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UNIVERSITY OF SOUTHAMPTON

FACULTY OF ENVIRONMENTAL AND LIFE SCIENCES

School of Psychology

**Associations between initial exposure to Sexually Explicit Material, Mental Health
and self-perceived Relationship Satisfaction.**

**Chapter 1: Relationships between Exposure to Sexually Explicit Material and
Mental Health in Children and Young Adults: A Systematic Review of the
Literature.**

**Chapter 2: The impact of age on initial exposure to sexually explicit material:
Accessibility to content, mental health and relationship implications.**

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Volume 1 of 1

by

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Abstract

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Doctorate in Clinical Psychology

Associations between initial exposure to Sexually Explicit Material, Mental Health and self-perceived Relationship Satisfaction.

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Chapter 1.

Chapter 1 comprises a systematic review exploring relationships between exposure to sexually explicit material (SEM) and mental health in children and young adults. The review aimed to synthesise the available literature on SEM and mental health to enhance understanding about the potential impact of SEM on children and young adults. A systematic synthesis, following PRISMA guidelines, produced 15 papers adhering to the review eligibility criteria and their methodological quality was assessed. Studies included cross-sectional and longitudinal analyses and findings between studies varied. However, results predominantly suggested relationships between SEM exposure and negative impacts on mental health. Results between studies also varied regarding whether the relationship was consistent over time. Recommendations from the studies and current review emphasises the need for further research to obtain a more consistent understanding of the possible associations between SEM and mental health and any longer-term impacts of this on children and young adults. Clinical implications, limitations, future research and review directions are discussed.

Chapter 2.

Chapter 2 comprises empirical research exploring factors related to potential longer-term impacts of SEM exposure. The research utilised a retrospective design with quantitative analyses to discover associations of SEM exposure with longer-term impacts on mental health and relationship

satisfaction. The study aimed to discover whether earlier access to the internet was associated with earlier SEM exposure and whether earlier SEM exposure was associated with current mental health and relationship satisfaction in adulthood. The study also explored emotional reactions to first/early experiences in relation to current mental health and relationship satisfaction and whether there were changes in perceptions of SEM over time. Participants completed online measures regarding the impact of SEM, their current mental health (overall psychological distress, anxiety and depression levels), perceived relationship satisfaction and whether they had experienced stress-related life events in the last year. Findings suggested significant associations between earlier internet access and earlier SEM exposure. Furthermore, earlier age of exposure to SEM was significantly associated with current psychological distress and anxiety levels when controlling for stress-related life events and relationship satisfaction. However, when controlling for age of internet access, earlier exposure to SEM was no longer significantly associated with these mental health outcomes. Negative emotional reactions and negative self-focused emotional reactions were found to be associated with greater current anxiety. Moreover, negative self-focused emotional reactions were associated with current psychological distress in adulthood. Conversely positive emotional reactions to first experiences were related to current depression. Neither age of SEM exposure nor emotional reaction to content were significantly associated with current relationship satisfaction. Findings are discussed recognising strengths and limitations of the research and identifying clinical implications and recommendations for future research.

Table of Contents

Table of Contents	i
List of Tables	v
List of Figures.....	vi
List of Appendices	vii
Research Thesis: Declaration of Authorship.....	ix
Acknowledgements.....	xi
Chapter 1. Systematic review of the literature.....	1
1.1 Introduction	1
1.1.1 Accessibility of Internet Content	1
1.1.2 Definitions of Sexually Explicit Material	2
1.1.3 Prevalence of SEM exposure in children	2
1.1.4 Concerns regarding Children accessing SEM.....	4
1.1.5 Theories relating to SEM Exposure	5
1.1.6 Developmental stages	7
1.1.7 Current Research Findings	8
1.1.8 Previous Reviews	9
1.1.9 Previous Review including Mental Health	10
1.1.10 Current Review	10
1.1.11 Review Aim and Questions	11
1.1.12 Current Review Definitions and Terminology	11
1.2 Method	14
1.2.1 Search Strategy	14
1.2.2 Search Terms.....	15
1.2.3 Eligibility Criteria	17
1.3 Results.....	19
1.3.1 Data Selection	19
1.3.2 Data Extraction	22
1.3.3 Quality Assessment	22
1.3.4 Description and Quality of Studies	36
1.3.5 Design	37
1.3.6 Sample Characteristics	37
1.3.7 Measures	38

Table of Contents

1.3.8 Definitions of SEM.....	43
1.3.9 Cross-sectional and Longitudinal Analyses.....	44
1.3.10 Gender Differences.....	46
1.3.11 Longer-term relationships between SEM and Mental Health	47
1.4 Discussion.....	48
1.4.1 Summary of findings	48
1.4.2 Relationship between SEM and Mental Health.....	49
1.4.3 Previous research and theoretical underpinning.....	51
1.4.3.1 Mental Health Problems as an Antecedent or Consequence of SEM.....	51
1.4.3.2 Mental Health, Impulsivity and Compulsive SEM viewing.....	51
1.4.3.3 Impact of SEM on Gender	53
1.4.4 Critical review of the literature.....	54
1.4.4.1 Studies' definitions of SEM.....	54
1.4.4.2 Accidental, Unwanted or Intentional SEM Exposure.....	55
1.4.4.3 Influence of other factors relating to SEM	55
1.4.4.4 Comparison with Previous Review including SEM and Mental Health	56
1.4.4.5 Quality of Studies	58
1.4.4.6 Variation between Studies' Findings.....	58
1.4.5 Strengths and Limitations of the review	59
1.4.6 Future Research and Reviews	62
1.4.7 Clinical Implications and Conclusions	63
Chapter 2. Empirical Research Paper	65
2.1 Introduction.....	65
2.1.1 Sexually Explicit Material (SEM)	65
2.1.2 Age of Exposure to SEM.....	66
2.1.3 Impact of SEM exposure on Mental Health	68
2.1.4 Impact of SEM exposure on Relationship Satisfaction	70
2.1.5 Impact of SEM exposure over time	72
2.1.6 The Current Study	72
2.1.7 Research Question and Hypotheses	73
2.2 Method	74
2.2.1 Inclusion/Exclusion Criteria	75
2.2.2 Design.....	75

2.2.3 Participants	76
2.2.4 Materials.....	77
2.2.4.1 Quantitative Measures	77
2.2.5 Procedure	80
2.2.6 Data Analysis	80
2.3 Results	82
2.3.1 SEM Exposure Experiences.....	83
2.3.2 Mental Health, Relationship Satisfaction and Life Events	85
2.3.3 Reliability Analyses	86
2.3.4 Correlations of Age of Exposure.....	87
2.3.5 Regression Analyses of Age of Exposure (Hypothesis 1 and 2)	88
2.3.6 Emotional reactions to first/early experiences (Hypothesis 3)	92
2.3.7 Perceptions of SEM over time (Hypothesis 4).....	94
2.4 Discussion	99
2.4.1 Earlier exposure to SEM.....	99
2.4.2 Emotional reaction to SEM.....	102
2.4.3 Perceptions of SEM over time	105
2.4.4 Clinical Implications	107
2.4.5 Strengths and Limitations of the Research.....	109
2.4.6 Future Research.....	112
Appendices	115
References.	159

Table of Contents

List of Tables

Table 1 Search Terms used in each database	16
Table 2 Eligibility Criteria for studies included in the review.....	18
Table 3 Data Extraction	24
Table 4 Quality Assessment using a tailored version of the adapted NOS.....	33
Table 5 Sample Demographics	82
Table 6 First/Early SEM Exposure Experience and Subsequent Types of SEM.....	83
Table 7 Descriptive Statistics -Mental Health, Relationship Satisfaction, Life Events	85
Table 8 Reliability analyses of quantitative measures	87
Table 9 Correlations between SEM, Mental Health and Relationship Satisfaction.....	88
Table 10 Linear Regression Analyses.....	89
Table 11 Multiple Regression Controlling for Life Events and Relationship Satisfaction	90
Table 12 Multiple Regressions Controlling for Age of Internet Access.....	91
Table 13 Principal Components Analysis	93
Table 14 One-Way ANOVA using the Emotion based Components from the PCA	93
Table 15 Paired Samples T-test between Perceptions of First Experience versus now... ..	95
Table 16 Paired Samples T-test between Perceptions of Impact as a child versus adult	98

List of Figures

Figure 1 Prisma Flow Diagram	21
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List of Appendices

Appendix A. Adaptation of the Newcastle-Ottawa Scale	115
Appendix B. Quality Assessment (breakdown of scores from Table 4)	117
Appendix C. Ethics Approval	119
Appendix D. Public Involvement Advert, Program and Feedback Sheets.....	120
Appendix E. Public Involvement Methodology and Analyses.....	124
Appendix F. Test-Retest Analyses - Information and Debrief Sheet	126
Appendix G. Test-Retest Methodology and Analyses.....	131
Appendix H. Main Research Study - Information Sheet and Debrief.....	134
Appendix I. Impact of SEM Questionnaire.....	140
Appendix J. Relationship Assessment Scale (RAS).....	149
Appendix K. Clinical Outcomes in Routine Evaluation (CORE-10)	151
Appendix L. Hospital Anxiety and Depression Scale (HADS).....	152
Appendix M. Social Readjustment Scale (SRRS)	153
Appendix N. Full Sample Demographics Table	155
Appendix O. Impact of SEM Questionnaire Additional Descriptive Statistics.....	157

Research Thesis: Declaration of Authorship

Print name: Nicola Fisher

Title of thesis: Associations between initial exposure to Sexually Explicit Material, Mental Health and self-perceived Relationship Satisfaction.

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission

Signature: Date:

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Chapter 1 Relationships between Exposure to Sexually Explicit Material and Mental Health in Children and Young Adults: A Systematic Review of the Literature.

1.1 Introduction

The internet enables easy access to a plethora of activities; alongside websites for obtaining and sharing information and engaging in social interaction are, increasingly, sites containing Sexually Explicit Material (SEM).

Since the internet's creation in 1983 (Cooper, Putnam, Planchon & Boies, 1999), its use and the content it provides has increased exponentially. Short, Black, Smith Wetterneck and Wells' (2012) review suggested that over 4 million websites contain SEM. Since their review, the number of SEM websites has substantially increased, with most recent estimates suggesting over 2.3 billion websites containing SEM (McDowell, 2018). With the increasing SEM available on the internet comes concerns regarding whether children could access this content (Koletic, 2017).

1.1.1 Accessibility of Internet Content

In modern society use of the internet is encouraged, for example, within education settings and work environments. Parents and schools use tablets or iPads with children as a form of education or entertainment. Consequently, children learn from a young age how to access the internet. A recent Ofcom (2019) report showed that 20% of children aged three to four have their own smartphone or tablet and 52% access the internet for nine hours a week. The same report showed that 47% of five to seven-year olds have their own smartphone or tablet and 82% spent 9.5 hours on the internet weekly. For ages eight to fifteen, between 82- 99% have their own internet accessible devices and 93-99% spend up

to 20 hours or more a week online (Ofcom, 2019). The increasing availability of internet accessible devices and the time children spend on the internet prompted research to investigate whether children are exposed to SEM and potential impacts¹ of SEM exposure on their mental health. The focus of the current review is to synthesise the literature regarding exposure to SEM and mental health in children and young adults.

1.1.2 Definitions of Sexually Explicit Material

Research literature proposes several definitions of sexually explicit material (SEM). Kelly, Dawson and Musialowski (1989) defined SEM as content that “depicts sexual activity in obvious, unconcealed ways” (p.58). Whilst Peter and Valkenburg (2009) explained features of SEM, suggesting that it often shows stimulation and arousal of genitals via oral, vaginal or anal penetration. Reid, Li, Gilliland, Stein and Fong (2011) defined SEM as material that creates or elicits sexual thoughts or feelings and contains descriptions or explicit images of sexual acts involving genitals through oral stimulation, masturbation or intercourse. Similarly, Braun-Courville and Rojas (2009) included descriptive as well as visual content in their definition. They defined SEM as that which describes sexual intercourse or displays pictures, videos or audio of people engaging in sex acts. Although detailed in their descriptions, these research definitions are not inclusive of all SEM that is currently available on the internet and potentially accessible by children.

