Ray et al.'s (2014) study on adult CSAM viewers aged 18–65 in the community, like the present study, found that frequent pornography use was not associated with CSAM viewing. Similar to the present study, the study by Ray and colleagues was comprised of pornography viewers (see Chapter 2 section 2.2.3, and Table 2.2), which may explain why the results were similar in this regard.

Table 4.8 *Ever Viewed CSAM by Predictors in Model 5*

Predictor [a]	*OR*	*95% CI*	Answered 'yes' and viewed CSAM (%) [b]	Answered 'no' and viewed CSAM (%) [c]
Viewed adult pornography 5+ times per week	1.05	0.86–1.31	15.0	10.5
Ever viewed S&M pornography	1.49**	1.12–1.99	15.2	6.1
Ever viewed bestiality pornography	6.10***	5.02–7.41	26.5	4.8
Visited paedophilia forums recently	3.85***	2.55–5.80	39.8	12.9

Note: Ever viewed CSAM dichotomously coded as 0 = No and 1 = Yes. OR = Odds ratio. CI = Confidence Interval.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[a] Likelihood ratio test significant; $p < 0.01$; this means Model 5 predicted CSAM viewing better than Model 1 (demographics only).

[b] Proportion of respondents who responded 'yes' to the online behaviour and viewed CSAM.

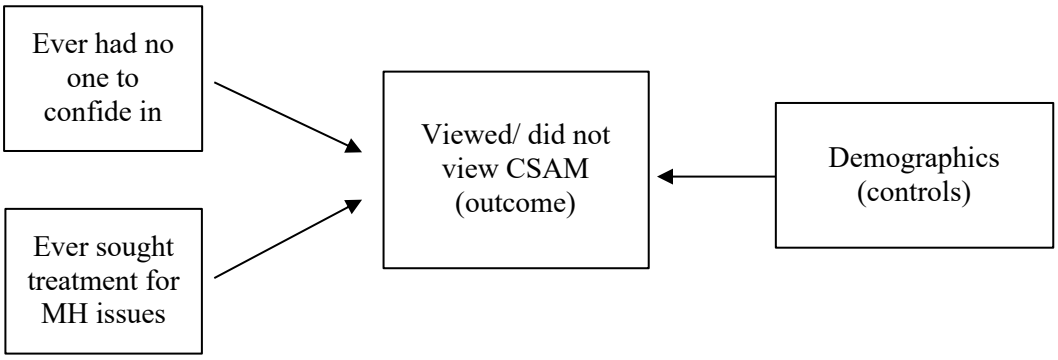
[c] Proportion of respondents who responded 'no' to the online behaviour and viewed CSAM.

The present study found that viewing CSAM was strongly associated with viewing both S&M and bestiality pornography. This was also found by two studies (Seigfried-Spellar & Rogers, 2013; 2015; Svedin et al., 2011). While Seto et al. (2015) found that viewing pornography depicting violence or force was associated with CSAM viewing, they did not find an association between viewing CSAM and viewing bestiality pornography. Regardless, the present study adds to the evidence that individuals who view atypical pornography including depictions of S&M and bestiality are more likely to view CSAM than those who do not view these types of pornography.

4.3.6 Model 6: Mental health and emotional loneliness

The final model related to mental health and emotional loneliness. Previous research has found that compared with contact sexual offenders, CSAM offenders tend to experience greater emotional loneliness and problems with intimate relationships (Bates & Metcalf, 2007; Laulik et al., 2007; Merdian et al., 2016; Webb et al., 2007), and mental health (Merdian et al., 2016; Webb et al., 2007). This study hypothesised that CSAM viewers in the current sample were more likely to have experienced emotional loneliness (*Have you ever had no one to confide in or lean on in times of trouble?*) and sought treatment for mental health problems at least once in their lives.

Figure 4.10 *Model 6: Mental Health and Support and CSAM Viewing*



In Model 6, adding the two variables relating to mental health and emotional loneliness resulted in a statistically significant improvement in model fit compared with Model 1, χ^2 (2) = 28.07, $p < .001$. The two variables indicative of experiencing mental health problems and emotional loneliness, together improved the likelihood that a respondent had viewed CSAM.

Individually, respondents who had ever experienced emotional loneliness and sought treatment for mental health issues were significantly more likely to report ever viewing CSAM, although effect sizes were not large ($p < .001$; *OR* = 1.4, 95% CI = [1.16, 1.64], and $p < .01$; *OR* = 1.3, 95% CI = [1.08, 1.52] respectively) (see Table 4.9). It should be noted that a limitation in this study is that the survey tool did not include a diagnostic measure for mental illness, and many people with mental health issues especially if this is related to CSAM likely do not seek treatment. Regardless of this limitation, substantial proportions of the sample reported that they had experienced emotional loneliness (61.5%) and sought medication or treatment for mental health issues (52.9%) at least once in their lives.

Table 4.9 *Ever Viewed CSAM by Predictors in Model 6*

Predictor [a]	*OR*	*95% CI*	Answered 'yes' and viewed CSAM (%) [b]	Answered 'no' and viewed CSAM (%) [c]
Ever had no one to confide in	1.38***	1.16–1.64	14.9	11.1

Ever sought treatment for MH issues	1.28	1.08–1.52	14.6	12.2

Note: Ever viewed CSAM dichotomously coded as 0 = No and 1 = Yes. OR = Odds ratio.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[a] Likelihood ratio test significant; $p < 0.001$.

[b] Proportion of respondents who reported behaviour in first column and viewed CSAM.

[c] Proportion of respondents who did not report behaviour in first column and viewed CSAM.

4.4 SUMMARY

The analysis from the logistic regression model 1 showed that males and respondents who identified as another gender were significantly more likely to report ever viewing CSAM than female respondents. There were no significant differences between CSAM viewers and non-CSAM viewers regarding ethnicity (Caucasian/non-Caucasian), employment status and education level. Four out of five logistic regression models predicted CSAM viewing better than the model with demographics alone. These models related to childhood experiences, online behaviour, willingness to sexually abuse children and mental health/emotional loneliness. Willingness to have sexual contact with children, viewing bestiality pornography and visiting paedophilia chat forums emerged as particularly strong predictors of viewing CSAM.

Now that the thesis has examined the characteristics of respondents who reported viewing CSAM, Chapter 5 will examine the age and circumstances of first exposure to CSAM including whether this differs by respondent characteristics. This will shed further light on the behaviour and characteristics of individuals who view CSAM.

Chapter 5: Results: Viewing CSAM for the first time

This chapter explores the age and circumstances of first exposure to child sexual abuse material. It also examines the characteristics of respondents who continued to view after first exposure. Specifically, this chapter addresses the following two research questions:

- What is the age of first exposure to CSAM and atypical forms of pornography, and is the age of first CSAM exposure decreasing?
- What are the circumstances surrounding initiation (onset) to CSAM viewing and does accidental discovery of CSAM lead to subsequent intentional viewing?

5.1 AGE OF FIRST CSAM VIEWING

Three studies were identified that explored the association between viewing other forms of pornography and viewing CSAM among non-detected community samples. Two studies found that CSAM viewing was associated with frequent use of adult pornography (Seto et al., 2015; Svedin et al., 2011), while another found it was associated with viewing of bestiality pornography (Seigfried-Spellar & Rogers, 2013) (see Chapter 2, section 2.2.3, and Table 2.2). To follow on from this research, I examined the patterns of other forms of deviant pornography among CSAM viewers. Further, following from research that many individuals begin viewing mainstream pornography (Lim et al., 2017) and CSAM and illegal violent material (Insoll et al., 2021) during adolescence, the present study examined the age that respondents viewed five different types of sexual material, including CSAM. Respondents were asked how old they were when they first viewed pornography featuring:

- adults;
- S&M (bondage) (with adults);
- adults and animals;
- pubescent children or teens; and
- pre-pubescent children.

Table 5.1 shows the number and proportion of respondents who viewed each type of material. A separate question was asked for each of the five types of pornography/CSAM. The vast majority (99%; n = 5,452) of the sample reported viewing pornography featuring adults, 80.8% (n = 4,449) reported viewing bondage/S&M pornography featuring adults and 39.9% (n = 2,199) reported viewing pornography featuring adults and animals. Among those who reported ever viewing CSAM, it was more common to have viewed material showing pubescent children than material showing pre-pubescent children. Specifically, 13.2% (n = 726) reported viewing CSAM

featuring pubescent children/teens and 5.7% (n = 316) reported viewing CSAM featuring pre-pubescent children. Specifically, 7.7% (n = 423) viewed only pubescent CSAM, 0.3% (n = 16) viewed only pre-pubescent CSAM and 5.7% (n = 300) reported viewing both types of CSAM (see Table 5.1).

Table 5.1. *Percentage of Respondents Who Viewed Each Type of Material*

	Ever viewed			
	Yes		No	
Pornography type	*n*	*%*	*n*	*%*
Adult	5,452	99.0%	58	1.1%
S&M (adults)	4,449	80.8%	1,056	19.2%
Bestiality (adults)	2,199	39.9%	3,309	60.1%
Pubescent CSAM	726	13.2%	4,776	86.8%
Pubescent only	423	7.7%	N/A	N/A
Pre-pubescent CSAM	316	5.7%	5,189	94.3%
Pre-pubescent only	16	0.3%	N/A	N/A
Both CSAM types	300	5.7%	N/A	N/A

* n = 5,512. Between 2 and 10 participants did not respond to each question on age of first pornography/CSAM viewing. Specific questions were not asked about viewing pubescent CSAM only, pre-pubescent CSAM only, and both types of CSAM. Rather, these figures were calculated during analysis. Where this is the case, 'N/A' is marked under the last column.

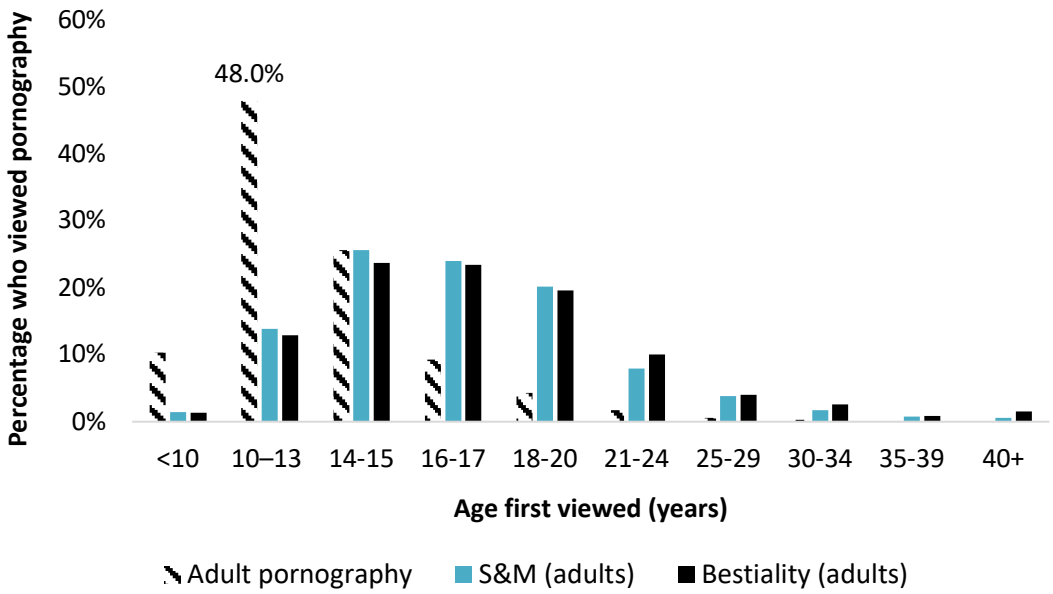
Figure 5.1 shows the proportion of respondents who viewed each type of adult pornography, by the age they first viewed this material. The proportions exclude respondents who said they had never viewed each type of pornography. In the figure, proportions are shown for the most common ages when respondents first viewed each type of pornography. Respondents could report first viewing more than one type of pornography in the same age range. The age reported relates to age of first viewing separately for each of the five types of material specified. It does not relate to which type of material respondents viewed first.

It was common for respondents to report first viewing adult pornography at younger ages than other types of material. Specifically, of respondents who reported viewing adult pornography (*n* = 5,452), almost half (48.0%) first viewed this at age 10–13 years, followed by a quarter (25.6%) who first viewed this at age 14–15 years.

Of respondents who reported viewing bondage/S&M pornography featuring adults (*n* = 4,449), a quarter (25.6%) first viewed this at age 14–15 years, followed by just under a quarter (24.0%) at age 16–17 years. Finally, of respondents who reported viewing pornography featuring adults and animals (bestiality) (*n* = 2,199), just under a quarter first viewed this at age 14–15 years (23.7%) and 16–17 years (23.4%; see Figure 5.1). A minority of S&M/bondage pornography viewers (13.9%; *n* = 618) and bestiality pornography viewers (12.9%; *n* = 284) reported first viewing it aged 10–13 years.

The majority of respondents who reported viewing each type of pornography featuring adults, first did so before they were 18 years. For example, 98.3% of adult pornography viewers were first exposed to the material before they were 18 years, while 66.6% of S&M pornography viewers and 62.4% of bestiality pornography viewers were first exposed to the material before they were 18 years.

Figure 5.1 *Age Respondents First Viewed Pornography, by Pornography Type*



Note. Proportions only include respondents who reported viewing each type of pornography, excluding those who did not view these types of pornography.

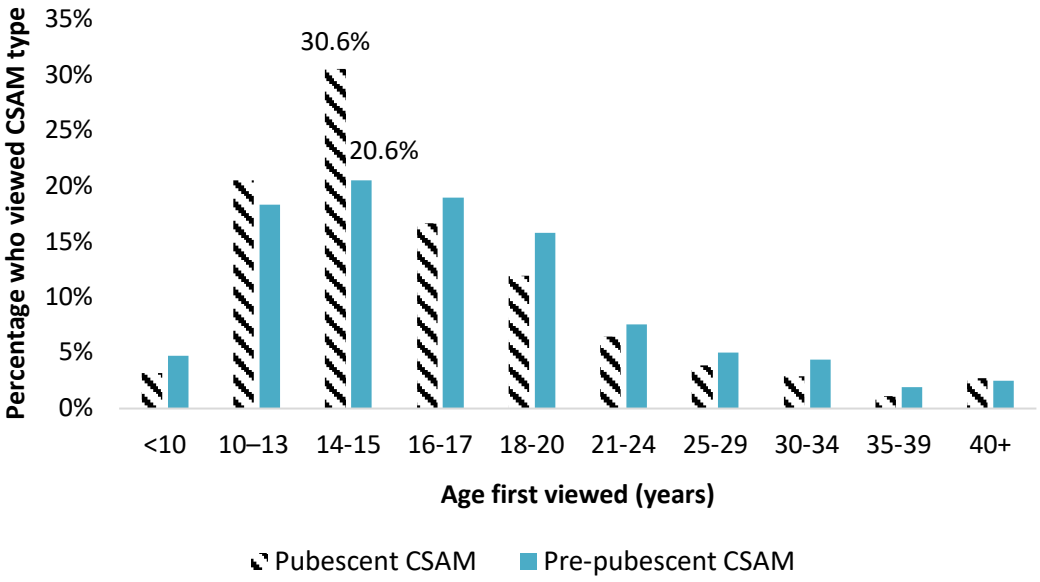
Figure 5.2 shows the proportion of respondents who viewed each type of CSAM – CSAM featuring pubescent children or teens (pubescent CSAM) (n = 726) and CSAM featuring pre-pubescent children (pre-pubescent CSAM) (n = 316) – by the age they first viewed it. Similar to Figure 5.1, only respondents who reported viewing each type of CSAM are included. It should be noted that respondents could report first viewing more than one type of CSAM in the same age group, as a separate question was asked about which age they first viewed each type.

Similar to those who viewed pornography/atypical pornography featuring adults, the majority of respondents first viewed both types of CSAM as a minor. Just under three-quarters (71.5%) first viewed pubescent CSAM under the age of 18 years; and 62.4% first viewed pre-pubescent CSAM under the age of 18 years. Respondents tended to first view pubescent CSAM at slightly younger ages than they first viewed pre-pubescent CSAM. For example, while the most common age of first viewing for both types of CSAM was 14–15 years, it was more common to first view pubescent CSAM in this age group than pre-pubescent CSAM (30.6% vs. 20.6%). Similar proportions of respondents first viewed pubescent and pre-pubescent CSAM at ages 10–13 years (20.5% vs. 18.4%) and 16–17 years (16.7% vs. 19%). However, slightly larger proportions of respondents first viewed

pre-pubescent CSAM at later ages (from 18 to 39 years) compared with pubescent CSAM (see Figure 5.2).

It is noteworthy that 23 respondents (3.2%) reported first viewing pubescent CSAM under the age of 10 years, and 15 respondents (4.8%) pre-pubescent CSAM under the age of 10 years.

Figure 5.2 *Age Respondents First CSAM, by CSAM Type*



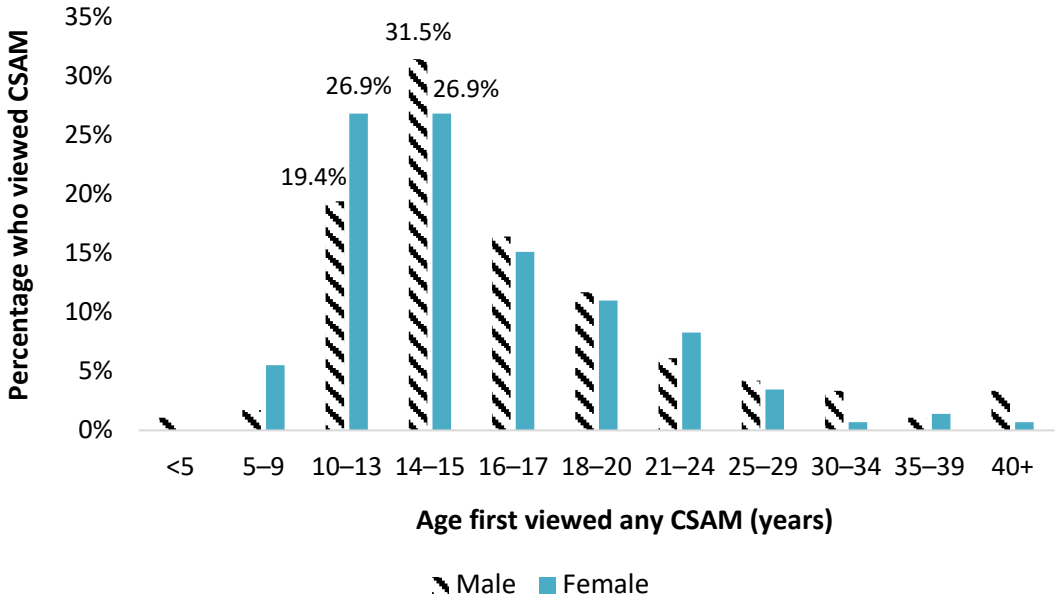
Note. Proportions only include respondents who reported viewing each type of CSAM, excluding those who did not view CSAM.

Age of first CSAM viewing by gender

Figure 5.3 shows the proportion of viewers of any type of CSAM by the age they first viewed CSAM by gender. A total of 571 males (77%) and 145 (19.5%) females reported viewing CSAM. Twenty-six (3.5%) other gender respondents reported viewing CSAM but these respondents were excluded from Figure 5.3 as the numbers were too small when split across the age categories. The survey asked two separate questions of respondents: (1) age of first pubescent CSAM viewing; and (2) age of first pre-pubescent CSAM viewing. Responses from the two questions were combined, resulting in one measure for the age at which a respondent first viewed any type of CSAM (pubescent or pre-pubescent). If a respondent reported viewing both types (300, 5.7%), the age at which either was viewed first (i.e., earliest age) or the age where a respondent viewed both types in the same age group, was used in the analysis.

A chi-square test of independence showed there was a weak association between the age a respondent first viewed CSAM and their gender ($\chi^2(10, n = 716) = 18.94, p < .05$). While most males and females first viewed CSAM under the age of 18 years, it was more common for females to first view it under the age of 14 years. For example, over a quarter (26.9%; $n = 39$) of female CSAM viewers first viewed CSAM at age 10–13 years, compared with 19.4% ($n = 111$) of male CSAM viewers. There were minor differences between proportions of female and male CSAM viewers who first viewed CSAM at age 5–9 years, however the numbers were too small in this category to draw conclusions (8 and 10 respectively). Conversely, it was marginally more common for male CSAM viewers to first view this material at age 14–15 years compared with female CSAM viewers (31.5%; $n = 180$ vs. 26.9%; $n = 39$) (see Figure 5.3).

Figure 5.3 *Age Respondents First Viewed Any Type of CSAM by Gender*



5.2 CHANGES IN AGE OF FIRST CSAM VIEWING

To answer the study research question, *Is the age of first child sexual abuse material viewing decreasing?* the study examined the age of first CSAM viewing across six age cohorts within the sample of survey respondents. Survival analysis is used to analyse 'time-to-event' data, or the length of time until the occurrence of an event or point of interest (Schober & Vetter, 2018). This method has been used extensively in medical studies that measure the time until death (survival time) of patients from initial diagnosis

of a disease, or time to reoccurrence of a disease after treatment (e.g., see Gray, 1992). Survival analysis is particularly useful when participants enter a study at different points in time, and has increasingly been used in non-medical studies where there is time to event data (Hosmer et al., 2008). It is also used in criminological studies, often to measure time to reoffence (e.g., number of days until next recorded offence following release from prison). The present study used survival analysis to estimate the proportion of participants who had ever viewed CSAM by a certain age. 'Time-to-event' was interpreted as how long it took a participant to first view CSAM from birth (age 0).

As noted in Chapter 3 (Method), the survey was advertised as a study about pornography use and sexual behaviour, with no mention of child sexual abuse material in the advertisement. Survival analysis relating to time to first CSAM viewing was conducted on the entire sample of survey participants (n = 5,512), including non-CSAM viewers who comprised the vast majority (86.5%). This allowed calculation of the proportion of the entire sample who had viewed any CSAM by a certain age within each age cohort.

The study compared respondents across six age cohorts, by examining the age they first viewed CSAM. The purpose of the analysis was to determine whether age of first CSAM exposure differed significantly across six age cohorts in the sample.

There were two variables included in this analysis:

- Variable 1 (outcome): Age respondent first viewed any child sexual abuse material.
- Variable 2 (explanatory): Current age at time of the survey.

Variable 1 included 11 age groups, which reflected the age in years when a respondent first viewed CSAM (0–4; 5–9; 10–13; 14–15; 16–17; 18–20; 21–24; 25–29; 30–34; 35–39; and 40+). The number of respondents who first viewed CSAM aged from 40+ years was small (40–44 years (10); 5 age categories from 45–69 years (1–3); 70+ years (0)). Therefore, these groups were collapsed into the age group '40+'.

The respondent's age at the time of the survey (variable 2) comprised six age groups in years (18–20; 21–24; 25–29; 30–34; 35–39; and 40+). In the 'current age' variable, numbers of CSAM viewers were small in some age groups over 40 years (lowest = 5). Moreover, respondents aged over 40 at the time of the survey (2019–2020) would have been less likely to have access to Internet pornography as children or adolescents

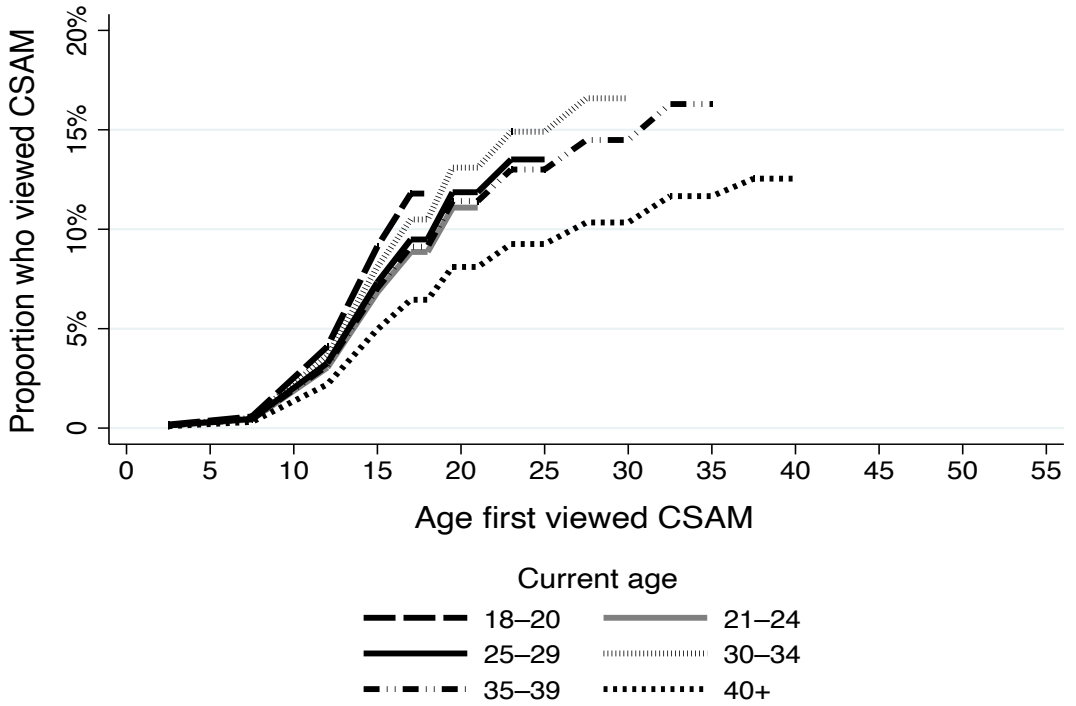
compared with respondents aged under 40. This is because the Internet only began to enter every-day global use in 1993–94 (Couldry, 2012); at this time survey respondents aged 40 years would have already entered adolescence, and would not have had access to the Internet prior to adolescence. Therefore, respondents in the seven age categories from 40 years and over were collapsed into the group '40+'.

To determine whether differences in the age of first CSAM viewing across the six age cohorts were significant, a Cox Proportional Hazards regression model was constructed; this is a semi-parametric regression model appropriate for survival data (Abd ElHafeez et al., 2021). Because Cox regression requires a time when the 'event' (age first viewed CSAM) occurred, the midpoint of each age interval (group) was specified for when respondents first viewed CSAM. Since the age intervals were narrow, the estimated midpoint would be close to the actual age of first CSAM viewing. The Cox regression model between age first viewed CSAM and current age at time of survey produced a significant value ($p < .001$), indicating a significant difference in age at first CSAM viewing by cohort (current age).

Figure 5.4 shows the fitted survival curves for the proportion of participants who first viewed CSAM, across the age cohorts. The X-axis shows the age a respondent first viewed CSAM, and each line represents a different age cohort (i.e., age at time of the survey). This figure demonstrates the overall relationship between age cohort and age of first exposure to CSAM. As indicated by the steepness of the curves, those in older age cohorts, particularly '40+', took longer to first view CSAM than those in younger age cohorts.

Figure 5.4 *Survival Curves for Age First Viewed CSAM Across the Age Cohorts*

Note. n = 5,512. Figure produced in Stata 17.0 for Mac. The lines in the graph stop at the current age of participants at time of the survey, as data could not be collected beyond this point. Cox Proportional Hazard



s regression between age first viewed CSAM and current age was significant ($p < .001$).

Table 5.4 provides the cumulative percentage of respondents who viewed CSAM by a certain age, by age cohort. The figures in Table 5.4 reflect the survival curves presented in Figure 5.4. By age 14–15 years, 9.2% of respondents in the 18–20 age cohort and 7.2% in the 21–24 cohort had viewed CSAM for the first time, compared with only 2.5% of respondents in the 40+ age cohort. By age 16–17 years, 11.3% of respondents in the 18–20 age cohort had viewed CSAM for the first time, compared with 3.7% of respondents in the 40+ age cohort. By age 21–24 years, 15.2% of respondents in the 30–34 age cohort had viewed CSAM, compared with 8.3% in the 40+ age cohort (see Table 5.4).

Table 5.2 *Cumulative Percentages of Respondents who Viewed CSAM By a Certain Age*

	Age first viewed CSAM (years)										
Current age (years)	<5	5–9	10–13	14–15	16–17	18–20	21–24	25–29	30–34	35–39	40+
18–20	0.2	0.7	4.6	9.2	11.3	-	-	-	-	-	-
21–24	0.0	0.4	3.0	7.2	9.1	10.5	-	-	-	-	-
25–29	0.1	0.2	3.4	8.0	10.5	12.1	13.2	-	-	-	-
30–34	0.0	0.3	3.8	9.8	12.6	14.5	15.2	15.9	-	-	-
35–39	0.0	0.4	2.4	6.9	9.9	13.0	14.8	15.4	15.8	-	-
40+	0.4	0.5	1.4	2.5	3.7	6.4	8.3	10.3	12.0	12.6	-

Note. n = 5,512. "-" means cumulative percentage not able to be estimated beyond their age at the time of the survey.

5.3 CIRCUMSTANCES SURROUNDING FIRST CSAM VIEWING

This section examines the circumstances of first exposure to child sexual abuse material among survey respondents. It addresses the following study research question: *What are the circumstances surrounding initiation (onset) to CSAM viewing and does accidental discovery of CSAM lead to subsequent intentional viewing?* To develop initiatives to prevent people from viewing CSAM or continuing to view CSAM, it is important to know how respondents first discover the material, and which individuals are more likely to continue viewing CSAM after first exposure.

5.3.1 How did respondents first discover CSAM?

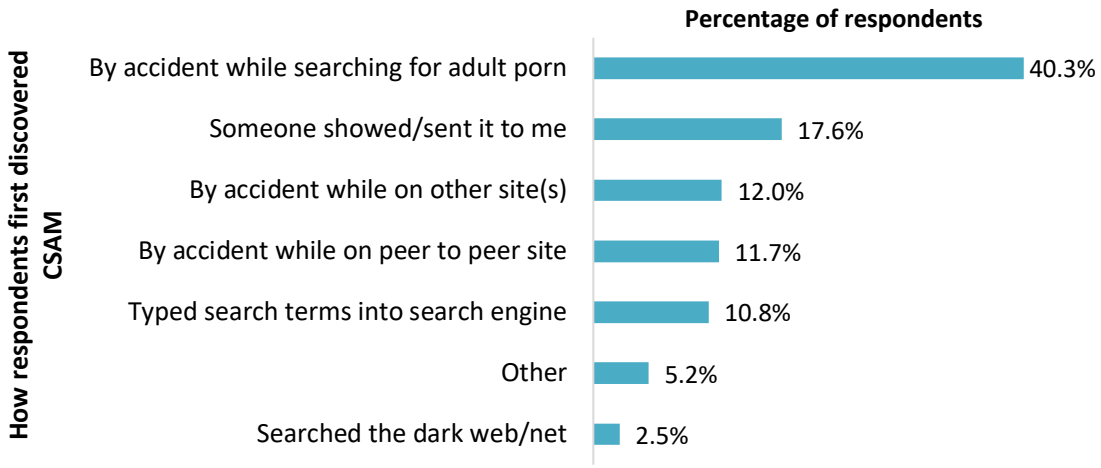
Survey respondents who reported viewing CSAM were asked how they first came across the material.[16] There were six fixed response categories that respondents could select, plus an 'other' category which was an open-ended field. Thirty-nine respondents selected the 'other' category and entered open-ended responses; 17 were coded into the six fixed responses already developed. Five of the 'other' responses were coded into a new category, 'by accident – someone's house/computer'. The remaining 11 responses

[16] *Thinking back to the first time you ever viewed pornography featuring pubescent or pre-pubescent teens or children, how did you first come across the material?*

remained in the 'other' category. Three responses were excluded due to being unclear or denying they had viewed CSAM despite reporting that they had in an earlier question.

Most respondents (65.3%) reported first discovering CSAM by accident while searching online for something else. The most common response across all CSAM viewers who answered the question (n = 733) was 'by accident while searching for adult porn' (40.6%; n = 295). The next most common methods of discovery were 'someone showed/sent it to me' (18%; n = 131), 'by accident while searching another site online' (12.7%; n = 92) and 'by accident while on a peer-to-peer site' (12%; n = 87). A minority reported that they searched for the material intentionally (13.4%; n = 97); either by typing search terms into browsers/search engines on the normal web (10.9%; n = 79) or by searching the dark web/net (2.5%; n = 18). Six respondents (1.1%) found CSAM by accident in the house or on the computer of a parent, partner, other family member or friend, while 11 respondents (1.5%) selected the 'other' category (see Figure 5.5).

Figure 5.5 *How Did Respondents First Discover CSAM?*



Note. Only includes respondents who reported viewing CSAM. Seven respondents did not answer the question on how they first discovered CSAM.

Open-ended responses

Thirty-eight respondents selected the 'Other' category and entered open-ended responses, which were analysed qualitatively. Eleven of the responses were coded into three of the fixed responses already developed: 'Someone showed/sent it to me'; By accident while on a peer-to-peer site; and 'By accident while on another site'. Three responses were excluded due to being unclear or the respondent denying that they had

viewed CSAM despite reporting that they had in an earlier question. One response was coded into two separate categories as it related to both.

Accidental exposure

In the first category, 'Someone showed/sent it to me', two respondents indicated that they were shown CSAM by someone who sexually abused them. One respondent was a female aged 10–13 years at the time, the other a male aged 14–15 years at the time. Another female respondent reported viewing CSAM through 'mutual consensual exchange as a teen with another teen'. Lastly, a male respondent reported that he was shown CSAM non-consensually by a friend when he was aged 10–13 years.

In the second category, 'By accident while on a peer-to-peer site', a male respondent reported accidentally downloading CSAM through the site Limewire when he was aged 5–9 years. In the third category, 'By accident while on other site', respondents discovered CSAM by accident though video games, video suggestions and searching for fan fiction online.

The fourth category, 'by accident – someone's house/computer', related to respondents who accidentally discovered CSAM whilst at someone else's house or whilst using someone else's computer. One female found CSAM on her father's computer when she was aged 10–13 years; and one male found it on a family member's computer when he was aged 14–15 years. Two respondents found hardcopies of CSAM on a bookshelf or in a box when they were aged 5–9 years and 10–13 years. In the fifth category, 'by accident – Hackers/malware/wrong purchase', respondents purchased a 'wrong comic' or were electronically attacked by hackers who exposed the respondent to CSAM.

Intentional exposure

The sixth category included respondents who intentionally searched for or viewed CSAM: 'Intentional'. One male who first viewed CSAM at 14–15 years said, "I wanted to find porn that had people similar to my own age". A female who first viewed at 16–17 years stated that it was a 'mutual exchange as a teen with another teen', which relates to self-generated sexual material.

Intention unclear

There were two categories created for responses that were not clear as to whether respondents were exposed to CSAM intentionally or by accident. First, 'Intention unclear – videos/magazines/literature'. In this category, several respondents said they discovered CSAM in magazines, and two respondents in a sex shop or a pornography shop. Respondents also reported discovering CSAM on a bookshelf or a video cassette. Second, 'Intention – other' related to responses where the intention was unclear and respondents did not discover CSAM via videos, magazines or literature. In this category, one female respondent who first viewed CSAM at age 10–13 years said she "heard of a website from another kid". Other responses included: 'Usenet', 'Snapchat' and 'Teen category' (see Table 5.5).

Open-ended responses in Table 5.5 are provided verbatim and contain grammatical errors.

Table 5.3 *'Other' Responses to 'How Did You First Come Across CSAM?'*

Gender respondent	Age first viewed CSAM	CSAM type viewed	How did you first come across CSAM?
			Someone showed/sent it to me
Male	10–13 years	Type 1 only	I didn't, I was at a friends house to play video games and he had it and played it for a few others that were older. I don't know the age of the person involved but she looked young so I believe she was under 18. I didn't watch it as much as I could and focused on my gameboy, but the friend would tell me to stop playing and watch with everyone else when he noticed. [sic]
Female	10–13 years	Type 1 only	My abuser made me watch it
Male	14–15 years [a]	Both types	I was given it by a older man who I had a secual relationship with [sic]
Male	14–15 years	Type 1 only	found & was given magazines
			By accident while on peer-to-peer site
Male	5-9 years	Both types	Trying to download through old program called limewire, you would sometimes download a file that wasn't what it said it was, I saw a lot of disturbing content before the age of 10 through this
			By accident while on other site
Male	14–15 years	Type 1 only	video suggestion on site
Other gender	30–34 years	Both types	I admin a Kik group. Someone had an image as their profile picture. I reported it and banned the member. There was a very 'fun' debate afterwards and all members were quite rightly disgusted and distressed
Female	18–20	Both types	I was looking at a specific genre of anime including young boys and it eventually led me to that site.
Female	14–15 years	Both types	Searching fanfiction by 'highly rated' [text only]
Male	14–15 years	Both types	Video requests by other people inside the game mode "Cinema" within the video game "Garry's, Mod". The game mode features 'Cinema Screens' which players can use to

Gender respondent	Age first viewed CSAM	CSAM type viewed	How did you first come across CSAM?
			play video files. Slot of servers online around 2012-2014 that featured this game mode were almost completely unmoderated, allowing users to post practically any genre of video they chose with the most prevalent being varieties of pornography.
			By accident – someone's house/computer
Male	14–15 years	Type 1 only	It was downloaded on a family members pc
Female	10–13 years	Type 1 only	On father's computer, was looking for something else
Male	5–9 years	Both types	Photos found in a box in a friends home [sic]
Male	25–29 years	Type 1 only	a hidden item belonging to a parent
Female	35–39 years	Type 1 only	Materials saved on computer, was retrieving chat log documenting cheating for divorce case.
Male	10–13 years	Type 1 only	Pre internet, found stash of old nudist mags
			By accident – hackers/malware/wrong purchase
Male	14–15 years	Type 1 only	As a teenager, I did website administration. It was attacked by hackers.
Male	14–15 years [b]	Both types	CP in Ransomeware [sic]
Female	21–24 years	Type 1 only	Accidentally purchased the wrong comic.
			Intentional
Male	14–15 years	Type 1 only	I wanted to find porn that had people similar to my own age.
Female	16–17 years	Type 1 only	Mutual consensual exchange as a teen with another teen (personal relationship with my boyfriend at the time, several times), never viewed any underage materials as an adult
			Intention unclear – video/magazines/literature
Male	10–13 years	Both types	Bookshelf
Male	16–17 years	Type 1 only	Video cassette

Gender respondent	Age first viewed CSAM	CSAM type viewed	How did you first come across CSAM?
Male	25–29	Type 1 only	Magazine's (80s) [sic]
Male	16–17 years	Both types	Magazines
Male	21–24	Both types	11movies and magazines [sic]
Male	18–20	Type 1 only	Naturism magazine in a pharmacy
Male	0–4 years [c]	Both types	Library
Male	14–15 years	Type 1 only	found & was given magazines (also coded in another category)
Female	25–29	Type 1 only	porn shop at the Amsterdam airport
Female	16–17	Type 1 only	Briefly came across it at a sex shop in Japan
			Intention unclear – other
Male	14–15 years	Type 1 only	Usenet
Male	10–13 years	Type 1 only	Snap chat
Male	16–17 years	Type 1 only	Teen category
Female	10–13 years	Both types	Heard of a website from another kid
Male	18–20 years	Both types	I think it was though kazaar or limewire one of the old P2P sharing programs with no assosiated site [sic]

Note. Only includes respondents who selected 'other' when asked the survey question. Type 1='Pubescent/post-pubescent CSAM'. Type 2='Pre-pubescent CSAM'.

a Respondent later viewed pre-pubescent CSAM at age 18–20 years.

b Respondent later viewed pre-pubescent CSAM at age 16–17 years.

c Respondent reported experiencing sexual abuse as a child, which may explain the young age of first exposure to CSAM.

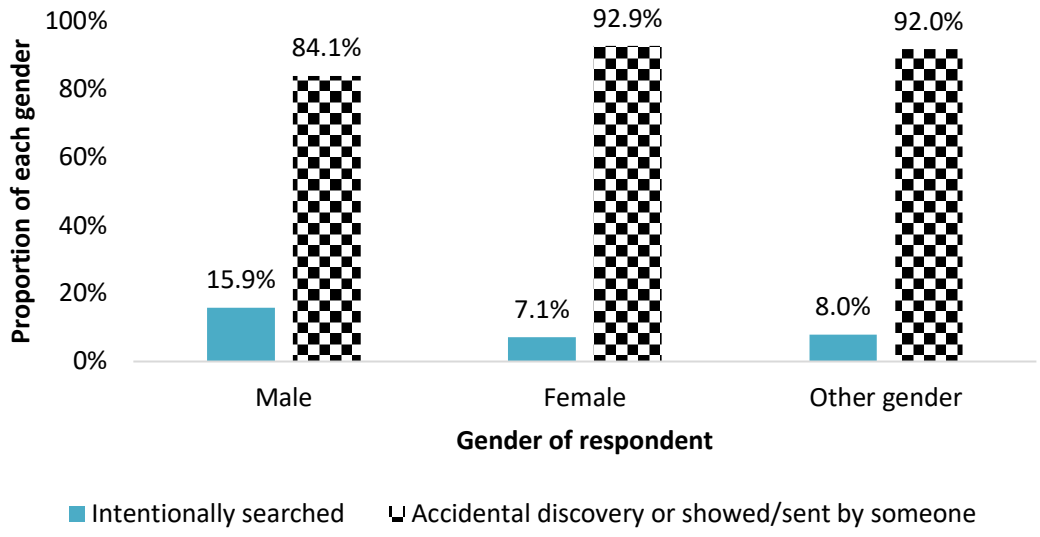
Accidental versus intentional viewing

Previous research based on criminal justice and treatment samples have found some detected CSAM offenders report 'accidental access' (Merdian et al., 2013; Seto et al., 2010). It is possible that arrested offenders may report accidental discovery of CSAM to downplay their engagement with illegal material. However, a recent study found that half of a sample of over 5,000 CSAM viewers who were surveyed anonymously on the dark

web self-reported accidental first time viewing of CSAM or illegal and violent material (Insoll et al. 2021). Similarly, Hunn et al. (2020) speculate that many individuals in the community likely stumble across CSAM by accident due to its widespread availability. The responses presented above in Figure 5.5 and Table 5.4 indicate that individuals can accidentally discover CSAM in several different ways.

To further investigate the circumstances of first CSAM viewing two groups of CSAM viewers were formed. 'Accidental first-time viewers' (n = 620) comprised respondents who first discovered CSAM accidentally; this included 132 respondents who were shown/sent CSAM by someone else. 'Intentional first-time viewers' comprised those who intentionally searched for CSAM online (n = 102). Respondents who selected 'other – unspecified' (n = 19) were excluded from the analysis. Whether a respondent reported intentionally searching for CSAM versus whether they came across it by accident was significantly associated with gender ($p < .05$, *Fisher's Exact Test*). Males were more likely to report intentionally searching for CSAM (16.3%; n = 87) compared with females (7%; n = 10) and other gender respondents (8%; n = 2) (see Figure 5.6).

Figure 5.6 *Whether Respondents Intentionally Searched for CSAM by Gender*



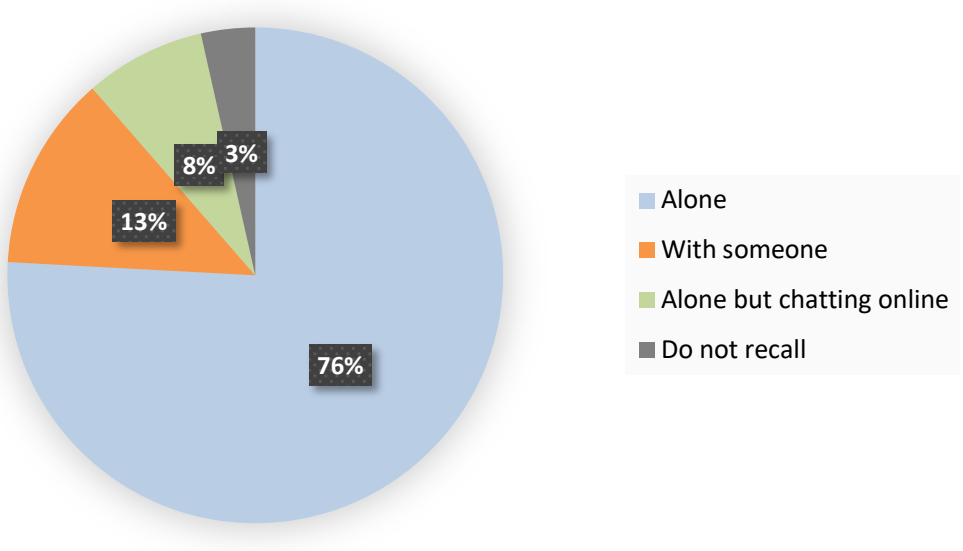
Note. Only includes CSAM viewers. Excludes 19 respondents who selected 'other' when asked how they first came across CSAM. Ten respondents did not answer the question on how they first found CSAM.

[a] $p < .05$, *Fisher's Exact Test*. n = 722. 87 males, 10 females and 2 other gender respondents reported intentionally searching for CSAM. 461 males, 130 females and 23 other gender respondents reported accidental discovery of CSAM or someone showed/sent it to them.

Who were respondents with when they first viewed CSAM?

Respondents were asked whether they were with anyone when they first viewed CSAM. Three-quarters (559, 75.9%) of respondents who answered the question (n = 737) responded that they were alone the first time they ever viewed CSAM. Smaller proportions reported that they were with someone at the time (12.8%; n = 94), alone but chatting to others online (7.9%; n = 58) or did not recall (3.5%; n = 26) (see Figure 5.7).

Figure 5.7 *Whether Alone or With Someone When Respondents First Viewed CSAM*



The 94 respondents who said they were with someone when they first viewed CSAM were asked who they were with. Most of these respondents reported being with friends or acquaintances the first time they ever viewed CSAM (63%; n = 58). Smaller numbers reported being with a spouse/partner (n = 5), parent (n = 5), sibling (n = 4), other family member (n = 7) or other person (n = 13) when they first viewed CSAM (see Table 5.5).

Table 5.4 *Who Were Respondents with When They First Viewed CSAM?*

Person	*n*	%
Friend(s)	45	48.9
Acquaintance(s)	13	14.1
Spouse/intimate partner	5	5.4
Parent	5	5.4
Sibling	4	4.4
Other family member	7	7.6
Other person	13	14.1
Total	92	100

Note. Only includes respondents who reported that they were with someone the first time they ever viewed CSAM. Two respondents did not answer the question.

5.4 SUBSEQUENT VIEWING OF CSAM

The next analysis explored the study research question, *Does accidental discovery of CSAM lead to subsequent intentional viewing?* This question is particularly relevant to situational crime prevention and primary prevention measures that aim to deter first time or continuing use of CSAM, for example in the form of online pop up warning messages (Prichard et al., 2021) or broad advertising/messaging campaigns (Stop it Now!, n.d.).

Self-reported CSAM viewers were asked if they ever intentionally viewed CSAM again after the first time. As this question was added to the survey later than the other questions, it was only asked of a subset of the sample of CSAM viewers (n = 345). Just under half of CSAM viewers (164, 49.3) responded that they intentionally viewed CSAM again after their first-time viewing, while just over half (169, 50.8%) responded that they did not.

The two groups of CSAM viewers – 'accidental first-time viewers' (n = 275) and 'ifirst-time viewers' (n = 53) – were compared: whether a respondent had intentionally searched for CSAM at first time viewing was significantly associated with whether they intentionally viewed CSAM again ($\chi^2(1) = 10.66$, $p < .01$). Respondents who reported intentionally searching for CSAM at first time viewing were more likely to intentionally view it again than were those who reported accidental discovery at first time viewing (69.8% vs. 45.4%). While less than half of CSAM viewers who first discovered CSAM

by accident or were shown/sent it by someone else went on to intentionally view it again, this proportion was still notable (45.4%; n = 127) (see Table 5.6).

Table 5.5 *Method of First Discovery of CSAM by Subsequent Intentional Viewing*

How respondents first discovered CSAM [a]	Viewed again		Did not view again		Total
	n	*%*	*n*	*%*	*n*
Searched intentionally	37	69.8%	16	30.2%	53
Accidental discovery	127	45.4%	153	54.6%	280
Total	164	49.3%[a]	169	50.8%	333

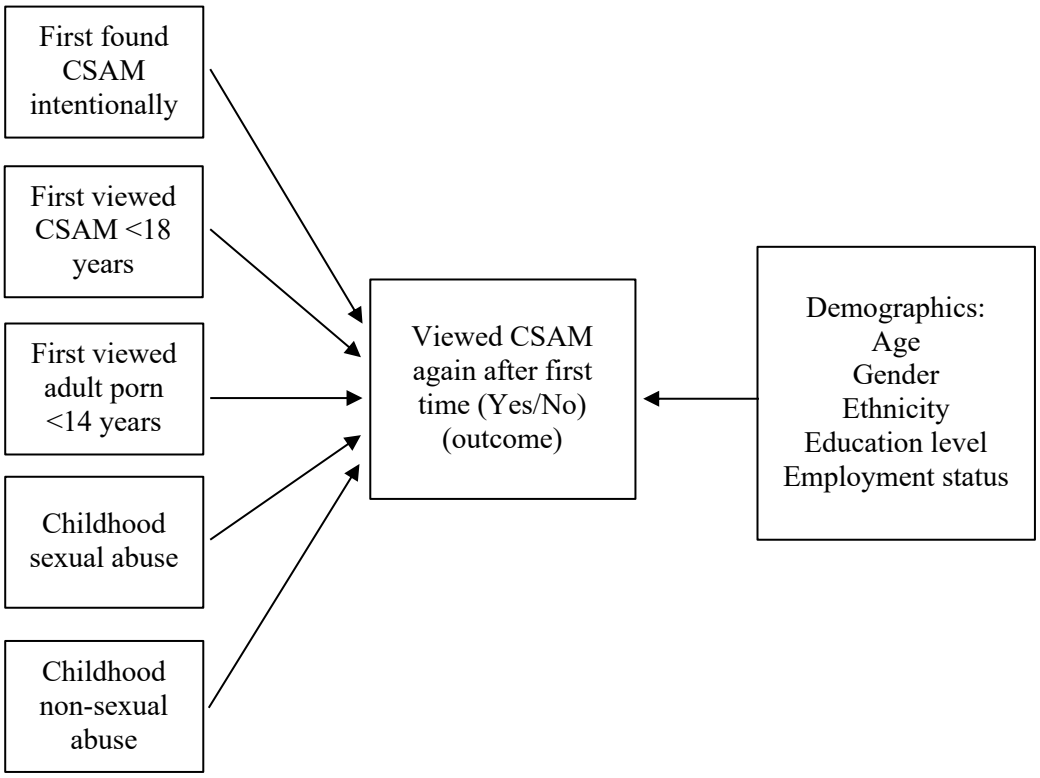
Note. Excludes 15 respondents whose method of first finding CSAM fell into the 'other' category.

[a] $\chi^2(1) = 10.66$, $p < .01$.

Finally, the study examined whether specific characteristics predicted whether an individual would intentionally view CSAM again after viewing it for the first time. This information is also relevant to primary and secondary prevention initiatives that aim to prevent viewing and sharing of CSAM. Eight predictor variables were included in a logistic regression model, with 'viewed CSAM again' as the outcome variable. As indicated earlier in section 5.1, most CSAM viewers (approximately 71%) reported first viewing CSAM under the age of 18 years. This means that for most CSAM viewers in the study, their first experience with CSAM was as an adolescent, and in turn any risk factors that preceded CSAM viewing would likely be present at this age. Demographics (e.g., gender and ethnicity) and factors or events that likely occurred in childhood or as a young adult were included as predictor variables (see Figure 5.8). Due to the small numbers, other gender respondents were excluded from the gender variable in the logistic regression model.

Model adequacy was assessed using Hosmer-Lemeshow (2000) goodness-of-fit test and Pregibon's (1979) test for specification error. Eight predictor variables were included in the logistic regression model relating to demographics, childhood experiences and age of first pornography and CSAM use. Current age at time of survey was controlled for in the model.

Figure 5.8 *Respondent Characteristics and Whether Viewed CSAM Again*



Four predictor variables in the model were significantly associated with subsequent intentional CSAM viewing. Compared with female CSAM viewers, male CSAM viewers were significantly more likely to report intentionally viewing CSAM again after first time viewing ($p < .01$; $OR = 2.60$, 95% CI = [1.41, 5.53]). Of male CSAM viewers, half (143, 53.4%) reported intentionally viewing CSAM again after first time viewing, compared with 29.5% ($n = 18$) of female CSAM viewers. Although excluded from the logistic regression model, seven 'other gender' CSAM viewers intentionally viewed CSAM again after first time viewing while eight did not.

Compared with CSAM viewers who reported accidental discovery of CSAM at first time viewing, those who intentionally searched for CSAM at first time viewing were significantly more likely to intentionally view CSAM again (45.5% vs. 69.8%) ($p < .01$; $OR = 2.80$, 95% CI = [1.41, 5.53]) (see Table 5.7).

CSAM viewers who reported being physically abused in a non-sexual way or neglected as a child were significantly less likely than their non-physically abused counterparts to intentionally view CSAM a second time, although, the association was weak ($p = .034$; $OR = 0.55$, 95% CI = [0.30, 0.88]) (see Table 5.7).

Table 5.6 *Subsequent Viewing of CSAM by Predictors*

Predictor	*OR*	*p*	*95% CI*	*Viewed again (%)* [a]	*Did not view again (%)* [b]
Gender [c]	2.57	0.005**	1.33–5.00		
Female				29.5	70.5
Male				53.4	46.4
Country of residence					
Australia	(reference)			41.4	58.6
NZ	4.10	0.010*	1.40–11.9	69.2	30.8
Canada	1.33	0.392	0.69–2.57	46.2	53.8
UK	1.61	0.195	0.78–3.30	50.0	50.0
USA	1.93	0.066	0.91–4.10	50.8	49.2
Ethnic background (dichotomous)	1.03	0.920	0.55–1.92		
Caucasian				49.0	51.1
Non-Caucasian				47.5	52.5
Found CSAM intentionally first time	2.80	0.003**	1.41–5.53	69.8	30.2
First viewed CSAM < 18	0.60	0.057	0.35–1.02	46.1	53.9
Exposure to adult pornography < 14	1.22	0.471	0.71–2.10	49.6	50.4
Sexual abuse as child	1.00	0.905	0.58–1.62	44.5	55.5
Non-sexual physical abuse/neglect as child	0.55	0.034*	0.31–0.96	35.6	64.4

Note: Outcome variable: Intentionally viewed CSAM again after first time 0 = No and 1 = Yes. OR = Odds ratio. CI = Confidence interval.

* = $p < 0.05$; ** = $p < 0.01$; *** = $P < 0.001$.

[a] = Proportion of each subgroup of CSAM viewers who intentionally viewed CSAM again after the first time.

[b] = Proportion of each subgroup of CSAM viewers who did not intentionally view CSAM again after the first time.

[c] = 'Other gender' respondents were excluded from the 'gender' variable due to small numbers ($n = 16$).

Given Australian based CSAM viewers had the smallest proportion who intentionally viewed CSAM again after first time viewing (41.4%), the four remaining countries were compared with Australia in the logistic regression model. Compared with CSAM viewers in Australia, those in New Zealand were significantly more likely to intentionally view CSAM again after first time viewing ($p < .05$; $OR = 4.10$, 95% CI = [1.60, 13.2]). However, it should be noted that the confidence intervals with this result were wide due to the smaller number of New Zealand respondents who were included in this sample ($n = 26$). Nevertheless, it is noteworthy that 69.2% ($n = 18$) of CSAM viewers residing in New Zealand went on to intentionally view CSAM again, compared with 41%–55% of CSAM viewers in the remaining four countries (see Table 5.7). Ethnicity, age of first CSAM viewing (<18 years), early exposure to adult pornography (<14 years) and having experienced childhood sexual abuse were not associated with subsequent intentional viewing of CSAM after first time viewing.

5.5 SUMMARY

This chapter examined the age and circumstances of first exposure to CSAM among the sample of survey respondents. Most respondents (65.3%) reported first discovering CSAM by accident while searching online for something else. The majority first discovered this material during adolescence (under 18). It was also very common for respondents to first discover adult pornography and atypical adult pornography (S&M, bestiality) during adolescence. The study also found that the age of first discovery of CSAM was younger for respondents who reported a younger current age at time of the survey, indicating that the age of first exposure to CSAM is decreasing over time. Lastly, results indicated that 45% of respondents who first discovered CSAM by accident went on to intentionally view it again. Those most at risk of subsequent intentional viewing of CSAM were males and respondents who searched intentionally at first CSAM exposure.

The next chapter will examine the characteristics of respondents who share and produce CSAM, and who report that they are willing to sexually abuse a child in person.

Chapter 6: Results: Production, sharing and desire to contact offend

This chapter addresses research question 5: *Among CSAM viewers, what are the characteristics of those who share and produce CSAM and report willingness to contact offend against children?*

Chapters 4 and 5 examined the characteristics of respondents who self-reported viewing CSAM, and the age and circumstances of onset of this behaviour. Following from this, it is important to note the findings of previous research, that within CSAM viewing populations there exist subgroups. Three key subgroups of CSAM viewers identified by previous research are individuals who also produce CSAM or share CSAM with others (Cale et al., 2021; Salter et al., 2021) or commit or are willing to commit contact sexual offences against children (Seto et al., 2011, 2015). This chapter will build on the current research by exploring the characteristics of these three subgroups.

6.1 PRODUCTION AND SHARING OF CSAM

Production of CSAM refers to the creation of CSAM, which can happen in many different contexts. Two common scenarios, however, involve an individual recording or photographing a child being sexually abused/exploited (Cale et al., 2021; Salter et al., 2021) or a child being coerced into self-generating sexual photographs or videos of themselves (Cale et al., 2021; Powell et al., 2021). Sharing of CSAM refers to an individual sending or showing other individuals CSAM, usually by uploading abusive photos or videos to the Internet (Seto et al., 2018). Sexual photos and videos can also be self-generated by and shared among children with or without consent or coercion, often referred to as 'sexting' (Madigan, Ly, et al., 2018). Engagement with self-generated sexual material among adolescents under 18 will be explored in Chapter 7 and will not be the focus of this chapter.

Compared with the overall literature on CSAM consumption, relatively little has been published that distinguishes CSAM consumers who only view material from those who also share with others (sharers) and/or produce their own material (producers).

Cale et al. (2021) conducted a systematic review of 24 studies published between 2010 and 2019 that focused on the production or distribution of CSAM, to explore the characteristics of offenders, victims and offences. Studies differed in terms of approach and robustness of methodologies, with some comparing CSAM producers with CSAM viewers or distributors, and others examining case studies involving very small samples. These methodological differences between the studies are important to note, and because of this, most findings relating to characteristics of CSAM producers were not consistent. However, the study found that among detected CSAM viewers, up to one third also shared CSAM, and that producing CSAM was associated with committing contact CSA offences. For some offenders, contact sexual offending against a child was a necessary part of the CSAM production process, while others only produced CSAM online through a webcam.

Lastly, substantial proportions of CSAM victim/survivors have reported in surveys that the people who took the abusive pictures/videos were their family members (52%) (Gewirtz-Meydan et al., 2018), in particular parents (42–67%) (Canadian Centre for Child Protection, 2017). This is likely due to parents having ready access to their own children. For example, an analysis of CSAM images stored by the NCMEC found that the highest traded CSAM online showed female children being sexually abused by their fathers (Seto et al., 2018).

However, there is a scarcity of robust published research that examines the characteristics of individuals who produce or distribute CSAM by comparing them with individuals who only view CSAM. This includes, for example, examining their history of childhood abuse, current online behaviour and willingness to sexually abuse children.

This section examines the characteristics of self-reported CSAM viewers who also shared or produced CSAM, by comparing them with those who viewed only. Possessing, viewing, distributing, and producing CSAM each attract a maximum penalty of 15 years imprisonment in Australia (*Criminal Code Act 1995 Commonwealth* s 474.23). However, producing CSAM often requires the offender to either physically abuse a child or coerce a child into self-producing material (Powell et al., 2021; Salter et al., 2021), which is not necessarily the case when only sharing CSAM. For this reason, sharing of CSAM was explored separately from producing CSAM.

6.1.1 Sharing CSAM

In the present study, 'sharing' CSAM was defined as showing or sending CSAM to others, which included trading it for other CSAM. Respondents in the present study who reported viewing CSAM (n = 742) were asked, *Have you ever shared or traded pornography featuring pubescent or pre-pubescent teens or children?* One person did not respond to the question. Only a small proportion (5.7%; n = 42/741) responded 'yes' to this question: 33 males, six females and three other gender respondents (see Table 6.1). It is important to acknowledge that the number of CSAM sharers was small and therefore some analyses should be viewed with caution. Noting this caveat, the data provide a rare insight into the characteristics of these individuals given the paucity of information published in this area to date.

6.1.2 Characteristics of CSAM sharers

Chi-square tests of independence were used to examine associations between ever shared CSAM (n = 42) and a number of demographic, background and behavioural characteristics. Where cell counts were less than 5, Fisher's Exact Test was used. Cramer's V was used to test strength of association, using the interpretation published by Akoglu (2018). The family-wise error rate was adjusted for, using the Bonferroni correction, to account for potential alpha inflation due to the large number of significance tests (Armstrong, 2014).

The following variables included in the analysis were drawn from the literature on CSAM consumption: gender, relationship status, access to children, ever experienced childhood sexual abuse/non-sexual abuse or neglect, ever had no one to confide in or lean on in difficult times (emotional loneliness), early exposure to adult pornography, having visited paedophilia chat forums in the last six months, willingness to have sexual contact with a child (Cale et al., 2021; Salter et al., 2021; Seto et al., 2015). Respondents were asked how likely they were (on a 4-point scale from very likely to very unlikely) to have sexual contact with an individual in three different age groups under 16 years, if they had the opportunity. Those who responded 'likely' or 'very likely' to any of the age groups were coded as 'yes' to being willing to have sexual contact with a child under 16 years. See Chapter 4 for a more detailed overview of the responses to this question.

In addition, three variables included in the analysis were exploratory in nature: ever used the dark web/net to view CSAM, ever used a VPN or other encryption to view

CSAM, and ever viewed pre-pubescent CSAM (as opposed to pubescent CSAM showing older children). The Netclean 2019 report (Netclean, 2019) was based on a survey of 450 police officers from 41 countries who worked on cases relating to child sexual abuse. Nearly half of surveyed police cited encryption technologies (including virtual private networks (VPNs)) that hide IP addresses/identity as the biggest challenge they face in child sexual abuse investigations. Nearly one-fifth cited TOR/darknet and cloud storage as a particular challenge for investigations. It is important to investigate therefore whether CSAM viewers who use encryption technologies are more likely to share CSAM. Lastly, in their analysis of CSAM extracted from two NCMEC databases, Seto et al. (2018) found that the most actively traded CSAM tended to show pre-pubescent children. Therefore, the present analysis examined whether ever viewed pre-pubescent CSAM (yes/no) was associated with sharing CSAM.

First, demographics were examined. Gender was not significantly associated with sharing CSAM (*Fisher's Exact test*), noting that the numbers of female ($n = 6$) and other gender ($n = 3$) respondents who reported sharing CSAM were very small, and males ($n = 33$). Similarly, whether a respondent had ever shared CSAM was not significantly associated with their relationship status or whether they had access to children (see Table 6.1).

When examining other background and behavioural characteristics, six variables were found to be significantly associated with sharing CSAM. CSAM viewers who responded 'yes' to the following questions were more likely to report ever sharing CSAM:

- Exposure to adult pornography before the age of 10 years;
- Ever used the dark web/net to view CSAM;
- Ever used VPN or other encryption to view CSAM;
- Visited paedophilia chat forums in 6 months prior to survey;
- Ever viewed CSAM showing pre-pubescent children; and
- Willingness to have sexual contact with a child under 16 years.

Variables strongly associated with sharing CSAM were: ever used the dark web to view CSAM ($\chi^2(2, n = 741) = 2.33$, $p < .001$; $V = .26$), ever used a VPN or other encryption to view CSAM ($\chi^2(1, n = 740) = 50.64$, $p < .001$; $V = .26$) and visited forums where people discuss adult/child sexual relations in the last six months ($\chi^2(1, n = 739) =$

105.10, $p < .001$; $V = .38$). Variables moderately associated with sharing CSAM were exposure to adult pornography before the age of 10 years ($\chi^2(1, n = 741) = 8.96, p < .004$; $V = .11$), ever viewed pre-pubescent CSAM ($\chi^2(1, n = 738) = 10.35, p < .004$; $V = .12$) and willing to sexually abuse a child under 16 years ($\chi^2(1, n = 741) = 41.62, p < .001$; $V = .24$). Having experienced childhood sexual abuse and childhood non-sexual physical abuse or neglect, and ever had no one to confide in or lean on during difficult times (emotional loneliness) were not associated with ever shared CSAM (see Table 6.1).