1.1.3 Prevalence of SEM exposure in children

With increasing technological advancements (smartphones, tablets, laptops and PCs) and easily available internet, access to websites containing SEM is becoming easier

¹ The use of the word “impact” or “impacts” throughout this thesis refers to the colloquial use of the word impact rather than implying any causation between relationships.

and more freely available (Koletic, 2017; Efrati & Amichai-Hamburger, 2019). Owens, Behun, Manning and Reid (2012) reported that, as most children and adolescents in Western countries have access to the internet, SEM is no longer purely restricted to adult use.

Research suggests that 53% of males and 28% of females in the U.S.A. report SEM use from ages 12-15 and state that this is their most popular internet activity, often preceding their first sexual experiences (Brown & L'Engle, 2009). A recent U.K. study found that 60% of adolescents aged 15-16 had seen SEM online (Campbell, 2019).

Research indicates that while some children, mainly boys, intentionally seek SEM for many children the exposure is not intentional and is unwanted (Peter & Valkenburg, 2006; Wolak, Mitchell, & Finkelhor, 2007; Chen, Leung, Chen, & Yang, 2013; Campbell, 2019). Madigan et al. (2018) conducted a meta-analysis of studies regarding unwanted exposure to SEM and sexual solicitation coinciding with unwanted exposure. They analysed data from seven studies reporting unwanted SEM exposure in adolescents aged 12-16.5 and concluded that one in five children will experience unwanted SEM exposure irrespective of any sexual solicitation or incitement to view this material.

Children report unintentional exposure to SEM through a variety of means, such as clicking links within a site and being directed to SEM, viewing internet pop-ups, receiving e-mails with SEM or being encouraged or bullied into viewing SEM (Binford, 2019; Campbell, 2019). Furthermore, Binford (2019) reported that incidences of malware within children's apps resulted in them being exposed to SEM, alongside SEM sites having similar names to children's toys or programmes, an example of which was the teltubbies.com site, which was removed in 2003.

1.1.4 Concerns regarding Children accessing SEM

With numerous young children accessing the internet and the increasing access to extensive variations of internet SEM, including sexual activities between couples or multiple individuals, BDSM (bondage, domination, sadism and masochism), sexual violence, un-consensual/rape or incest scenes and scenes with bestiality or those depicting underage individuals, there have been concerns regarding the impact of children accessing this type of content. Koletic (2017) reported that in 2013 the U.K. Office of the Children's Commissioner Report raised concerns regarding the "commercialization and sexualization of childhood" (p.120). The report emphasised possible negative consequences of SEM for children and aimed to increase parental awareness of the potential impacts of SEM, to protect children's overall wellbeing (Horvath et al., 2013). Following this report, the then Prime Minister, David Cameron, proposed U.K restrictions to accessing SEM online, suggesting that access should be by request only and users should verify their age prior to viewing SEM. Whittaker (2013) reported that, during this time period, proposals were made within the European Parliament regarding banning SEM websites. However, following considerable debate the proposals to ban SEM websites were rejected (Whittaker, 2013).

In 2019, the UK Government made further attempts to ensure SEM was restricted to adult use by introducing a legal requirement for identification and age verification of individuals accessing SEM. The Department for Digital, Culture, Media and Sport (DCMS; 2019) reported that the UK would be the first country to initiate age-verification for mainstream SEM websites and this was due to take effect on the 15th July 2019. The enforcement of this was reportedly supported by 88% of UK parents aiming to protect

children from the various online content (DCMS; 2019). However, similar to 2013, the plans to implement this were discarded due to concerns regarding the safety of SEM sites for keeping individuals' identification secure. Furthermore, concerns were raised regarding children being able to access other non-mainstream sites and whether content on these sites would be less regulated, enabling children to view potentially more harmful content. There were discussions regarding whether there was a need for "ethical porn" (Manavis, 2019) ensuring individuals, particularly children, are protected from potentially harmful content such as sexually violent or illegal content. Discussions continue regarding whether restrictions should be implemented and how specific content could be restricted to protect children; however, as yet, nothing has been implemented. Consequently, further exploration is required to identify potential impacts of SEM exposure, particularly with children of younger ages, to discover whether implementation of content or age restrictions are justified.

1.1.5 Theories relating to SEM Exposure

Cooper (1998) postulated a theory of internet use relating to the internet enabling the exploration of sexuality. Cooper (1998) proposed the Triple A Theory, suggesting that there are three factors (a triad) that makes the internet a powerful tool to explore individual sexuality; the triad are "Access, Affordability and Anonymity" (p.187). Cooper (1998) explained that access refers to the ease of access to a device with the internet and the ease of finding specific sites. Affordability relates to the ability to find free content, particularly free SEM in modern society, and Anonymity is "the belief that one is unknown (both real and perceived)" (Cooper, 1998, p.188). Cooper (1998) stated that this Anonymity enables individuals to explore, experiment and engage in fantasies with various content. It is this aspect that makes online SEM particularly attractive as individuals can access ever-

increasing content, including SEM considered to be taboo (Gonsalves, 2010), without fear of identification or accountability.

Regarding the possible effects of accessing SEM, Cooper, Putnam, Planchon and Boies (1999) expanded on Cooper's (1998) theory by suggesting types of internet users and potential impacts for these users. The first type, Recreational Users, are those who purely explore content for curiosity, novelty or entertainment and their use is not suggested to be problematic, as they often become uninterested or indifferent to the content. The second type, Sexual Compulsives, are those who "exhibit sexually compulsive traits" (Cooper et al., 1999, p.87) prior to online use. Cooper et al (1999) postulated that compulsion or preoccupation with SEM in Sexual Compulsives, is likely to cause adverse consequences for these individuals. The third type are At-Risk Users, these individuals do not have a history of sexual compulsivity but their online SEM use negatively impacts them. The group consists of two subtypes, the first is the Depressive Type, who are "generally depressed, dysthymic or anxious" (p.88). This group are likely to find SEM sites gratifying, consequently frequency of use may escalate with attempts to improve mood. While Recreational types are likely to habituate or become bored with the content, Depressive types may look for further content to increase emotional reaction or improve mood. The second subtype is the Stress Reactive type, who use SEM at times of high stress as a temporary escape or distraction from particular situations or feelings. However, Cooper et al. (1999) argued that when the stressful period has passed, they are likely to decrease their SEM use and resume other coping strategies. It is only at times of crises that SEM use may result in negative or problematic use for these individuals.

Putnam (2000) reinforced Cooper et al.'s (1999) theory by explaining that, for some, sexual arousal and reduction of negative mood states from viewing SEM acts as a

reinforcer for continued SEM use, which can elicit cravings for continued online use. Furthermore, Davis's (2001) cognitive-behavioural theory of internet use, which can be related to SEM use, explained that those with pre-existing depression, low social support and loneliness who use SEM can experience negative consequences in the form of unhelpful cognitions and behaviours which could exacerbate depressive symptoms or result in further mental health conditions. Moreover, Social Comparison Theory (Festinger, 1954) has been used to discuss individuals' comparison of themselves with those they see in SEM. It is thought that individuals who compare themselves negatively to the content could experience negative impacts on mental health, self-esteem and body image (Siegal, 1998; Peter & Valkenburg, 2014; Tylka, 2015).

1.1.6 Developmental stages

Viewing SEM is considered a "normative developmental activity during adolescence" (Alexandraki et al., 2018, p.47) enabling the exploration of sexuality. Literature describes adolescence to young adulthood as a critical period where individuals enhance social development, consolidate their identity and values, develop complex moral reasoning, autonomy and a greater capacity for differing types of intimacy (Brandell & Brown, 2015; Carr, 2006). Alongside these are physical and neurobiological changes that form cognitive and intellectual ability. Studies have addressed the impact of SEM on development. Mesch (2009) found associations between adolescents, aged 13-18, who did not view SEM and higher degrees of social bonding and interaction with peers, than those who viewed SEM. Mesch (2009) also reported statistically significant relationships between SEM exposure and aggression. Yurgelun-Todd (2007) suggested that deficits in cognitive control due to delayed maturation of the brain's prefrontal cortex in adolescence can result in impulsive actions and poor decision making. This coupled with viewing SEM

may result in impulsive sexual behaviours or compulsive SEM viewing, which could result in increased frequency of SEM use and escalating types of content to more potentially harmful content to satiate or gratify the impulsivity. Consequently, Owens et al. (2012) deduced that adolescents are susceptible to negative impacts of SEM. Binford (2018) furthered this by explaining that adolescents are particularly vulnerable to potentially negative impacts of SEM as their brains are continually developing; they experience puberty, peer pressures and are continually learning to develop maturity. This, often coupled with a lack of prior normative sexual experiences before adolescence and first SEM exposure, could mean that they do not have a healthy baseline for understanding relationships and sexual engagement. Consequently, this can create negative impacts on behaviour, their experiences and potentially their mental health.

Thornburgh and Lin (2002) argued that research lacks consensus regarding the impact of SEM and stated that some studies claim exposure negatively impacts children while others do not find significant results to suggest any negative impact from SEM. Furthermore, more recent research found positive impacts of SEM suggesting that alongside exploration of sexuality, there is emerging evidence that SEM improves sex education (Simon, Daneback & Ševčíková, 2015).

1.1.7 Current Research Findings

Additional to research on the impact of SEM exposure on development, research has investigated relationships between SEM exposure and children and young adults' beliefs, attitudes and behaviours. Findings suggest that exposure to internet SEM is related to greater increases in sexually permissive attitudes than non-internet SEM (Lo & Wei, 2005; Braun-Courville & Rojas, 2009). Studies have reported greater negative sexual beliefs, increased sexual objectification, pre-occupations with sex (Peter & Valkenburg, 2007,

2008, 2009) and increased gender-role inequality, with women being viewed as submissive to men (Häggström-Nordin, Sandberg, Hanson & Tyden, 2006; Brown & L'Engle, 2009) following SEM exposure. Moreover, Peter and Valkenburg (2010) reported that children and young adults view SEM as realistic, which Tsitsika et al., (2009) stated results in unrealistic views on sex and relationships. Studies also suggest increases in negative body image views (Häggström-Nordin et al., 2006; Lofgren-Martenson & Mansson, 2010), increases in sexual aggression or normalisation of sexual violence (Ybarra & Mitchell, 2005; Romito & Beltrami, 2007) and increases in sexual risk-taking behaviours (Braun-Courville & Rojas, 2009; Brown, Keller, & Stern, 2008).

Conversely, Kohut, Baer and Watts (2015) reported that SEM users held more gender egalitarian attitudes than those who did not view SEM. Moreover, as discussed, SEM has been reported to enhance sex education (Simon et al., 2015) and when safe sex is depicted in SEM (such as condom use) individuals are more likely to use safer sex practices (Schrimshaw, Antebi-Gruszka & Downing, 2016).

In light of this research showing varied results regarding potential impacts of SEM, studies investigated whether there were relationships between SEM exposure and mental health outcomes in children and young adults.

1.1.8 Previous Reviews

There are four published reviews on adolescents' exposure to SEM (Owens et al., 2012; Peter & Valkenburg, 2016; Koletic, 2017; Alexandraki et al., 2018). However, these reviews focused on the impact of SEM on adolescents' attitudes and beliefs, sexual behaviour and aggression (Owens et al., 2012; Peter & Valkenburg, 2016; Koletic, 2017; Alexandraki et al., 2018) self-concept, body image (Owens et al., 2012), social, sexual and

developmental changes (Owens et al., 2012; Peter & Valkenburg, 2016; Alexandraki et al., 2018) types of pornography, victimisation, sensation seeking, family and social functioning (Alexandraki et al., 2018).