Table 6.1 *Association Between Ever Shared CSAM and Respondent Characteristics*

Respondent characteristic	*P*	*Cramer's V*	*Shared CSAM (n = 42)*		*Did not share CSAM (n = 699)*	
			n	*%* [a]	*n*	*%* [b]
Gender	0.248	-				
Female			6	14.3	139	19.9
Male			33	78.6	537	76.8
Other			3	7.1	23	3.3
Relationship status	0.575	-				
Single (never married)			22	52.4	311	44.6
Married/de facto			18	42.9	354	50.8
Divorced/widowed			2	4.8	32	4.6
Access to children	0.137	-				
Yes			16	38.1	192	27.5
No			26	61.9	507	72.5
Sexual abuse as child	0.398	-	19	46.3	271	39.7
Non-sexual physical abuse/neglect as child	0.909	-	14	33.3	239	34.2
Exposure to adult pornography <10	0.003*	0.1099	15	35.7	121	17.3
Ever had no one to confide in	0.811	-	28	66.7	477	68.4
Ever used dark web to view CSAM	0.000**	0.2640	21	50.0	78	11.2
Ever used VPN/ other encryption to view CSAM	0.000**	0.2616	20	47.6	72	10.3
Visited paedophilia forums recently	0.000**	0.3771	19	46.3	32	4.6
Ever viewed pre-pubescent CSAM	0.001**	0.1184	28	66.7	288	41.4
Willing to have sexual contact with child <16	0.000**	0.2370	20	47.6	84	12.0

Note: Dependent variable: Ever shared CSAM; 0 = No and 1 = Yes. Where cell counts were <5 Fisher's Exact Test was used. Only respondents who reported viewing CSAM were included in this analysis. One respondent did not answer the question on sharing/trading CSAM.

* = $p < 0.004$; ** $P < 0.001$ (Family-wise error rate adjusted for using Bonferroni Correction: *Apha* = .05/12=0.004).

[a] = Proportion of CSAM sharers who responded 'yes' to survey question.

[b] = Proportion of non-CSAM sharers who responded 'yes' to survey question.

6.1.3 Producing CSAM

Producing CSAM in this study was defined as adults who recorded (via video) or photographed an individual aged under 18 years engaging in sexual activity. Respondents who reported ever viewing CSAM were asked: *As an adult, have you ever recorded or photographed individuals in the age groups below engaging in sexual activity with either yourself, someone else or by themselves?* The age groups of individuals photographed/videoed captured adults (18+) and children in late adolescence (16–17 years), mid-adolescence (14–15 years), middle childhood/early adolescence (10–13 years) and early childhood (broken down by 5–9 years and under 5 years). The Internet Watch Foundation is a non-profit organisation in the United Kingdom that operates a hotline and online reporting portal where individuals and organisations can report CSAM. In 2018, the Internet Watch Foundation identified 2,082 images and videos of live-streamed child sexual abuse. Their analysis found that 98% of images found were of children aged 13 and under, while 28% were of children aged 10 years and under (IWF, 2018). The present study wanted to build on this research by examining the ages of children in CSAM produced by respondents in the study. The categories were not mutually exclusive; therefore, a respondent could report producing material of adults or children in more than one age group.

Of note is that the number of respondents who answered each question on producing material decreased as the age of people in the photos/videos decreased in survey questions. For example, of all CSAM viewers (n = 742), only one respondent did not answer the first question regarding producing sexual material of individuals aged 18 and over. Conversely, 10 respondents did not answer the question regarding producing CSAM of children aged 16–17 years, while 18 respondents did not answer the question regarding producing CSAM of children aged under 5 years (see Table 6.2). The number of missing responses to each specific question highlights the sensitivities around these questions and likely indicates reluctance by some respondents to answer questions relating to producing CSAM, particularly involving younger children.

Producing sexual images/videos of other adults (18+) was relatively common among the sample of CSAM viewers (41.4%; n = 307/741). The survey did not ask whether this material was produced with consent. Less commonly, CSAM viewers reported producing, when they were adults, sexual images/videos of children aged 16–17 years (7.1% n = 52) and 0–15 years (from 2.1%–2.7%; n = 13–20) (see Table 6.2).

Table 6.2 *Number of CSAM Viewers Who Self-Reported Producing Sexual Material*

	CSAM viewers who produced sexual material		Total who answered question / 742
Age group of individuals in sexual images or videos produced by respondents	*n*	*%*	*n*
18+ years	307	41.4	741
16–17 years	52	7.1	731
14–15 years	20	2.7	732
10–13 years	13	1.8	731
5–9 years	13	1.8	729
Under 5 years	13	2.1	724

Note. Only respondents who reported viewing CSAM were included in this analysis. Between 1 and 18 respondents did not answer each of the 6 questions.

If a participant responded, 'yes' to producing sexual material of children in any of the four age groups under 18 years, they were coded as 'yes' to ever produced CSAM, in alignment with federal legislation in Australia (see *Criminal Code Act 1995 Commonwealth* s 474.23). In total, 64/741 (8.9%) CSAM viewers reported that they had produced CSAM of children under 18 years; of these, 51 (79.9%) were male, 10 (15.6%) were female and three (4.7%) identified as another gender.

Characteristics of CSAM producers

Chi-square tests of independence were again used to examine associations between ever produced CSAM (n = 64) and a number of demographic, background and behavioural characteristics (see section 6.1.2 for details of analysis). The same variables examined in relation to sharing CSAM were examined in relation to producing CSAM. Due to the overlap found between sharing and producing CSAM in previous literature (Cale et al., 2021; Salter et al., 2021), the theoretical underpinnings are similar for both behaviours. Demographics were examined first. A respondent's gender (*Fisher's Exact test*) or whether they had access to children were not significantly associated with producing CSAM, noting that the numbers of female (10) and other gender (3) respondents who reported producing CSAM were small (males: n = 51). Whether a respondent had ever produced CSAM was moderately associated with their relationship

(with a partner) status ($\chi^2(2, n = 722) = 11.85, p < .004$; $V = .13$). Of divorced or widowed CSAM viewers ($n = 33$), 24.2% ($n = 8$) reported producing CSAM, compared with 9.5% ($n = 34$) of those who were married/in a relationship and 6.7% ($n = 22$) of those who were single (never married) (see Table 6.1). This finding should be viewed with caution given the small number of divorced/widowed CSAM viewers ($n = 33$).

When examining other background and behavioural characteristics, six variables were found to be significantly associated with ever producing CSAM. CSAM viewers who responded 'yes' to the following were more likely to report ever producing CSAM:

- Ever used the dark web/net to view CSAM;
- Ever used VPN or other encryption to view CSAM;
- Ever shared CSAM;
- Visited paedophilia chat forums in 6 months prior to survey;
- Ever viewed CSAM showing pre-pubescent children; and
- Willing to sexually abuse a child under 16 years (if you had the opportunity).

Variables strongly associated with producing CSAM were ever shared CSAM ($\chi^2(1, n = 722) = 47.17, p < .001; V = .30$), visited forums where people discuss adult/child sexual relations in the last six months ($\chi^2(1, n = 721) = 48.87, p < .001; V = .26$) and being willing to have sexual contact with a child under 16 years if you had the opportunity ($\chi^2(1, n = 723) = 62.22, p < .001; V = .29$). Sixteen out of 722 (2.2%) CSAM viewers who answered the relevant questions reported both producing and sharing CSAM: 12 males, three other gender respondents and one female. The survey questions on sharing and producing CSAM were separate so there was no way of knowing whether the CSAM that these respondents shared was produced by them or if they sourced it elsewhere.

Variables moderately associated with producing CSAM were ever used the dark web/net to view CSAM ($\chi^2(1, n = 722) = 10.10, p < .004; V = .12$), ever used a VPN or other encryption to view CSAM ($\chi^2(1, n = 721) = 12.75, p < .001; V = .13$) and ever viewed CSAM showing pre-pubescent children ($\chi^2(1, n = 720) = 13.18, p < .001; V = .14$). Having experienced childhood sexual abuse, childhood non-sexual physical abuse or neglect, exposure to adult pornography before the age of 10 years and ever had no one

to confide in or lean on during difficult times (emotional loneliness) were not associated with ever produced CSAM (see Table 6.3).

Table 6.3 *Ever Produced CSAM by Respondent Characteristics*

Respondent characteristic	*p*	*Cramer's V*	*Produced CSAM (n = 64)*		*Did not produce CSAM (n = 659)*	
			n	*%* [a]	*n*	*%* [b]
Gender	0.572	-				
Female			10	15.6	134	20.3
Male			51	79.7	502	76.2
Other			3	4.7	23	3.5
Relationship status	0.003*	0.1281				
Single (never married)			22	34.4	309	47.0
Married/de facto			34	53.1	324	49.2
Divorced/widowed			8	12.5	25	3.8
Access to children	0.061	-	24	37.5	175	26.6
Sexual abuse as child	0.006	-	35	56.5	250	38.6
Non-sexual physical abuse/neglect as child	0.265	-	18	28.1	231	35.1
Exposure to adult pornography <10	0.016	-	19	29.7	115	17.5
Ever had no one to confide in	0.722	-	42	66.7	453	68.8
Ever used dark web to view CSAM	0.001*	0.1183	17	26.6	81	12.3
Ever used VPN/other encryption to view CSAM	0.000**	0.1330	20	47.6	72	10.3
Ever shared CSAM	0.000**	0.2556	16	25.0	26	4.0
Visited paedophilia forums recently	0.000**	0.2603	18	28.1	32	4.9
Ever viewed pre-pubescent CSAM	0.000**	0.1353	41	64.1	266	40.6
Willing to have sexual contact with child <16	0.000**	0.2933	30	46.9	72	10.9

Note: Dependent variable: Ever produced CSAM; 0 = No and 1 = Yes. Where cell counts were <5 Fisher's Exact Test was used. Only respondents who reported viewing CSAM were included in this analysis. 10–18 respondents did not answer the questions on producing CSAM of children under 18 years.

* $p < 0.004$; ** $p < 0.001$ (Family-wise error rate adjusted for using Bonferroni correction: *alpha* = .05/13=0.004).

[a] Proportion of CSAM producers who responded 'yes' to survey question.

[b] Proportion of non-CSAM producers who responded 'yes' to survey question

6.2 WILLINGNESS TO CONTACT OFFEND

This final section examines the characteristics of CSAM viewers associated with willingness to have sexual contact with a child. Earlier in this chapter (see section 6.1.2) an explanation was provided on the coding process for the variable 'Willing to have sexual contact with a child under 16 years' (yes/no) (i.e., respondents who selected 'likely' or 'very likely' to do this if they had the opportunity were coded as 'yes'). Of respondents who reported ever viewing CSAM (*n* = 742), 14.0% (*n* = 104) reported that they would be willing to have sexual contact with a child under 16 years if they had the opportunity. This group comprised 95 males (91.4%), five females (4.8%) and four respondents identifying as another gender (3.9%) (see Table 6.4).

Table 6.4 *Willingness to Have Sexual Contact with a Child by Gender of Respondent*

Gender of respondent	Willing to have sexual contact with child				Total	
	Yes [a]		*No* [b]			
	N	*%*	*n*	*%*	*n*	*%*
Female	5	4.8	140	21.9	145	19.5
Male	95	91.4	476	74.6	571	77.0
Other	4	3.9	22	3.5	26	3.5
Total	104	100	638	100	742	100

Note. Only respondents who reported viewing CSAM were included in this analysis.

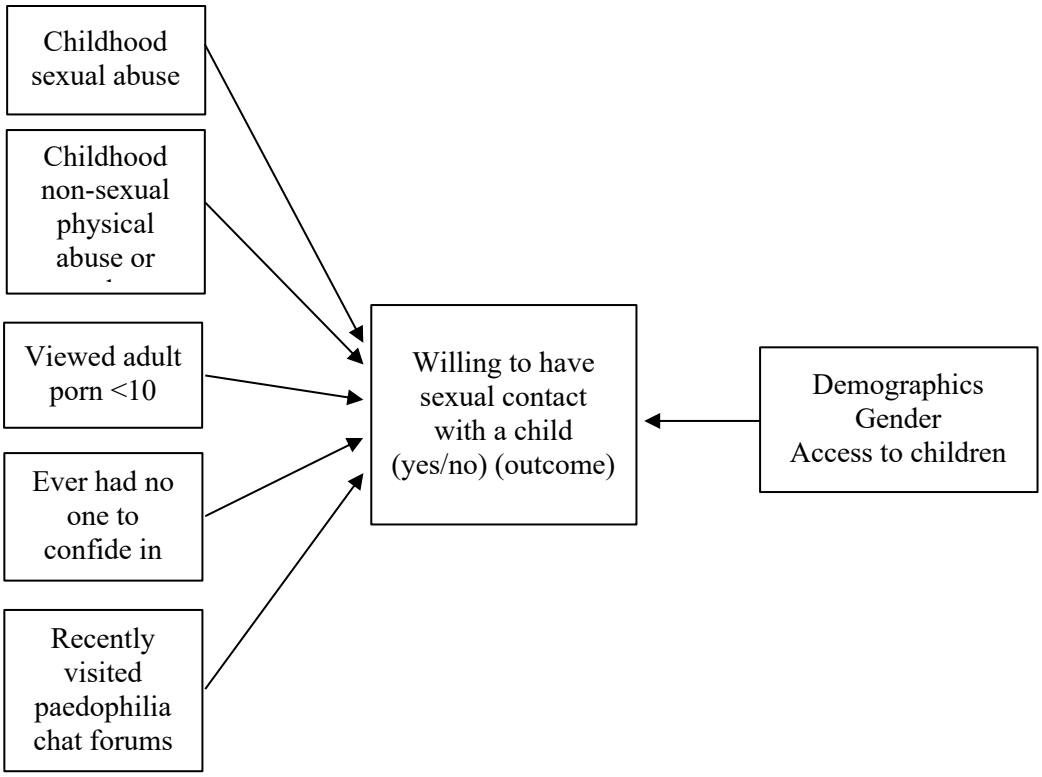
[a] Respondents who responded 'Very likely' or 'Likely' that they would have sexual contact with a child under 16 years if they had the opportunity.

[b] Respondents who responded 'Very unlikely' or 'Unlikely' that they would have sexual contact with a child under 16 years if they had the opportunity.

A logistic regression model was fitted to examine the characteristics of CSAM viewers who reported that they were willing to have sexual contact with a child under 16 (*n* = 104; outcome variable). Seven demographic and background variables were included in the model, which were drawn from the literature on contact sexual offending among CSAM consumers (Babchishin et al., 2015; Brown & Bricknell, 2018; Henshaw et al., 2018) (see Figure 6.1). They included gender, access to children, experienced childhood sexual abuse or non-sexual abuse/neglect, exposure to adult pornography before the age of 10 years, ever had no one to confide in or lean on during difficult times (emotional

loneliness) and recently visited paedophilia chat forums. Model adequacy was assessed using Hosmer-Lemeshow (2000) goodness-of-fit test and Pregibon's (1979) test for specification error.

Figure 6.1 *Model: Willingness to Have Sexual Contact with a Child by Predictors*



Only gender and having recently visited paedophilia chat forums were significantly associated with willingness to have sexual contact with a child under 16 years. Compared with female CSAM viewers, male CSAM viewers were four times more likely to report that they were willing to have sexual contact with a child under 16 if they had the opportunity ($p < .01$, $OR = 4.4$, 95% CI = [1.71, 11.20]). CSAM viewers identifying as another gender were no more or less likely than females to report willingness to have sexual contact with a child under 16. CSAM viewers who reported visiting forums where people discuss adult/child sexual relations in the last six months were six times more likely to report willingness to have sexual contact with a child under 16 ($p < .001$, $OR = 6.0$, 95% CI = [3.15, 11.46]). It is important to note however that the confidence intervals relating to both these variables were wide and results should be viewed with caution. No other variables were associated with willingness to have sexual contact with a child among CSAM viewers (see Table 6.5).

Table 6.5 *Characteristics of CSAM Viewers Willing to Have Sexual Contact with a Child*

Predictor	*OR*	*p*	*95% CI*	*Willing to have sexual contact with a child <16*	
				Yes (n = 104)[a]	No (n = 638) [b]
				% (n)	*% (n)*
Gender					
Female	reference			4.8 (5)	21.9 (140)
Male	4.38	0.002**	1.71–11.20	91.4 (95)	74.6 (476)
Other	3.70	0.082	0.85–16.20	3.9 (4)	3.5 (22)
Access to children	1.51	0.090	0.94–2.43	37.5 (39)	26.5 (169)
Sexually abused as a child	1.20	0.565	0.71–1.90	43.9 (43)	39.4 (247)
Experienced non-sexual abuse or neglect as a child	0.82	0.463	0.48–1.40	28.9 (30)	35.0 (223)
Exposure to adult pornography <10 years	1.28	0.388	0.73–2.30	23.1 (24)	17.6 (112)
Ever had no one to confide in	1.04	0.886	0.63–1.71	67.3(70)	68.4 (435
Visited paedophilia chat forums recently	6.00	0.000***	3.15–11.46	25.0 (26)	3.9 (25)

Note: Willing to have sexual contact with a child <16 dichotomously coded as 0 = No and 1 = Yes. OR = Odds ratio. CI = Confidence interval. Only respondents who reported that they had viewed CSAM were included in this analysis.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[a] Proportion who were willing to have sexual contact with a child and reported characteristic in first column.

[b] Proportion who were not willing to have sexual contact and reported characteristic in first column.

6.3 SUMMARY

This chapter examined the characteristics of sharers and producers of CSAM, as well as those who are willing to have sexual contact with a child under 16. The study found that both sharers and producers of CSAM were more likely to report willingness to have sexual contact with a child, use the dark web/encryption to view CSAM, view pre-pubescent CSAM and visit paedophilia chat forums. The study also found that gender and visiting paedophilia chat forums were significantly associated with willingness to have sexual contact with a child.

The next chapter is the final results chapter in the thesis, and focuses on sexting among minors, and its relationship with CSAM viewing.

Chapter 7: Results: Sexting and CSAM

This chapter addresses research question 6: *What characteristics are associated with sexting among adolescents and is sexting a predictor for viewing CSAM?* This is the final results chapter in the thesis.

Chapter 5 presented the findings from the survey questions relating to viewing CSAM for the first time. After finding that most respondents first viewed both pre-pubescent CSAM and pubescent CSAM when they were under 18, it was decided to explore why this might be the case. Chapter 4 explored the characteristics of people who had ever viewed CSAM, including demographic, childhood background and behavioural characteristics. The analysis in Chapter 4 revealed some useful findings, particularly that the strongest predictors of ever viewing CSAM were being male, viewing bestiality pornography, early exposure to adult pornography, willingness to have sexual contact with children, and visiting paedophilia chat forums online.

However, given the evidence that sharing self-generated sexual material is increasingly more common among adolescents under 18 (Madigan et al., 2018; Strasburger et al., 2019), it was important to also examine this issue. Chapter 2 highlighted the scarcity of research focused on the overlap between sharing self-generated sexual material (images and videos) among minors, otherwise known as 'sexting', and CSAM consumption. Both are treated as one and the same and are illegal in many jurisdictions globally including in the 'Five Eyes' (Australia, Canada, New Zealand, United States and United Kingdom; see Chapter 2, section 2.2.3) (Department of Justice, 2015; Strasburger et al., 2019) if they depict children nude, partly nude or engaged in sexual activity (Strasburger et al., 2019). Self-generated sexual material can be consensually produced and shared between peers (e.g., intimate partners) as a form of courtship behaviour. For example, in a 2017 survey, 5% of respondents aged 14–17 reported sending intimate images; of these, 19% said they did so because they trusted the person they sent it to (UK Safer Internet Centre et al., 2017). However, once a sexual image is shared, it can be forwarded non-consensually and place the person in the image at risk of image-based abuse (e.g., 'revenge porn') (Henry et al., 2019) or online child sexual exploitation. The images can be shared very quickly to multiple individuals,

uploaded to various sites and used by adult offenders to groom other children for sexual exploitation or abuse (Thorn, 2020).

For this reason, engagement in self-generated sexual material places children at risk of future harm, and it is important to examine who is most likely to engage in this behaviour. First, this section will examine the proportion of respondents who engaged with self-generated sexual material when they were a minor, followed by the characteristics of these respondents. Last, this section will explore whether such behaviour is associated with viewing CSAM.

7.1 RATES OF ENGAGEMENT WITH SELF-GENERATED SEXUAL MATERIAL (SGSM)

Drawing from the literature on sharing of self-generated sexual material (SGSM) among adolescents under 18, a set of survey questions were formulated that were relevant to the study research question (see Chapter 3 Method for a detailed overview). Because the survey had already been running for over a year, these questions were asked of only a subset of the sample (n = 1,527). Each question related to engagement with self-generated sexual material that occurred when both the sender and the recipient were under 18 – referred to in this section as a 'minor'. Specifically, respondents were asked:

Before you turned 18…

- did anyone under the age of 18 ever send you a sexual photo or video of themselves?
- did anyone under the age of 18 ever ask you to send a sexual photo or video of yourself to them?
- did you ever send a sexual photo or video of yourself to a person under 18 who requested it?
- did you ever record or photograph, or let someone else record or photograph yourself in engaging in sexual activity with another person under the age of 18?

Respondents were informed that a sexual photo or video (self-generated sexual material) could include nudes/naked selfies/videos, and semi-nude selfies/videos. A third (n = 509, 33.3%) of respondents said they had received self-generated sexual material from another minor when they were a minor, and a third (33.3%; n = 508) had received a

request from another minor to send self-generated sexual material. Only respondents who answered 'yes' to ever being asked to send self-generated sexual material (n = 508) were asked the follow-up question of whether they ever sent this material, with 60% (n = 305) saying that they had. Looking at the entire sample, a small minority (8.8%; n = 134) said they had recorded or allowed someone to record them engaging in sexual activity with another minor when they were a minor.

7.2 CHARACTERISTICS OF RESPONDENTS WHO ENGAGED WITH SGSM

To examine the characteristics of respondents who engaged with SGSM, four logistic regression models were run with each SGSM variable as the outcome variable. Specifically, I examined whether gender and childhood background variables predicted engagement with SGSM as a minor, while adjusting for age (grouped) in the model. Childhood background variables were childhood sexual ('Someone made me do sexual things or watch sexual things') and non-sexual (neglected or abused in a non-sexual way) abuse. Model adequacy was assessed using Hosmer-Lemeshow (2000) goodness-of-fit test and Pregibon's (1979) test for specification error.

Receiving self-generated sexual material

The first model showed that, after controlling for age and being female, those who had been sexually abused or neglected/abused in a non-sexual way as a child were significantly more likely to have received SGSM from another minor when they were a minor. The following proportions of each gender reported receiving SGSM from another minor when they were a minor:

- 28.0% (n = 297/1,060) of males;
- 44.2% (n = 183/414) of females;
- 54.7% (n = 29/53) of other gender respondents.

Those who reported being sexually abused as a child were twice as likely to receive SGSM from another minor when they were a minor ($p < .001$; $OR = 2.06$). The effect sizes for being female ($p < .01$; $OR = 1.46$) and being neglected or abused in a non-sexual way as a child ($p < .01$; $OR = 1.51$) were small (see Table 7.1).

Table 7.1 *Logistic Regression: Results Viewed CSAM and Received SGSM*

Predictor	*OR*	*95% CI*	Received SGSM (%) [a]	Did not receive SGSM (%) [b]
Gender				
Male	(Reference)		28.0	72.0
Female	1.46**	1.12–1.90	44.2	55.8
Other gender	1.71	0.93-3.14	54.7	45.3
Sexually abused as child	2.05***	1.57–2.67		
Yes			17.1	82.9
No			12.2	87.8
Neglected or abused as child in non-sexual way	1.52**	1.15–1.99		
Yes			44.7	55.3
No			29.2	70.8

Note: SGSM=Self-generated sexual material; there were no missing responses to this question (n = 1,527. OR = Odds ratio. CI = Confidence interval.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[a] Proportion of respondents with demographic or background characteristic who received self-generated sexual material when they were a minor (yes/no).

[b] Proportion of respondents with demographic or background characteristic who did not receive self-generated sexual material when they were a minor (yes/no).

Receiving requests for self-generated sexual material

In the second logistic regression model, the outcome variable was whether respondents had ever received a request for SGSM as a minor, by another minor (yes/no). After controlling for age, the following respondents were more likely to have received a request for SGSM from another minor when they were a minor:

- females;
- other gender respondents;
- those who reported having been sexually abused as a child; and
- those who reported having been neglected or abused in a non-sexual way as a child.

The following proportions of each gender reported receiving a request for SGSM from another minor when they were a minor:

- 24.6% (n = 260/1,059) of males;
- 52.8% (n = 219/415) of females;

- 54.7% (*n* = 29/53) of other gender respondents.

Females ($p < .001$; *OR* = 2.69) and other gender respondents ($p < .05$; *OR* = 2.04) were twice as likely as males to receive a request for SGSM from another minor when they were a minor. Similarly, respondents who had been sexually abused as a child were twice as likely to receive such a request as a minor ($p < .001$; *OR* = 2.25). Respondents who reported being neglected or abused in a non-sexual way as a child were also significantly more likely to receive such a request, although the effect size was smaller ($p < .01$; *OR* = 1.60) (see Table 7.2).

Table 7.2 *Logistic Regression Results: Viewed CSAM and Received Requests for SGSM*

Predictor	*OR*	*95% CI*	Received request for SGSM (%) [a]	Did not receive request for SGSM (%) [b]
Gender				
Male	(Reference)		24.6	75.5
Female	2.69***	2.07–3.50	52.8	47.2
Other gender	2.08*	1.13-3.82	54.7	45.3
Sexually abused as child	2.26***	1.73–2.95		
Yes			46.9	53.2
No			27.1	72.9
Neglected or abused in non-sexual way as child	1.60**	1.21–2.11		
Yes			47.0	53.0
No			28.3	71.7

Note: SGSM=Self-generated sexual material; there were no missing responses to this question (*n* = 1,527). OR = Odds ratio. CI = Confidence interval.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[a] Proportion of respondents with demographic or background characteristic who received request to send self-generated sexual material when they were a minor (yes/no).

[b] Proportion of respondents with demographic or background characteristic who did not receive request to send self-generated sexual material when they were a minor (yes/no).

Sending self-generated sexual material

The third regression model in this section included 'Ever sent self-generated sexual material' (yes/no) as the outcome variable. Only respondents who reported being asked to send SGSM by another minor when they were a minor (*n* = 508) were asked whether they ever sent this material. Because being asked to send this material was strongly correlated with gender and childhood abuse variables (see above), this subset of the sample was already biased towards having certain characteristics. For this reason, it was

not appropriate to measure the influence of predictor variables on the likelihood of sending SGSM when asked. A majority of each gender reported sending this material when asked:

- 80% (*n* = 208/260) of males;
- 62.1% (*n* = 136/219) of females;
- 72.4% (*n* = 21/29) of other gender respondents.

Recording sexual activity as a minor

In the fourth logistic regression model in this section, the outcome variable was 'Ever recorded sexual activity with another minor as a minor' (i.e., whether a respondent had ever recorded or allowed someone to record them engaging in sexual activity with a minor when they were a minor). After adjusting for age, those who had been sexually abused as a child were more than twice as likely to ever record sexual activity with another minor as a minor ($p < .001$; *OR* = 2.51; 95% CI [1.70, 3.3.71]). Gender and non-sexual childhood abuse/neglect were not associated with ever recorded sexual activity with a minor as a minor, and a minority of each gender reported that they had ever done this:

- 7.3% (*n* = 77/1,057) of males;
- 11.6% (*n* = 48/414) of females;
- 17% (*n* = 9/53) of other gender respondents.

7.3 IS ENGAGEMENT WITH SGSM ASSOCIATED WITH CSAM VIEWING?

In this section, I examine the association between engagement with SGSM and CSAM viewing. While sharing of SGSM among minors is legally defined as CSAM in many countries, for example 23 states in the United States use CSAM statues to prosecute minors caught engaging in sharing or producing SGSM with other minors (Strasburger et al., 2019). However, this study distinguishes between the two on the basis outlined below.

Child sexual abuse material

In the present study 'CSAM' relates to the following study survey question: 'Have you ever viewed pornography featuring pubescent or pre-pubescent children/teens?' Almost 80% of CSAM viewers in the present study reported first discovering CSAM in a scenario that indicated it was not produced by themselves or their peers (e.g., while searching for adult pornography, while searching various sites online) (see Chapter 5). Therefore, while

a minority of respondents may have been referring to SGSM when they reported viewing CSAM, any potential overlap is likely to be only minor and would not impact on the following analyses.

Self-generated sexual material

Self-generated sexual material is defined by the four survey questions described in section 7.1, relating to receiving, being asked for, sending sexual photos or videos from/to another minor, and recording sexual activity between minors. To investigate whether respondents who engaged with SGSM as a minor were more likely to have ever viewed CSAM (yes/no), the latter was included as the outcome variable in a series of separate logistic regression models. Each model included one of the four SGSM variables as a predictor. A separate model was fitted for each (see Figures 7.1–7.4) to examine whether the four SGSM variables, independent of their association with one another, were associated with viewing CSAM. The model adjusted for current age (grouped) at time of survey and gender (male/female). Model adequacy was assessed using Hosmer-Lemeshow (2000) goodness-of-fit test and Pregibon's (1979) test for specification error.

Figure 7.1 *Model 1: CSAM viewing and Receiving Self -Generated Sexual Material (SGSM)*

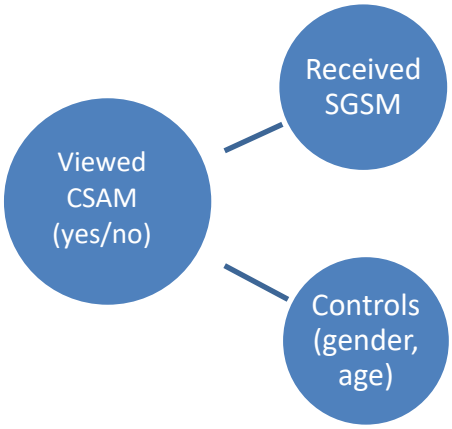


Figure 7.2 *Model 2: CSAM Viewing and Receiving Requests to Send SGSM*

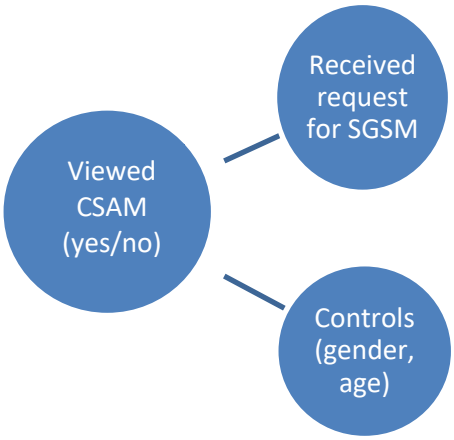


Figure 7.3 *Model 3: CSAM Viewing and Sending SGSM*

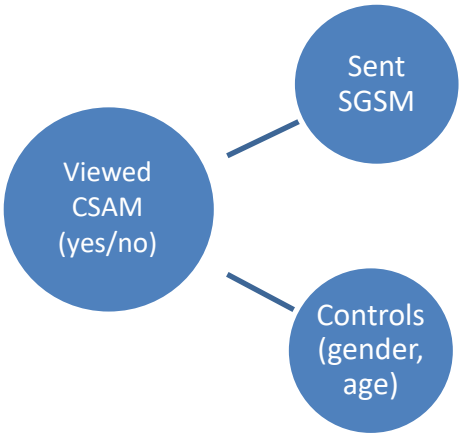
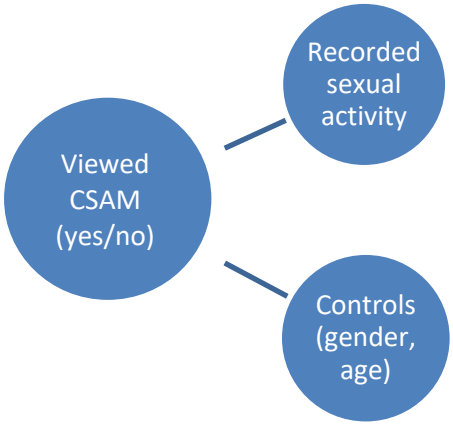


Figure 7.4 *Model 4: CSAM Viewing and Recorded Sexual Activity*



Minorities of respondents who had engaged with SGSM as a minor, defined as any of the above, reported ever viewing CSAM (17%–21%). However, results from three of the logistic regression models showed that engagement with SGSM increased the likelihood of viewing CSAM. After controlling for age and gender, respondents who reported ever receiving SGSM ($p < .001$; $OR = 2.06$) or being asked to send SGSM ($p < .001$; $OR = 2.37$) as a minor, from/by a minor, were twice as likely to have ever viewed CSAM. Similarly, after controlling for age and gender, respondents who reported they had recorded sexual activity with another minor when they were a minor were twice as likely to have ever viewed CSAM ($p < .01$; $OR = 1.99$). Sending SGSM as a minor to another

minor who requested it was not significantly associated with ever viewing CSAM (see Table 7.3).

Table 7.3 *Logistic Regression Results CSAM Viewing and Engagement with SGSM*

Predictor	*OR*	*95% CI*	Viewed CSAM (%) [a]	Did not view CSAM (%) [b]
Model 1: Received SGSM	2.06***	1.47–2.91		
Yes			16.9	83.1
No			12.2	87.8
Model 2: Received request for SGSM	2.37***	1.67–3.35		
Yes			17.1	82.9
No			12.2	87.8
Model 3: Sent SGSM	1.10	0.63–1.94		
Yes			18.1	81.9
No			14.7	85.3
Model 4: Recorded sexual activity	1.99**	1.25–3.16		
Yes			20.9	79.1
No			13.1	86.9

Note: Ever viewed CSAM dichotomously coded as 0 = No and 1 = Yes. OR = Odds ratio. CI = Confidence interval. SGSM=Self-generated sexual material.