1.1.9 Previous Review including Mental Health

The only review to discuss the impact of SEM on mental health is that of Alexandraki et al. (2018). Their review aimed to synthesise literature on adolescent pornography use and included research studies published between the 1st January 2000 and the 1st May 2017 that included participants aged between 12 and 18. Alexandraki et al. (2018) found 11 studies that included mental health symptomatology in association with pornography use and concluded that the “vast majority of findings” indicated that higher pornography use in adolescence was related to “higher emotional (e.g. depression) and behavioural problems” (p.53). However, the depth of discussion regarding these studies and their findings is limited to a short paragraph due to the wide scope of factors that the review examines.

1.1.10 Current Review

The current review was designed to expand on Alexandraki et al.’s (2018) review by specifically focusing on research investigating relationships between SEM exposure and mental health in children and young adults. As the research on relationships between SEM and mental health is limited in Alexandraki et al.’s (2018) review to publications within a specific time period and discussion of the findings is relatively short, the current review aimed to include all empirical research literature available in its synthesis, to discover whether there was further research regarding relationships between SEM exposure and children and young adult’s mental health and to provide a greater depth of discussion

regarding the research findings, their clinical implications and recommendations for future research.

1.1.11 Review Aim and Questions

The review aimed to systematically synthesise and evaluate the current research literature on SEM to discover whether empirical research studies have found relationships between SEM and mental health in children and young adults. Therefore, the review question was: “Is there a relationship between sexually explicit material and mental health in children and young adults?” The review also aimed to synthesise research findings and explore them in relation to existing theories related to SEM exposure.

1.1.12 Current Review Definitions and Terminology

Sexually Explicit Material

As earlier discussed, research proposes a multitude of definitions of SEM (Kelly et al., 1989; Peter & Valkenbury, 2009; Reid et al., 2011; Braun-Courville and Rojas, 2009). Although more specific definitions describe the type of content, they are not exhaustive and do not include all types of SEM currently accessible on the internet. Therefore, to include a broad range of SEM available on the internet, the current review used Efrati and Amichai-Hamburger’s (2019) definition of SEM as “sexually overt material that is primarily intended to arouse the viewers sexually” (Efrati & Amichai-Hamburger, 2019, p. 1867). The review focused on exposure to visual rather than descriptive material as descriptions are likely to be categorised as erotic literature which may have differing impacts to that of viewing pictures or videos of SEM.

Research literature has used the terminology sexually explicit material, pornographic material, pornography use, pornography viewing and exposure to pornographic or sexually explicit content interchangeably (Binford, 2018; Alexandraki, Stavropoulos, Anderson, Latifi, & Gomez, 2018). The current review used the phrase exposure to sexually explicit material or SEM to encompass the above terms. The term exposure was used to include intentional, accidental or unwanted SEM viewing. However, when referring to the research determining between intentional versus accidental exposure, the reviewer clarified the type of exposure related to the research, if the study specified the type of use.

Children and Young Adults

Literature has varied regarding classifying age groups; some studies used the terms young people, children and adolescents to include individuals up to age 18 (Mitchell, Finkelhor, & Wolak, 2003; Döring, 2009; Binford, 2019), while others specify age categories for these terms.

Alexandraki et al. (2018) reported, in their review, that individuals aged 12 to 18 were categorised as adolescents; yet, Ybarra and Mitchell (2005) included individuals aged 10 within this classification. Koletic (2017) reported studies including individuals over 18 to age 20 within the adolescent classification (Peter & Valkenburg, 2008, 2009, 2010). Yet, Bois, Knudson and Young (2004) termed individuals 12 to 24 as “youths” (p.343) and other studies categorised individuals from age 18 to late twenties as emerging adults (Carroll et al., 2008), within early adult transition or young adulthood (Stewart & Szymanski, 2012; Brandell & Brown, 2015).

Given variations between age classifications and terminology in the literature, this review used age classifications from the World Health Organisation (WHO, 2019) stating that individuals aged 10 to 24 were included within adolescent, youth and young people classifications. Consequently, this review included individuals up to, and including age, 24 and classified them as children and young adults to acknowledge previous literature classifications of children over 18 as potentially emerging into adulthood.

Mental Health

In the research literature the terms mental health and mental or psychological wellbeing are used interchangeably to refer to positive or negative impacts on individuals' psychological health (Grubbs, Stauner, Exline, Pargament & Lindberg, 2015; Szymanski, Feltman & Dunn, 2015; Alexandraki et al., 2018). Positive impacts on mental health/psychological wellbeing are defined as creating "a positive state of mind...feeling safe and able to cope, with a sense of connection with people, communities and the wider environment" (Department of Health, 2011, p.90). However, negative impacts on mental or psychological health often refer to increases in symptomatology that could indicate reductions in mental health or the presence of mental health disorder symptoms. In this review, mental health problems were assessed by measures of mental health symptomatology that, when reaching clinical thresholds, could be related to the presence of a mental health disorder classified in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013). Often research discusses levels of anxiety; papers were only included if they described the levels of anxiety as impacting psychological wellbeing or mental health, suggesting the levels are above those of normal anxiety, indicating clinically significant symptoms.

1.2 Method

This systematic review was developed and reported according to the 27-item checklist provided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (PRISMA Statement; Moher, Liberati, Tetzlaff, Altman & The PRISMA Group, 2009).

Scoping searches of the literature on SEM were conducted to develop a review question, eligibility criteria, fine-tune search terms and create a protocol, as recommended by Boland, Cherry and Dickson (2017). Initial scoping searches were conducted in September/early October 2019 and included the following search terms: child*, adolescen*, teen*, youth*, young person*, adult*, young adult*, porn*, sex* explicit, adult material*, adult website*, adult movie*, adult film*, mental health, wellbeing or “well being”.

After developing the protocol, the systematic review was registered on the Open Science Framework (OSF; <https://osf.io/az4ms>), dated 23rd October 2019. Subsequently, the systematic search was conducted on the 23rd and 24th October 2019, using finalised search terms, to identify potentially relevant literature.

1.2.1 Search Strategy

Five electronic databases were used to conduct the systematic search of the literature. Published literature was obtained from PsycInfo, Medline, Web of Science and Cumulative Index of Nursing Allied Health Literature (CINAHL). Unpublished (grey) literature was gathered from ProQuest Dissertations and Theses Global, Google scholar and reference searches. Unpublished literature was included to account for publication bias within published literature to enable searches for all papers exploring relationships

between SEM and mental health. There were no restrictions by date applied to the literature search to enable the inclusion of all papers relevant to the review question and eligibility criteria.

1.2.2 Search Terms

The search terms (Table 1) were used in each of the five databases to identify potentially relevant literature. The first set of searches were to obtain all literature relevant to children and adolescents, the second to gather literature inclusive of adults and young adults; these were then amalgamated and searched with terms related to SEM. Subsequently, all of the terms were searched with mental health or wellbeing to discover papers discussing children and young adults' mental health in relation to SEM exposure.

The Boolean operator 'OR' was used to connect the search terms, to gather all papers including those terms, and the Boolean operator 'AND' was used to combine the searches and refine the literature to include records that have all of the search terms. When using PsycInfo, Medline and CINAHL, which were accessed through EBSCO, the operator term N1 was used to find papers with the terms within one word of each other. However, the platforms Web of Science and ProQuest Dissertations and Theses Global use the operator NEAR/1, therefore the term N1 below was changed to NEAR/1 for these databases. All other search terms remained the same for each database.

Table 1. Search Terms used in each database

Search Number	Search Terms
S1	child* OR adolescen* OR teen* OR youth* OR “young person*”
S2	adult* OR “young adult*”
S3	S1 OR S2
S4	porn*
S5	sex* N1 (explicit OR material* OR internet)
S6	adult* N1 (material* OR website* OR movie* OR film*)
S7	S4 OR S5 OR S6
S8	S3 AND S7
S9	(mental OR psycholog*) N1 (health OR wellbeing OR “well being”)
S10	S8 AND S9

All databases used the above search criteria. However, ProQuest Dissertations and Theses Global’s searches were initially not as sensitive in their extraction as the other databases, therefore the above search terms were altered to select papers with the search terms in the title or abstract of the paper. Thus, each search term had ti (for title) OR ab (for abstract) before it. For example, S1 was ti(child* OR adolescen* OR teen* OR youth* OR “young person*”) OR ab(child* OR adolescen* OR teen* OR youth* OR “young person*”)

Using these search terms, Medline produced 138 papers dating from 1984-2019, PsycInfo produced 542 papers from 1941-2019, CINHAL produced 66 papers from 2003-2018, Web of Science found 111 results from 1993-2019 and ProQuest Dissertations and Theses Global produced 421 papers from 1961-2019.

1.2.3 Eligibility Criteria

Papers found by the five databases were exported into EndNote, alongside relevant papers from Google Scholar and reference searches. Duplicates were removed and all papers were examined against predetermined eligibility criteria (Table 2).

Initially, titles and abstracts were screened against the eligibility criteria by the researcher. Buscemi, Hartling, Vandermeer, Tjosvold and Klassen (2006) stated that single reviewer screening should be avoided as it increases reviewer bias. They recommended that two or more independent reviewers screen papers to reduce bias. Consequently, secondary screening was conducted by a voluntary research assistant (VRA). The VRA screened 10% of the sample (112 papers) to ascertain level of agreement with the researcher's decision to include or exclude papers and to reduce reviewer selection bias, increasing the robustness of the review. Initially, there was 96% agreement between researchers; however, following further discussion, 100% agreement between researchers was obtained.

As there have not been any systematic reviews that have focused solely on children and young adults' mental health in relation to SEM, prior to the current review, all types of study design were included to synthesise and evaluate the existing literature. Papers were required to be in English or have available translations. Studies were required to include children or young adults, up to and including age 24, and SEM (or variants of this term) associated with mental health.

As the focus of this review was to examine relationships between SEM exposure and mental health, other extenuating factors which may be associated with mental health, such as third-party involvement or incitement to watch SEM were excluded. Consequently,

the review excluded papers on the impact on mental health due to the distribution or incitement to watch SEM via grooming, sexual or physical abuse offences/offenders, revenge porn/cyberbullying or distribution of images via sexting.

Table 2. Eligibility Criteria for studies included in the review

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> - Participants were children or young adults up to and including age 24. - Papers with mental health or psychological wellbeing associated with sexually explicit material - Sexually explicit material/pornography, internet and television content - Texts written or translated into English - Published and Unpublished (Grey Literature) on empirical studies - Compulsive pornography use. 	<ul style="list-style-type: none"> - Participants were adults over 24 - Papers including mental health but not SEM or papers with SEM but not mental health. - Sexually explicit literature, text (including sexting) or music - Texts not written or translated into English, or translation of the text is unavailable. - Theoretical papers, systematic or literature reviews, book chapters or book reviews. - Sex or Internet Addiction - Papers only including physical or sexual health. - Papers solely focused on Sexual Attitudes or Behaviours - Papers including consensual or non-consensual sharing of personal images (Sexting, Revenge Porn or Cyberbullying) - Papers solely focused on offences or offenders (including sex offences, sexual and/or physical abuse, child exploitation and child pornography).