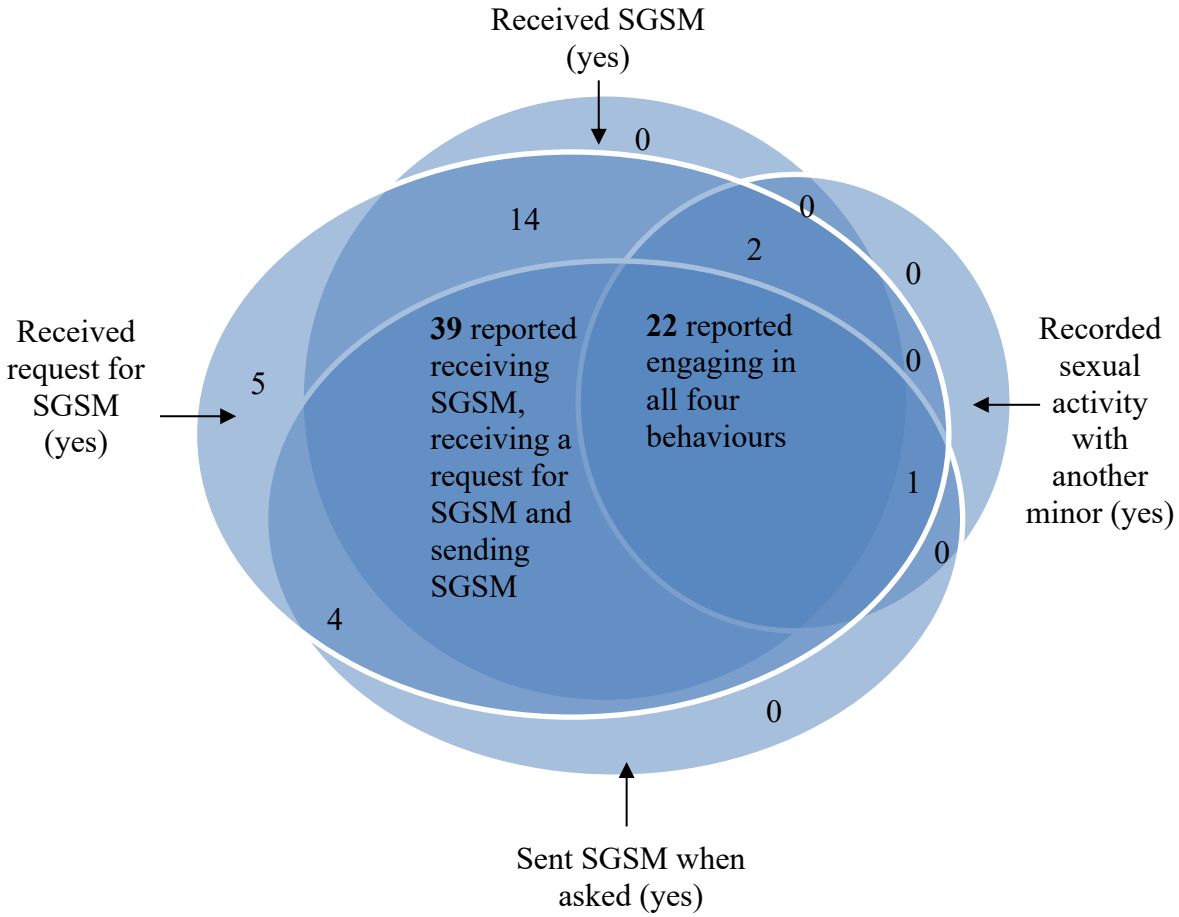
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[a] Proportion of respondents who reported engaging with self-generated sexual material when they were a minor (yes/no) who ever viewed CSAM.

[b] Proportion of respondents who reported engaging with self-generated sexual material when they were a minor (yes/no) who had never viewed CSAM.

Figure 7.5 shows the behaviour relating to SGSM, among respondents who reported ever viewing CSAM before they were 18. It was rare for these respondents to only engage in one of the four behaviours relating to SGSM, with most reporting that they had engaged in at least two of the behaviours. The most common combination of behaviours among CSAM viewers was receiving SGSM, receiving a request for SGSM and sending SGSM to another minor who requested it (n = 39). Twenty-two respondents who had viewed CSAM reported that they had engaged in all four behaviours relating to SGSM (see Figure 7.5).

Figure 7.5 *SGSM Behaviour Among Respondents Who Reported Viewing CSAM*



Note: 'Ns' reported. Only includes respondents who said 'yes' to ever viewing CSAM. SGSM=Self-generated sexual material. All four SGSM survey questions related to when the respondent was under 18 years.

7.3.1 Age of onset to SGSM engagement and CSAM viewing

This section examines the age respondents first engaged with SGSM versus the age they first viewed CSAM. The questions on SGSM related to experiences when respondents were under 18. For this reason, only respondents who reported first viewing CSAM under the age of 18 were included in this analysis. The purpose of this analysis was to examine further the intersection between SGSM engagement and CSAM viewing during adolescence, and whether one tended to precede the other. In Chapter 5, it was found that the majority (71%) of CSAM viewers across the study sample first viewed CSAM before they were 18 years. In the present analysis, between 7 and 9 respondents were removed from each analysis because they reported first viewing CSAM when they were 18 or older.

Table 7.4 shows the number of respondents who received SGSM and viewed CSAM as a minor, and the age group that they first engaged in each behaviour. The age groups were those presented to respondents in the survey questions (e.g., 5–9 years, 10–13 years, etc.). Of the 79 respondents who engaged in both these behaviours, a substantial number reported first engaging in both behaviours in the same age group. For example, 8/79 respondents (10%) reported engaging in both behaviours at age 10–13 years, 20/79 (25.3%) at age 14–15 years and 8/79 (10.1%) at age 16–17 years (see Table 7.4).

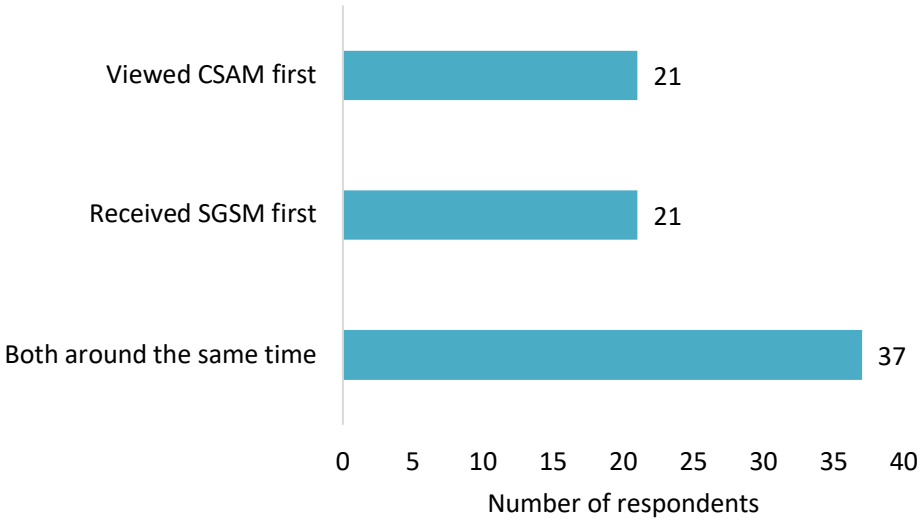
Table 7.4 *Age of First CSAM Viewing by Age First Received SGSM From Another Minor*

	Age first received SGSM (years) (n)				
Age first viewed CSAM (years) (n)	5–9	10–13	14–15	16–17	Total
5–9	1	2	1	1	5
10–13	0	8	4	4	16
14–15	2	10	20	9	41
16–17	0	5	4	8	17
Total	3	25	29	22	79

Note. 7 respondents were removed who reported first viewing CSAM aged 18 or older. SGSM=Self-generated sexual material. Minimum age was 5–9 years for both age first viewed CSAM and age first received SGSM.

In total, 37/79 respondents (46.8%) reported first engaging in both behaviours within the same age range. A quarter (26.6%; n = 21) said they received SGSM from another minor before viewing CSAM, while the remaining quarter reported the reverse pattern (26.6%; n = 21) (see Figure 7.6).

Figure 7.6 *Order in Which Respondents Viewed CSAM and Received SGSM*



Note. $n = 79$.

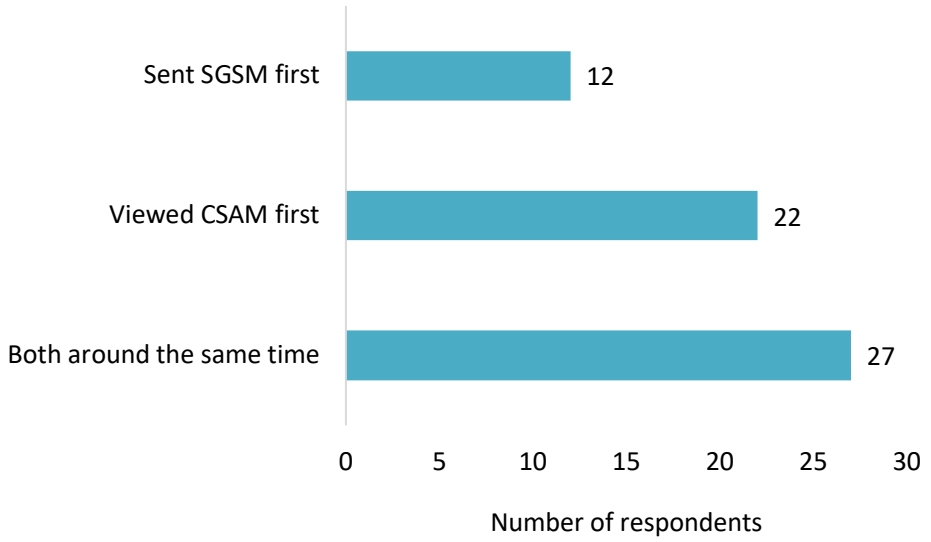
Next, the age of first CSAM viewing as a minor was compared with the age respondents first sent SGSM to another minor (see Table 7.5). Noting that only respondents who reported being asked to send SGSM were asked whether they ever sent this material, therefore these respondents had already been exposed to this behaviour to a certain extent. Noting also there were smaller numbers in this subset ($n = 61$), two in five (44.3%; $n = 27$) engaged with both behaviours at around the same age (see Figure 7.6), most commonly 14–15 years ($n = 15$) (see Table 7.5). It was more common to view CSAM first before sending SGSM to another minor (36.1%; $n = 22$), compared with the reverse pattern (19.7%; $n = 12$) (see Figure 7.6).

Table 7.5 *Age of First CSAM Viewing by Age First Sent SGSM to Another Minor*

	Age first received SGSM (years) (n)			
Age first viewed CSAM (years) (n)	10–13	14–15	16–17	Total
5–9	3	2	0	5
10–13	3	5	5	13
14–15	7	15	7	29
16–17	2	3	9	14
Total	15	25	21	61

Note. n = 61. 9 respondents were removed who reported first viewing CSAM aged 18 or older. SGSM=Self-generated sexual material. Minimum age was 10–13 years for age first received SGSM.

Figure 7.7 *Order in Which Respondents Viewed CSAM and Sent SGSM*



Note. n = 61

7.3.2 Perception of legality of CSAM

Finally, respondents who reported viewing CSAM were asked whether they thought this material was legal to view at the time they viewed it. Of respondents who viewed CSAM showing pubescent/postpubescent children, 41.7% thought that the material was legal or were unsure whether it was legal at the time they viewed it. Of respondents who viewed CSAM showing pre-pubescent children, 16.3% thought the material was legal or were unsure whether it was legal at the time they viewed it.

Table 7.6 *Perception of Legality of CSAM at the Time CSAM Was Viewed*

Believed CSAM was…	Pubescent CSAM		Pre-pubescent CSAM	
	n	*%*	*n*	*%*
Legal to view	34	16.7	2	2.3
Illegal to view	119	58.3	72	83.7
Unsure	51	25.0	12	14.0
Total	204	100	86	100

7.4 SUMMARY

This chapter explored the prevalence of previous engagement with SGSM (as a minor) among the sample, and the association between this behaviour and viewing CSAM as a minor. The study found that the two behaviours were significantly correlated, meaning that engagement with SGSM as a minor increased the likelihood of viewing CSAM. However, there was not a clear pattern in terms of whether one behaviour preceded the other. The study found that females and persons of other genders were twice as likely as males to be asked to send SGSM from another minor when they were a minor, and that females were more likely to have received requests for SGSM.

The next chapter will discuss the findings from the four results chapters 4–7, and their implications for adolescents, policy and practice.

Chapter 8: Discussion

This final chapter of the thesis discusses the key findings from the study alongside the findings of previous research and then the implications with respect to adolescents specifically, and policy and practice in general.

8.1 SUMMARY OF FINDINGS

This study administered an anonymous survey to 5,512 respondents recruited through the Reddit platform, most of whom had viewed adult pornography, to address seven research questions. The study aimed to learn crucial information about CSAM offending within the community to assist with prevention and disruption of this behaviour.

8.1.1 Use of adult pornography

The survey advertisement stated that the study was about pornography use and online sexual behaviour. Close to all of the sample (98.9%) had viewed adult pornography at least once, and half had viewed it between one and three times a week in the four weeks prior to the survey. This supports previous research, which has found that majorities of people aged under 30, including adolescents, have viewed pornography (Lim et al., 2017; Mattebo et al., 2013). For example, Lim et al. (2017) surveyed 942 Australians aged 15–29 years (see Chapter 2, section 2.1.1, and Table 2.2), of whom 87% had viewed pornography. Of these, 88% reported viewing it in the 12 months prior to the survey. A small minority (15%) reported viewing pornography daily in the 12 months prior to the survey, while 27% viewed weekly, 20% viewed monthly and 26% viewed less than monthly. There were differences between Lim et al.'s and the present study in the age and scope of the respondents and the focus of recruitment for the survey. In Lim et al.'s study, the respondents were 15–29 year-olds in Australia, while the present study surveyed respondents aged 18+ (the majority (76%) were aged 18–34 years) in five different countries, including Australia. Secondly, while the present study was advertised as a survey about pornography use and sexual behaviour, Lim's survey was advertised as a survey about sexual health, and did not mention the word pornography in recruitment (Lim et al., 2017). This latter

factor likely explains why the prevalence and frequency of pornography use among the present sample was higher than in Lim's study (99% ever viewed vs. 87% ever viewed; 28% viewed at least five days per week vs. 15% viewed daily).

A higher proportion of males (68.7%) responded compared with females (28.5%) and other genders (2.8%); more males were likely drawn to the survey given the high prevalence of pornography use among young males (Lim et al., 2017; Mattebo et al., 2013). Further, males use Reddit more than females (Pew Research Center, 2019). A minority (13.5%; $n = 742$) of respondents self-reported ever viewing CSAM; 13.2% ($n = 726$) reported viewing pubescent/post-pubescent CSAM and 5.7% ($n = 316$) reported viewing pre-pubescent CSAM.

8.1.2 Characteristics of CSAM viewers

The study examined the characteristics of respondents who reported viewing any CSAM, by comparing them with non-CSAM viewers in a series of logistic regression models. This study built on, and improved on, earlier studies on the characteristics of CSAM offenders due to its large sample size of CSAM viewers, its focus on CSAM viewing in the community (rather than among criminal justice/treatment samples) and the inclusion of female and other gender respondents. Overall, 14 predictor variables showed a significant association with viewing CSAM. The Likelihood-ratio test showed that four out of five logistic regression models predicted CSAM viewing better than the model with demographics alone. These models related to childhood experiences, online behaviour, willingness to sexually abuse children and mental health/emotional loneliness.

In order of predictive strength ($OR = 3.8–6.1$), the strongest predictors of viewing CSAM were:

- ever having viewed bestiality pornography featuring adults;
- willingness to have sexual contact with a child under 10 years;
- having visited paedophilia chat forums in the last six months; and
- willingness to have sexual contact with a child aged 14–15 years.

Other predictor variables significantly associated with CSAM viewing were:

- willingness to have sexual contact with a child aged 10–13 years;
- being a gender other than male or female;

- being male;
- first exposure to adult pornography under 14 years;
- first exposure to adult pornography under 10 years;
- ever having viewed S&M pornography featuring adults;
- ever having experienced emotional loneliness;
- experienced non-sexual physical abuse or neglect before the age of 18;
- experienced sexual abuse before the age of 18 (made to watch or do sexual things);
- age (respondents aged 25–34, 35–44, and 55+ were more likely to view CSAM than respondents aged 18–24 years); and
- country of residence (NZ, Australia, US, and Canada residents more likely to report viewing CSAM than UK residents).

Gender

A majority who reported ever viewing CSAM were male (77%), 19.5% were female and 3.5% identified as 'other gender'. However, the proportion of CSAM viewers in this study who were female was notably higher than is currently reflected in criminal justice samples. For example, in Babchishin et al.'s (2011) meta-analysis, 5 of 27 studies included females, who made up less than 3% of these samples. However, two studies that surveyed CSAM users in the community reported greater proportions of female CSAM users (viewing, sharing), although overall sample sizes were very small (10 of 30 CSAM consumers were female in Seigfried et al., 2008; 17 of 33 CSAM consumers were female in Seigfried-Spellar & Rogers, 2013). While males in the present study were almost twice as likely as females to have ever viewed CSAM, the findings do suggest that greater numbers of females have viewed CSAM than is reflected in criminal justice figures.

To the author's knowledge, the present study is the only study based on CSAM consumers that has included 'other gender' as a gender category, finding that these respondents were significantly more likely than females to have viewed CSAM. A similar proportion of 'other gender' respondents (16.8%) and males (15.1%) reported viewing CSAM. These are important new findings and emphasise the need for learning

more about the similarities and differences between females, males and trans/non-binary individuals in terms of CSAM consumption.

Country of residence

Compared to respondents who lived in the UK, respondents who resided in the other four countries included in this study, in particular, New Zealand, were significantly more likely to report viewing CSAM.

It is difficult to draw any conclusions about the differences regarding country of residence. As discussed in Chapter 1, there is evidence that the availability of CSAM on the Internet has grown substantially in recent years (Bursztein et al., 2019; NCMEC, 2022). Each of the five countries were chosen due to their broad consistency in laws relating to child sexual abuse/exploitation (Department of Justice, 2020). However, there are no figures available on the amount of CSAM consumers in the community globally, or in each individual country. There are also no self-report measures for population-based prevalence of CSAM consumption. Each of the five countries included in this study records arrests and convictions for CSAM offences. However, such figures would not be reliable estimates of actual offending, as they may be influenced by police operations, and also, as noted by Australian police, much CSAM consumption remains undetected (Vedelago, 2020).

While the five countries surveyed have similar laws relating to child sexual exploitation, there are likely other relevant differences between them that may have influenced the study's findings. These may include police operations, sentencing, messaging campaigns and treatment availability. Analysis of such differences was beyond the scope of the present doctoral study. The differences in reported CSAM viewing from respondents form each country can at least provide a starting point for future research that measures self-reported CSAM use across multiple countries.

Other demographics

Respondents aged 35–44 years were more likely than those aged 18–24 years to have ever viewed any CSAM. However, the present study found no significant differences between CSAM viewers and non-CSAM viewers with regard to ethnicity, education, employment, relationship status and access to children. In contrast, a meta-analysis of 27 studies (Babchishin et al., 2011) (see Chapter 2 section 2.2.4, and Table 2.1) found that male online sexual offenders were significantly more likely to be

younger, Caucasian, unemployed and to have never been married or unmarried at the time of study compared with the general male population. However, in contrast to Babchishin et al. (2011), the present study surveyed CSAM viewers in the community, included females and other gender respondents, and did not include those engaging in online solicitation of children. Nor did it compare CSAM viewers with a representative sample of the general population. Rather, CSAM viewers in the present study were compared with respondents who had never viewed CSAM. These four factors likely explain why the current study has conflicting findings to Babchishin's study regarding ethnicity, age, employment and marital/relationship status.

One study comparable with the present study surveyed 175 adult male Internet users anonymously in the community, of whom 37 reported viewing CSAM (Ray et al., 2014). Similar to the present study, this study found no significant differences between CSAM viewers and non-CSAM viewers with regard to age, ethnicity or education; unlike the present study, this study did find that CSAM viewers were significantly less likely to be in a relationship (albeit the association was weak) (see Chapter 2 section 2.2.3, and Table 2.2). Lim et al. (2017) who surveyed Australians via social media to examine pornography use more generally (not CSAM), found that frequent pornography viewing (weekly or more often) was associated with, among other factors, male gender, younger current age and higher education (see Chapter 2 section 2.1.1, and Table 2.2). Most respondents in the present study (98.9%) reported viewing adult pornography, and a notable proportion did so frequently; almost half reported viewing adult pornography between one and three times a week on average, and over a fifth reported viewing it five or more times a week on average. The findings from the present study suggest that CSAM viewers have similar demographic characteristics to frequent adult pornography viewers, although CSAM viewers are more likely to be male and slightly older.

Loneliness

The present study found that CSAM viewers were significantly more likely to report ever having no one to confide in or lean on in times of trouble. Conversely, in a previous anonymous online survey, Ray et al. (2014) found no difference between self-reported CSAM viewers and non-CSAM viewers on loneliness and attachment styles. The authors suggest this may be due to the types of participants that their study attracted (i.e., 'a survey about problematic pornography use') and that those with

problematic pornography/Internet use may also have emotional and intimacy deficits, similar to CSAM viewers. The contrast in findings between the two studies may also be due to the difference in measurement of loneliness; the present study relied on one question developed for the survey, while Ray and colleagues' study used the UCLA Loneliness Scale (ULS-10).

Other studies have compared individuals *detected* for CSAM-related offences with those detected for contact CSA offences, producing mixed findings regarding loneliness. For example, Babchishin et al. (2011) found no significant differences between online sexual offenders and contact CSA offenders regarding loneliness and self-esteem (see Chapter 2 section 2.2.4, and Table 2.1). However, another study that compared individuals incarcerated for CSAM-related offences with individuals incarcerated for directly contacting children for sexual purposes on validated scales found the former group to be more lonely and obsessive compulsive but similar on social anxiety (Marshall et al., 2012).

Childhood abuse

The present study found that two types of childhood maltreatment – sexual abuse and non-sexual physical abuse/neglect – were associated with viewing CSAM. The associations between childhood sexual abuse and contact CSA in adulthood have been established in several studies (e.g., see Glasser et al., 2001; Ogloff et al., 2012; Seto et al., 2010). Less research has focused on the association between childhood sexual abuse and CSAM offending. Babchishin et al. (2011) found that online sexual offenders were more likely to report non-sexual physical abuse and sexual abuse in childhood than those in the general population (see Chapter 2 section 2.2.4, and Table 2.1), consistent with the present study's findings. However, to the author's knowledge the present study is the first to find an association between experiences of childhood abuse (sexual and non-sexual) and CSAM viewing among a community sample.

Viewing of atypical pornography

The study found that viewing atypical forms of pornography predicted viewing CSAM. Respondents who had viewed pornography featuring adults and animals (bestiality) were six times more likely to have ever viewed CSAM. Similarly, viewing bondage/S&M pornography was significantly associated with viewing CSAM, although the effect size was weaker (*OR* = 1.9). Only two previous studies that investigated this association have been located. The first anonymously surveyed a

sample of 630 adult respondents online, 33 of whom reported viewing or sharing CSAM. Similar to the present study, CSAM consumers were more likely to have viewed bestiality pornography than non-CSAM consumers in the sample (Seigfried-Spellar & Rogers, 2013). Secondly, Seto et al. (2015) found that viewing bestiality pornography was not associated with viewing CSAM, while, viewing pornography depicting sex with violence or force was associated with viewing CSAM (see Chapter 2, section 2.2.3, and Table 2.2).

The findings from the present study (and the two noted previous studies) suggests a co-occurrence of interest in sexual material involving children and atypical forms of pornography (violence or bondage, bestiality) (Seto et al., 2015). The present findings are also consistent with a previous qualitative study on CSAM consumers, where some respondents reported in interviews an interest in 'taboo' material as their motivation for viewing CSAM (Knack et al., 2020) (see Chapter 2, section 2.1.1). This interest in taboo material may motivate some individuals to view multiple different forms of material that are either illegal or considered 'deviant' by society.

Early exposure to adult pornography

Another important finding is that respondents in the present study who were exposed to adult pornography before the age of 10 and before the age of 14 were significantly (almost two times) more likely to have viewed CSAM. Similarly, Seigfried-Spellar & Rogers (2013) found that respondents in their anonymous online survey (n = 630, of whom 33 viewed CSAM) who reported an earlier age of first exposure to adult pornography were more likely to report consuming (viewing or sharing) bestiality pornography and CSAM. Few others have investigated this association. However, Burton, Leibowitz and Howard (2010) found that juveniles who had been detected for sexual abuse perpetration were more likely to report exposure to pornography before and after the age of 10 years.

It should be noted that early exposure to adult pornography in the present study may have, for some respondents, reflected their experiences of sexual abuse or grooming. This may be particularly relevant for those exposed to pornography or CSAM before the age of 10 years. Indeed, childhood sexual abuse was associated with CSAM viewing and early exposure to adult pornography, further supporting this notion. However, for some respondents, early exposure to adult pornography, particularly under the age of 14 years, may indicate sexual curiosity, experimentation,

or accidental exposure rather than child sexual abuse/grooming. Regardless, the finding that early exposure to adult pornography increases the risk of viewing CSAM has important implications, discussed later in this chapter.

Willingness to sexually abuse a child

Respondents who reported willingness to have sexual contact with a child aged 14–15 years or 10–13 years were almost three times more likely to report viewing CSAM. Those willing to have sexual contact with a child aged under 10 years were six times more likely. This is supportive of the findings of Seto et al. (2015) who reported an association between desire to sexually abuse a child and CSAM viewing among Swedish males aged 17–20. The present study also supports findings from Insoll et al. (2022) who reported that 42% of a sample of dark web CSAM consumers reported seeking direct contact with children through online platforms after viewing CSAM or illegal violent material. Further, 58% reported feeling afraid that viewing CSAM or illegal violent material "might lead to sexual acts with a child or another human" (Insoll et al., 2022, p. 11). On the other hand, willingness or a desire to sexually abuse children may spark interest in viewing CSAM; in other words, the pathway may also occur in the reverse order. It was beyond the scope of the present study to determine whether one behaviour/interest preceded the other, and it would be beneficial for future longitudinal research to investigate this pathway.

Visiting paedophilia chat forums

Respondents who reported visiting sites/chat forums where people chat about adult/child sexual relations in the six months prior to the survey were 2.5 times more likely to report ever viewing CSAM. This is one of the few studies that has found a significant association between visiting paedophilia chat forums and viewing CSAM. This thesis argues that through online communities, individuals can learn and can be encouraged to engage with CSAM or child sexual abuse. Two earlier studies analysed posts from online paedophile chat forums, finding that such sites both normalise and encourage child sexual abuse, often using cognitive distortions (e.g., children are sexual beings) to justify their desires to offend (Holt et al., 2010; Malesky & Ennis, 2004). Further, a qualitative survey of offenders convicted of CSAM-related offences found that online networking with likeminded individuals was one of several motivations for viewing CSAM (Merdian et al., 2013).

Even more concerning is anecdotal evidence to suggest that uploading CSAM is a prerequisite of membership on many CSAM-sharing websites/forums, and that 'new' material is often encouraged. For example, as noted in Chapter 1, in October 2019 the UK's National Crime Agency revealed via the media that it had taken down a darknet site on which individuals in at least 38 countries gained 'loyalty points' for uploading CSAM (Spillet, 2019; Voreacos, 2019). The site, *Welcome to Video* contained 250,000 videos of children being sexually abused, 45% of which were new to authorities, according to the National Center for Missing and Exploited Children (Voreacos, 2019).

Findings from the present study support previous research and emphasise the harm associated with visiting online forums where people openly discuss and encourage the sexual abuse of children.

8.1.3 Age and circumstances of first exposure to CSAM

Respondents who reported ever viewing CSAM were asked a number of questions about the circumstances of first exposure. Most (85.8%) CSAM viewers reported first discovering it by accident or via someone showing or sending it to them. Almost two-thirds (65.1%) discovered the material online while searching for something else, usually adult pornography. Three quarters (76%) were alone when they first discovered CSAM. In a previous study, adolescents in the United Kingdom similarly reported accidental discovery of violent or aggressive pornography when visiting pornography sites (BBFC, 2019).

Most respondents who reported viewing each type of adult pornography first did so before they were 18 years old: 98.3% of adult pornography viewers; 66.6% of S&M pornography viewers; 62.4% of bestiality pornography viewers. Similarly, 71.2% of CSAM viewers first viewed it before they were 18, 30.5% at 14–15 years and 21.1% at 10–13 years. Insoll et al. (2021) also found that half of the 5,171 CSAM viewers surveyed anonymously through the darknet self-reported accidental first time viewing of CSAM or illegal violent material, and 70% first viewed the material before they were 18 (see Chapter 2 section 2.1.1, and Table 2.2).

The current study was the first to investigate whether age of onset to CSAM differs between younger and older cohorts of individuals in the community. A Cox Proportional Hazards regression model indicated a significant difference between the

age respondents first viewed CSAM across three age cohorts. Respondents aged under 40 years (18–24; 25–39) at the time of the survey (2019–2021) were more likely to view CSAM as children and adolescents compared with respondents aged 40+ years. Although not surprising, given respondents aged over 40 years would have had less access to the Internet growing up, and large amounts of CSAM is detected/reported by contemporary social media platforms and search engines (NCMEC, 2022), it is nevertheless concerning that individuals in the community are viewing CSAM at increasingly younger ages.

Males were significantly more likely to intentionally search for CSAM at first exposure than females. Age of first pornography viewing (3 types featuring adults) was significantly associated with gender: males were more likely to first view adult pornography at age 10–13 years, whereas females were more likely to first view deviant adult pornography (S&M & bestiality pornography) at this age. This finding was unexpected, given previous research has found that males tend to first view mainstream pornography (defined only as 'pornography') at earlier ages than females (Camilleri et al., 2021; Lim et al., 2017).

The younger age of first exposure to atypical adult pornography among females may reflect the use of this material during sexual victimisation, given females are more likely to experience child sexual abuse than males (Asscher et al., 2015; Euser et al., 2013). Although more females than males first viewed CSAM at age 10–13 years (26.9% vs 19.4%), this was not statistically significant. Some responses to open-ended and other questions were suggestive of CSAM exposure during victimisation (though gender was not examined), as suggested by Krone (2004). Sixteen respondents reported being with a family member (5 with parents) when they first viewed CSAM; and two respondents reported that they were shown CSAM by someone who sexually abused them as children. The present study did not examine the prevalence of CSAM viewing in the context of grooming and sexual abuse of children (as other sexualised material is used (Kloess et al., 2017; Quayle et al., 2012)), and this topic warrants further research.

Finally, in a subset of the sample ($n = 467$) minorities of respondents who viewed pubescent/postpubescent CSAM (41.7%) and pre-pubescent CSAM (16.3%) said they thought it was legal at the time or were unsure whether it was legal. Further, almost half of respondents (45%) who reported first discovering CSAM by accident, said that

they intentionally viewed CSAM again following first exposure. This is a novel and concerning finding, as it suggests that accidental exposure to CSAM can lead to subsequent intentional viewing.

8.1.4 Production, distribution and willingness to contact offend

This study found that a minority of CSAM viewers in the sample reported sharing CSAM with others (5.7%), producing CSAM (8.9%) or being willing to have sexual contact with a child under 16 if they had the opportunity (14.0%). Respondents in these three categories appeared to have characteristics that differed slightly from those who only viewed CSAM. CSAM viewers who reported ever sharing CSAM and those who reported ever producing CSAM were examined separately. However, these two subgroups of CSAM viewers shared very similar characteristics. Specifically, both sharers and producers of CSAM were more likely to have:

- used the dark web to view CSAM;
- used a VPN or other encryption to view CSAM;
- recently visited paedophilia chat forums;
- viewed CSAM showing pre-pubescent children; and
- report that they were willing to have sexual contact with a child under 16 if they had the opportunity.

The key differences between these two groups were that CSAM viewers who shared CSAM were more likely to have been exposed to adult pornography before the age of 10, while CSAM viewers who produced CSAM were more likely to be divorced or widowed. One explanation for the latter finding is that being divorced or widowed is more likely to occur at ages where people tend to have access to children, which can present more opportunities for producing CSAM. Suffice to say, sharing CSAM was strongly correlated with producing CSAM, although only a very small number of respondents reported doing both (n = 16). Previous research has also found an overlap between sharing and producing CSAM (Cale et al., 2021; Salter et al., 2021).

In a systematic review of 24 studies, Cale et al. (2021) found that producing CSAM was associated with committing contact sexual offences, and for some individuals contact offending was part of the CSAM production process. In Australia the distribution and production of CSAM attracts a similar maximum sentence to

possession of CSAM. However, the present study found that sharers and producers of CSAM both appear to be high-risk subgroups of CSAM viewers who are more likely to show willingness to contact sexual offend against children. They are also more likely to take measures to hide their offending behaviour by using the dark web and other encryption technologies. This information is important for treatment programs that aim to prevent CSAM consumption and the sexual abuse of children. The findings are also useful for the management of individuals convicted of CSAM-related offences in prison or in the community, including risk assessment, and can be used by law enforcement to identify factors indicative of CSAM consumption.

The findings that both sharers and producers of CSAM are more likely to have viewed CSAM showing pre-pubescent children is supportive of a previous CSAM content analysis, finding that CSAM with pre-pubescent children tends to be more actively traded (Seto et al., 2018). The present study also found that individuals who visit paedophilia chat forums are more likely to report sharing or producing CSAM. This suggests that chatting with individuals online with a sexual interest in children can normalise child sexual abuse and CSAM consumption for these individuals and increase their likelihood of sharing and producing CSAM. This supports media reports covering major CSAM investigations, citing a common demand for 'new' material on CSAM sharing forums online, which encourages individuals to produce their own CSAM (Spillet, 2019; Voreacos, 2019).

Other findings, however, were not consistent with previous research. For example, gender, childhood sexual abuse, early exposure to pornography and experiencing emotional loneliness, while identified as characteristics of CSAM producers in Cale et al. (2021), were not found to be associated with sharing or producing CSAM in the present study. These differences in findings likely relate to the different methodological approach adopted by the present study versus previous studies. For example, Cale and colleagues' systematic review included few studies that compared CSAM producers and sharers with CSAM viewers, with one based on a case study of four CSAM consumers.

Lastly, only gender and having recently visited paedophilia chat forums were significantly associated with willingness to have sexual contact with a child under 16 years (if they had the opportunity) among self-reported CSAM viewers. Once again, this suggests that chat forums where individuals discuss adult/child sexual relations

can normalise and encourage sexual thoughts towards children and CSAM, rather than discouraging them.

In a recent anonymous survey of 1,546 CSAM consumers on the darknet (Insoll et al., 2022: see Chapter 2 section 2.2.2, and Table 2.2), respondents were asked how fearful they were that viewing CSAM or illegal violent material would lead to "sexual acts against a child or another human" (Insoll et al., 2022, p. 11). The study found that respondents who reported seeking the most extreme material (material depicting infants and toddlers) reported higher levels of fear that these sexual acts would occur and were more likely to directly seek children online after viewing CSAM or illegal violent material. This suggests that those viewing more extreme forms of CSAM may be more likely to sexually abuse children or adults in person. Similarly, the 2022 study by Insoll et al. found that having contact with other consumers of CSAM or illegal violent material increased the likelihood of a respondent seeking contact with children online after viewing such material. Importantly, in the present study, visiting chat forums where people discuss adult/child sexual relations is a predictor for sharing and producing CSAM and willingness to have sexual contact with children.

8.1.5 Engagement with sexting and CSAM among minors

Given that engagement with self-generated sexual material (SGSM; also known as 'sexting') among minors can place children at risk of image-based abuse and online child sexual exploitation (Henry et al., 2019; Thorn, 2020), it was important to examine who is most likely to engage in this behaviour. Chapter 7 examined the prevalence of engagement with SGSM among respondents when they were minors, and the characteristics of those who did so. This analysis was conducted on a subset of 1,527 survey respondents, the reason being that the questions on SGSM were added to the survey later than the original questions. A substantial proportion of respondents indicated they had engaged with SGSM when they were under 18. Specifically, a third reported receiving and being asked to send SGSM from/by another minor, when they were also a minor. Of concern, the vast majority (71.9%) who were asked by another minor to send this material said that they did so. A small minority (8.8%) said they had recorded sexual activity with another minor when they were also a minor.

The rates of engagement with SGSM reported above are higher than reported in a systematic review and meta-analysis of 39 studies that examined the prevalence of 'sexting' (defined as explicit images, videos, or messages), which found that 14.8% of

respondents had received and 27.4% had sent a 'sext' when they were under 18 (Madigan et al., 2018). This difference may be attributable to the recruitment strategy of the present study, which attracted pornography users, whom research suggests are more likely to engage in sexting behaviour (Crimmins & Seigfried-Spellar, 2014; Morelli et al., 2017). Another reason for the higher rates reported in the present study may be that engagement with SGSM among minors is becoming increasingly prevalent, as suggested by previous research (Madigan et al., 2018). Future research should monitor trends in this behaviour among adolescents.

In the current study, females and persons of other genders were twice as likely as males to be asked to send self-generated sexual material from another minor when they were a minor. Females were also more likely than males to report receiving self-generated sexual material from another minor when they were a minor. A previous representative survey of 1,424 Australian adolescents aged 14–17 found that slightly more females (35%) than males (22%) reported asking, being asked to, or sending a nude or nearly nude image or video of themselves to someone else in the last 12 months (UK Safer Internet Centre et al., 2017). When examining specific behaviours, girls were more than twice as likely as boys to have been asked to send self-generated sexual material (22% vs. 8%), significantly more likely to have received it (19% vs. 12%), and slightly more likely to have sent it (7% vs. 4%). This suggests that females are more vulnerable to engagement with self-generated sexual material, particularly receiving the material and receiving requests for the material.

Other studies have found gender differences in the emotional impact of sexting among minors. For example, a survey of 2,356 male and female high school students under 18 in Spain found that girls were more likely than boys to experience negative emotions (depressed, annoyed) after having a sext forwarded without their consent (Del Rey et al., 2019). Although more research is required, these studies suggested there are gender differences in sexting behaviour and emotional reactions to sexting among adolescents and young adults. Further, the present study suggests that females are more likely to receive the material and receive requests for material.

Similarly, the present study found that respondents who reported childhood sexual or non-sexual physical abuse or neglect were significantly more likely to have received or been asked to send self-generated sexual material from/by another minor when they were a minor. Lastly, those who reported childhood sexual abuse were

significantly more likely to have recorded sexual activity with another minor when they were a minor. To the author's knowledge, this is the first study to find a correlation between childhood abuse and engagement with SGSM among adolescents under 18 years.

Previous research has found that childhood sexual abuse is associated with a range of lifelong adverse outcomes for victims including mental illness, substance abuse, re-victimisation, sexual offending and other offending in adulthood (Cashmore & Shackel, 2013; Glasser et al., 2001; Ogloff et al., 2012). As the present study has demonstrated, engagement with SGSM among adolescents is another potentially harmful outcome associated with childhood sexual abuse. While SGSM can be consensually produced and shared among minors with harmless intentions, it places children in the images at risk of image-based abuse and online child sexual exploitation (eSafety Commissioner, 2017; Thorn, 2020). At least for some victims of child sexual abuse, sexual activity can become normalised during childhood. For example, research has demonstrated that victims of child sexual abuse can display increased sexualised behaviour in childhood or adolescence (World Health Organization, 2003). This may be an explanation for abused respondents in the present study being more likely to engage with SGSM when they were under 18. This finding highlights an intervention point for prevention of harms relating to sexting among these children.

Relationship between CSAM viewing and SGSM

Chapter 7 also investigated the relationship between engagement with SGSM as a minor and viewing of CSAM. The study found that respondents who reported receiving or being asked to send SGSM by a minor when they were also a minor were significantly more likely to report ever viewing CSAM. Similarly, those who said they had recorded or allowed someone to record them engaging in sexual activity with a minor when they were a minor were significantly more likely to have ever viewed CSAM. Sending SGSM to another minor was not significantly associated with viewing CSAM. However, only respondents who reported being asked to send SGSM were asked whether they ever sent this material; therefore, this subset of the sample was already biased towards certain characteristics. This may explain why sending self-generated sexual material was not significantly associated with viewing CSAM, while receiving and being asked to send the material were.

These results are important as they show a link between engagement with SGSM among adolescents and viewing CSAM. Further, the onset to CSAM viewing and engagement with SGSM occurred at similar ages during adolescence. Almost half of the respondents who had received SGSM from another minor and viewed CSAM as a minor reported first engaging with both behaviours at around the same age. While one behaviour likely occurred before the other within those age ranges (e.g., 14–15 years), the survey did not capture this level of detail, which is a limitation. Regardless, the findings suggest that it is common for onset to both behaviours to occur close together during adolescence.

The remaining half of respondents reported that one behaviour preceded the other in a different age range (e.g., first exposure to CSAM at 14–15 years, followed by first engagement with SGSM at 15–16 years). Of these, equal proportions of respondents (about one in four) each said they viewed CSAM first or received SGSM first. However, it was slightly more common to first view CSAM before moving on to sending SGSM, compared with the reverse pattern. Given that in half of the cases behaviour of respondents followed one of these two trajectories, it is possible that engagement with both behaviours can normalise and lead to the other. For example, viewing CSAM online may normalise sexual imagery of children and increase susceptibility to engagement with SGSM among adolescents. Conversely, engagement with SGSM may normalise sexual imagery of children, increasing susceptibility to searching for sexual material online, and consequently discovering CSAM. Some respondents may be more susceptible to both behaviours due to other factors. For example, the findings presented in Chapter 4 and the present chapter showed that childhood sexual abuse significantly predicted viewing CSAM and engaging with self-generated sexual material as a minor. While this may be partly explained by CSAM being used in grooming and child sexual abuse scenarios, it also suggests that experiencing child sexual abuse can increase a person's likelihood of engagement in sexting and CSAM as an adolescent under 18.

It is important to note that most respondents who engaged with SGSM as a minor did not report viewing CSAM. Nevertheless, the study has shown that the two behaviours are correlated. Previous research reviewed in Chapter 2, Section 2.3 found that sexting (including sexual text, images or videos) is associated with mental health issues and with potentially harmful and risky behaviours among adolescents under 18.

These behaviours include internalising problems (anxiety/depression), substance use, pornography use, sexual activity, multiple sex partners, lack of contraception use and delinquent behaviour (Morelli et al., 2017; Mori et al., 2019). Therefore, it is possible that there is a sub-group of adolescents who tend to engage in risky or harmful behaviours more so than others. It is possible that viewing CSAM is another harmful behaviour that adolescents in this subgroup engage in. The present study found that childhood sexual and non-sexual abuse also predicted engagement with SGSM and viewing CSAM. Therefore, future research would benefit from including CSAM consumption and childhood sexual abuse measures in typological analyses of adolescents who engage in risky and harmful behaviours.

8.2 IMPLICATIONS FOR ADOLESCENTS, POLICY AND PRACTICE

The findings from this PhD research have some particularly concerning implications for adolescents under 18 years. It is important to discuss these concerns, before exploring the implications and how best to address them. Also of importance, is to outline why relying largely on law enforcement detection is insufficient for protecting children from being sexually exploited in the future. The next two sections of this chapter will consider these issues, before discussing the key implications for policy and practice.

8.2.1 Key concerns relating to adolescents

This section will highlight the key concerns from the findings of this PhD relating to adolescents aged under 18. Early to middle adolescence is typically the point of "onset of sexual thoughts and experimentation" (Tulloch & Kaufman, 2013, p. 30). Because of increased availability of adult pornography, more adolescents are viewing it (Lim et al., 2017), likely as part of sexual curiosity and experimentation. The present study's findings that adolescents under 18 are also discovering CSAM and atypical adult pornography (bestiality, bondage/S&M), for some may similarly reflect their sexual exploration, facilitated by the increased availability of CSAM (Bursztein et al., 2019; NCMEC, 2022) and other material online. As one respondent stated: "I wanted to view porn showing people my own age" (participant who first viewed CSAM aged 14–15 years). Although most respondents discovered CSAM by accident, around half continued to view it intentionally.

While it is expected that some adolescents want to view pornography of their age peers (i.e., as has been demonstrated with sexting behaviour), adolescents discovering CSAM online is concerning for several reasons. First, many adolescents under 18 may not understand that the material they are viewing is abusive and illegal. This may stem partly from previous engagement with mainstream/legal adult pornography, in which the sexual acts between adults are often (although not always) consensual and the material is often legal for adults to view. It may also stem from a misinterpretation that sexual acts against children in CSAM are consensual. For example, one CSAM survivor survey found that child victims are often told to 'smile' while they are being abused in front of a camera, and they later develop anxiety and concern that people viewing their abusive material online will assume that they were willing participants (Gewirtz-Meydan et al., 2018). Moreover, some material may have been self-generated consensually by minors but uploaded to the Internet non-consensually. In other words, some images/videos may show consensual sexual acts between minors, with no involvement of adults. The combination of these factors may cloud a young person's perception that the material they are viewing is abusive or has been uploaded non-consensually.

The present study found that 41.7% of respondents who viewed CSAM showing pubescent children and 16.3% who viewed CSAM showing pre-pubescent children thought the material was legal or were not sure whether it was legal at the time they viewed the material. This suggests that some adolescents may perceive CSAM, particularly if it depicts older children, as legal or acceptable, which could place them at risk of continuing use and criminalisation if they are caught.

Another concern is the potential impact that viewing CSAM may have on children and adolescents. Although there is no evidence that pornography causes adolescents under 18 to sexually offend, some studies have found associations between frequent pornography use and sexually aggressive behaviours among adolescents (Alexy et al., 2009; Peter & Valkenburg, 2016). Further, one study found that children and adolescents under 18 who were accidentally exposed to violent and aggressive pornography online reported that they found it upsetting or disturbing (BBFC, 2019). Currently, there is little empirical research available on the impact that viewing CSAM has on children and adolescents. A serious concern is that viewing CSAM depicting younger children could normalise child sexual abuse among some children, which

could potentially increase the risk of both child sexual abuse perpetration and victimisation.

Findings from the present study relating to engagement with self-generated sexual material among minors further complicates the issue. A third of respondents in the present study reported receiving or being asked to send self-generated sexual material by another minor (under 18) when they were a minor. Females were particularly vulnerable to receiving material or being asked to send material. Engagement with self-generated sexual material can have serious negative impacts on adolescents including legal ramifications, image-based abuse and online child sexual exploitation (eSafety Commissioner, 2017; Strasburger et al., 2019; Thorn, 2020). Further, respondents who engaged with this material in the present study were significantly more likely to report viewing CSAM, showing that the two behaviours are related.

8.2.2 Why we cannot 'arrest our way out of this'

This section discusses the reasons why relying principally on law enforcement detection to reduce CSAM offending is not sufficient for protecting children from online sexual exploitation. It is important to discuss this before discussing implications for policy and practice drawn from the research findings from the present study.

As Wortley and Smallbone (2006; 2012) noted, while detection of CSAM consumers, as well as the risk of arrest, may have deterrent effects, there is likely a significant proportion who may not be detected. Chapter 1 of this thesis discussed evidence from victimisation surveys and other research, which finds that the majority of victims of CSA, CSAM and sexual assault against adults do not report the abuse to police or other authorities (ABS, 2022; Canadian Centre for Child Protection, 2017; Hershkowitz et al., 2007; London et al., 2005; von Weiler et al., 2010). Chapter 1 also highlighted anecdotal evidence and one empirical study suggesting that substantial amounts of CSAM offending may not be detected or investigated by police (Netclean, 2021; Ray et al., 2014; Virtual Global Taskforce, 2019).

Apart from the rarity in reporting of CSAM and sexual offences, there are other reasons for the difficulty in detecting this behaviour. The global nature of this crime and the technological and legal challenges for police in verifying the origin of material and identifying victims and offenders present barriers for law enforcement

investigations (Broadhurst, 2019; Virtual Global Taskforce, 2019). The last decade has seen increases in online messaging platforms (Bursztein et al., 2019), use of the dark web, and enhanced encryption and anonymisation technology (Virtual Global Taskforce, 2019). The continually evolving methods to view and share CSAM, and to do so anonymously, make it increasingly difficult for police to disrupt it.

The 2020 Netclean report outlines findings from interviews with police officers from 39 countries. According to the this report, the staggering amount of images and videos reported to police, particularly since COVID-19, sometimes resulted in police focusing only on cases that were most severe or where victims could most easily be identified (Netclean, 2021).

In addition, in 2021 the National Center for Missing and Exploited Children in the United States and the Internet Watch Foundation in the United Kingdom reported record numbers of CSAM reports from electronic service providers (NCMEC, 2022) and URLs containing CSAM (IWF, 2022). The former received 29.3 million CSAM reports, and the latter removed 250,000 URLs found to contain CSAM, each of which can contain multiple images/videos of children being abused and exploited (IWF, 2022; NCMEC, 2022). This anecdotal and empirical evidence suggests that the amount of CSAM being produced and shared on the Internet is beyond the resource capability of law enforcement alone to significantly disrupt or reduce the problem.

Lastly, as the present study found, it is common for individuals to discover CSAM during adolescence before the age of 18, and the criminalisation of young people is problematic. Noting all these factors, particularly the concerns regarding exposure to CSAM among adolescents, this thesis argues that adopting measures that aim to prevent CSAM consumption before it occurs or escalates should be a priority.

8.2.3 Implications for policy and practice

The implications that draw on the novel research findings from this study have been informed by situational crime prevention approaches. Situational crime prevention draws on rational choice theory, which assumes crime is committed by rational individuals who weigh the benefits against the risks (Cornish & Clarke, 1986). Research has outlined situational crime prevention as reducing opportunity for offending by adopting five measures:

(1) reducing the rewards;

(2) increasing perceived effort;

(3) increasing perceived risks;

(4) removing excuses; and

(5) reducing provocations (Clarke, 1997; Cornish & Clarke, 2003; Freilich & Newman, 2015).

As discussed in Chapter 2 (section 2.5) of this thesis, some researchers have applied situational crime prevention theory to the problem of CSAM offending (Smallbone & Cale, 2016; Wortley & Smallbone, 2012). Krone et al. (2020) reviewed five studies, including Wortley and Smallbone (2012), that applied situational crime prevention measures to CSAM offending. They summarised the key recommendations from these studies in relation to each situational crime prevention principle; their work is summarised below (Krone et al., 2020, p. 98).

- Increasing offender effort (e.g., target hardening through educating children, filtering, blocking inappropriate sites and forums).
- Increasing perceived risk (e.g., altering perceptions of surveillance, anonymity and the presence of law enforcement online).
- Reducing rewards (e.g., removal of images from the Internet).
- Removing excuses (e.g., institutional policies and codes of conduct, automated messages reminding of illegality of CSAM).

The authors noted that the majority of the papers they reviewed did not address the fifth situational crime prevention principle 'reducing provocations' (Krone et al., 2020), which refers to reducing frustration and stress, avoiding disputes, reducing emotional arousal, neutralising peer pressure and discouraging imitation of offending (Freilich & Newman, 2015). In critiquing the five situational crime prevention guiding principles, Freilich and Newman (2015) emphasise that they each remain general statements that are broad in nature and are not specific enough for particular situations. They state that practitioners must analyse specific situations relating to crime, and apply these situational crime prevention principles in a way that is appropriate and meaningful to the individual situations (Freilich & Newman, 2015). This section of the thesis attempts to do this in relation to CSAM offending, while considering the findings from the present study.

Relevant measures have been adopted on a small scale in Australia to prevent child sexual abuse and exploitation. For example, the eSafety Commissioner provides online education and tools for parents, children and educators that teach children how be safe online (eSafety Commissioner, 2020). These measures can act as 'increasing effort for offenders' and 'removing rewards' by providing children with the tools to protect themselves from becoming victims of online sexual exploitation.

Also in Australia, the Royal Commission into Institutional Responses to Child Sexual Abuse (Royal Commission) made 409 recommendations to protect children from sexual abuse in institutions, some of which were drawn from situational crime prevention principles (RCIRCSA, 2017a). CSAM offending cases uncovered by the Royal Commission included school teachers found in possession of CSAM or using CSAM as part of a grooming process to sexually abuse school students (RCIRCSA, 2016a, 2016b). In another case, the Royal Commission reported the failure of church authorities to report a priest found in possession of CSAM; it was later found he had sexually abused multiple children that he was in contact with through the church (RCIRCSA, 2017b).

Krone et al. (2020) mapped the specific Royal Commission recommendations aimed at online CSA offenders against situational crime prevention principles. Examples of the situational crime prevention-focused recommendations included identifying and mitigating risk in the online and physical environments (increasing effort for offenders), an e-safety framework to support schools in creating child safe online environments (increasing perceived risk of offending), and ensuring the Internet, when accessed through work, is used in accordance with an institution's code of conduct and relevant policies (removing excuses for offenders) (Krone et al., 2020). However, in their review of the Royal Commission report, Krone et al. (2020) criticised the recommendations for not including adequate measures to reduce CSAM offending in institutions such as schools and churches.

It was beyond the scope of this thesis to examine all initiatives globally aimed at reducing CSAM offending, which are drawn from situational crime prevention. However, it has been suggested that most policies in the Five Eye nations aimed at sexual offending focus on detection of offenders and tertiary prevention (reducing reoffending) (Knack et al., 2019). In acknowledgement of this and the under-reporting

of sexual offences, Knack et al. (2019) argue that more initiatives should incorporate primary and secondary prevention measures.

In the present study, high rates of CSAM viewers reported first CSAM exposure during adolescence. Further, engagement with atypical adult pornography and self-generated sexual material (among minors) was found to increase the risk of CSAM exposure. More resources should therefore be allocated to preventing CSAM offending before it first occurs and preventing escalation of offending. To do this, the five elements of situational crime prevention noted above (reducing perceived rewards; increasing perceived effort; increasing perceived risk; reducing provocations; removing excuses) should be adopted more widely with the aim of reducing CSAM exposure and consumption in the community. The rationale is that criminalising adolescents for engaging with CSAM, and only addressing reoffending once offending has already occurred, will not sufficiently reduce harm to children. This includes children who are exposed to CSAM and those victims depicted in CSAM. Once an individual has sexually abused a child or engaged with CSAM, the victim will often suffer serious adverse impacts (Canadian Centre for Child Protection, 2017; Cashmore & Shackel, 2013; Gewirtz-Meydan et al., 2018; Ogloff et al., 2012).

Thus, preventing CSAM offending before it occurs or escalates, particularly among minors, is the ideal outcome. This would help to reduce harm, criminalisation, and stigmatising adolescents by providing education, support and deterrence measures to minors regarding CSAM consumption. Engagement with self-generated sexual material among minors should also be addressed through situational crime prevention, including primary and secondary prevention. This is particularly important given the legal complications and other potential harms associated with this behaviour, including non-consensual sharing of material and, as the present study found, viewing CSAM. Suggestions for doing so are outlined below, mapped against the five situational crime prevention measures.

Reduce the rewards and increase the effort

Deterring CSAM searches

In their work on child sexual abuse and CSAM consumption, Wortley, Smallbone and colleagues (Smallbone et al., 2008; Wortley & Smallbone, 2006, 2012) stress the importance of learning about the circumstances surrounding an individual's

onset to offending. They argue that the first offence is 'special' as an individual has no routine modus operandi so it may be the easiest offence to prevent, and may result in the prevention of any future offences. The present study found that most CSAM-viewers first discovered CSAM by accident when they were under 18, and that accidental exposure to CSAM was followed by subsequent intentional viewing in 45% of respondents. Considering these findings, this thesis argues that prevention of first-time exposure to CSAM should be a priority for policy makers and practitioners.

One way to address this is to increase the effort involved and reduce the rewards (Clarke, 1997; Cornish & Clarke, 2003) in accessing CSAM. In the present study, of the minority of respondents who searched for CSAM intentionally at first exposure, five times as many searched the Clearnet than the darknet. This has implications for Clearnet search engine interventions, which have shown some success in deterring CSAM searching. Steel (2015) found that the introduction of blocking tools on Google and Bing reduced search queries related to CSAM by 67% over one year, with no commensurate reduction on another major search platform in Russia (Yandex) which did not implement these tools. The study had some limitations, i.e., not distinguishing between the effect of blocking versus warnings or a shift from Clearnet to dark web searches. Nevertheless, Steel's findings, along with findings from the present study, support the adoption of such interventions by all search engines. However, in the present study, most respondents discovered CSAM by accident while visiting various websites (as opposed to intentional searching). Additional prevention measures are therefore crucial for reducing the ease with which CSAM can be accessed.

Automated removal of CSAM

At the outset (Chapter 1, Section 1.1.3), the thesis discussed the millions of CSAM reports received by clearinghouses such as the National Center for Missing and Exploited Children annually (NCMEC, 2022). The use of Artificial Intelligence (AI) and clearinghouses to remove CSAM from the Internet should be a priority in every country, given it is beyond human capability to do so effectively. Webcrawlers to detect and remove CSAM from the Internet have shown increasing potential (Westlake et al., 2017, 2022). Operated by the Canadian Centre for Child Protection (C3P), Project Arachnid is a webcrawling tool that searches URLs to determine whether they contain CSAM by comparing the material with a database of known CSAM (Project

Arachnid, 2020). The tool processes tens of thousands of images per second, far exceeding the capability of humans in detecting and analysing CSAM (Project Arachnid, 2020). However, Project Arachnid relies on electronic service providers based in multiple different countries to voluntarily adopt the software and remove CSAM once a notice has been issued (Project Arachnid, 2020). The level of proactivity and preparedness among electronic service providers in detecting and removing CSAM from their platforms is unclear and has been questioned (C3P, 2019; Salter, 2021). Further, there is little evidence of effectiveness of current methods adopted by electronic service providers in detection and removal of CSAM (Teunissen & Napier, 2022b). Yet, evidence suggests that millions of reports of CSAM are made from electronic service providers like Meta every year (NCMEC 2022; Teunissen & Napier, 2022b). Therefore, electronic service providers have a responsibility to use best practice tools that proactively and effectively detect and remove CSAM.

Clearinghouses such as NCMEC similarly play a crucial role in removing CSAM; however, they also rely on electronic service providers to report and remove CSAM from their platforms. A study that analysed the transparency reports released by major electronic service providers (e.g., Meta) found that many state that they actively detect and remove CSAM from their platforms (Teunissen & Napier, 2022b). However, the type and effectiveness of technology used by some major electronic service providers in achieving this was not clear. Further, the authors discussed growing concerns surrounding the use of end-to-end encryption by platforms such as WhatsApp, which prevents CSAM from being detected and removed by the platform administrators (Teunissen & Napier, 2022a). A report published by the Canadian Centre for Child Protection argued that the CSAM definitions utilised by electronic service providers are inadequately narrow, and thus a large amount of CSAM on these platforms may not be removed (C3P, 2019). For AI measures and clearinghouses to have a greater impact, legislative amendments in countries that house social media platforms or have high user bases should ensure that AI for CSAM detection is adopted by all platforms. Legislation should also ensure a standard definition of CSAM is applied, which aligns with clearinghouses such as the NCMEC.

Lastly, there needs to be more investment should in innovative technology to ensure adequate detection and removal of CSAM. A recent study by the University of Adelaide tested a webcrawler tool designed to identify individuals in CSAM by

incorporating face and voice recognition (Westlake et al., 2022). The study tested the tool on a sample of child sexual abuse videos, finding it was over 90% accurate in matching the same individual across multiple videos. Technology such as this that incorporates biometric capabilities into webcrawling tools should be further developed and tested. Such technology may, for example, have future potential to detect and remove new CSAM that has not previously been detected. Most current technologies, including Project Arachnid and PhotoDNA developed by Microsoft, identify CSAM via hash values that have been assigned to detected images (Project Arachnid, 2020; Teunissen & Napier, 2022b). Consequently, newly produced CSAM remains unnoticed by the technology.

Unfortunately, innovative technology including the use of biometrics has rarely been developed for the purpose of combatting online sexual exploitation of children (Westlake et al., 2022). There may also be important ethical and privacy issues to consider with the development of such technology, as well as the potential for error that could lead to harm/distress (e.g., incorrectly identifying 'offenders'). Such avenues should be tried and tested further, if any significant impact is to be made on the amount of abusive material of children currently circulating on the Internet. This includes validating tools on actual CSAM that is found online, to ensure effectiveness and low false positive rates. Focusing more efforts on automated detection and removal of CSAM from the Internet will help to decrease the ease at which CSAM is discovered and accessed, including by adolescents under 18.

Reducing exposure to adult pornography among minors

Respondents in the present study who were exposed to adult pornography before the age of 10 or before the age of 14 were significantly more likely to report viewing CSAM. Studies have showed that the age of exposure to pornography is younger now compared with previous generations (Lim et al., 2017). Accidental exposure to pornography is a growing problem given the ease at which children and adolescents can access this material (Flood, 2009; Flood & Hamilton, 2003; Lim et al., 2017; Wolak et al., 2007). In the present study, CSAM viewers exposed to adult pornography before the age of 10 years were also more likely to have shared or produced CSAM and to report willingness to have sexual contact with a child under 16 years if they had the opportunity. Exposure to pornography or CSAM under the age of 10 years may,

for some respondents, have occurred in the context of child sexual abuse. However, three-quarters of respondents said they were alone when they first discovered CSAM (12.8% were with someone, 7.9% were alone but chatting to others online), which does not seem to suggest contact abuse. Additionally, the most common mode of CSAM discovery was by accident while searching for adult pornography.

Other evidence suggests that frequent pornography viewing among adolescents under 18 is associated with sexually aggressive behaviours and damaging perceptions of intimate relationships (Alexy et al., 2009; eSafety Commissioner, 2021a; Peter & Valkenburg, 2016). Further, in the present study, viewing atypical forms of adult pornography, in particular pornography showing adults and animals (bestiality), was highly correlated with viewing CSAM and should be considered an important risk factor for CSAM exposure.

For these reasons, it is important to focus on preventing exposure to adult pornography, including atypical pornography, among children under 18. Age verification, which requires users to prove that they are aged 18 or more to enter a website (eSafety Commissioner, 2021a), may be one avenue that could assist with this. The United Kingdom government spent several years investigating the possibility of requiring people to verify that they were adults when accessing pornography sites online (Waterson, 2019). In 2019, after several years of development, the UK government abandoned the idea, citing issues relating to technical problems and privacy; in particular, privacy campaigners raised concerns about data security (Waterson, 2019). In 2022, however, the UK reintroduced age verification in the draft of the *Online Safety Bill*, and if the Bill is passed, any websites that publish pornography would be legally required to verify that site users are aged 18 and over, and could be fined or have their access blocked by United Kingdom media regulator Ofcom if they fail to do so (Loffhagen, 2022). If implemented, site operators could either verify a user's age via secure technology that confirms that a person possesses a credit card, or use a third-party service to match a user's age and identity with government information (Loffhagen, 2022).

In Australia, the eSafety Commissioner is also in the early stages of exploring the potential implementation of age verification for online pornography access (eSafety Commissioner, 2021a). While age verification for online pornography viewing has not yet been sufficiently tested for effectiveness, avenues such as this are

important to explore. This is particularly timely given the decreasing age of first pornography exposure (Lim et al., 2017) and the harms associated with early exposure to adult pornography found in the present study. A limitation of this technology may include children/young people using fake identification as they have found to do so when purchasing liquor (Martinez et al., 2007). It may also divert some minors towards less regulated channels, such as pornography via private chat groups or unregulated sites hosted in countries that are less strict with availability and access to pornography. The technology may also be vulnerable to hackers and would need be scrutinised for security vulnerabilities before implementation. However, if found to be safe and effective, age verification has the potential to increase the effort and rewards involved in accessing pornography online, and in turn, CSAM, among adolescents.

Reduce provocations

The fourth situational crime prevention principle relates to reducing provocations. Cornish and Clarke (2003) discuss provocations in relation to situational crime prevention, stating that: "Features of situations can sometimes produce adverse emotional arousal, which provokes a criminal response" (p. 45). Early examples relating to this guiding principle included reducing crowding and environmental irritants and improving services to reduce frustrations among the public (Cornish & Clarke, 2003). More relevant to the present thesis, is the example of prohibiting convicted CSA offenders from being near schools or having contact with children (Wortley & Smallbone, 2006). This would protect children and remove the temptation for sex offenders to offend. Considering CSAM offending, Wortley and Smallbone (2012) suggest relapse prevention and removal of CSAM from the Internet as reducing provocations that can lead to CSAM offending. Relapse prevention relates to programs/interventions that help offenders identify triggers and early warning signs for offending and adopt skills and strategies to prevent relapse. Several other avenues could be explored that reduce provocations that can lead CSAM offending, which are outlined below.

Educational programs

Other areas that may assist in the prevention of CSAM consumption among young people include education programs for parents, teachers, and school children. Early research identified school-based educational programs as a key tool adopted for

the purpose of preventing child sexual abuse (Finkelhor, 2009). In response to the increased use of the Internet and smart devices by adolescents in recent years (eSafety Commissioner, n.d.-b), initiatives worldwide have been introduced to prevent harm to children and adolescents online. For example, in Australia the eSafety Commissioner and Australian Federal Police provide programs, resources and education surrounding cyber-bullying, image-based abuse, sending and receiving of self-produced sexual images and online grooming and exploitation of children (Australian Federal Police, n.d.; eSafety Commissioner, 2021a). The key focus of such initiatives in countries like Australia and the United States is to provide parents and children with the tools to prevent victimisation, including online grooming and sexual exploitation (Australian Federal Police, n.d.; Child Wise, n.d.; ECPAT-USA, n.d.; eSafety Commissioner, 2021a; United States Department of Justice, 2020).