1.3 Results

1.3.1 Data Selection

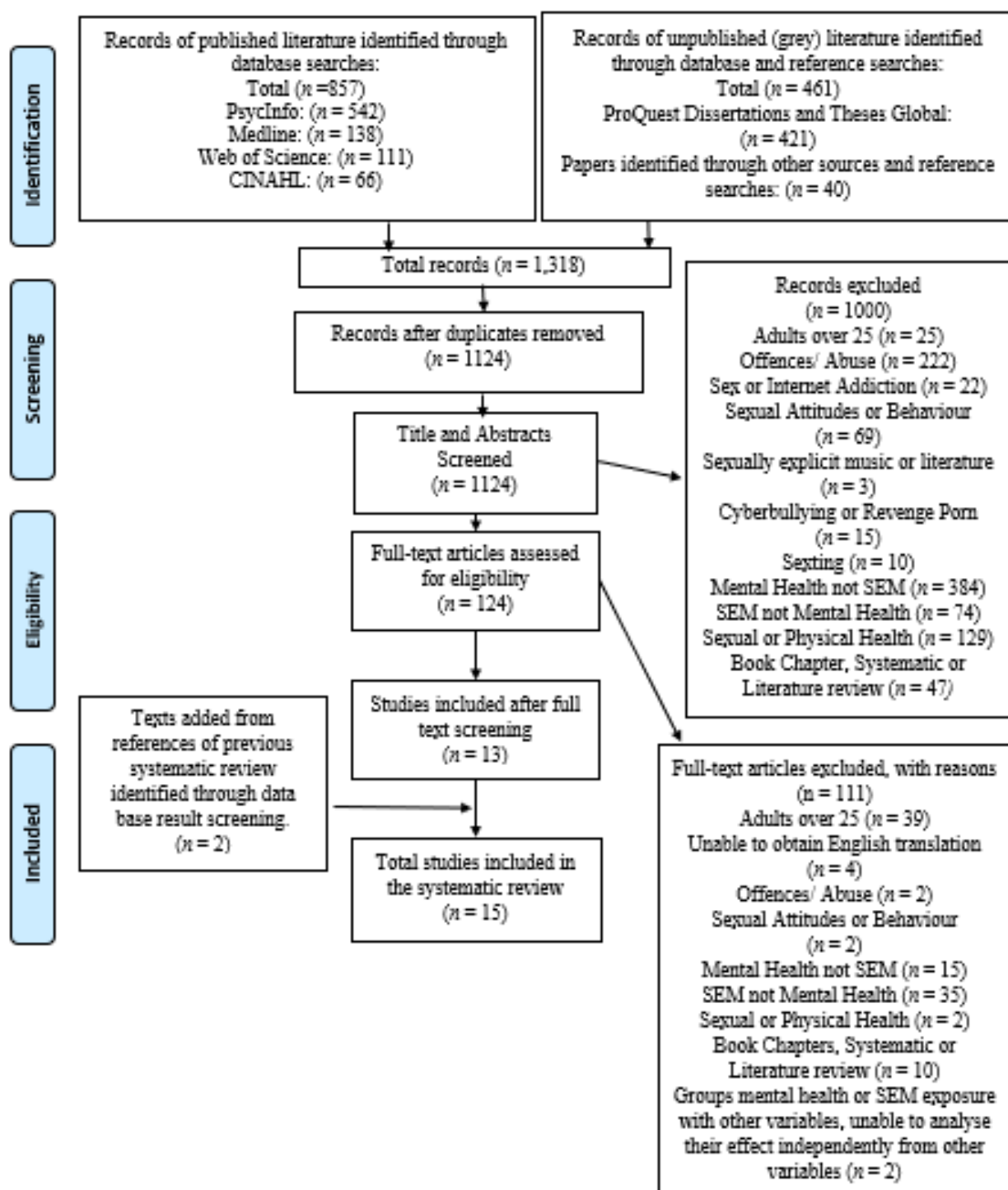
In accordance with PRISMA statement guidelines, the PRISMA flow diagram (Moher et al., 2009) was used to display the data screening and selection process. The four databases used to obtain published literature (PsycInfo, Medline, Web of Science and CINAHL) produced a total of 857 records. The database for unpublished literature (ProQuest Dissertations and Theses Global), alongside literature from Google Scholar and reference searches, yielded 461 records. All records combined gave a total of 1318, which reduced to 1124 when duplicates were removed. The 1124 papers were screened by title and abstract against the above eligibility criteria; 1000 records were excluded at this stage. Full texts were obtained for the remaining 124 records as they required more in-depth screening of the content to ascertain whether they met the eligibility criteria.

During full text screening, a further 111 records were excluded as they did not meet eligibility criteria. At this stage, closer examination of participant ages (including age range and means) and study variables was conducted alongside the pre-existing eligibility criteria. Studies including young adults were excluded if they did not specify an age range or average age of participants, as it was not possible to identify whether the study included adults over 24. Furthermore, studies that grouped mental health or SEM variables alongside other factors, for example grouping SEM use, with seeking sexual partners and sexual information in relation to mental health (Velezmoro, Negy & Livia, 2012) or grouping physical and mental health as one variable associated with SEM use (Yu & Chao, 2016) were excluded as they did not differentiate from other variables to assess SEM

exposure and mental health independently. At this stage, four papers were excluded as translations of full texts were unavailable.

Two additional papers were added, to the 13 remaining texts, following reading full-text papers. These two papers were cited in a previous systematic review on adolescent pornography use (Alexandraki et al., 2018) and were deemed relevant to the current review. Consequently, 15 papers were eligible for the current review (Figure 1).

Figure 1. Prisma Flow Diagram



1.3.2 Data Extraction

Data were extracted from the 15 papers (Table 3) meeting eligibility criteria for the review. A narrative synthesis of the data was completed, extracting relevant data regarding the review question. Data extracted included the author, topic, design and aim of the research, participant characteristics (gender, ages, and nationality of participants), measures, statistical analyses and key findings, giving effect sizes or p-values when effect sizes were not reported.

1.3.3 Quality Assessment

The quality of the 15 studies was assessed using an adapted version of the Newcastle-Ottawa Quality Assessment Scale (NOS; Wells et al., 2012). This scale was originally developed to assess methodological quality of nonrandomised studies in meta-analyses, specifically cohort and case-control studies; however, adaptations were made to include the assessment of quality for cross-sectional studies (Hillen, Medendorp, Daams & Smets, 2017). The scale uses star ratings to represent a feature of quality within the following domains: selection of study groups, comparability of groups and the exposure or outcome of interest within the study. The NOS has been extensively used for quality assessing reviews; its content validity and inter-rater reliability have been established via critical review of the tool's components (Wells et al., 2012).

The quality of the studies was assessed using a tailored version, to suit the current review, of a pre-existing adaptation of the NOS to include cross-sectional studies by Hillen et al. (2017). As with the original NOS (Wells et al., 2012), the adaptation uses star ratings for each quality assessment domain; however, the adapted version also includes a domain

to quality assess aims of the study. The adapted version totals the number of stars within each domain to give percentage scores. Hillen et al. (2017) reported that studies with percentage scores above 75% are considered “high quality”; scores of above 50% to 75% are “moderate quality” and those equal to or below 50% are “low quality” (p.1199).

Table 4 displays the quality assessment of the 15 papers selected for this review using the tailored version of Hillen et al.’s (2017) adapted NOS for cross-sectional studies (Appendix A). A detailed breakdown of the quality assessment process producing the figures in Table 4 is in Appendix B.

Table 3. Data Extraction

Authors	Topic of paper	Design and Aim	Participants/ Sample Characteristics	Measures	Statistical Analyses	Findings (effect sizes using Pearson's r or Cohen's d where available in paper, if not available, p values reported)
1. Cheung, Chan, Lui, Tsui & Chan (2018)	Investigating the relationship between adolescent psychological well-being and internet use.	Cross-sectional, correlational design. Aims: 1. determine the antecedents of internet use rather than effects. 2. examine the relationship between adolescents' self-esteem, loneliness and depression with internet use behaviours (including looking for pornography).	$n = 665$ adolescents, (321 Females, 344 Males) from 7 secondary schools in Hong Kong - Grades 7-12 (US grading). Ages 12 -18/19.	Quantitative Questionnaires. The Chinese Self-esteem Scale (C-SCES) adapted from Tsang (1997), Chinese Loneliness Scale (C-LS) from Huang (2007), Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1997), Chinese internet Addiction Scale (CIAS; Chen, Weng, Su, Wu, & Yang, 2003) and questions regarding internet use.	Pearson's correlations; Multiple linear regressions.	Correlations -adolescents degree of depression ($r=.174$, $p<.01$), loneliness ($r=.087$, $p<.05$) and internet addiction ($r=.208$, $P<.01$) was significantly correlated with looking for pornography. Regressions - looking for pornography predicted Internet addiction, $\beta = .203$, $t(608) = 5.392$, $p < .001$. Male gender and depression explained a total significant proportion of the variance in looking for pornography, $R^2 = .071$, $F(7, 578) = 6.265$, $p < .001$.
2. Doornwaard, van den Eijnden, Baams, Vanwesenbeeck & Bogt (2016).	Investigating psychosocial factors that are risk behaviours for adolescents developing compulsive use of SEM.	Cross-sectional and longitudinal, correlational design. Aims: 1. identify psychosocial factors which make adolescent males at increased risk of problematic SEM use. 2. identify whether psychological wellbeing, sexual	$n = 331$ Dutch males (aged 11-17) who indicated using SEM were included in the cross-sectional analysis (Time 1). $n = 251$ Dutch males included in the longitudinal analyses (Time 2; 6 months later). 80 participants were excluded from Time 2 analyses as they did not	Quantitative Questionnaires completed at baseline and 6 months later. The Compulsive Internet Use Scale (Meerkerk, Van den Eijnden, Vermulst & Garretsen, 2009), six items from the Depressive Mood List (Kandel & Davies, 1982), Global Self-Worth subscale from the Self-Perception Profile for Adolescents (Harter,	Correlations; Negative binomial regressions.	Correlations - Time 1 depression was not significantly correlated with compulsive use of SEM however low self-esteem was ($r = -.17$, $p<.001$). Time 2 (6 months later) depression was significantly correlated with SEM use ($r = .20$, $p<.01$) as well as low self-esteem ($r=-.15$, $p<.05$). Regressions- higher levels of depression predicted increases in compulsive use in the longitudinal analyses, 6 months later ($p<.05$).

		interests and impulsive psychopathic personality predicts compulsive use of SEM.	complete Time 2 questionnaires.	1985, 2012), Sexual-Preoccupation subscale from the Sexuality Scale (Snell & Papini, 1989), 5-items from the Impulsiveness Scale (Eysenck & Eysenck, 1978), subscales of personality traits from the Youth Psychopathic Traits Inventory-Short Version (Andershed, Hodgins & Tengstrom, 2007)		
3. Hökby et al. (2016)	Investigating relationships between adolescent mental health and differing internet-based activities.	Cross-sectional and longitudinal, correlational design. Aims: 1. assess the relationship between mental health and internet-based activity. 2. identify how adolescent mental health is predicted by time spent on the internet and engagement in different internet activities (including SEM viewing). 3. assess whether effects of internet activity predicted changes in mental health over a 4-month period.	<i>n</i> = 2286 adolescents (aged 14-16, mean 15.8). 56% female, 44% male from state schools in Hungary, Estonia, Italy, Lithuania, Sweden, Spain and the United Kingdom. Subjects were included in the longitudinal analyses if they participated in Time 1 and Time 3 (4-months later) data collection. Participation at Time 2 was not necessary for inclusion in the longitudinal analyses (<i>n</i> = 1544).	Quantitative Questionnaires completed at baseline, 2 and 4 months. Measures of Internet Use were developed for the study. This included time spent on different activities (including pornography). Levels of anxiety, depression and stress were assessed by the Depression Anxiety Stress Scale (DASS-42; Lovibond & Lovibond, 1995)	Cross-sectional hierarchical multiple regression; longitudinal regression analyses.	There was a significant difference in pornography viewing ($d=-1.04$), levels of depression ($d=.40$), anxiety ($d=.30$), and stress (.37) between males and females ($p<.001$). Cross-sectional regression - time spent viewing pornography was a significant predictor of DASS (Depression, Anxiety, Stress Scale) scores ($p<.05$). Longitudinal regression - SEM viewing predicted sleep loss and withdrawal (negative mood when content was unavailable; $p<.05$). Sleep loss and withdrawal were associated with changes in mental health over time ($p<.001$).
4. Kim (2001)	Exploring negative health behaviours in Korean adolescents; factors affecting physical	Cross-sectional, correlational design. Aims:	<i>n</i> = 2124 Korean adolescents (1092 males and 1032 females) randomly selected from junior and high schools, 8 th	Quantitative Questionnaires. The Korean Health Survey Kit (Ministry of Health & Welfare, 1996), The Multidimensional Health Locus of Control Scale	Frequencies, correlations, multiple regressions; Confirmatory	Frequencies showed that 43% of adolescents had viewed pornography and 52% experienced mental health problems. Correlations- mental health problems, specifically anxiety and depression ($r=.08$, $p<.001$), reduced self-esteem

Chapter 1

and psychological health. 1.To explore negative health behaviours and psychological factors in Korean adolescents. -12th grade (ages 14-18, mean 15.4) in South Korea. (MHLC; Wallston, Wallston & DeVellis, 1978), The Self-efficacy Scale (Sherer et al., 1982), The Korean version of the Self-esteem Scale (Rosenberg, 1965). factor analysis. (r=-.26, p<.001) and lower self-efficacy (r=-.08, p<.001) were significantly associated with viewing SEM. Levels of self-esteem (r=.18) and self-efficacy (r=.21) were significantly correlated with mental health problems (p<.001). Regressions- Self-efficacy ($\beta = .16$) had a substantial effect on mental health. Self-efficacy ($\beta = .13$) and self-esteem ($\beta = -.25$) had a substantial linear relationship with viewing pornography (p<.001).

5. Kim (2011)

Investigating relationships between health risk behaviours and physical and psychological health in Korean adolescents. This is a repetition of Kim (2001) using different participant characteristics. Cross-sectional, correlational design. Aims: 1.identify the prevalence of health risk behaviours (including viewing SEM) in Korean adolescents. 2. identify relationships between psychological variables with the health risk behaviours. n= 885 Korean students ranging from 7th-9th grade (aged 14-16 years, mean 15.1) randomly selected from 3 junior high schools in South Korea. Quantitative Questionnaires. The Korean Health Survey Kit (Ministry of Health & Welfare, 1996), The Multidimensional Health Locus of Control Scale (MHLC; Wallston et al.,1978), The Self-efficacy Scale (Sherer et al., 1982), The Korean version of the Self-esteem Scale (Rosenberg, 1965). Frequencies, correlations; regression analyses. Frequencies showed that 47% of adolescents viewed pornography and 57% had mental health problems. As in Kim (2001), correlations - mental health problems, anxiety and depression (r=.08), reduced self-esteem (r= -.27) and lower self-efficacy (r= -.10) were significantly associated (p<.001) with viewing pornography. Again, levels of self-esteem (r =.16) and self-efficacy (r =.24) were significantly associated with mental health problems (p<.001). Regressions were not performed with mental health and viewing pornography. However psychological factors related to impact on mental health (self-esteem and self-efficacy) were analysed. Self-esteem ($\beta = .14$) and self-efficacy had a substantial effect on mental health (p<.001) and that self-esteem ($\beta = -.23$) and self-efficacy ($\beta = .16$) in turn had a substantial effect on viewing pornography.

6. Kohut &
Štulhofer
(2018)

Examining relationships between pornography use, subjective well-being, self-esteem and symptoms of anxiety and depression in Croatian adolescents.

Cross-sectional and longitudinal, two-sample exploratory-confirmatory design.

Aims:
1. understand the relationship between pornography use and mental well-being in Croatian adolescents.

Two independent adolescent samples from Croatia. $n = 455$ from Zagreb (aged 15-19, mean 16.1 - 123 males and 332 females). $n = 858$ from Rijeka (aged 15-18, mean 15.9 - 326 males and 532 females). Recruited from schools, surveyed at 6-month intervals (total 12-month study).

Quantitative Questionnaires. Pornography Use designed for the study. Adapted version of the Personal Well-being Inventory-School Children (PWI-SC, Tomyń & Cummins, 2011), the Patient Health Questionnaire for Depression and Anxiety (PHQ-4; Kroenke, Spitzer, Williams & Lowe, 2009), a measure of self-esteem used in Ceńat et al. (2014), the Barratt Impulsiveness Scale-Brief (BIS-Brief; Steinberg, Sharp, Stanford & Tharp, 2013) and a measure of adverse family environment developed for the study.

Cross-lagged structural equation modelling; linear mixed models, controlling for family environment and impulsivity.

Correlations- association of negative subjective wellbeing with pornography use in females from Zagreb and Rijeka at Time 1 and Time 2. There was only one correlation of negative subjective well-being with pornography use in males and this was in the Zagreb group at Time 2. In the Zagreb sample there was an association at Time 3 for females of pornography use with depression and anxiety ($r=.13$, $p<.001$), however adverse family environment was more consistently correlated in this sample with pornography use (Time 1, $r=.13$, $p<.05$, Time 2, $r=.16$, $p<.001$ and Time 3 $r=.34$, $p<.001$). The only significant results in males from Zagreb was pornography use and impulsivity at Time 1 ($r=.2$, $p<.01$) and Time 2 ($r=.16$, $p<.05$). In the Rijeka sample, pornography use was significantly correlated at all time points ($p<.001$) with depression and anxiety in women (Time 1, $r=.14$; Time 2, $r=.15$; Time 3, $r=.16$; Time 4, $r=.11$ and Time 5, $r=.13$) and impulsivity (Time 1, $r=.20$; Time 2, $r=.17$; Time 3, $r=.18$, Time 4, $r=.17$ and Time 5, $r=.15$). For males in Rijeka, only impulsivity was significantly correlated ($p<.001$) with pornography use (Time 1, $r=.19$; Time 2, $r=.21$; Time 3, $r=.19$; Time 4, $r=.23$; Time 5, $r=.22$). Cross-lagged path analysis and lagged linear mixed models showed there was not consistent evidence, across both samples, that pornography use was associated with symptoms of depression and anxiety, subjective wellbeing or self-esteem over time.

Chapter 1

7. Luder et al. (2011)	Identifying relationships between exposure type (unwanted and intentional) to pornography and behavioural, sociodemographic and psychological factors.	Cross-sectional design. Aims: 1. analyse associations between pornography and risky sexual behaviour. 2. explore factors associated with pornography exposure (including depression).	Of the overall $n = 7548$ adolescents collected in the survey, the study analysed $n = 6054$ Swiss adolescents (3283 males and 2771 females, aged 16-20) who used the internet 30 days prior to data collection.	Quantitative questionnaires used in a nationally representative survey. Internet use, risky sexual behaviour, sexual interest and pubertal timing questions were developed for the study. Sensation-seeking was measured using the scale developed by Gniech, Oettling, and Brohl (1993) and mood was measured by the Depressive Tendencies Scale (Alsaker, 1992).	Chi-square tests, ANOVA; logistic regression analyses.	There was a significant difference in depression in males between those who were intentionally exposed (wanted exposure), unintentionally exposed and those not exposed to pornography ($p < .001$). No associations were found regarding females and depressive tendencies in all exposure group types.
8. Ma (2018)	Explore relationships between exposure to online pornography with psychological wellbeing and sexually permissive attitudes.	Cross-sectional and longitudinal, three-wave data cross-lagged panel design. Aims: 1. examine relationships between intentional exposure and non-intentional exposure to online pornography with psychological well-being and sexually permissive attitudes.	$n = 1401$ (758 males, 643 females) from Grade 7 (mean age 12.43) who completed follow-up questionnaires at 12-month intervals from 2015 (Wave 1) -2017 (Wave 3). Recruited from secondary schools in Hong Kong.	Quantitative Questionnaires. Intentional and Non-intentional Exposure to Online Pornography, developed for the study. Measure of depression, Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001), the Satisfaction with Life Scale (Diener, Emmons, Larsen & Griffin, 1985) and a measure of permissive sexual attitudes (Sprecher, 1989)	Correlations; Path analysis.	Correlations -Intentional exposure and depression were significantly correlated at Wave 1 ($r = .15$, $p < .01$), Wave 2 ($r = .15$, $P < .01$) and Wave 3 ($r = .20$, $p < .01$). Unintentional exposure was also significantly correlated with depression at Wave 1 ($r = .13$, $p < .01$), Wave 2 ($r = .13$, $p < 0.1$) and Wave 3 ($r = .14$, $p < 0.1$). Depression and life satisfaction were negatively correlated (Wave 1, $r = -.36$; Wave 2, $r = -.42$; Wave 3, $r = -.36$) suggesting that as depression increased life satisfaction decreased. Depression and Permissive sexual attitudes were positively correlated suggesting that as depression increased so did permissive attitudes (Wave 1, $r = .20$; Wave 2, $r = .14$, Wave 3, $r = .16$). Males reported more intentional exposure and greater depression than females. Path analysis - The auto-regressive coefficients (paths between same variable) were significant for intentional exposure and depression ($p < .01$)

9. Mattebo, Tydén, Häggström-Nordin Nilsson, Larsson (2013)	Exploring relationships between pornography use, physical and psychological health and life experiences.	Cross-sectional design.	Aims: 1. describe patterns of pornography use including self-rated health, lifestyle and sexual experiences.	<i>N</i> = 877, 477 males and 400 females (aged 16, mean 16.5) randomly selected from high schools in Sweden in 2011.	Quantitative Questionnaires. Questions on lifestyles from Aslund, Starrin & Nilsson, (2010). Physical health questions from Currie et al. (2004). Psychological health questions from the Self-rating depression scale (DSRS; Zung, 1965) and ADHD questions from ASRS self-report scale (Kessler et al. 2005). Questions from the SDQ (Goodman, 1997). Pornography experiences, attitudes and sexual experiences scales from Häggström-Nordin, Hansson & Tydén (2005)	Correlations; logistic regression.	5% of participants met the DSM-IV criteria for depression but there was no difference between pornography consumption groups (non-frequent, average or frequent users) with regard to levels of depression. Overall self-reported psychological health was reported as “good or very good” but was not statistically significant. Correlations for psychological health are not presented in the study.
10. Mattebo, Tyden, Haggstrom-Nordin, Nilsson & Larsson (2018)	Data from Mattebo et al (2013) was included as Time 1 analyses. This paper also identified predictors of pornography use and investigated relationships with depression and psychosomatic symptoms.	Cross-sectional and longitudinal design.	Aims: 1. identify predictors for continued pornography use. 2. investigate relationships between pornography use and depressive and psychosomatic symptoms in Swedish adolescents.	Data collected at two time points, Time 1 (baseline, in 2011; Mattebo et al, 2013) <i>n</i> = 877, 477 males and 400 females aged 16. Time 2 (2013) <i>n</i> = 462, 224 males and 238 females, aged 17-21, mean age 18.25) collected from senior schools in Sweden.	Quantitative Questionnaires. Same sociodemographic, pornography consumption, psychosomatic symptoms and Self-rating depression scale (DSRS; Zung, 1965) as used in the 2011 data collection (see Mattebo et al., 2013).	Correlations; Generalized Linear Models.	Correlations- pornography consumption and depressive symptoms at follow-up were only significant for females ($\rho = 0.153$, $p < 0.05$). Females reporting higher pornography use at baseline reported greater depressive symptoms at follow-up. For males, higher pornography at baseline resulted in lower reporting of depressive symptoms at follow-up. Depressive symptoms at baseline were the strongest predictor for depression at follow-up ($\rho = 0.575$). Pornography consumption at Time 1 (baseline) associated with depressive symptoms ($p = 0.006$) and was related to depressive symptoms at Time 2 ($p = 0.044$).