However, considering the findings from the present study, such programs/initiatives need to be expanded to include a focus on preventing children and adolescents from viewing CSAM and engaging with self-generated sexual material at an early age. The latter is important due to the finding from the present study that viewing CSAM was associated with engaging with self-generated sexual material among minors (outlined in Chapter 7). Among the survey sample in the present study, first exposure to adult pornography, atypical pornography, and CSAM commonly occurred during early to mid-adolescence (outlined in Chapter 5). Similarly, notable proportions of respondents began engaging with self-generated sexual material during early to mid-adolescence. Younger survey respondents were significantly more likely to view CSAM at younger ages (i.e., the age of onset to CSAM is decreasing) (outlined in Chapter 5). Therefore, engagement with all three behaviours – CSAM, self-generated sexual material and adult pornography – need to be addressed in educational programs that cater to children in early adolescent years. In recent years, sexting and pornography use among children/adolescents have increasingly been the focus of education programs and messaging campaigns aimed at parents and children (e.g., Child Mind Institute, n.d.; Childnet, n.d.; eSafety Commissioner, n.d.). However, given the lack of empirical literature on CSAM consumption among adolescents, few initiatives have thus far focused on this (Gannoni et al., 2022).

Developing education initiatives that aim to prevent exposure to CSAM and other harmful pornography among adolescents would help address the situational

crime prevention principle reducing provocations, by reducing emotional arousal and neutralising peer pressure (Cornish & Clarke, 2003). Considering this principle, incorporating the message into sex education and other educational programs that CSAM is harmful and illegal could potentially reduce the impact of peer influences in this offending. Adolescents may search for adult pornography after hearing about it from friends, which may inadvertently lead to exposure to harmful pornography and CSAM. As outlined in section 8.2.1, adolescents may not be aware of the abusive and illegal nature of CSAM. Instilling education about the illegality of CSAM may help remove temptations (i.e., emotional arousal) to view CSAM if adolescents discover it by accident. For example, if adolescents are educated about the harms and illegality of CSAM at an early age (e.g., early adolescence), they may be less likely to click on links/thumbnails/pop-ups that promote or indicate CSAM on adult pornography sites.

However, both earlier and more recent research that reviewed evidence of effectiveness of school-based education programs in preventing CSA reported some positive impacts, including that the programs may promote disclosure, reduce self-blame of victims, and increase knowledge and self-protective skills among children (Finkelhor, 2009; Walsh et al., 2018). However, research has been inconclusive regarding the success of these programs in reducing CSA and increasing disclosure (Finkelhor, 2009; Walsh et al., 2018). Similarly, little evaluative research has been conducted to measure the effectiveness of education programs in reducing exposure and consumption of CSAM among adolescents, and very few such programs currently exist (Gannoni et al., 2022). Therefore, it is important that the designs of such education initiatives are aligned with best practice, are age appropriate, and are evaluated for effectiveness.

Anonymous support

Because the present study found that almost half of the respondents who were exposed to CSAM accidentally went on to view it intentionally, it would be beneficial to explore the effectiveness of psychological interventions that prevent first time exposure to CSAM or escalation of CSAM offending. Psychological treatment programs for convicted adult sex offenders and young people with harmful sexual behaviour have been established for several decades (Macgregor, 2008; Przyblski, 2015). Further, recent research has focused on best practice elements of interventions

aimed at youth survivors of commercial sexual exploitation (O'Brien et al., 2022). Yet, there are relatively few avenues where individuals who are unknown to police can seek help to stop CSAM offending. This is particularly the case for adolescents (Gannoni et al., 2022). Under mandatory reporting laws in various countries including Australia, the United States and the United Kingdom, psychologists are required to report illegal behaviour to police, including viewing CSAM (Gannoni et al., 2022). Alternatively, a growing number of programs such as Stop it Now! (Stop it Now! UK, 2020) and the ReDirection Self-Help Program in Finland (Protect Children, 2022) provide anonymous web- or phone-based interventions to individuals concerned about their sexual thoughts/behaviours towards children and CSAM. The anonymity of such programs circumvents the mandatory reporting laws by allowing clients to receive intervention without revealing their identity (Brown et al., 2014; Gannoni et al., 2022).

Gannoni et al. (2022) conducted a review of global initiatives that aim to prevent CSAM offending, including evidence of effectiveness. Information was sourced via a literature search and input from an expert international project advisory group. The study identified 76 initiatives in 15 countries, and 35 evaluation studies measuring implementation and effectiveness. The review highlighted the dearth of robust evidence showing that anonymous support sites for adults like Stop it Now! reduce CSAM offending. Nevertheless, findings were promising relating to decreasing risk factors for offending and increasing protective factors associated with reducing offending. Further, in qualitative interviews, participants reported positive findings from accessing support on the sites.

Despite the paucity of robust evidence of the effectiveness of anonymous support programs for undetected CSAM/contact CSA offenders, available evidence suggests that media campaigns are effective in attracting large numbers of individuals to the prevention/support websites. A study by Coase et al. (2020) found that during the evaluation period of the Indecent Images of Children (IIOC) Deterrence campaign, from October 2019 to April 2020, Stop It Now! UK and Ireland received 193,277 website visits, with an average of 7,434 visits each week. Of 149 individuals who completed an online survey hosted on the same website, 65 (44%) were undetected CSAM offenders. Three-quarters of the undetected CSAM offenders reported learning of the campaign through the following mediums: internet searches relating to CSAM or help for CSAM use, news websites, Google adverts, or social media. This suggests

that there is strong demand for these programs, although there is a pressing need for more robust evaluations measuring effectiveness.

However, the review by Gannoni et al. (2022) found that programs/initiatives that deter adolescents from viewing illegal sexual content online, including CSAM, are scarce. Evidence of the effectiveness of such programs is even less common. The present study found that most self-reported viewers of CSAM and atypical adult pornography (bestiality, bondage/S&M) were first exposed to the material in adolescence, and that notable proportions continued to view CSAM intentionally after first exposure. This points to a crucial need for best practice intervention programs designed specifically for adolescents who view CSAM or other illegal or harmful content, or who are at risk of engaging in this behaviour. Given the present study found that males, females, and respondents of other genders reported viewing CSAM, anonymous support programs should target all genders. Such interventions would serve the situational crime prevention principle, 'reduce provocations' by limiting situations where emotional arousal will lead to an adverse reaction, for example, exposure to pornography that leads to viewing increasingly harmful material. Reducing provocations in this scenario could present as assisting adolescents to reduce their exposure to illegal and abusive content online, and thus the temptation to offend, before their behaviour escalates. Given the scarcity of evidence of effectiveness of anonymous support programs to reduce CSAM consumption among adolescents, such programs should be based on best practice models and evaluated to measure effectiveness.

Deter online networking with likeminded individuals

The present study found that individuals who recently visited sites or chat forums where people discuss adult/child sexual relations were significantly more likely to have viewed CSAM. Importantly, among those who viewed CSAM, visiting paedophilic sites/forums was a predictor for sharing and producing CSAM and willingness to have sexual contact with a child in person. These findings can be explained by previous studies, which have analysed chat forum posts from online paedophilic communities. Such studies find that users of these sites encourage and justify child sexual abuse and exploitation to one another (D'Ovidio et al., 2009; Holt et al., 2010). Anecdotal evidence from police operations reported in the media also

suggest that uploading of material is encouraged and often required on CSAM sharing sites (Bright & McVeigh, 2001; Voreacos, 2019). The findings from the present study are also supported by previous anonymous surveys. One study found that among a survey sample of young Swedish school students aged 17–20, respondents were more likely to report viewing CSAM if they had friends who had viewed CSAM (Seto et al., 2015). Similarly, Insoll et al. (2022) found that adult CSAM consumers on the darknet who had been in contact with other CSAM consumers were more likely to report seeking contact with children online after they viewed CSAM or illegal violent material (see Chapter 2, section 2.2.2, and Table 2.2).

For these reasons, visiting paedophilic sites/chat forums online should be deterred through intervention, to prevent first time offending, escalation of offending, and reoffending. This would aid in the situational crime prevention principle 'reducing provocations' for offending (Cornish & Clarke, 2003), which includes reducing emotional arousal (e.g., exposure to CSAM or text-based fantasies of other offenders) and neutralising peer pressure (e.g., justifications for offending from other offenders, encouragement to produce/post CSAM to gain membership or status).

To aid in reducing provocations among CSAM offenders, findings from the present study could be considered in the management of offenders, and in prevention and treatment programs. For example, visiting paedophilic sites/chat forums online, including legal Clearnet sites that only allow discussion (no posting of CSAM), should be considered a strong risk factor for future offending/reoffending when providing support and intervention to clients to stop their offending. Further, when measuring success, evaluators of sex offender/CSAM offender treatment programs often have difficulty measuring a reduction of actual offending due to a lack of data or adequate control groups (Gannoni et al., 2022). To address this, evaluations sometimes measure success as a reduction in risk factors associated with offending, and an increase in protective factors associated with reducing offending (Brown et al., 2014; Gannoni et al., 2022). Therefore, when evaluating programs, visiting, or abstaining from paedophilic sites/chat forums should be considered one of several risk factors from which to measure success/failure of an intervention program. The level of visitation of paedophilic sites could also be considered during parole assessments for convicted CSAM and contact CSA offenders who are released into the community.

Finally, paedophilic sites/chat forums online should be targeted as intervention points for prevention, by implementing messages and links on the sites themselves. This could be adopted through the use of deterrence messaging campaigns (e.g., deterrence videos) (Coase et al., 2020) and by posting links to anonymous support and advice, for example Stop it Now! (Stop it Now! UK, n.d.). There may be technological challenges associated with doing this, including challenges with gaining access to member-only sites on the darknet. Even sites that are on the Clearnet may have policies that prevent users from sharing links to intervention sites. Further, while deterrence messaging campaigns have shown success in diverting individuals to sites like Stop it Now! (Coase et al., 2020), no evidence could be located that this method is successful when targeting sites specifically devoted to discussing paedophilia and adult/child sexual relations. Given the anecdotal and empirical evidence that large amounts of CSAM are detected on popular platforms on the Clearnet (NCMEC, 2022; Teunissen & Napier, 2022a), deterrence messaging could also be implemented on social media platforms to target individuals who share CSAM in private chat groups. While there may be technological and other barriers to this approach, given the strong association between visiting paedophilia sites and viewing CSAM/desiring to sexually abuse children, this is an area that should be explored as a possible intervention point. Doing so would aid in the situational crime prevention principle of reducing provocations, by neutralising peer pressure and reducing risk of offending due to emotional arousal.

Increase perceived risk and remove excuses

Warning messages to deter CSAM offending

Finally, online 'pop-up' warning messages with specific text and/or graphics have shown some success in deterring individuals from viewing and uploading sexualised material that respondents may have believed was CSAM (Prichard et al., 2021, 2022). This intervention serves to 'remove excuses' and 'increase perceived risk' (Cornish & Clarke, 2003), by reminding individuals of the illegality, harms, and risk of police detection because of their behaviour. In two separate studies (n = 419 and 630), Prichard et al. (2021, 2022) tested a series of warning messages in an experimental setting in the form of a mock website with fake adverts promising 'barely legal' pornography. Respondents in the experimental group received a pop-up warning message saying they were about to access or share illegal material, while the control group received no warning message. They found that participants who received a pop-

up warning message were significantly less likely to attempt to view 'barely legal' pornography or upload sexualized material of young females (Prichard et al., 2021, 2022). They also found that the most effective messages were those with a law enforcement focus: for example, warning people that IP addresses could be traced and that the material they were about to view may be illegal and depict people aged under 18 years (Prichard et al., 2021).

Considering that most CSAM viewers in the present study reported that they first discovered CSAM during adolescence, similar warning messages could be developed in line with best practice and tailored to young people and adolescents. Such messages could be attached to online pornography sites to deter first exposure to CSAM. For example, a warning message could pop up when an individual first attempts to visit a pornography site, click on an image, or type certain search terms into a website search engine. This would be particularly relevant given that notable proportions of respondents in the present study who viewed pubescent/postpubescent CSAM (41.7%) and pre-pubescent CSAM (16.3%) said they thought it was legal at the time or were unsure whether it was legal. Such pop-up messages could reinforce the illegality of CSAM (i.e., removing excuses, increasing perceived risk) and refer individuals to relevant educational materials, treatment, and support. Use of automated warning messages is yet another piece to this important puzzle that should be explored further to deter individuals in the community, particularly adolescents, from engaging with CSAM.

8.3 LIMITATIONS AND FUTURE DIRECTIONS

The findings of the present study will be valuable for helping to better understand and address CSAM offending and prevent the sexual exploitation of children. However, the study has several limitations. Two key limitations were its reliance on self-report responses to sensitive questions that may have the potential to elicit dishonest responses, and retrospective questions, which have the potential to be less reliable due to recall and other biases (Bornstein et al., 2020; Howard, 2011; Rosenman et al., 2011). The details reported by some respondents may not have been accurate. The study design sort to mitigate limitations of self-report: first, by protecting anonymity and thereby facilitating honest responses. Retrospective questions were designed to encourage accurate responses (e.g., asking for age range rather than age). Missing responses to sensitive questions, including those that asked respondents how

old they were when they first viewed adult pornography, bondage/S&M pornography, bestiality pornography and CSAM, were low. Of these four survey questions, the highest missing response rate was 0.3%. Respondents with inconsistent responses were removed from the study through use of crosscheck survey questions. Finally, studies using anonymous surveys have been successful in eliciting sensitive information relating to sexually coercive behaviour and engagement with CSAM (Ray et al., 2014; Seto et al., 2015), which lends support to the quality of data in the present study.

Another limitation is that it was not possible to determine whether respondents completed the survey more than once. This is because RedCap does not have the function to link IP addresses to individual survey responses. This was a positive factor on the one hand, as it ensured that participant responses remained anonymous but meant it was not possible to prevent multiple responding. To deter duplicate responses, we did not offer an incentive for participation in the study. Further, some questions were sensitive and may not have been comfortable to answer. For these reasons, it is unlikely that there were a significant number of duplicate responses, if any.

Upon analysis, some key limitations with the survey emerged. First, a question on sexuality (e.g., LGB+ status) would have been useful, particularly when analysed against variables relating to CSAM viewing and engagement with self-generated sexual material. The question on gender could have been narrowed to distinguish between trans, non-binary and other genders. Further, the qualitative analysis of 'other' responses revealed some limitations with the fixed response categories relating to how respondents first discovered CSAM. This included a lack of clear distinction between online and offline, and wanted and unwanted exposure to CSAM, in the category 'Someone showed/sent it to me'. Future research should fine tune this response category to distinguish between discovering CSAM online and offline, and whether the exposure was wanted or unwanted. This distinction would be useful for designing prevention initiatives aimed specifically at exposure to CSAM online, versus exposure in person in an abusive or other context. Given a minority of respondents selected this response (17.6%), this limitation did not undermine the conclusions drawn from the responses to this question about first discovery of CSAM.

Due to limited space available in the survey, measures of emotional loneliness and mental health were not based on tested psychological scales. Therefore, rather than

confirming mental illness and levels of loneliness, results to these questions provide an indication that emotional loneliness and mental illness that may be present. This is a limitation of the survey, and the finding that CSAM viewing was not associated with mental health issues or emotional loneliness should be viewed with some caution. Using a validated scale would provide a more accurate measure of mental illness and emotional loneliness. For example, Henshaw et al. (2018) extracted data on psychiatric diagnoses and contacts with mental health facilities from the Victorian public mental health database to measure mental health histories of CSAM offenders. This approach, or directly administering a validated scale to respondents, would be an improvement to the measures in the present study. However, some such scales are required to be administered face-to-face by psychiatrists or psychologists, and others require significant space in a survey to account for multiple questions. Adopting this approach in the present study would have placed increased burden on respondents and forced the removal of other questions that were central to the study research questions. Therefore, the measures on mental health and loneliness in the present study, while limited, were nevertheless the most practical for the chosen methodology and the results provide a useful point on which future research can build.

Respondents were not asked whether they had ever been detected for CSAM-related offences. While previous research and anecdotal evidence from police suggests that most CSAM consumption remains undetected (Ray et al., 2014; Virtual Global Taskforce, 2019; von Weiler et al., 2010), it could not be verified whether self-reported CSAM viewers in the present study had ever been detected by police. Future research should ask this question of CSAM consumers in the community, to measure the level of detection for these offences.

A final limitation is that the questions about CSAM did not differentiate between CSAM depicting pubescent children and postpubescent teens. Important differences exist in terms of typical vs atypical sexual attraction patterns, where interest in post-pubescent teens is common among teen peers and even adults, whereas attraction to pubescent children is atypical for older teens and adults. The questions about CSAM also did not distinguish between content depicting strangers versus minors known to the viewer, including images that were sent to them (either by the depicted person or reshared by peers) (i.e., 18% said someone showed or sent CSAM to them). However,

most CSAM viewers reported first exposure while visiting various websites, which was not indicative of receiving or sending self-generated sexual material.

Future research examining CSAM consumption among adolescents should distinguish CSAM showing persons who were not known to them, especially younger children, from sending and receiving of self-generated sexual material among peers known to each other. Secondly, more needs to be understood about the pathway to CSAM exposure and how and whether behaviour escalates in terms of viewing more severe material or engaging with contact CSA, or conversely, whether contact CSA tends to precede CSAM consumption. Thirdly, given the study found that adolescents are being exposed to CSAM, it is important to evaluate appropriate interventions to determine if they are successful in reducing repeat CSAM use among adolescents. An ideal method for doing so would be a randomised control trial (RCT) that measures CSAM consumption among adolescents who have undergone intervention and compares it with that of adolescents who have not received no intervention. While RCTs have been conducted to measure effectiveness of Circles of Support and Accountability programs for adult sex offenders (Duwe, 2018), no such studies could be located that adopt this approach to measure effectiveness of initiatives that aim to reduce CSAM consumption among adolescents.

8.4 CONCLUSION

This thesis provides a rare glimpse into the behaviours of a hard-to-reach population in the community, the findings of which can be used to inform policy and practice initiatives aiming to prevent and disrupt online sexual exploitation of children. In particular, the findings from the online survey have important implications for adolescents regarding viewing adult pornography, atypical sexual content and CSAM online. There were concerning results relating to the young age of first CSAM exposure that highlight another layer of complication for adolescents of this generation, who are already navigating their way through the complexities of sexting. These are important findings, and it is argued that application of situational crime prevention, including primary and secondary prevention, is the best approach for avoiding the criminalisation of minors and reducing the sexual exploitation of children.

Bibliography

7News (Director). (2020, February 18). How mums and dads can talk to their teens about sexting. In *7NEWS.com.au*. https://7news.com.au/the-morning-show/sexting-and-teens-understanding-consent-and-whats-legal-or-illegal--c-701827

Abd ElHafeez, S., D'Arrigo, G., Leonardis, D., Fusaro, M., Tripepi, G., & Roumeliotis, S. (2021). Methods to Analyze Time-to-Event Data: The Cox Regression Analysis. *Oxidative Medicine and Cellular Longevity*, *2021*, 1302811. https://doi.org/10.1155/2021/1302811

ABS. (2020). *Recorded Crime—Victims, Australia, 2019* (Cat no. 4510.0). Australian Bureau of Statistics. https://www.abs.gov.au/statistics/people/crime-and-justice/recorded-crime-victims-australia/latest-release

ABS. (2022). *Crime Victimisation, Australia, 2020-21*. Australian Bureau of Statistics. https://www.abs.gov.au/statistics/people/crime-and-justice/crime-victimisation-australia/latest-release

Akoglu, H. (2018). User's guide to correlation coefficients. *Turkish Journal of Emergency Medicine*, *18*(3), 91–93. https://doi.org/10.1016/j.tjem.2018.08.001

Alexa. (2020). *Alexa—Top sites*. Alexa. https://www.alexa.com/topsites

Alexy, E. M., Burgess, A. W., & Prentky, R. A. (2009). Pornography Use as a Risk Marker for an Aggressive Pattern of Behavior Among Sexually Reactive Children and Adolescents. *Journal of the American Psychiatric Nurses Association*, *14*(6), 442–453. https://doi.org/10.1177/1078390308327137

Andrade, C. (2020). The Limitations of Online Surveys. *Indian Journal of Psychological Medicine*, *42*(6), 575–576. https://doi.org/10.1177/0253717620957496

Armstrong, Janelle., & Mellor, D. (2016). Internet child pornography offenders: An examination of attachment and intimacy deficits. *Legal and Criminological Psychology*, *21*(1), 41–55. https://doi.org/10.1111/lcrp.12028

Armstrong, R. A. (2014). When to use the Bonferroni correction. *Ophthalmic & Physiological Optics: The Journal of the British College of Ophthalmic Opticians (Optometrists)*, *34*(5), 502–508. https://doi.org/10.1111/opo.12131

Asscher, J. J., Van der Put, C. E., & Stams, G. J. J. M. (2015). Gender Differences in the Impact of Abuse and Neglect Victimization on Adolescent Offending Behavior. *Journal of Family Violence*, *30*(2), 215–225. https://doi.org/10.1007/s10896-014-9668-4

Australian Bureau of Statistics. (2021). *Questionnaire design*. Australian Bureau of Statistics; c=AU; o=Commonwealth of Australia; ou=Australian Bureau of Statistics. https://www.abs.gov.au/websitedbs/D3310114.nsf/home/Basic+Survey+Design+-+Questionnaire+Design

Australian Federal Police. (n.d.). *ThinkUKnow*. ThinkUKnow. Retrieved July 3, 2022, from https://www.thinkuknow.org.au/

Australian Federal Police. (2022, June 13). *WA man charged with uploading child abuse material online*. Australian Federal Police. https://www.afp.gov.au/news-media/media-releases/wa-man-charged-uploading-child-abuse-material-online

Babchishin, K. M., Hanson, R. K., & VanZuylen, H. (2015). Online Child Pornography Offenders are Different: A Meta-analysis of the Characteristics of Online and Offline Sex Offenders Against Children. *Archives of Sexual Behavior*, *44*(1), 45–66. https://doi.org/10.1007/s10508-014-0270-x

Babchishin, K. M., Karl Hanson, R., & Hermann, C. A. (2011). The Characteristics of Online Sex Offenders: A Meta-Analysis. *Sexual Abuse: A Journal of Research and Treatment*, *23*(1), 92–123. https://doi.org/10.1177/1079063210370708

Babchishin, K. M., Merdian, H. L., Bartels, R. M., & Perkins, D. (2018). Child Sexual Exploitation Materials Offenders. *European Psychologist*, *23*(2), 130–143. https://doi.org/10.1027/1016-9040/a000326

Barbaro, M. (Director). (2015, March 24). 9 facts about emotional memories and recall. In *MPR News*. https://www.mprnews.org/story/2015/03/24/bcst-emotional-memory

Bates, A., & Metcalf, C. (2007). A psychometric comparison of internet and non-internet sex offenders from a community treatment sample. *Journal of Sexual Aggression*, *13*(1), 11–20. https://doi.org/10.1080/13552600701365654

BBC News. (2019, February 19). Child abuse images being traded via apps. *BBC News*. https://www.bbc.com/news/technology-47279256

BBFC. (2019, September 27). *Children see pornography as young as seven, new report finds*. https://www.bbfc.co.uk/about-us/news/children-see-pornography-as-young-as-seven-new-report-finds

Bickart, W., McLearen, A. M., Grady, M. D., & Stoler, K. (2019). A Descriptive Study of Psychosocial Characteristics and Offense Patterns in Females with

Online Child Pornography Offenses. *Psychiatry, Psychology, and Law*, *26*(2), 295–311. https://doi.org/10.1080/13218719.2018.1506714

Bornstein, M. H., Putnick, D. L., Costlow, K. M., & Suwalsky, J. T. D. (2020). Retrospective Report Revisited: Long-Term Recall in European American Mothers Moderated by Developmental Domain, Child Age, Person, and Metric of Agreement. *Applied Developmental Science*, *24*(3), 242–262. https://doi.org/10.1080/10888691.2018.1462090

Bourke, M. L., & Hernandez, A. E. (2009). The "Butner Study" redux: A report of the incidence of hands-on child victimization by child pornography offenders. *Journal of Family Violence*, *24*(3), 183–191. https://doi.org/10.1007/s10896-008-9219-y

Boxall, H., Tomison, A., & Hulme, S. (2014). *Historical review of sexual offence and child sexual abuse legislation in Australia: 1788–2013* (Special Reports). Australian Institute of Criminology. https://www.aic.gov.au/publications/special/special-7

Briggs-Gowan, M. J., Estabrook, R., Henry, D., Grasso, D. G., Burns, J., McCarthy, K. J., Pollak, S. J., & Wakschlag, L. S. (2019). Parsing dimensions of family violence exposure in early childhood: Shared and specific contributions to emergent psychopathology and impairment. *Child Abuse & Neglect*, *87*, 100–111. https://doi.org/10.1016/j.chiabu.2018.06.006

Bright, M., & McVeigh, T. (2001, February 11). This club had its own chairman and treasurer. Its business was child abuse. *The Observer*. https://www.theguardian.com/uk/2001/feb/11/tracymcveigh.martinbright

Broadhurst, R. (2019). Child sex abuse images and exploitation materials. In R. Leukfeldt & T. Holt (Eds.), *Handbook of Cybercrime* (pp. 310–336).

Routledge. https://www.researchgate.net/publication/336867783_Child_sex_abuse_images_and_exploitation_materials

Brown, A., Jago, N., Kerr, J., McNaughton, C., Paskell, C., & Webster, S. (2014). *Call to keep children safe from sexual abuse: A study of the use and effects of the Stop it Now! UK and Ireland Helpline* (p. 91). NatCen Social Research Criminal Justice Team. https://www.stopitnow.org.uk/wp-content/uploads/2020/01/stop_it_now_evaluation_uk_findings.pdf

Brown, & Bricknell, S. (2018). *What is the profile of child exploitation material offenders?* (No. 564; Trends & Issues in Crime and Criminal Justice). Australian Institute of Criminology. https://www.aic.gov.au/publications/tandi/tandi564

Buchanan, T., & Smith, J. (1999). Using the Internet for psychological research: Personality testing on the World Wide Web. *British Journal of Psychology*, *90*, 125–144.

Bunch, A. (2020, September 17). Qld child care worker charged with rape. *The Canberra Times*. https://www.canberratimes.com.au/story/6930426/qld-child-care-worker-charged-with-rape/

Bursztein, E., Clarke, E., DeLaune, M., Elifff, D. M., Hsu, N., Olson, L., Shehan, J., Thakur, M., Thomas, K., & Bright, T. (2019). Rethinking the Detection of Child Sexual Abuse Imagery on the Internet. *The World Wide Web Conference*, 2601–2607. https://doi.org/10.1145/3308558.3313482

C3P. (2019). *How we are Failing Children: Changing the Paradigm*. Canadian Centre for Child Protection. https://protectchildren.ca/en/resources-research/child-rights-framework/

Cale, J., Holt, T., Leclerc, B., Singh, S., & Drew, J. (2021). *Crime commission processes in child sexual abuse material production and distribution: A systematic review* (No. 617; Trends & Issues in Crime and Criminal Justice). Australian Institute of Criminology. https://www.aic.gov.au/publications/tandi/tandi617

Camilleri, C., Perry, J. T., & Sammut, S. (2021). Compulsive Internet Pornography Use and Mental Health: A Cross-Sectional Study in a Sample of University Students in the United States. *Frontiers in Psychology*, *11*. https://www.frontiersin.org/article/10.3389/fpsyg.2020.613244

Canadian Centre for Child Protection. (2017). *International Survivors' Survey*. Protectchildren.Ca. https://www.protectchildren.ca/en/resources-research/survivors-survey-results/

Cashmore, J., & Shackel, R. (2013). *The Long-Term Effects of Child Sexual Abuse* (No. 11) [Data set]. Australian Institute of Family Studies. https://doi.org/10.1037/e567322013-001

Chang, T.-Z. (Donald), & Vowles, N. (2013). STRATEGIES FOR IMPROVING DATA RELIABILITY FOR ONLINE SURVEYS: A CASE STUDY. *International Journal of Electronic Commerce Studies*, *4*(1), 121–130.

Child Mind Institute. (n.d.). *How to Talk to Your Kids About Sexting*. Child Mind Institute. Retrieved July 22, 2022, from https://childmind.org/article/talk-kids-sexting/

Child Wise. (n.d.). *How to keep children and young people safe online*. Child Wise. Retrieved July 16, 2022, from https://www.childwise.org.au/news/20/how-to-keep-children-and-young-people-safe-online?gclid=CjwKCAjww8mWBhABEiwAl6-

2RXxsRUNjrToL32BgKguy6SGrmq1QHMWy_VZdg790ODzgBo-AtdEdzBoC6kIQAvD_BwE

Childnet. (n.d.). *Just send it*. Childnet. Retrieved July 22, 2022, from https://www.childnet.com/resources/pshe-toolkit/crossing-the-line/sexting/just-send-it/

Christie, D., & Viner, R. (2005). Adolescent development. *BMJ : British Medical Journal*, *330*(7486), 301–304.

Clarke, R. (1997). *Situational Crime Prevention: Successful Case Studies* (Second). Harrow and Heston.

Coase, P., Feechan, R., & Whitear, D. (2020). *Stop It Now! 2019/20 IIOC deterrence campaign evaluation. Full evaluation report (Version 7).* Lucy Faithful Foundation & Kantar.

Commonwealth Director of Public Prosecutions. (2015, August 6). *Child Exploitation* [Text]. Commonwealth Director of Public Prosecutions; Commonwealth Director of Public Prosecutions. https://www.cdpp.gov.au/crimes-we-prosecute/child-exploitation

Corbin, J. (2001, May 5). The Wonderland Club. *Four Corners*. http://www.abc.net.au/4corners/archives/2001a_Monday5March2001.htm

Cornish, D. B., & Clarke, R. V. (1986). *The reasoning criminal: Rational choice perspectives on offending*. Springer-Verlag.

Cornish, D. B., & Clarke, R. V. (2003). Opportunities, Precipitators and Criminal Decisions: A Reply to Wortley's Critique of Situational Crime Prevention. In M. J. Smith & D. B. Cornish (Eds.), *Theory for practice in situational crime prevention: Vol. v. 16* (pp. 41–96). Criminal Justice.

Couldry, N. (2012). *Media, Society, World: Social Theory and Digital Media Practice*. Polity.

Crimmins, D. M., & Seigfried-Spellar, K. C. (2014). Peer attachment, sexual experiences, and risky online behaviors as predictors of sexting behaviors among undergraduate students. *Computers in Human Behavior*, *32*, 268–275. https://doi.org/10.1016/j.chb.2013.12.012

De Vera, M. A., Ratzlaff, C., Doerfling, P., & Kopec, J. (2010). Reliability and Validity of an Internet-based Questionnaire Measuring Lifetime Physical Activity. *American Journal of Epidemiology*, *172*(10), 1190–1198. https://doi.org/10.1093/aje/kwq273

Del Rey, R., Ojeda, M., Casas, J. A., Mora-Merchán, J. A., & Elipe, P. (2019). Sexting Among Adolescents: The Emotional Impact and Influence of the Need for Popularity. *Frontiers in Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.01828

Department of Justice. (2015, May 26). *Child Pornography*. The United States Department of Justice. https://www.justice.gov/criminal-ceos/child-pornography

Department of Justice. (2020, March 5). *Department of Justice, Homeland Security and International Partners Announce Launch of Voluntary Principles to Counter Online Child Sexual Exploitation and Abuse*. Justice News. https://www.justice.gov/opa/pr/department-justice-homeland-security-and-international-partners-announce-launch-voluntary

D'Ovidio, R., Mitman, T., El-Burki, I., & Shumar, W. (2009). Adult-Child Sex Advocacy Websites as Social Learning Environments: A Content Analysis. *International Journal of Cyber Criminology*, *3*(1), 421–440.