Chapter 1

11. Štulhofer, Tafro & Kohut (2019)	Similar to the authors previous study (Kohut & Štulhofer, 2018), this study examined pornography use, self-esteem and symptoms of anxiety and depression.	Cross-sectional and longitudinal design. Aims: 1. identify the relationship between pornography use and psychological well-being over a period of 2.5 years.	<i>n</i> = 1289 (775 females and 514 males) from Croatian high schools (mean age 15.9 at baseline), completed surveys at 5-month intervals (for 6 Waves of assessment – total 2.5 years).	Quantitative Questionnaires. Some of the measures used in Kohut & Štulhofer (2018) were included in this study. These were questions on pornography use, the Patient Health Questionnaire for Depression and Anxiety (PHQ-4; Kroenke et al., 2009) and the measure of self-esteem used in Ce´nat et al. (2014).	Correlations; latent growth curve modelling and latent class growth modelling.	Correlations - Pornography use was significantly correlated at $p < .01$ significance level with anxiety and depression symptoms at all time points for adolescent females (Wave 1, $r = .12$; Wave 2, $r = .14$, Wave 3, $r = .15$; Wave 4, $r = .11$; Wave 5, $r = .12$, Wave 6, $r = .17$). Pornography use was also consistently correlated with low self-esteem in females. However, Pornography use was only correlated at the $p < .05$ level with anxiety and depression symptoms in adolescent males at Wave 4. In both males and females, self-esteem was correlated with depression and anxiety levels at each time point, suggesting that anxiety and depression related to lower levels of self-esteem. Latent class growth modelling – there were no significant changes in associations with pornography use and changes in depression, anxiety and self-esteem levels over time.
12. Svedin, Åkerman & Priebe (2011)	Investigating the relationship between pornography use in male adolescents, comparing frequent use to seldom use.	Cross-sectional descriptive Design. Aims: 1. identify associations with pornography use, attitudes and self-reported impact of pornography (including mental health).	Swedish high school seniors (aged 18, mean 18.15). Frequency of use was calculated for <i>n</i> = 4026 (1902 males and 2124 females). As female’s frequency of use was low, only males were included in further analyses.	Quantitative Questionnaires. Questions on pornography use, consensual sexual activity, sexual experiences and attitudes were collected, some items were developed for the study others came from other Nordic Surveys developed by Mossige (2001). The study also included the SCL-90 depressive scale (Derogatis, 1979) and items from the Parental Bonding Instrument	Frequencies; multiple regression analyses.	Frequencies -on the mental health scale, 19.5% of frequent users (defined as using pornography more or less daily) scored above clinical cut-off for depression, compared to 12.6% of non-frequent users. Multiple logistic regression- the mental health (depression) scale did not produce statistically significant associations with pornography use.

13. Tsitsika, et al. (2009)	Evaluate predictors and outcomes of pornographic internet site use in Greek adolescents	Cross-sectional design. Aims: 1. analyse predictors of infrequent versus frequent pornography internet site use and evaluate psychosocial implications	<i>n</i> = 529 Greek students (253 males and 276 females) in grades 9- 10 (mean age 14.85) from public schools in Athens.	(Parker, Tupling & Brown, 1979). Quantitative Questionnaires. Questions on frequency and characteristics of pornographic internet use developed for the study. The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1999) emotional subscale used for screening for anxiety and depression and psychosocial characteristics. The YIAS (Young, 1998) was also used to assess for internet addiction.	Logistic Regression Analyses	Pornography Internet users were twice as likely to have a borderline addiction score than those who do not use pornography ($p < .05$). Pornography users did not have a significantly different SDQ score than non-pornography internet site users. Infrequent or frequent use was not related to the emotional subscale of the SDQ (assessing for anxiety and depression symptoms). However frequent use was associated with conduct problems and difficulties with social behaviour.
14. Willoughby, Carroll, Nelson & Padilla-Walker (2014)	Investigating pornography use, acceptance of pornography and sexual behaviours associated with wellbeing in emerging adults.	Cross-sectional design. Aims: 1. investigate how pornography acceptance and sexual behaviour moderates relationships with pornography use and its outcomes (including mental health outcomes).	<i>n</i> = 792 emerging adult students (547 females, 245 males) from four universities in America (average age 19.61).	Quantitative Online Questionnaires. Pornography Use, Acceptance, Relational Sexual Behaviour and Risk-Behaviour questions were developed for the study. Depression was assessed via the CES-D (Radloff, 1977), self-worth was assessed by the Self-Perceptions Profile for College Students: Self-Worth Subscale (Neeman & Harter, 1986) and Impulsivity was assessed by the Emotion Self-Regulation Subscale (Novak & Clayton, 2001).	Correlations; hierarchical regression analyses and MANCOVA	Correlations – greater pornography use was associated with more depressive symptoms ($r = .17$, $p < .001$) and lower self-worth ($r = -.19$, $p < .001$) in women but was not significantly associated for men. Regressions - when controlling for impulsivity and demographic variables (such as age, race, marital status and religiosity), there is no association of pornography use with depression and self-worth in men. However, higher use was associated with significantly less self-worth ($p < .001$) and more depressive symptoms in women ($p < .05$) even when controlling for impulsivity and demographic variables. There were significant differences between low, moderate and high consumption of pornography between men and women. Men in

15. Ybarra & Mitchell (2005)

Identifying characteristics of adolescents who seek online pornography.

Cross-sectional, correlational Design.

Aims:
1. identify characteristics associated with SEM seeking and adolescent mental health

Using the Youth Safety Survey, a nationally representative telephone survey in America (UCLA Centre for Communication Policy, 2003), $n= 1,484$ adolescents aged 10-17.

Quantitative Telephone Questionnaires.

The survey included questions on pornography seeking, internet usage, unwanted exposure to sexual material, parental internet controls, care-giver child relationship, depression, behaviour, negative life experiences and victimisation.

Chi-square test; regression analyses.

the moderate porn use/low sexual engagement had significantly more depressive symptoms than those in the high porn use/high sexual engagement category. Women in the moderate porn use/high sexual engagement had significantly fewer depressive symptoms and more self-worth than those in the high porn/moderate sexual engagement category (who had significantly more depressive symptoms and lower self-worth). Outcomes of pornography use were not significantly associated with level of acceptance of pornography.

25% of adolescents reported unwanted exposure. Twice as many (11%) of online seekers of pornography reported clinical features of major depression in comparison to offline seekers (4%) and non-seekers (5%, $p < .05$). Almost a third of online seekers rated their emotional bond with a parent/caregiver as poor in comparison to offline and non-seekers ($p < .001$). Regression - a trend was observed for those reporting features of clinical depression to be 3.5 times more likely to report online pornography seeking. However, although this was a trend, the analysis was just above the significance level ($p = .06$).

Table 4. Quality Assessment using a tailored version of the adapted NOS (Hillen et al., 2017)

Author	Star Ratings	Total (Percentage)	Classification of study quality
1. Cheung et al. (2018)	<i>Aim</i> - * <i>Subject Selection</i> - ***** <i>Comparability</i> – No stars <i>Outcome</i> -**	8 (53%)	<i>Moderate Quality</i>
2. Doornwaard et al. (2016).	<i>Aim</i> -** <i>Subject Selection</i> - *** <i>Comparability</i> – * <i>Outcome</i> -**	8 (53%)	<i>Moderate Quality</i>
3. Hökby et al. (2016)	<i>Aim</i> - ** <i>Subject Selection</i> - ***** <i>Comparability</i> – * <i>Outcome</i> -***	11 (73%)	<i>Moderate Quality</i>
4. Kim (2001)	<i>Aim</i> - ** <i>Subject Selection</i> - ***** <i>Comparability</i> – No stars <i>Outcome</i> -**	8 (53%)	<i>Moderate Quality</i>
5. Kim (2011)	<i>Aim</i> - ** <i>Subject Selection</i> - ***** <i>Comparability</i> – No stars <i>Outcome</i> -**	9 (60%)	<i>Moderate Quality</i>
6. Kohut & Štulhofer (2018)	<i>Aim</i> - *	9 (56%)	<i>Moderate Quality</i>

Chapter 1

	<i>Subject Selection- *****</i>		
	<i>Comparability – **</i>		
	<i>Outcome - **</i>		
7. Luder et al. (2011)	<i>Aim - **</i>	13 (81%)	<i>High Quality</i>
	<i>Subject Selection- *****</i>		
	<i>Comparability – **</i>		
	<i>Outcome - ***</i>		
	<i>Aim - **</i>		
8. Ma (2018)	<i>Subject Selection- ***</i>	10 (62%)	<i>Moderate Quality</i>
	<i>Comparability – **</i>		
	<i>Outcome - ***</i>		
	<i>Aim - **</i>		
9. Mattebo et al. (2013)	<i>Subject Selection- *****</i>	12 (75%)	<i>Moderate Quality</i>
	<i>Comparability – *</i>		
	<i>Outcome - ***</i>		
	<i>Aim - **</i>		
10. Mattebo et al. (2018)	<i>Subject Selection- *****</i>	10 (62%)	<i>Moderate Quality</i>
	<i>Comparability – *</i>		
	<i>Outcome - **</i>		
	<i>Aim - *</i>		
11. Štulhofer et al. (2019)	<i>Subject Selection- *****</i>	11 (68%)	<i>Moderate Quality</i>
	<i>Comparability – **</i>		
	<i>Outcome - ***</i>		
	<i>Aim - **</i>		
12. Svedin et al. (2011)	<i>Subject Selection- *****</i>	11 (68%)	<i>Moderate Quality</i>

	<i>Comparability</i> – *		
	<i>Outcome</i> - ***		
13. Tsitsika et al. (2009)	<i>Aim</i> - **	12 (75%)	<i>Moderate Quality</i>
	<i>Subject Selection</i> - *****		
	<i>Comparability</i> – **		
	<i>Outcome</i> -***		
14. Willoughby et al. (2014)	<i>Aim</i> - *	9 (56%)	<i>Moderate Quality</i>
	<i>Subject Selection</i> - *****		
	<i>Comparability</i> – **		
	<i>Outcome</i> - **		
15. Ybarra & Mitchell (2005)	<i>Aim</i> – No stars	10 (62%)	<i>Moderate Quality</i>
	<i>Subject Selection</i> - *****		
	<i>Comparability</i> – **		
	<i>Outcome</i> - ***		

NB. Total is scored out of a maximum 16 (or 15 for studies which do not have different outcome groups). To achieve high quality, studies must be above 75%, for moderate quality studies must be between 50% to 75% and scores of 50 and below are classified as low quality.

1.3.4 Description and Quality of Studies

All the papers selected for the review ($n = 15$) had been published in peer-reviewed journals; therefore, none of the final selection were unpublished dissertations or theses (grey literature). Publication dates ranged from 2001-2019 and studies were assessed as predominantly moderate quality ($n = 14$), with only one study achieving a high-quality classification (Luder et al., 2011). Two studies achieved a score of 75% suggesting they are on the borderline of moderate to high quality (Mattebo et al., 2013; Tsitsika et al., 2009) and three studies were towards the lower end of the moderate category, receiving 53% (Cheung et al., 2018; Doornwaard et al., 2016; Kim, 2001).

Five studies were scored out of a maximum of 15 (instead of a total of 16) because they only had subjects in one outcome group and therefore could not be scored on one of the comparability questions regarding different outcome groups (question 3b; Appendix A). Consequently, the total for these studies was adjusted to 15 to not impact the assessment of their quality. Studies lost stars in the aims domain for not specifying aims and objectives of the study. Stars lost in the subject election domain were because studies did not give sufficient detail to detect whether the sample size was both satisfactory and justified. Furthermore, only two studies received stars for assessing response rate (>70%) and comparing respondents' and non-respondents' characteristics (Kim, 2011; Ybarra & Mitchell, 2005). Stars were lost within the comparability domain as six studies did not control for confounding variables (Cheung et al., 2018; Kim 2001, 2011; Mattebo et al., 2013, 2018; Svedin et al., 2011). In the outcome domain, studies lost stars for their presentation of statistical analysis; all studies included a measure of association and p-

values, however, studies lost stars for not including confidence intervals (Cheung et al., 2018; Doornwaard et al., 2016; Kim, 2001, 2011; Kohut & Štulhofer, 2018; Mattebo et al., 2018; Willoughby et al., 2014; Appendix B).

1.3.5 Design

All studies identified for the review were cross-sectional ($n=15$), with some studies having longitudinal analyses conducted in addition to the cross-sectional design ($n=6$; Doornwaard et al., 2016; Hökby et al., 2016; Kohut & Štulhofer, 2018; Ma, 2018; Mattebo et al., 2018; Štulhofer et al., 2019). Five studies, with an additional longitudinal component, assessed participants at 4-12-month intervals (Doornwaard et al., 2016; Hökby et al., 2016; Kohut & Štulhofer, 2018; Ma, 2018; Štulhofer et al., 2019) and one study used data collected at a previous time point two years prior as their baseline to their longitudinal analyses (Mattebo et al., 2018). The duration of the longitudinal studies ranged from four months to two and a half years.

1.3.6 Sample Characteristics

The samples used in the 15 papers included children and young adults ranging from ages 10-21. Sample mean ages were reported for 12 of the 15 papers. Of these ($n=12$), mean ages ranged from 12.43-19.61.

Sample sizes ranged from 331-7548 participants. Samples included participants from a range of nationalities including Chinese samples from Hong Kong ($n=2$; Cheung et al., 2018; Ma, 2018), Dutch samples ($n=1$; Doornwaard et al., 2016), South Korean ($n=2$; Kim, 2001, 2011), Croatian ($n=2$; Kohut & Štulhofer, 2018; Štulhofer et al., 2019), Greek ($n=1$; Tsitsika, et al., 2009), American ($n=2$; Willoughby et al., 2014; Ybarra & Mitchell,

2005) and Swedish samples ($n=4$; Luder et al., 2011; Mattebo et al., 2013, 2018; Svedin et al., 2011) and one study included participants from Hungary, Estonia, Lithuania, Italy, Sweden and the U.K. (Hökby et al., 2016) in their study.

The majority of samples were selected from schools ($n=11$). The remaining studies recruited from Universities ($n=1$; Willoughby et al., 2014) or pre-existing surveys ($n=3$) studying trajectories of adolescent relationships and sexuality ($n=1$; Doornwaard et al., 2016), youth safety ($n=1$; Ybarra & Mitchell, 2005) or assessing the population's health (Luder et al., 2011). Most of the studies included male and female participants ($n=12$). Of the studies that did not reference both genders ($n=3$), one sampled only male participants (Svedin et al., 2011), one only discussed male participants within the analysis (Ybarra & Mitchell, 2005) and one did not specify gender or interpret any gender specific analyses (Kim, 2011).

1.3.7 Measures

Studies used a mixture of validated measures, alongside measures designed for the study. They generally discussed validity of the pre-existing validated measures but conducted reliability analyses (Cronbach's alpha) on the questions that were generated for the study. All measures were quantitative, based on self-report questionnaires.

To measure specifically for SEM viewing, three studies utilised pre-existing measures (Doornwaard et al., 2016; Mattebo et al., 2013, 2018), four studies used questions from existing surveys (Kim 2001, 2011; Luder et al., 2011; Svedin et al., 2011) and eight studies developed questions regarding SEM exposure (Tsitsika, et al., 2009; Kohut et al., 2018; Štulhofer et al., 2019; Willoughby et al., 2014; Ma, 2018; Hökby et al.,

2016; Ybarra & Mitchell, 2005; Cheung et al., 2018). Of the three studies using existing measures, Doornwaard et al. (2016) assessed for compulsive searching and viewing of internet SEM by adapting the Compulsive Internet Use Scale (Meerkerk et al., 2009). They used six items of the existing scale to assess for lack of control over SEM use, pre-occupation with and adverse consequences from SEM, whether SEM was used to cope or escape from negative feelings and whether unpleasant emotions were experienced when SEM was not accessible. They conducted the reliability of this measure at Time 1 ($\alpha = .85$) and Time 2 ($\alpha = .83$) of their longitudinal analyses (Doornwaard et al., 2016). Mattebo et al. (2013, 2018) utilised Häggström-Nordin et al.'s (2005) Pornography Experiences and Pornography Attitudes scales to assess for genres viewed, frequency of SEM and attitudes towards SEM; yet, unlike Doornwaard et al. (2016), they did not provide reliability analyses for these measures of SEM.

Of the four studies using existing surveys to measure for SEM, Kim (2001, 2011) used The Korean Health Survey Kit (Ministry of Health & Welfare, 1996) which assessed for health risk behaviours (including SEM) and the psychological impact of these health behaviours. Kim (2001, 2011) did not discuss the questions used to assess health risk behaviours but reported the survey's overall reliability of $\alpha = .86$ (Kim, 2001) and $\alpha = .92$ (Kim, 2011) for measuring health risk behaviours. Luder et al. (2011) assessed for SEM exposure using the Swiss Multicenter Adolescent Survey of Health survey (Luder et al., 2011), which included questions on wanted and unwanted SEM exposure, whilst Svedin et al. (2011) used questions from other Nordic Surveys (Mossige, 2001) on the use of and attitudes towards pornography. Reliability analyses for both surveys were not presented in their research papers (Luder et al., 2011; Svedin et al., 2011).

From the eight studies developing questions specific to SEM, six studies developed questions regarding the frequency of SEM use (Tsitsika, et al., 2009; Kohut et al., 2018; Štulhofer et al., 2019; Willoughby et al., 2014; Ma, 2018; Hökby et al., 2016), one study developed questions on pornography seeking and unwanted exposure to SEM (Ybarra & Mitchell, 2005) and one study developed questions on habits of internet use (Cheung et al., 2018). In addition to measuring frequency of SEM use, Hökby et al. (2016) also developed questions related to consequences of internet behaviours (including viewing SEM), asking participants to rate the occurrence of consequences such as the impact on work performance and school grades and Willoughby et al. (2014) also developed questions on pornography acceptance.

Regarding mental health measures used, studies focused on measuring symptoms of depression and anxiety. Nine studies used measures to assess solely for depressive symptomatology (Cheung et al., 2018; Doornwaard et al., 2016; Luder et al., 2011; Ma, 2018; Mattebo et al., 2013, 2018; Svedin et al., 2011; Willoughby et al., 2014; Ybarra & Mitchell, 2005), four studies used measures that assessed for anxiety and depression symptoms (Hökby et al., 2016; Kohut & Štulhofer, 2018; Štulhofer et al., 2019; Tsitsika, et al., 2009) and two studies used a The Korean Health Survey Kit (Ministry of Health & Welfare, 1996) that included questions to assess for symptoms of mental health problems, with specific focus on anxiety and depression symptoms (Kim, 2001, 2011); the reliability of this survey was discussed above.

Of the nine studies assessing purely for depression, eight used pre-existing validated measures and one study measured clinical features of depression using nine questions based on the criteria of major depression (DSM IV; Ybarra & Mitchell 2005). The eight

studies using existing validated measures of depression all assessed for depressive symptomatology. Two studies (Cheung et al., 2018; Willoughby et al., 2014) adapted the Center for Epidemiologic Studies Depression Scale (Radloff, 1997) and reported reliability analyses of $\alpha = .907$ (Cheung et al., 2018) and $\alpha = .76$ (Willoughby et al., 2014). Two studies (Mattebo et al., 2013, 2018) used the Depression Self Rating Scale (Zung, 1965) and reported the scale's sensitivity of 86% and specificity of 75% for diagnosing depression symptoms. The remaining studies ($n = 4$) used the following depression specific measures: the Depressive Mood List (Kandel & Davies, 1982) reporting reliability of $\alpha = .83$ at Time 1 and $\alpha = .85$ at Time 2 (Doornwaard et al., 2016), the Depressive Tendencies Scale (Alsaker, 1992) reporting reliability of $\alpha = .89$ (Luder et al., 2011), the Patient Health Questionnaire-9 (Kroenke et al. 2001) reporting alphas of $\alpha = .90$ and $\alpha = .91$ (Ma, 2018) and a translated version of the SCL-90 depressive scale (Derogatis, 1979) reporting reliability analyses of $\alpha = .84$ (Svedin et al., 2011).

From the four studies using existing validated measures to assess for anxiety and depression symptoms, two studies used the Patient Health Questionnaire for Depression and Anxiety (PHQ 4; Kroenke et al., 2009) and reported reliability analyses of between $\alpha = .83$ and $\alpha = .86$ (Kohut & Štulhofer, 2018; Štulhofer et al., 2019). One study used the Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995) assessing for symptoms of depression, anxiety and stress and reported reliability analyses of $\alpha = .93$ for the depression subscale, $\alpha = .89$ for anxiety and $\alpha = .91$ for the stress subscale (Hökby et al., 2016). One study (Tsitsika, et al., 2009) utilised the emotional subscale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) to assess for symptomatology of

anxiety and depression; however, the psychometric properties of this measure for assessing anxiety and depression were not reported.

Mattebo et al. (2013) also incorporated questions from the SDQ (Goodman, 1997) in their study; however, unlike Tsitsika et al. (2009) they did not use the emotional subscale for their mental health findings; instead, they utilised the Depression Self Rating Scale (Zung, 1965) and used questions from the SDQ to report on peer relationship problems and attention-deficit hyperactivity disorder (ADHD) symptomatology. As with Tsitsika et al. (2009), the psychometric properties of the SDQ were not discussed in Mattebo et al.'s (2013) study.

Only two studies investigated the relationship between SEM exposure and mental health/wellbeing as their primary objective (Kohut & Stulhofer, 2018; Stulhofer et al., 2019). The other studies included associations of SEM with mental health; however, this was not the sole focus of the paper. These studies ($n = 13$) either investigated the overall impact of internet use ($n = 2$; Cheung et al., 2018; Hökby et al., 2016) or health risk behaviours ($n = 2$; Kim, 2001, 2011) and included associations of SEM exposure and mental health within their study, or discussed SEM exposure in relation to other additional variables. The additional variables measured included relationships between SEM and internet addiction ($n = 1$; Tsitsika, et al., 2009), sexual interests, compulsive SEM use and impulsive and psychopathic personality traits ($n = 1$; Doornwaard et al., 2016), sexual permissiveness ($n = 1$; Ma, 2018), sexual experiences and self-rated health ($n = 1$; Mattebo et al., 2013), psychosomatic symptoms ($n = 1$; Mattebo et al., 2018), sexual behaviour ($n = 2$; Luder et al., 2011; Willoughby et al., 2014), attitudes and acceptance of SEM ($n = 2$; Svedin et al., 2011; Willoughby et al., 2014;), unwanted exposure to SEM and

relationships with caregivers ($n = 1$; Ybarra & Mitchell, 2005) and psychosocial characteristics ($n = 2$; Doornwaard et al., 2016; Tsitsika, et al., 2009).

1.3.8 Definitions of SEM

All of the studies utilised the term pornography when referring to SEM; however, some studies also included the terms of sexually explicit material (Mattebo et al., 2013; Svedin et al., 2011), sexually explicit internet material (Doornwaard et al., 2016), online sexual content (Doornwaard et al., 2016; Ma, 2018), sexual materials (Doornwaard et al., 2016; Ybarra & Mitchell, 2005), sexually explicit media or sexually explicit websites (Luder et al., 2011; Mattebo et al., 2013, 2018), pornographic material (Cheung et al., 2018; Ma, 2018) and X-rated websites (Luder et al., 2011; Ybarra & Mitchell, 2005). Despite using such phraseology, only three studies provided definitions of this content (Kohut & Štulhofer, 2018; Štulhofer et al., 2019; Svedin et al., 2011).

Kohut and Štulhofer (2018) and Štulhofer et al. (2019) used the same broad definition of pornography; they described it as any material openly depicting sexual activity and explained that content showing naked bodies without sexual intercourse was not included within their definition. Conversely, Svedin et al. (2011) described types of content included in their definition of SEM and suggested that SEM shows pictures of sexuality including “sex between adults, sex with violence or force, sex with animals or sex between adults and children under the age of 15” (p.780). Although the other studies did not provide a definition of the terms used within their study, one study described specific types of content within reporting of their analyses, such as viewing vaginal intercourse, oral sex, group sex, anal sex and bondage/sadomasochism (Mattebo et al.,

2013) and three studies described the mediums by which participants were exposed to SEM, such as through pornographic movies, pictures or websites (Ma, 2018; Willoughby et al., 2014; Ybarra & Mitchell, 2005); however, these three studies did not elaborate on the type of content constituting as pornographic. The remaining eight studies did not provide a definition or description of types or mediums of accessing SEM content (Cheung et al., 2018; Doornwaard et al., 2016; Hökby et al., 2016; Kim, 2001, 2011; Mattebo et al., 2018; Luder et al., 2011; Tsitsika, et al., 2009).

1.3.9 Cross-sectional and Longitudinal Analyses

Inspection of the papers in relation to the review question “Is there a relationship between sexually explicit material and mental health in children and young adults?” highlighted that 11 of the 15 studies found a significant relationship with SEM exposure and mental health in children and young adults. Of these 11 studies reporting significant associations, six studies found associations between SEM exposure and depression (Cheung et al., 2018; Doornwaard et al., 2016; Luder et al, 2011; Ma, 2018; Mattebo et al, 2018; Willoughby, et al., 2014) and five studies reported associations of SEM exposure with both anxiety and depression (Hökby et al., 2016; Kim, 2001; Kim, 2011; Kohut & Štulhofer, 2018; Štulhofer, et al., 2019).