Duwe, G. (2018). *Minnesota Circles of Support and Accountability (MnCoSA) at 50: Updated results from a randomized controlled trial*. Department of Corrections. https://mn.gov/doc/assets/2018%20MnCOSA%20Outcome%20Evaluation_tcm1089-326700.pdf

ECPAT-USA. (n.d.). *Guides to online safety*. ECPAT-USA. Retrieved July 16, 2022, from https://www.ecpatusa.org/onlinesafetytips

Elliott, I. A., Beech, A. R., Mandeville-Norden, R., & Hayes, E. (2009). Psychological Profiles of Internet Sexual Offenders: Comparisons With Contact Sexual Offenders. *Sexual Abuse: A Journal of Research and Treatment*, *21*(1), 76–92. https://doi.org/10.1177/1079063208326929

Elliott, M., Browne, K., & Kilcoyne, J. (1995). Child sexual abuse prevention: What offenders tell us. *Child Abuse & Neglect*, *19*(5), 579–594. https://doi.org/10.1016/0145-2134(95)00017-3

eSafety Commissioner. (n.d.-a). *Online pornography*. ESafety Commissioner. Retrieved July 22, 2022, from https://www.esafety.gov.au/parents/big-issues/online-pornography

eSafety Commissioner. (n.d.-b). *Youth and digital dangers*. ESafety Commissioner. Retrieved March 9, 2021, from https://www.esafety.gov.au/about-us/research/youth-digital-dangers

eSafety Commissioner. (2017). *Image-Based Abuse National survey: Summary Report*. Office of the eSafety Commissioner. https://www.esafety.gov.au/research/image-based-abuse

eSafety Commissioner. (2020). *Cybersmart Challenge*. ESafety Commissioner. https://www.esafety.gov.au/educators/classroom-resources/cybersmart-challenge

eSafety Commissioner. (2021a). *Age verification*. ESafety Commissioner. https://www.esafety.gov.au/about-us/consultation-cooperation/age-verification

eSafety Commissioner. (2021b). *Digital identify. Deep dive: Age verification and digital identity*. https://www.esafety.gov.au/sites/default/files/2021-12/Document%202.pdf

Europol. (2020). *Exploiting Isolation: Offenders and Victims of Online Child Sexual Abuse During the COVID-19 Pandemic*. Europol. https://www.europol.europa.eu/publications-documents/exploiting-isolation-offenders-and-victims-of-online-child-sexual-abuse-during-covid-19-pandemic

Euser, S., Alink, L. R. A., Tharner, A., van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2013). The Prevalence of Child Sexual Abuse in Out-of-Home Care: A Comparison Between Abuse in Residential and in Foster Care. *Child Maltreatment*, *18*(4), 221–231. https://doi.org/10.1177/1077559513489848

Faust, E., Bickart, W., Renaud, C., & Camp, S. (2015). Child Pornography Possessors and Child Contact Sex Offenders: A Multilevel Comparison of Demographic Characteristics and Rates of Recidivism. *Sexual Abuse: A Journal of Research & Treatment (Sage)*, *27*(5), 460–478. https://doi.org/10.1177/1079063214521469

Finkelhor, D. (2009). The prevention of childhood sexual abuse. *The Future of Children*, *19*(2), 169–194. https://doi.org/10.1353/foc.0.0035

Flood, M. (2009). The harms of pornography exposure among children and young people. *Child Abuse Review*, *18*(6), 384–400.

Flood, M., & Hamilton, C. (2003). *Youth and Pornography in Australia: Evidence on the extent of exposure and likely effects* (No. 52; Discussion Paper). The Australia Institute. https://www.academia.edu/1324962/Youth_and_Pornography_in_Australia_Evidence_on_the_extent_of_exposure_and_likely_effects_2003_

Fortin, F., & Proulx, J. (2019). Sexual Interests of Child Sexual Exploitation Material (CSEM) Consumers: Four Patterns of Severity Over Time. *International Journal of Offender Therapy and Comparative Criminology*, *63*(1), 55–76. https://doi.org/10.1177/0306624X18794135

Freilich, J., & Newman, G. (2015). Transforming Piecemeal Social Engineering into "Grand" Crime Prevention Policy: Toward a New Criminology of Social Control. *Journal of Criminal Law and Criminology*, *105*(1). https://scholarlycommons.law.northwestern.edu/jclc/vol105/iss1/5

Gannoni, A., Voce, A., Napier, S. S., & Boxall, H. (2022). *Preventing child sexual abuse material offending: A review of global initiatives and evidence of effectiveness* (Research Report). Australian Institute of Criminology.

Gardner, F. (2021, May 4). Five Eyes: Is the alliance in trouble over China? *BBC News*. https://www.bbc.com/news/world-56970640

Gewirtz-Meydan, A., Walsh, W., Wolak, J., & Finkelhor, D. (2018). The complex experience of child pornography survivors. *Child Abuse & Neglect*, *80*, 238–248. https://doi.org/10.1016/j.chiabu.2018.03.031

Glasser, M., Kolvin, I., Campbell, D., Glasser, A., Leitch, I., & Farrelly, S. (2001). Cycle of child sexual abuse: Links between being a victim and becoming a perpetrator. *The British Journal of Psychiatry*, *179*(6), 482–494. https://doi.org/10.1192/bjp.179.6.482

Global Drug Survey. (2022). *Global Drug Survey*. https://www.globaldrugsurvey.com/

Grant, J., Indermaur, D., Thornton, J., Stevens, G., Chamarette, C., & Halse, A. (2009). *Intrafamilial adolescent sex offenders: Psychological profile and treatment* (No. 375; Trends & Issues in Crime and Criminal Justice). Australian Institute of Criminology. https://www.aic.gov.au/publications/tandi/tandi375

Gray, R. J. (1992). Flexible Methods for Analyzing Survival Data Using Splines, with Applications to Breast Cancer Prognosis. *Journal of the American Statistical Association*, *87*(420), 942–951. https://doi.org/10.1080/01621459.1992.10476248

Gupta, S. (2022, March 8). Explained: Raising the age of consent in the Philippines. *The Indian Express*. https://indianexpress.com/article/explained/raising-the-age-of-consent-in-the-philippines-7807145/

Hartwig, M., Anders Granhag, P., & Vrij, A. (2005). Police Interrogation from a Social Psychology Perspective. *Policing and Society*, *15*(4), 379–399. https://doi.org/10.1080/10439460500309956

Henry, N., Asher, F., & Powell, A. (2019). *Image-based sexual abuse: Victims and perpetrators* (No. 572; Trends & Issues in Crime and Criminal Justice). Australian Institute of Criminology. https://www.aic.gov.au/publications/tandi/tandi572

Henshaw, M., Ogloff, J. R. P., & Clough, J. A. (2018). Demographic, mental health, and offending characteristics of online child exploitation material offenders: A comparison with contact-only and dual sexual offenders. *Behavioral Sciences & the Law*, *36*(2), 198–215. https://doi.org/10.1002/bsl.2337

Hershkowitz, I., Lanes, O., & Lamb, M. E. (2007). Exploring the disclosure of child sexual abuse with alleged victims and their parents. *Child Abuse & Neglect*, *31*(2), 111–123. https://doi.org/10.1016/j.chiabu.2006.09.004

Hindman, I. & Peters, James. (2001). Polygraph testing leads to better understanding adult and juvenile sex offenders. *Federal Probation*, *65*(1), 8–15.

Holt, T. J., Blevins, K. R., & Burkert, N. (2010). Considering the Pedophile Subculture Online. *Sexual Abuse*, *22*(1), 3–24. https://doi.org/10.1177/1079063209344979

Hosmer, D. W., Lemeshow, S., & May, S. (2008). *Applied Survival Analysis: Regression Modeling of Time-to-Event Data, 2nd Edition* (2nd Edition). John Wiley & Sons, Inc. https://www.wiley.com/en-ad/Applied+Survival+Analysis%3A+Regression+Modeling+of+Time+to+Event+Data%2C+2nd+Edition-p-9780471754992

Howard, R. W. (2011). Testing the accuracy of the retrospective recall method used in expertise research. *Behavior Research Methods*, *43*(4), 931–941. https://doi.org/10.3758/s13428-011-0120-x

Howitt, D., & Sheldon, K. (2007). The role of cognitive distortions in paedophilic offending: Internet and contact offenders compared. *Psychology, Crime & Law*, *13*(5), 469–486. https://doi.org/10.1080/10683160601060564

Hunn, C., Spiranovic, C., Prichard, J., & Gelb, K. (2020). Why internet users' perceptions of viewing child exploitation material matter for prevention

policies. *Australian & New Zealand Journal of Criminology*, 0004865820903794. https://doi.org/10.1177/0004865820903794

Hunter, F. (2020, November 10). One arrest leads to discovery of global online paedophile network. *The Sydney Morning Herald*. https://www.smh.com.au/national/nsw/global-online-paedophile-photo-and-video-network-allegedly-uncovered-after-nsw-child-sex-arrest-20201110-p56d6z.html

Insoll, T., Ovaska, A. K., Nurmi, J., Aaltonen, M., & Vaaranen-Valkonen, N. (2022). Risk Factors for Child Sexual Abuse Material Users Contacting Children Online: Results of an Anonymous Multilingual Survey on the Dark Web. *Journal of Online Trust and Safety*, *1*(2), Article 2. https://doi.org/10.54501/jots.v1i2.29

Insoll, T., Ovaska, A., & Vaaranen-Valonen, N. (2021). *CSAM users in the dark web: Protecting children through prevention. Redirection survey report*. https://suojellaanlapsia.fi/

IWF. (2018). *Online Child Sexual Exploitation: Examining the Distribution of Live-Streamed Child Sexual Abuse*. Internet Watch Foundation. https://www.iwf.org.uk/news-media/news/iwf-research-on-child-sex-abuse-live-streaming-reveals-98-of-victims-are-13-or-under/

IWF. (2021). *Internet Watch Foundation Annual Report 2020—Face the Facts*. Internet Watch Foundation. https://www.iwf.org.uk/about-us/who-we-are/annual-report/

IWF. (2022). *Sexual abuse imagery of girls online at record high following pandemic lockdowns*. Internet Watch Foundation.

https://www.iwf.org.uk/news-media/news/sexual-abuse-imagery-of-girls-online-at-record-high-following-pandemic-lockdowns/

Jolliffe, D., & Farrington, D. P. (2014). Self-reported offending: Reliability and validity. In G. Bruinsma & D. Weisburd (Eds.), *Encyclopedia of Criminology and Criminal Justice* (pp. 4716–4723). Springer. https://doi.org/10.1007/978-1-4614-5690-2_648

Jørgensen, C. R., Weckesser, A., Turner, J., & Wade, A. (2019). Young people's views on sexting education and support needs: Findings and recommendations from a UK-based study. *Sex Education*, *19*(1), 25–40. https://doi.org/10.1080/14681811.2018.1475283

Jung, S., Ennis, L., & Malesky, L. A. (2012). Child Pornography Offending Seen Through Three Theoretical Lenses. *Deviant Behavior*, *33*(8), 655–673. https://doi.org/10.1080/01639625.2011.636726

Jung, S., Ennis, L., Stein, S., Choy, A. L., & Hook, T. (2013). Child pornography possessors: Comparisons and contrasts with contact- and non-contact sex offenders. *Journal of Sexual Aggression*, *19*(3), 295–310. https://doi.org/10.1080/13552600.2012.741267

Katzman, D. K., Society, C. P., & Committee, A. H. (2010). Sexting: Keeping teens safe and responsible in a technologically savvy world. *Paediatrics & Child Health*, *15*(1), 41–42. https://doi.org/10.1093/pch/15.1.41

Kloess, J. A., Seymour-Smith, S., Hamilton-Giachritsis, C. E., Long, M. L., Shipley, D., & Beech, A. R. (2017). A Qualitative Analysis of Offenders' Modus Operandi in Sexually Exploitative Interactions With Children Online. *Sexual Abuse*, *29*(6), 563–591. https://doi.org/10.1177/1079063215612442

Knack, N., Holmes, D., & Fedoroff, J. P. (2020). Motivational pathways underlying the onset and maintenance of viewing child pornography on the Internet. *Behavioral Sciences & the Law*, *38*(2), 100–116. https://doi.org/10.1002/bsl.2450

Knack, N., Winder, B., Murphy, L., & Fedoroff, J. P. (2019). Primary and secondary prevention of child sexual abuse. *International Review of Psychiatry*, *31*(2), 181–194. https://doi.org/10.1080/09540261.2018.1541872

Krone, T. (2004). *A typology of online child pornography offending* (No. 279; Trends & Issues in Crime and Criminal Justice). Australian Institute of Criminology. https://www.aic.gov.au/publications/tandi/tandi279

Krone, T., Smith, R. G., Cartwright, J., Hutchings, A., Tomison, A., & Napier, S. (2017). *Online child sexual exploitation offenders: A study of Australian law enforcement data* (Criminology Research Grant Report). Australian Institute of Criminology. http://crg.aic.gov.au/reports/1617/58-1213-FinalReport.pdf

Krone, T., Spiranovic, C., Prichard, J., Watters, P., Wortley, R., Gelb, K., & Hunn, C. (2020). Child sexual abuse material in child-centred institutions: Situational crime prevention approaches. *Journal of Sexual Aggression*, *26*(1), 91–110. https://doi.org/10.1080/13552600.2019.1705925

Laulik, S., Allam, J., & Sheridan, L. (2007). An investigation into maladaptive personality functioning in Internet sex offenders. *Psychology, Crime & Law*, *13*(5), 523–535. https://doi.org/10.1080/10683160701340577

Lee, A. F., Lamade, R., Schuler, A., & Prentky, R. (2012). Predicting hands-on child sexual offenses among possessors of Internet child pornography. *Psychology, Public Policy and Law*, *18*(4), 644–672.

Lee, M., Crofts, T., McGovern, A., & Milivojevic, S. (2015). *Sexting among young people: Perceptions and practices* (No. 508; Trends & Issues in Crime and Criminal Justice). Australian Institute of Criminology. https://www.aic.gov.au/publications/tandi/tandi508

Lim, M. S. C., Agius, P. A., Carrotte, E. R., Vella, A. M., & Hellard, M. E. (2017). Young Australians' use of pornography and associations with sexual risk behaviours. *Australian and New Zealand Journal of Public Health*, *41*(4), 438–443. https://doi.org/10.1111/1753-6405.12678

Loffhagen, E. (2022, February 9). UK's new porn age verification plans explained. *Evening Standard*. https://www.standard.co.uk/news/uk/porn-laws-age-verification-plans-explained-online-safety-bill-b981539.html

London, K., Bruck, M., Ceci, S. J., & Shuman, D. W. (2005). Disclosure of Child Sexual Abuse: What Does the Research Tell Us About the Ways That Children Tell? *Psychology, Public Policy, and Law*, *11*, 194–226. https://doi.org/10.1037/1076-8971.11.1.194

Macgregor, S. (2008). *Sex offender treatment programs: Effectiveness of prison and community based programs in Australia and New Zealand – Indigenous Justice Clearinghouse* (No. 3). Indigenous Justice Clearinghouse. https://www.indigenousjustice.gov.au/publications/sex-offender-treatment-programs-effectiveness-of-prison-and-community-based-programs-in-australia-and-new-zealand/

Madigan, S., Ly, A., Rash, C. L., Van Ouytsel, J., & Temple, J. R. (2018). Prevalence of Multiple Forms of Sexting Behavior Among Youth: A Systematic Review and Meta-analysis. *JAMA Pediatrics*, *172*(4), 327–335. https://doi.org/10.1001/jamapediatrics.2017.5314

Madigan, S., Villani, V., Azzopardi, C., Laut, D., Smith, T., Temple, J. R., Browne, D., & Dimitropoulos, G. (2018). The Prevalence of Unwanted Online Sexual Exposure and Solicitation Among Youth: A Meta-Analysis. *Journal of Adolescent Health*, *63*(2), 133–141. https://doi.org/10.1016/j.jadohealth.2018.03.012

Magaletta, P. R., Faust, E., Bickart, W., & McLearen, A. M. (2014). Exploring clinical and personality characteristics of adult male internet-only child pornography offenders. *International Journal of Offender Therapy and Comparative Criminology*, *58*(2), 137–153. https://doi.org/10.1177/0306624X12465271

Malesky, L. A., & Ennis, L. (2004). Supportive Distortions: An Analysis of Posts on a Pedophile Internet Message Board. *Journal of Addictions & Offender Counseling*, *24*(2), 92–100. https://doi.org/10.1002/j.2161-1874.2004.tb00185.x

Marshall, L. E., O'Brien, M. D., Marshall, W. L., Booth, B., & Davis, A. (2012). Obsessive-Compulsive Disorder, Social Phobia, and Loneliness in Incarcerated Internet Child Pornography Offenders. *Sexual Addiction & Compulsivity*, *19*(1–2), 41–52. https://doi.org/10.1080/10720162.2012.665291

Martinez, J. A., Rutledge, P. C., & Sher, K. J. (2007). Fake ID Ownership and Heavy Drinking in Underage College Students: Prospective Findings. *Psychology of Addictive Behaviors : Journal of the Society of Psychologists in Addictive Behaviors*, *21*(2), 226–232. https://doi.org/10.1037/0893-164X.21.2.226

Mattebo, M., Tydén, T., Häggström-Nordin, E., Nilsson, K. W., & Larsson, M. (2013). Pornography Consumption, Sexual Experiences, Lifestyles, and Self-

rated Health Among Male Adolescents in Sweden. *Journal of Developmental & Behavioral Pediatrics*, *34*(7), 460–468. https://doi.org/10.1097/DBP.0b013e31829c44a2

McCarthy, J. A. (2010). Internet sexual activity: A comparison between contact and non-contact child pornography offenders. *Journal of Sexual Aggression*, *16*(2), 181–195. https://doi.org/10.1080/13552601003760006

McKee, A., Albury, K., & Lumby, C. (2008). *The Porn Report*. Melbourne University Press.

Merdian, H. L., Moghaddam, N., Boer, D. P., Wilson, N., Thakker, J., Curtis, C., & Dawson, D. (2016). Fantasy-Driven Versus Contact-Driven Users of Child Sexual Exploitation Material Offender Classification and Implications for Their Risk Assessment. *Sexual Abuse: A Journal of Research and Treatment*, 1079063216641109. https://doi.org/10.1177/1079063216641109

Merdian, H. L., Wilson, N., Thakker, J., Curtis, C., & Boer, D. P. (2013). "So why did you do it?": Explanations provided by Child Pornography Offenders. *Sexual Offender Treatment*, *8*(1).

Midi, H., Sarkar, S. K., & Rana, S. (2010). Collinearity diagnostics of binary logistic regression model. *Journal of Interdisciplinary Mathematics*, *13*(3), 253–267. https://doi.org/10.1080/09720502.2010.10700699

Morelli, M., Bianchi, D., Baiocco, R., Pezzuti, L., & Chirumbolo, A. (2017). Sexting Behaviors and Cyber Pornography Addiction Among Adolescents: The Moderating Role of Alcohol Consumption. *Sexuality Research and Social Policy*, *14*(2), 113–121. https://doi.org/10.1007/s13178-016-0234-0

Mori, C., Temple, J. R., Browne, D., & Madigan, S. (2019). Association of Sexting With Sexual Behaviors and Mental Health Among Adolescents. *JAMA*

Pediatrics, *173*(8), 770–779. https://doi.org/10.1001/jamapediatrics.2019.1658

Moritz, D., & Christensen, L. S. (2020). When sexting conflicts with child sexual abuse material: The legal and social consequences for children. *Psychiatry, Psychology, and Law*, *27*(5), 815–830. https://doi.org/10.1080/13218719.2020.1742242

National Campaign. (2008). *Sex and tech: Results from a survey of teens and young adults*. National Campaign to Prevent Teen and Unplanned Pregnancy. http://www.thenationalcampaign.org/sextech/PDF/SexTech_Summary.pdf

Navarro, J. N., & Jasinski, J. L. (2015). Demographic and Motivation Differences Among Online Sex Offenders by Type of Offense: An Exploration of Routine Activities Theories. *Journal of Child Sexual Abuse*, *24*(7), 753–771. https://doi.org/10.1080/10538712.2015.1077363

NCMEC. (2022). *CyberTipline 2021 Report*. National Center for Missing & Exploited Children. http://www.missingkids.org/gethelpnow/cybertipline/cybertiplinedata.html

Netclean. (2019). *The NetClean Report 2019—A report about child sexual abuse crime*. Netclean. https://www.netclean.com/netclean-report-2019/

Netclean. (2021). *NetClean Report – COVID-19 Impact 2020*. https://www.netclean.com/netclean-report-2020/

Newman, J. C., Des Jarlais, D. C., Turner, C. F., Gribble, J., Cooley, P., & Paone, D. (2002). The Differential Effects of Face-to-Face and Computer Interview Modes. *American Journal of Public Health*, *92*(2), 294–297.

O'Brien, J., Finkelhor, D., & Jones, L. (2022). Improving services for youth survivors of commercial sexual exploitation: Insights from interventions with

other high-risk youth. *Children and Youth Services Review*, *132*, 106313. https://doi.org/10.1016/j.childyouth.2021.106313

Ogloff, J., Cutajar, M., Mann, E., & Mullen, P. (2012). *Child sexual abuse and subsequent offending and victimisation: A 45 year follow-up study* (No. 440; Trends & Issues in Crime and Criminal Justice). Australian Institute of Criminology. https://aic.gov.au/publications/tandi/tandi440

Pennebaker, J., & Susman, J. (2013). *Childhood Trauma Questionnaire* [Data set]. Whitaker Instiutute. https://doi.org/10.13072/midss.612

Peter, J., & Valkenburg, P. M. (2016). Adolescents and Pornography: A Review of 20 Years of Research. *Journal of Sex Research*, *53*(4–5), 509–531. https://doi.org/10.1080/00224499.2016.1143441

Pew Research Center. (2019). *Who uses YouTube, WhatsApp and Reddit*. Pew Research Center: Internet, Science & Tech. https://www.pewresearch.org/internet/chart/who-uses-youtube-whatsapp-and-reddit/

Powell, M., Casey, S., & Rouse, J. (2021). *Online child sexual offenders' language use in real-time chats* (No. 643; Trends & Issues in Crime and Criminal Justice). Australian Institute of Criminology. https://www.aic.gov.au/publications/tandi/tandi643

Prichard, J., Scalan, J., Krone, T., Spiranovic, C., Watters, P., & Wortley, R. (2022). Warning messages to prevent illegal sharing of sexual images: Results of a randomised controlled experiment. *Trends & Issues in Crime and Criminal Justice*, *647*. https://doi.org/10.52922/ti78559

Prichard, J., Wortley, R., Watters, P. A., Spiranovic, C., Hunn, C., & Krone, T. (2021). Effects of Automated Messages on Internet Users Attempting to

Access “Barely Legal” Pornography. *Sexual Abuse: A Journal of Research and Treatment*, 10790632211013808. https://doi.org/10.1177/10790632211013809

Project Arachnid. (2020). *Home*. Projectarachnid.Ca. https://projectarachnid.ca/en/

Protect Children. (2022). *ReDirection Self-Help Program*. Protect Children. https://suojellaanlapsia.fi/

Przyblski, R. (2015). *The Effectiveness of Treatment for Adult Sexual Offenders* (Sex Offender Management Assessment and Planning Initiative) [Reserach Brief]. US Department of Justice. https://smart.ojp.gov/somapi/chapter-7-effectiveness-treatment-adult-sex-offenders

QSAC. (2017). *Child exploitation material offences* (Sentencing Spotlight). Queensland Sentencing Advisory Council. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.sentencingcouncil.qld.gov.au/__data/assets/pdf_file/0010/519535/Sentencing-Spotlight-on-child-exploitation-offences.pdf

Quayle, E., Allegro, S., Hutton, L., Sheath, M., & Lööf, L. (2012). *Online behaviour related to child sexual abuse: Creating a private space in which to offend – Interviews with online child sex offenders*. Council of the Baltic Sea States, Robert Project. https://childrenatrisk.cbss.org/publications/online-behaviour-related-to-child-sexual-abuse/

Quayle, E., & Taylor, M. (2002). child pornography and the internet: Perpetuating a cycle of abuse. *Deviant Behavior*, *23*(4), 331–361. https://doi.org/10.1080/01639620290086413

Radford, L. (2018). *A review of international survey methodology on child sexual abuse and child sexual exploitation* (p. 66). Connect Centre for International

Research on Interpersonal Violence, University of Central Lancashire. https://www.csacentre.org.uk/documents/a-review-of-international-survey-methodology-on-child-sexual-abuse-and-child-sexual-exploitation/

Rainie, L., & Madden, M. (2015, March 16). Americans' Privacy Strategies Post-Snowden. *Pew Research Center: Internet, Science & Tech*. https://www.pewresearch.org/internet/2015/03/16/americans-privacy-strategies-post-snowden/

Ray, J. V., Kimonis, E. R., & Donoghue, C. (2010). Legal, ethical, and methodological considerations in the Internet-based study of child pornography offenders. *Behavioral Sciences & the Law*, *28*(1), 84–105. https://doi.org/10.1002/bsl.906

Ray, J. V., Kimonis, E. R., & Seto, M. C. (2014). Correlates and moderators of child pornography consumption in a community sample. *Sexual Abuse : A Journal of Research and Treatment*, *26*(6), 523–545. http://dx.doi.org.ezproxy1.library.usyd.edu.au/10.1177/1079063213502678

RCIRCSA. (2016a). *Report of case study no. 23: The response of Knox Grammar School and the Uniting Church in Australia to child sexual abuse at Knox Grammar School in Wahroonga, New South Wales*. Royal Commission into Institutional Responses to Child Sexual Abuse. https://nla.gov.au/nla.obj-541697842

RCIRCSA. (2016b). *Case Study 32: Geelong Grammar School* [Text]. Royal Commission into Institutional Responses to Child Sexual Abuse. https://www.childabuseroyalcommission.gov.au/case-studies/case-study-32-geelong-grammar-school

RCIRCSA. (2017a). *Final report* [Text]. Royal Commission into Institutional Responses to Child Sexual Abuse. https://www.childabuseroyalcommission.gov.au/final-report

RCIRCSA. (2017b). *Report of Case Study 42: Anglican Diocese of Newcastle* [Text]. Royal Commission into Institutional Responses to Child Sexual Abuse. https://www.childabuseroyalcommission.gov.au/case-studies/case-study-42-anglican-diocese-newcastle

Reijnen, L., Bulten, E., & Nijman, H. (2009). Demographic and Personality Characteristics of Internet Child Pornography Downloaders in Comparison to Other Offenders. *Journal of Child Sexual Abuse*, *18*(6), 611–622. https://doi.org/10.1080/10538710903317232

Rosenman, R., Tennekoon, V., & Hill, L. G. (2011). Measuring bias in self-reported data. *International Journal of Behavioural & Healthcare Research*, *2*(4), 320–332. https://doi.org/10.1504/IJBHR.2011.043414

Salter, M. (2021). I need you all to understand how pervasive this issue is": User efforts to regulate child sexual offending on social media. In *The Emerald International handbook of technology facilitated violence and abuse* (pp. 729–748). Emerald Publishing.

Salter, M., Wong, W. T., Breckenridge, J., Scott, S., Cooper, S., & Peleg, N. (2021). *Production and distribution of child sexual abuse material by parental figures* (No. 616; Trends and Issues in Crime and Criminal Justice). Australian Institute of Criminology. https://www.aic.gov.au/publications/tandi/tandi616

Schmucker, M., & Lösel, F. (2017). Sexual offender treatment for reducing recidivism among convicted sex offenders: A systematic review and meta-

analysis. *Campbell Systematic Reviews*, *13*(1), 1–75. https://doi.org/10.4073/csr.2017.8

Schober, P., & Vetter, T. R. (2018). Survival Analysis and Interpretation of Time-to-Event Data: The Tortoise and the Hare. *Anesthesia and Analgesia*, *127*(3), 792–798. https://doi.org/10.1213/ANE.0000000000003653

Seigfried, K. C., Lovely, R. W., & Rogers, M. K. (2008). Self-Reported Online Child Pornography Behavior: A Psychological Analysis. *International Journal of Cyber Criminology*, *2*(1), 286–297.

Seigfried-Spellar, K. C. (2013). Individual Differences of Internet Child Pornography Users: Peculiar Findings in a Community-Based Study. *International Journal of Cyber Criminology*, *7*(2), 141–154.

Seigfried-Spellar, K. C., & Rogers, M. K. (2013). Does deviant pornography use follow a Guttman-like progression? *Computers in Human Behavior*, *29*(5), 1997–2003. https://doi.org/10.1016/j.chb.2013.04.018

Seto, M. C., Buckham, C., Dwyer, R., & Quayle, E. (2018). *Production and Active Trading of Child Sexual Exploitation Images Depicting Identified Victims*. National Center for Missing and Exploited Children. https://www.missingkids.org/content/dam/missingkids/pdfs/ncmec-analysis/Production and Active Trading of CSAM_FullReport_FINAL.pdf

Seto, M. C., & Eke, A. W. (2015). Predicting recidivism among adult male child pornography offenders: Development of the Child Pornography Offender Risk Tool (CPORT). *Law and Human Behavior*, *39*(4), 416–429. https://doi.org/10.1037/lhb0000128

Seto, M. C., Hermann, C. A., Kjellgren, C., Priebe, G., Svedin, C. G., & Långström, N. (2015). Viewing Child Pornography: Prevalence and Correlates in a

Representative Community Sample of Young Swedish Men. *Archives of Sexual Behavior*, *44*(1), 67–79. http://dx.doi.org.ezproxy1.library.usyd.edu.au/10.1007/s10508-013-0244-4

Seto, M. C., Karl Hanson, R., & Babchishin, K. M. (2011). Contact Sexual Offending by Men With Online Sexual Offenses. *Sexual Abuse*, *23*(1), 124–145. https://doi.org/10.1177/1079063210369013

Seto, M. C., Reeves, L., & Jung, S. (2010). Explanations given by child pornography offenders for their crimes. *Journal of Sexual Aggression*, *16*(2), 169–180. https://doi.org/10.1080/13552600903572396

Sharot, T., Delgado, M. R., & Phelps, E. A. (2004). How emotion enhances the feeling of remembering. *Nature Neuroscience*, *7*(12), 1376–1380. https://doi.org/10.1038/nn1353

Sheehan, V., & Sullivan, J. (2010). A qualitative analysis of child sex offenders involved in the manufacture of indecent images of children. *Journal of Sexual Aggression*, *16*(2), 143–167. https://doi.org/10.1080/13552601003698644

Shields, M., Tonmyr, L., Hovdestad, W. E., Gonzalez, A., & MacMillan, H. (2020). Exposure to family violence from childhood to adulthood. *BMC Public Health*, *20*(1), 1673. https://doi.org/10.1186/s12889-020-09709-y

Simons, D. (2007). Understanding victimization among sexual abusers. In *Knowledge and Practice: Challenges in the Treatment and Supervision of Sexual Abusers* (pp. 56–90). Wood 'N' Barnes Publishing.

Singh, L. (2011). Accuracy of Web Survey Data: The State Of Research on Factual Questions in Surveys. *Information Management and Business Review*, *3*(2), 48–56. https://doi.org/10.22610/imbr.v3i2.916

Smallbone, S., & Cale, J. (2016). Situational theories. In *Theories of sexual offending* (T. Ward&A. Beech). Wiley.

Smallbone, S., Marshall, W. L., & Wortley, R. (2008). *Preventing child sexual abuse: Evidence, policy and practice*. Willan Publishing.

Smallbone, S., & Wortley, R. (2001). Child sexual abuse: Offender characteristics and Modus Operandi. *Trends and Issues in Crime and Criminal Justice*, *193*, 1–6.

Spillet, R. (2019, October 17). More than 300 "paedophiles" arrested worldwide after massive child abuse website is taken down. *Daily Mail*. https://www.dailymail.co.uk/news/article-7579851/More-300-paedophiles-arrested-worldwide-massive-child-abuse-website-taken-down.html

Statista. (2016). *Distribution of Reddit users in the United States as of February 2016, by age group*. Statista. https://www.statista.com/statistics/517218/reddit-user-distribution-usa-age/

Statista. (2020). *Distribution of Reddit users in the United States as of February 2016, by ethnicity*. Statista. https://www.statista.com/statistics/517229/reddit-user-distribution-usa-ethnicity/

Steel, C. M. S. (2015). Web-based child pornography: The global impact of deterrence efforts and its consumption on mobile platforms. *Child Abuse & Neglect*, *44*, 150–158. https://doi.org/10.1016/j.chiabu.2014.12.009

Stop it Now! (n.d.). *Deterrence campaign*. Stop It Now. Retrieved May 14, 2021, from https://www.stopitnow.org.uk/our-impact/deterrence-campaign/

Stop it Now! UK. (n.d.). *Who We Are*. Stop It Now. Retrieved March 9, 2021, from https://www.stopitnow.org/about-us/who-we-are

Stop it Now! UK. (2020, February 25). *Number seeking help to stop viewing sexual images of children doubles*. Stop It Now. https://www.stopitnow.org.uk/home/media-centre/news/number-seeking-help-to-stop-viewing-sexual-images-of-children-doubles/

Strasburger, V. C., Zimmerman, H., Temple, J. R., & Madigan, S. (2019). Teenagers, Sexting, and the Law. *Pediatrics*, *143*(5), e20183183. https://doi.org/10.1542/peds.2018-3183

Subramanian, J., & Simon, R. (2013). Overfitting in prediction models – Is it a problem only in high dimensions? *Contemporary Clinical Trials*, *36*(2), 636–641. https://doi.org/10.1016/j.cct.2013.06.011

Sutherland, E. H. (1947). *Principles of Criminology* (4th ed.). University of Chicago Press.

Svedin, C. G., Åkerman, I., & Priebe, G. (2011). Frequent users of pornography. A population based epidemiological study of Swedish male adolescents. *Journal of Adolescence*, *34*(4), 779–788. https://doi.org/10.1016/j.adolescence.2010.04.010

Taylor, M., & Quayle, E. (2003). *Child Pornography: An Internet Crime*. Psychology Press. https://www.researchgate.net/publication/229646969_Child_Pornography_An_Internet_Crime

Teunissen, C., & Napier, S. (2022a). *Child sexual abuse material and end-to-end encryption on social media: An overview* (Trends & Issues in Crime and Criminal Justice). Australian Institute of Criminology.

Teunissen, C., & Napier, S. S. (2022b). *Child sexual abuse material on social media platforms: An overview of the problem* (Trends & Issues in Crime and Criminal Justice). Australian Institute of Criminology.

Thorn. (2020). *Thorn Research: Understanding sexually explicit images, self-produced by children*. https://www.thorn.org/blog/thorn-research-understanding-sexually-explicit-images-self-produced-by-children/

Tozdan, S., Briken, P., & Dekker, A. (2019). Uncovering Female Child Sexual Offenders—Needs and Challenges for Practice and Research. *Journal of Clinical Medicine*, *8*(3), 401. https://doi.org/10.3390/jcm8030401

Tremblay, P. (2006). Convergence settings for non-predatory "boy lovers." In R. Wortley & S. Smallbone (Eds.), *Situational Prevention of Child Sexual Abuse* (pp. 145–168). Criminal Justice Press.

Tucker, C. J., Finkelhor, D., & Turner, H. (2021). Exposure to parent assault on a sibling as a childhood adversity. *Child Abuse & Neglect*, *122*, 105310. https://doi.org/10.1016/j.chiabu.2021.105310

Tulloch, T., & Kaufman, M. (2013). Adolescent Sexuality. *Pediatrics in Review*, *34*(1), 29–38. https://doi.org/10.1542/pir.34-1-29

UK Safer Internet Centre, University of Plymouth, Netsafe, & Office of the eSafety Commissioner. (2017). *Young people and sexting: Research into young people's experience of sending and sharing nude and nearly nude images—Otherwise known as "sexting."* UK Safer Internet Centre, University of Plymouth, Netsafe, Office of the eSafety Commissioner. https://www.esafety.gov.au/about-us/research/young-people-sexting

United States Department of Justice. (2020, April 21). *Keeping Children Safe Online*. The United States Department of Justice. https://www.justice.gov/coronavirus/keeping-children-safe-online

US Census Bureau. (2020). *Population Clock*. https://www.census.gov/popclock/

van der Bruggen, M., & Blokland, A. (2021). Profiling Darkweb Child Sexual Exploitation Material Forum Members Using Longitudinal Posting History Data. *Social Science Computer Review*, 0894439321994894. https://doi.org/10.1177/0894439321994894

Vedelago, C. (2020, June 19). More than 7.4 million images of child abuse circulating in Victoria. *The Age*. https://www.theage.com.au/national/victoria/more-than-7-4-million-images-of-child-abuse-circulating-in-victoria-20200619-p554dy.html

Virtual Global Taskforce. (2019). *2019 Environmental Scan*. Europol. https://www.europol.europa.eu/newsroom/news/2019-virtual-global-taskforce-releases-environmental-scan

von Weiler, J., Haardt-Becker, A., & Schulte, S. (2010). Care and treatment of child victims of child pornographic exploitation (CPE) in Germany. *Journal of Sexual Aggression*, *16*(2), 211–222. https://doi.org/10.1080/13552601003759990

Voreacos, D. (2019, October 16). U.S., South Korea Bust Giant Child Porn Site by Following a Bitcoin Trail. *Bloomberg.Com*. https://www.bloomberg.com/news/articles/2019-10-16/giant-child-porn-site-is-busted-as-u-s-follows-bitcoin-trail

Walsh, K., Zwi, K., Woolfenden, S., & Shlonsky, A. (2018). School-Based Education Programs for the Prevention of Child Sexual Abuse: A Cochrane

Systematic Review and Meta-Analysis. *Research on Social Work Practice*, *28*(1), 33–55. https://doi.org/10.1177/1049731515619705

Waterson, J. (2019, October 16). UK drops plans for online pornography age verification system. *The Guardian*. https://www.theguardian.com/culture/2019/oct/16/uk-drops-plans-for-online-pornography-age-verification-system

Webb, L., Craissati, J., & Keen, S. (2007). Characteristics of Internet Child Pornography Offenders: A Comparison with Child Molesters. *Sexual Abuse: A Journal of Research and Treatment*, *19*(4), 449–465. https://doi.org/10.1007/s11194-007-9063-2

Westlake, B. G., & Bouchard, M. (2016). Liking and hyperlinking: Community detection in online child sexual exploitation networks. *Social Science Research*, *59*, 23–36. https://doi.org/10.1016/j.ssresearch.2016.04.010

Westlake, B. G., Bouchard, M., & Frank, R. (2017). Assessing the Validity of Automated Webcrawlers as Data Collection Tools to Investigate Online Child Sexual Exploitation. *Sexual Abuse*, *29*(7), 685–708. https://doi.org/10.1177/1079063215616818

Westlake, B. G., Brewer, R., Swearingen, T., Ross, A., Patterson, S., Michalski, D., Hole, M., Logos, K., Frank, R., Bright, D., & Afana, E. (2022). *Developing automated methods to detect and match face and voice biometrics in child sexual abuse videos detect and match face and voice biometrics in child sexual abuse videos* (No. 648; Trends & Issues in Crime and Criminal Justice). Australian Institute of Criminology. https://doi.org/10.52922/ti78566

Wolak, J., Finkelhor, D., & Mitchell, K. J. (2012). How often are teens arrested for sexting? Data from a national sample of police cases. *Pediatrics*, *129*(1), 4–12. https://doi.org/10.1542/peds.2011-2242

Wolak, J., Mitchell, K., & Finkelhor, D. (2007). Unwanted and wanted exposure to online pornography in a national sample of youth Internet users. *Pediatrics*, *119*(2), 247–257. https://doi.org/10.1542/peds.2006-1891

World Health Organization. (2003). *Guidelines for medico-legal care of victims of sexual violence*. World Health Organization. https://apps.who.int/iris/handle/10665/42788

Wortley, R., & Smallbone, S. (2006). *Applying situational principles to sexual offenses against children, in Situational prevention of child sexual abuse*. Criminal Justice Press.

Wortley, R., & Smallbone, S. (2012). *Internet Child Pornography: Causes, Investigation and Prevention* (Vol. 1). ABC CLIO.

Appendices

Appendix A: Online survey version 5

Online sexual behaviour and pornography use survey

You are invited to take part in an anonymous survey that will take from 5-15 minutes to complete.

The purpose of the study is to examine the reasons why and how people begin using certain types of pornography, to better understand the interest in material with sexual content. The research is being carried out by a student as part of a PhD at The University of Sydney.

To be eligible, you have to be over 18 and living in any of these five countries: Australia, New Zealand, UK, Canada or the US.

This survey is voluntary. It is hosted by the University of Sydney in Australia on a third party survey platform (RedCap) which offers secure and encrypted data capture. The University of Sydney does not link responses to IP addresses. This means that the researcher only receives the responses, but cannot find out who or where specific survey responses are coming from. All your answers are therefore anonymous, and will be stored securely.

You can quit the survey at any time by closing the browser. By clicking on 'Submit' at the end of the survey you are consenting to participate. Once you submit the survey you can't withdraw your data from the research because the researcher cannot identify individual responses.

Please click on the PDF below to read the full Participant Information Statement for the study - feel free to save this. This PDF also contains a link to a site where you can view results from the study in 2023.

[*Survey participant information statement.pdf*]

Can we start with a bit about you?

What is your age? [Drop down list of age groups].

What is your gender? Male/Female/Other

What is your current relationship status?

(1) Single (never married); (2) Married; (3) In a relationship; (4) Divorced; (5) Widowed

How many children do you currently care for or have regular contact with?

[Field to fill number ranging from 0 to 10]

Number of boys you are caring for: [Field to fill number ranging from 0 to 10]

Number of girls you are caring for: [Field to fill number ranging from 0 to 10]

In which country do you currently live? [Drop down menu to choose from list of countries]

[If chose ‘Australia’]

Are you Aboriginal or Torres Strait Islander?

(1) Yes, Aboriginal; (2) Yes, Torres Strait Islander; (3) Yes, Aboriginal and Torres Strait Islander; (4) No, neither

What is your ethnicity?

(1) White/Caucasian; (2) Asian; (3) Indian subcontinent; (4) Pacific Islander; (5) Hispanic or Latino; (6) Black or African; (7) Middle Eastern; (8) Other

What is your current employment status?

(1) Employed part time;

(2) Employed full time;

(3) Studying;

(4) Studying and working;

(5) Unemployed;

(6) Retired;

(7) Not working for another reason

How much education have you completed?

(1) Did not graduate high school; (2) Graduated high school; (3) Certificate/vocational training; (4) University/college degree; (6) Graduate/post graduate studies

The next questions are about your childhood experiences, pornography use and sexual interests. We know that these are personal questions, and your answers will be completely confidential. We hope that this helps you feel comfortable in answering each question honestly. If you feel distressed by any of the questions you can stop the survey at any time, and counselling services are listed at the beginning (in the participant information statement) and end of the survey.

When you were growing up (before the age of 18) did you experience any of the following:

Someone made me do sexual things or watch sexual things [Yes/No]

I was abused or neglected in a non-sexual way [Yes/No]

I was exposed to or witnessed violence in my home [Yes/No]

I was bullied by other kids [Yes/No]

Now thinking about the present, how likely would you be to have sexual contact with someone in the age groups listed below, if you had the opportunity?

14-15 years [Very unlikely; Unlikely; Likely; Very likely]

10-13 years [Very unlikely; Unlikely; Likely; Very likely]

Under 10 years [Very unlikely; Unlikely; Likely; Very likely]

Have you ever been arrested or convicted for having sexual contact with someone aged 15 years or younger?

(1) Yes (2) No

Thank you, now some questions about your exposure to pornography.

Please state how old you were the first time you ever viewed...

Pornography featuring adults
[Drop down list of age categories; does not apply to me]

Please state the reason why you viewed this material.

1, For sexual purposes
2, Curiosity
3, For educational purposes
4, I viewed it unintentionally
5, Other

Bondage/S&M pornography featuring adults
[Drop down list of age categories; does not apply to me]

Please state the reason why you viewed this material.

1, For sexual purposes
2, Curiosity
3, For educational purposes
4, I viewed it unintentionally
5, Other

Pornography featuring adults and animals
[Drop down list of age categories; does not apply to me]

Please state the reason why you viewed this material.

1, For sexual purposes
2, Curiosity
3, For educational purposes
4, I viewed it unintentionally
5, Other

Pornography featuring pubescent (showing some signs of physical sexual development) *teens/children?* [Drop down list of age categories; does not apply to me]

Pornography featuring pre-pubescent (not physically developed) children?
[Drop down list of age categories; does not apply to me]

Thinking about the first time you ever viewed pornography featuring pubescent or pre-pubescent teens or children, were you with anyone at the time?

1, Yes

2, No, I was alone
3, No, I was alone but chatting to a person/people online
4, Do not recall

Who were you with at the time?

1, Friend(s)
2, Acquaintance(s)
3, Spouse/intimate partner
4, Sibling
5, Parent
6, Other family member
7, Other person

Thinking about the first time you ever viewed pornography featuring pre-pubescent or pubescent teens/children, how did you first find/come across the material?

Typed search terms into browser/website
Searched the dark web/net
Someone gave/sent it to me
By accident while searching for adult porn
By accident while on peer to peer site
By accident while on other site(s)
Other [Please explain briefly how you found this material]

After you first viewed pornography featuring pubescent or pre-pubescent teens or children, did you ever intentionally view it again? [Yes/ No]

Since March 2020, COVID-19 has changed the way people have had to go about their everyday lives. The next two questions are about whether COVID-19 has changed your behaviour or habits.

Have you viewed pornography featuring pubescent or pre-pubescent children or teens in the last 12 months? [Yes/ No]

Compared with the 6-month period before March 2020, have you since viewed this material more frequently, less frequently, or about the same?
[drop down list of responses]
More frequently
Less frequently
About the same

In the last four weeks before today, on average how often did you view pornography featuring adults?

0, Did not look at this material
1, Once a week
2, Twice a week
3, Three times a week
4, Four times a week
5, Five or more times a week

Generally, when viewing pornography featuring teens/children, have you preferred looking at:

(1) Pubescent (showing some signs of physical development) teens/children; (2) Pre-pubescent (not physically developed) children; (3) Both; (4) Neither

Have you ever paid for pornography featuring pre-pubescent or pubescent teens/children? [Yes/No]

How did you usually pay for this material?

1, Credit card
2, Crypto currency (e.g. Bitcoin)
3, Other online payment method
4, Traded with other pornographic material of teens or children
5, Other [please indicate how you usually pay for this material]

Have you ever shared or traded pornography featuring pre-pubescent or pubescent teens/children? [Yes/ No]

In the last six months, on average how often each week did you share or trade pornography featuring pre-pubescent or pubescent teens/children?

1, Less than once a week
2, Once a week
3, Twice a week
4, Three times a week
5, Four times a week
6, Five or more times a week
7, Did not share/trade in the last six months

Have you ever used the dark web/net to view pornography featuring pubescent or pre-pubescent teens or children? [Yes/No]

Have you ever used a VPN or encryption methods to view pornography featuring pubescent or pre-pubescent teens or children? [Yes/No]

As an adult, have you ever recorded or photographed individuals in the age groups below engaging in sexual activity with either yourself, someone else or by themselves?

a.	16 - 17 years	(1) yes (2) no
b.	14 - 15 years	(1) yes (2) no
c.	10 -13 years	(1) yes (2) no
d.	5 - 9 years	(1) yes (2) no
e.	under 5 years	(1) yes (2) no

In the last six months before today, on average how often each week did you visit sites or chat forums (including mobile chat apps) where people chat about adult/child sexual relations?

1, Once a week
2, Twice a week
3, Three times a week

4, Four times a week
5, Five or more times a week
6, Did not visit these chat forums

Have you ever managed or created a site or chat forum of any type (including Newsgroups, Facebook, WhatsApp) where people chat about adult/child sexual relations?

(1) Yes (2) No

Please describe briefly why you visit sites/forums where people chat about adult/child sexual relations?

[Open-ended field]

Only a few questions left, thanks for your patience…

Has there ever been a time in your life when you viewed pornography featuring adults five times per week or more? [Yes/No]

How old were you when this was occurring? (if this happened more than once in your life, state the age when you were viewing most frequently) [Drop down list of age groups]

Has there ever been a time in your life when you had no one to confide in or lean on in times of trouble? [Yes/No]

How old were you when this was occurring? (if this happened more than once in your life, state the age when you were viewing most frequently) [Drop down list of age groups]

Has there ever been a time in your life when you sought medication or other treatment for mental health issues (e.g. depression)? [Yes/No]

How old were you when this was occurring? (if this happened more than once in your life, state the age when you were viewing most frequently) [Drop down list of age groups]

Are you currently working? [Yes/No]

Please click 'Submit' to submit your responses and end the survey.

Once you submit the survey you can't withdraw your data from the research because the survey is anonymous so the researcher cannot identify individual responses.

Thank you for completing the survey. Your responses are appreciated and will be extremely valuable for the research.

If you feel distressed from any of the questions asked in the survey, there is support available for you. Please go to any of the links below for guidance or counselling.

AUSTRALIA

Beyond Blue
1300 22 4636
https://www.beyondblue.org.au/

Lifeline
131114
https://www.lifeline.org.au/

Australian Psychological Society
http://www.psychology.org.au/FindaPsychologist/?utm_source=Homepage&utm_medium=Sidebar%2BTile&utm_campaign=FaP

NEW ZEALAND

Lifeline
0800 543 354 or (09) 5222 999 within Auckland
http://www.lifeline.org.nz/corp_Home_378_2001.aspx

Suicide Crisis Helpline
0508 828 865 (0508 TAUTOKO)

Depression Helpline
0800 111 757 or free text 4202
https://depression.org.nz

Sparx (online e-therapy)
https://www.sparx.org.nz/

CANADA

Mental health helpline
1-866-531-2600
http://www.mentalhealthhelpline.ca

Canada suicide hotlines
http://www.suicide.org/hotlines/international/canada-suicide-hotlines.html

Find a psychologist
http://www.findapsychologist.ca/wp-content/themes/crhspp/index_search.php

UNITED STATES OF AMERICA

Lifeline
1-800-273-8255
https://suicidepreventionlifeline.org

New Life
214 709 1177
http://www.newlifeifs.org

Crisis Text Line
Text HOME to 741741
https://www.crisistextline.org/
24/7 crisis-intervention text-message hotline

UNITED KINGDOM

SANEline
0300 304 7000
http://www.sane.org.uk

Mental Health and Wellbeing
08081311333
http://ben.org.uk/need-help-now/mental-health-wellbeing/?gclid=Cj0KEQiAot_FBRCqt8jVsoDKoZABEiQAqFL76Ivb22Inl63ypcSsFFQFmSB2eSybNDzVsY81MwuSpaQaAsXj8P8HAQ

Suicide.org
http://www.suicide.org/hotlines/international/united-kingdom-suicide-hotlines.html

Appendix B: Online survey version 6

[See opening statement to survey in Appendix A: Online survey version 5)

Can we start with a bit about you?

What is your age? [Drop down list of age groups].

What is your gender? Male/Female/Other

What is your current relationship status?

(1) Single (never married); (2) Married; (3) In a relationship; (4) Divorced; (5) Widowed

How many children do you currently care for or have regular contact with?

[Field to fill number ranging from 0 to 10]

Number of boys you are caring for: [Field to fill number ranging from 0 to 10]

Number of girls you are caring for: [Field to fill number ranging from 0 to 10]

In which country do you currently live? [Drop down menu to choose from list of countries]

[If chose 'Australia']

Are you Aboriginal or Torres Strait Islander?

(1) Yes, Aboriginal; (2) Yes, Torres Strait Islander; (3) Yes, Aboriginal and Torres Strait Islander; (4) No, neither

What is your ethnicity?

(1) White/Caucasian; (2) Asian; (3) Indian subcontinent; (4) Pacific Islander; (5) Hispanic or Latino; (6) Black or African; (7) Middle Eastern; (8) Other

What is your current employment status?

(1) Employed part time;

(2) Employed full time;

(3) Studying;

(4) Studying and working;

(5) Unemployed;

(6) Retired;

(7) Not working for another reason

How much education have you completed?

(1) Did not graduate high school; (2) Graduated high school; (3) Certificate/vocational training; (4) University/college degree; (6) Graduate/post graduate studies

The next questions are about your childhood experiences, pornography use and sexual interests. We know that these are personal questions, and your answers will be completely confidential. We hope that this helps you feel comfortable in answering each question honestly. If you feel distressed by any of the questions you can stop the survey at any time, and counselling services are listed at the beginning (in the participant information statement) and end of the survey.

When you were growing up (before the age of 18) did you experience any of the following:

Someone made me do sexual things or watch sexual things [Yes/No]

I was abused or neglected in a non-sexual way [Yes/No]

I was exposed to or witnessed violence in my home [Yes/No]

I was bullied by other kids [Yes/No]

Now thinking about the present, how likely would you be to have sexual contact with someone in the age groups listed below, if you had the opportunity?

14-15 years [Very unlikely; Unlikely; Likely; Very likely]

10-13 years [Very unlikely; Unlikely; Likely; Very likely]

Under 10 years [Very unlikely; Unlikely; Likely; Very likely]

Have you ever been arrested or convicted for having sexual contact with someone aged 15 years or younger?

(1) Yes (2) No

Thank you, now some questions about your exposure to pornography and self-produced images.

Before you turned 18, did anyone under the age of 18 ever send you a sexual photo or video of themselves? (can include nudes/naked selfies/videos, or semi-nude selfies/videos) [Yes/No]

Please state how old you were the first time this occurred. [drop down list of age groups]

Before you turned 18, did anyone under the age of 18 ever ask you to send a sexual photo or video of yourself to them? (can include nudes/naked selfies/videos, or semi-nude selfies/videos)

[Yes/No] [if no, skip the next three questions]

Before you turned 18, did you ever send a sexual picture or video of yourself to a person under 18 who requested it? (can include nudes/naked selfies/videos, or semi-nude selfies/videos)

[Yes/No]

If yes, please state how old you were the first time this occurred. [drop down list of age groups]

If no, please briefly state the reason why you did not send a sexual photo or video of yourself to the person who requested it?

[open ended response]

Before you turned 18, did you ever record or photograph, or let someone else record or photograph yourself engaging in sexual activity with another person under the age of 18?

[Yes/No]

Please state how old you were the first time this occurred. [drop down list of age groups]
Please state how old you were the first time you ever viewed...

pornography featuring adults [Drop down list of age categories; does not apply to me]

At the time did you believe this material was: [Legal to view; Illegal to view; At the time I was not sure]

When you viewed this material, how concerned were you about getting into trouble with the police?

Getting into trouble… [Did not cross my mind; Did cross my mind]

At the time I was… [Not concerned at all; Not concerned; Slightly concerned; Very concerned]

bondage/S&M pornography featuring adults [Drop down list of age categories; does not apply to me]
At the time did you believe this material was: [Legal to view; Illegal to view; Not sure]

When you viewed this material, how concerned were you about getting into trouble with the police?

[Not concerned at all; Not concerned; Slightly concerned; Very concerned]

pornography featuring adults and animals [Drop down list of age categories; does not apply to me]

At the time did you believe this material was: [Legal to view; Illegal to view; Not sure]

When you viewed this material, how concerned were you about getting into trouble with the police?

[Not concerned at all; Not concerned; Slightly concerned; Very concerned]

pornography featuring pubescent (showing some signs of physical sexual development) teens/children? [Drop down list of age categories; does not apply to me]

At the time did you believe this material was: [Legal to view; Illegal to view; Not sure]

When you viewed this material, how concerned were you about getting into trouble with the police?

[Not concerned at all; Not concerned; Slightly concerned; Very concerned]

pornography featuring pre-pubescent (not physically developed) children? [Drop down list of age categories; does not apply to me]

At the time did you believe this material was: [Legal to view; Illegal to view; Not sure]

When you viewed this material, how concerned were you about getting into trouble with the police?

[Not concerned at all; Not concerned; Slightly concerned; Very concerned]

Thinking about the first time you ever viewed pornography featuring pubescent or pre-pubescent teens or children, were you with anyone at the time?

1, Yes
2, No, I was alone
3, No, I was alone but chatting to a person/people online
4, Do not recall

Who were you with at the time?

1, Friend(s)
2, Acquaintance(s)
3, Spouse/intimate partner
4, Sibling
5, Parent
6, Other family member
7, Other person

Thinking about the first time you ever viewed pornography featuring pre-pubescent or pubescent teens/children, how did you first find/come across the material?

Typed search terms into browser/website
Searched the dark web/net
Someone gave/sent it to me
By accident while searching for adult porn

By accident while on peer to peer site
By accident while on other site(s)
Other [Please explain briefly how you found this material]

After you first viewed pornography featuring pubescent or pre-pubescent teens or children, did you ever intentionally view it again? [Yes/ No]
Have you ever had friends who viewed pornography featuring pubescent or pre-pubescent children or teens?

[Yes/No]

In the last four weeks before today, on average how often did you view pornography featuring adults?

0, Did not look at this material
1, Once a week
2, Twice a week
3, Three times a week
4, Four times a week
5, Five or more times a week

Generally, when viewing pornography featuring teens/children, have you preferred looking at:

(1) Pubescent (showing some signs of physical development) teens/children; (2) Pre-pubescent (not physically developed) children; (3) Both; (4) Neither

Have you ever paid for pornography featuring pre-pubescent or pubescent teens/children?

[Yes/No]

How did you usually pay for this material?

1, Credit card
2, Crypto currency (e.g. Bitcoin)
3, Other online payment method
4, Traded with other pornographic material of teens or children
5, Other [please indicate how you usually pay for this material]

Have you ever shared or traded pornography featuring pre-pubescent or pubescent teens/children?

[Yes/ No]

In the last six months, on average how often each week did you share or trade pornography featuring pre-pubescent or pubescent teens/children?

1, Less than once a week
2, Once a week
3, Twice a week
4, Three times a week
5, Four times a week

6, Five or more times a week
7, Did not share/trade in the last six months

Have you ever used the dark web/net to view pornography featuring pubescent or pre-pubescent teens or children? [Yes/No]

Have you ever used a VPN or encryption methods to view pornography featuring pubescent or pre-pubescent teens or children? [Yes/No]

As an adult, have you ever recorded or photographed individuals in the age groups below engaging in sexual activity with either yourself, someone else or by themselves?

a.	16 - 17 years	(1) yes (2) no
b.	14 - 15 years	(1) yes (2) no
c.	10 -13 years	(1) yes (2) no
d.	5 - 9 years	(1) yes (2) no
e.	under 5 years	(1) yes (2) no

In the last six months before today, on average how often each week did you visit sites or chat forums (including mobile chat apps) where people chat about adult/child sexual relations?

1, Once a week
2, Twice a week
3, Three times a week
4, Four times a week
5, Five or more times a week
6, Did not visit these chat forums

Have you ever managed or created a site or chat forum of any type (including Newsgroups, Facebook, WhatsApp) where people chat about adult/child sexual relations?

(1) Yes (2) No

Please describe briefly why you visit sites/forums where people chat about adult/child sexual relations?

[Open-ended field]

Only a few questions left, thanks for your patience…

Has there ever been a time in your life when you viewed pornography featuring adults five times per week or more? [Yes/No]

How old were you when this was occurring? (if this happened more than once in your life, state the age when you were viewing most frequently) [Drop down list of age groups]

Has there ever been a time in your life when you had no one to confide in or lean on in times of trouble? [Yes/No]

How old were you when this was occurring? (if this happened more than once in your life, state the age when you were viewing most frequently) [Drop down list of age groups]

Has there ever been a time in your life when you sought medication or other treatment for mental health issues (e.g. depression)? [Yes/No]

How old were you when this was occurring? (if this happened more than once in your life, state the age when you were viewing most frequently) [Drop down list of age groups]

Are you currently working? [Yes/No]

Please click 'Submit' to submit your responses and end the survey.

Once you submit the survey you can't withdraw your data from the research because the survey is anonymous so the researcher cannot identify individual responses.

Thank you for completing the survey. Your responses are appreciated and will be extremely valuable for the research.

If you feel distressed from any of the questions asked in the survey, there is support available for you. Please go to any of the links below for guidance or counselling.

[See list of services in Appendix A Online survey version 5]

Appendix C: Timeline of changes to survey

Survey version[17]	Date changes made	Description of changes made
1	N/A	N/A – First version approved on 30/07/2017
2[18]	19/07/2019	Following an in-depth review of key literature and advice from experts in the field, the UCLA Loneliness scale was removed, and questions were inserted on childhood sexual abuse and onset to CSAM exposure
3	17/01/2020	Questions inserted about reasons for viewing adult pornography
4	15/04/2020	Question inserted about subsequent intentional viewing of CSAM
5	25/05/2020	Two questions inserted about CSAM viewing post-COVID-19
6	12/01/2021	Questions inserted on sexting and perception of illegality of CSAM. Questions about reasons for viewing adult pornography removed

[17] Each version of the survey was approved by the University of Sydney Human Research Ethics Committee.
[18] The changes in version 2 of the survey were implemented before the survey was in the field; therefore, version 1 was never in the field.

Appendix D: Survey advertisement

Online sexual behaviour and pornography use study

Do you live in the USA, UK, Canada, Australia or New Zealand?

If yes, you are invited to take part in an anonymous survey about pornography use and sexual behaviour.

Complete this survey hosted by the University of Sydney and contribute to valuable research. To find out more, click here:

[Link provided]

Appendix E: Participant information statement

Online Sexual Behaviour and Pornography use

PARTICIPANT INFORMATION STATEMENT

(1) What is this study about?

You are invited to take part in an anonymous survey about people who view or share various types of pornography. The purpose of the study is to examine the reasons why and how people begin using certain types of pornography, to better understand the interest in material with atypical sexual content.

You have been invited to participate in this study because you use the Internet. Even if you don't use pornography, your responses will be very valuable to the study. This Participant Information Statement tells you about the research study. Knowing what is involved will help you decide if you want to take part in the research. Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

Participation in this research study is voluntary.

By giving your consent to take part in this study you are telling us that you:

- ✓ Understand what you have read.
- ✓ Agree to take part in the research study as outlined below.
- ✓ Agree to the use of your personal information as described.

You can download a copy of this Participant Information Statement to keep.

(2) Who is running the study?

The study is being carried out by the following researcher:

- Sarah Napier, PhD Student, University of Sydney.

Sarah Napier is conducting this study as the basis for the PhD at The University of Sydney. This will take place under the supervision of Associate Professor Rita Shackel and Professor Judith Cashmore.

(3) What will the study involve for me?

The researcher would like you to participate in an anonymous, online survey. The survey will include questions about your previous online behaviour, sexual interests and pornography use, as well as some of your psychological and background characteristics. You will not be asked for your name or any other identifying information.

(4) How much of my time will the study take?

The survey will take from 5-15 minutes to complete.

(5) Who can take part in the study?

To participate you need to be aged 18 years or over and be living in any of the following countries: Australia, New Zealand, Canada, the United States or United Kingdom. These countries were chosen for their cultural similarities to help maximise consistency in the data. If you haven't used pornography, we would still like you to participate in the study.

(6) Do I have to be in the study? Can I withdraw from the study once I've started?

Being in this study is completely voluntary and you do not have to take part. You are free to stop the survey at any time by simply closing the browser window. You may also refuse to answer any questions that you do not wish to answer during the survey.

Submitting your completed questionnaire is an indication of your consent to participate in the study. Given the survey is anonymous, once you submit the survey you cannot withdraw from the research as there is no way the researcher can identify your individual responses.

(7) Are there any risks or costs associated with being in the study?

There is a possibility some questions may bring up feelings of distress for you. The researcher has designed the questions in a way that will help prevent this from happening. However, if you go ahead with the survey but feel any kind of distress or discomfort about anything that comes up, and would like to talk to anyone about it, details of some people you can get in touch with are provided at the bottom of this page, and at completion of the survey. If you need any kind of help or support, it is available for you.

As responses are anonymous, there is no legal risk to you with completing the survey.

(8) Are there any benefits associated with being in the study?

The research will help develop an understanding of how and why people use certain types of pornography, which is aimed to reduce harm to children in the long run. The researcher is very grateful for your participation, should you decide to complete the survey. However, you will not receive any monetary or other material benefits from being in the study.

(9) What will happen to information about me that is collected during the study?

Information you provide is completely anonymous, and your answers cannot be traced back to you. This survey is hosted by the University of Sydney on a third party survey platform (RedCap) which offers secure and encrypted data capture. The University of Sydney does not link responses to IP addresses. This means that the researcher only receives the anonymous responses, but cannot find out who or where specific survey responses are coming from. All your answers are therefore anonymous, and will be stored securely. To provide further peace of mind, you are welcome to complete the survey through the TOR network (Dark Web).

Information collected for the study will include previous online behaviour, sexual interests and pornography use. Findings from the research will be published in a doctoral thesis through the University of Sydney, publications for journals and websites and conference presentations.

By providing your consent, you are agreeing to the researcher collecting personal but non-identifiable information about you for the purposes of this research study. Your information will only be used for the purposes outlined in this Participant Information Statement.

(10) Can I tell other people about the study?

Yes, you are welcome to tell other people about the study.

(11) What if I would like further information about the study?

If you would like to know more information about the study, please feel free to contact:

Sarah Napier
c/o Dr Rita Shackel, University of Sydney, Rm No 525, Sydney Law School,
Eastern Ave
Camperdown NSW 2006, AUSTRALIA
snap2722@uni.sydney.edu.au
0418 952 045

(12) Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. As the researcher will not be collecting contact information, you can view a one-page summary of the results by clicking on the following URL: [URL provided]. Please note that results from the study will not be available until 2023. Alternatively, you can contact Sarah Napier (contact details above) to request the results from the research.

(13) What if I have a complaint or any concerns about the study?

Research involving humans in Australia is reviewed by an independent group of people called a Human Research Ethics Committee (HREC). The ethical aspects of this study have been approved by the HREC of the University of Sydney (Protocol no. 2017/373). As part of this process, we have agreed to carry out the study according to the *National Statement on Ethical Conduct in Human Research (2007).* This statement has been developed to protect people who agree to take part in research studies.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the university using the details outlined below. Please quote the study title and protocol number.

The Manager, Ethics Administration, University of Sydney:

- **Telephone:** +61 2 8627 8176
- **Email:** human.ethics@sydney.edu.au
- **Fax:** +61 2 8627 8177 (Facsimile)

If you feel distressed from any survey questions, please visit the contacts below (in your relevant country) for counselling and guidance:[19]

[19] Refer to list of support services in Appendix A.