Of the four studies that did not report significant relationships between SEM exposure and mental health in children and young adults (Mattebo, et al., 2013; Svedin et al., 2011; Tsitsika et al; 2009; Ybarra & Mitchell, 2005), initial statistics showed indications of a potential relationship between SEM exposure and depression in three studies (Mattebo, et al., 2013; Svedin et al., 2011; Ybarra & Mitchell, 2005). Mattebo et al.

(2013) reported frequencies showing that 5% of participants met the DSM-IV (American Psychiatric Association, 2000) criteria for clinical depression. However, there was no significant difference in levels of depression across groups of non-frequent, average users and frequent users of SEM. Furthermore, when self-rating their psychological health, 91% of participants reported it as good or very good (Mattebo et al., 2013). As mentioned, the study also used elements of the SDQ (Goodman, 1997); however, the impact on the emotional subscale assessing for anxiety and depression is not discussed. In Svedin et al. (2011), frequency statistics showed that 19.5% of frequent SEM viewers (watching SEM daily or nearly every day) scored above the clinical cut-off for depression in comparison to 12.6% of infrequent users. However, regression statistics showed no statistically significant associations between SEM use and depression. Similarly, Ybarra and Mitchell (2005) reported frequencies suggesting that twice as many (11%) online pornography seekers reported features of clinical depression than did offline seekers (4%) and non-seekers (5%). They found a trend for those reporting clinical depression to be 3.5 times more likely to report online pornography seeking; however, this trend was not significant. Tsitsika et al. (2009) used the emotional subscale of the SDQ (Goodman, 1997) to determine psychological impact of SEM. Tsitsika et al. (2009) reported that SEM users did not have a significantly different SDQ score than non-SEM users. Furthermore, they stated that neither infrequent nor frequent SEM use was related to the emotional subscale (assessing for anxiety and depression symptoms).

The studies differed regarding their analysis of the relationship and direction of impact. Eight, of the eleven studies reporting significant relationships between exposure to SEM and negative mental health (depression or depression with anxiety), presented purely

correlational associations between SEM and mental health. However, three studies suggested a directional relationship within their findings. Both Cheung et al. (2018) and Doornwaard et al. (2016) reported that depression was a predictor for viewing SEM, whereas alternatively Hökby et al. (2016), reported that viewing SEM predicted depression and anxiety.

1.3.10 Gender Differences

The studies varied in their findings when comparing the relationship with SEM and mental health between genders. Of the 11 studies reporting significant associations, seven reported gender specific differences regarding the relationship between SEM exposure and mental health. Cheung et al. (2018) reported that male gender and levels of depression predicted viewing of SEM and Ma (2018) found associations that males who reported greater levels of intentional exposure to SEM had greater levels of depression than females. Hökby et al. (2016) found a significant difference in mental health scores and SEM viewing between genders. However, they found that women had greater reductions in mental health from SEM exposure, but that males reported higher levels of SEM viewing. Willoughby et al. (2014) also found that greater SEM use was associated with more depressive symptoms in women but this association was not found in men. Mattebo et al. (2018) found that females who had higher SEM use at baseline reported greater levels of depression at follow-up. However, for males, higher SEM use at baseline was associated with lower levels of depression at follow-up. In the longitudinal analyses, Kohut and Štulhofer (2018) found that overall, from their two Croatian samples, SEM viewing was significantly correlated with depression and anxiety in women. However, they reported that whilst significant correlations were found at all time points in the Rijeka sample,

significant correlations were only found at three of the five time points analysed in the Zagreb sample and they suggested that adverse family environment was more consistently correlated with viewing SEM in this sample. Although they found a significant correlation between SEM exposure and depression and anxiety in males at one time point in Zagreb, overall, there was not a significant association between males viewing SEM and depression and anxiety. Similarly, Štulhofer et al. (2019) found that SEM use was significantly correlated at all time points with anxiety and depression in females, whereas it was only correlated at one time point in males, suggesting that SEM use and anxiety and depression may be more consistently correlated in females.

1.3.11 Longer-term relationships between SEM and Mental Health

The studies that used longitudinal analyses ($n = 6$) also varied in outcome regarding longer-term relationships between SEM exposure and mental health. Doornwaard et al. (2016) stated that, although initially at Time 1 depression was not significantly correlated with SEM use, higher levels of depression predicted increases in compulsive use of SEM over 6 months. Furthermore, Ma (2018) found that online SEM was associated with depressive symptoms and concluded that adolescents who intentionally viewed SEM reported increased depressive symptoms over time. Mattebo et al. (2018) reported that SEM consumption at baseline was related to depressive symptoms at follow-up. However, they also reported that depressive symptoms at baseline were the strongest predictor for depression at follow-up, suggesting that prior depressive symptoms may be a factor relating to increased depressive symptoms following SEM viewing.

Hökby et al. (2016) reported in their longitudinal regression analysis that SEM viewing predicted sleep loss and withdrawal (negative mood when content was unavailable) and that it was the sleep loss and withdrawal that was associated with changes in mental health over time, rather than SEM viewing itself.

Contrastingly, Kohut and Štulhofer (2018) and Štulhofer et al.'s (2019) studies found associations with viewing SEM and depression and anxiety at differing time points and between genders. However, Kohut and Štulhofer (2018) reported that path analysis showed there was not consistent evidence, when including both Zagreb and Rijeka samples, that SEM was associated with depression and anxiety over time. This suggests that there may be an initial negative association with mental health but that the association does not remain significant over time. Similarly, Štulhofer et al. (2019) concluded that latent class growth modelling produced no significant changes in associations with SEM use and changes in depression over time, potentially suggesting that symptoms were not exacerbated with continued SEM use over time.

1.4 Discussion

1.4.1 Summary of findings

The current review explored whether there is a relationship between exposure to SEM and mental health in children and young adults. The term children and young adults included individuals up to and including age 24 and the term mental health included both positive and negative symptoms of mental or psychological wellbeing. Negative impact on mental health was required to be discussed as symptomatic, or indicating the presence, of a mental health disorder classified in the DSM-5 (APA, 2013).

Following PRISMA guidelines (Moher et al., 2009), a systematic review of the research literature was conducted, including searching databases providing published and unpublished (grey) literature; 15 research papers were identified as eligible for the review. All the studies used quantitative methods and were cross-sectional in design, with six studies also including longitudinal analyses investigating associations with SEM over time. The papers were published in peer-reviewed journals, suggesting that potentially all currently available literature, involving the relationship between SEM and mental health in children and young adults, is published within academic journals. Quality Assessment was conducted using a tailored adapted version of the NOS (Wells et al., 2012) for cross-sectional studies (Hillen et al., 2017). Studies achieved predominantly moderate quality, with one study receiving a high-quality (Luder et al., 2011) classification.

1.4.2 Relationship between SEM and Mental Health

Relating to the review question, regarding the relationship between SEM and mental health in children and young adults, 11 papers found significant associations between SEM exposure and symptoms consistent with depression and anxiety, in children and young adults (Cheung et al., 2018; Doornwaard et al., 2016; Hökby et al., 2016; Kim, 2001, 2011; Kohut & Štulhofer, 2018; Luder et al, 2011; Ma, 2018; Mattebo et al, 2018; Štulhofer, et al., 2019; Willoughby, et al., 2014).

Previous reviews reported mixed findings regarding the impact of SEM (Owens et al., 2012; Koletic, 2017; Alexandraki et al., 2018) with some studies suggesting significant associations of negative impacts with SEM and others reporting contradictory results. The current review also presents a mixed picture. As discussed, 11 studies found significant

associations and, although three of the remaining 4 studies ($n = 15$) reported initial statistics suggestive of a negative relationship between SEM and mental health, the four studies concluded that overall analyses did not suggest a statistically significant relationship (Mattebo, et al., 2013; Svedin et al., 2011; Tsitsika et al; 2009; Ybarra & Mitchell, 2005). When analysing associations of SEM exposure and mental health over time, two of the six studies conducting longitudinal analyses and comparing samples by gender and location concluded that there were not consistent associations between samples and genders over time to suggest consistent longer-term negative impacts on mental health (Kohut & Štulhofer, 2018; Štulhofer, et al., 2019). Contrastingly, the other four papers with longitudinal analyses concluded that there were increased levels of mental health problems over time (Hökby et al., 2016; Ma, 2018), particularly if depressive symptoms were present at baseline (Mattebo et al., 2018) and that increases in depression in turn increased compulsive use of SEM (Doornwaard et al., 2016).

Of the 15 papers, more than half (a total of nine) of the studies found significant associations between SEM and reduced mental health (Cheung et al., 2018; Doornwaard et al., 2016; Hökby et al., 2016; Kim, 2001, 2011; Luder et al, 2011; Ma, 2018; Mattebo et al, 2018; Willoughby, et al., 2014) and four of these reported consistent associations of SEM with depression and anxiety over time (Doornwaard et al., 2016; Hökby et al., 2016; Ma, 2018; Mattebo et al, 2018). These results are in line with concerns regarding accessing the internet and potential risks of psychological dysfunction (Livingstone & Helsper, 2007).

1.4.3 Previous research and theoretical underpinning

1.4.3.1 Mental Health Problems as an Antecedent or Consequence of SEM

Of the nine papers reporting a relationship between SEM exposure and mental health problems, three papers examined the direction of the relationship. Two papers examined mental health problems as antecedents of SEM viewing (Cheung et al., 2018; Doornwaard et al., 2016) and one paper discussed the relationship in regard to SEM viewing predicting mental health problems (Hökby et al. 2016). These findings relate to previous research literature and theories used to discuss exposure to SEM.

1.4.3.2 Mental Health, Impulsivity and Compulsive SEM viewing

The two studies indicating that depression predicted SEM viewing (Cheung et al., 2018; Doornwaard et al., 2016) also explained that depression was a predictor for compulsive use of SEM (Doornwaard et al., 2016) or that looking for SEM predicted overall internet addiction (Cheung et al., 2018). These findings relate to previous published concerns regarding children accessing SEM, due to the continuing development of the prefrontal cortex, meaning they are more susceptible to impulsivity. The literature postulates that this coupled with viewing SEM can produce more impulsive behaviours or compulsive SEM viewing (Yurgelun-Todd, 2007), suggesting that depression as an antecedent of SEM viewing alongside children's higher levels of impulsivity may result in an increased likelihood for compulsive or addictive behaviours. Willoughby et al. (2014) controlled for levels of impulsivity and found that depression was no longer associated with viewing SEM in males. This suggests that there are other factors, such as impulsivity, that interplay with the impact on mental health in relation to SEM viewing. Consequently,

it is likely that other factors are associated in the development and/or maintenance of mental health problems in relation to SEM viewing; inferring that it is not mental health problems alone that are antecedents or products of SEM viewing and that potentially these other factors may exacerbate pre-existing mental health problems or act as a catalyst in creating the symptomatology, or presence, of a mental health disorder.

Regarding the studies that found that depression was a predictor of SEM viewing and related to compulsive viewing or internet addiction (Cheung et al., 2018; Doornwaard et al., 2016), theory on SEM suggests that these children and young adults would be classified as At-Risk Users (Cooper et al., 1999). They are likely to fall within the Depressive subtype who look for SEM to increase arousal, gratification and improve mood. As Cooper et al. (1999) postulated, this subtype is likely to continue to use SEM and look for further content to improve mood. Consequently, this continued search for content results in temporarily increased mood, resulting in a cycle that reinforces compulsive type behaviours, exhibited in these studies. Contrastingly, Kohut & Štulhofer (2018) found that adverse family environment was more consistently correlated with SEM use than depression and anxiety in females, suggesting that other factors may be related to SEM viewing, in addition depression or other mental health problems.

Cooper et al. (1999) and Davis's (2001) theories can be discussed in relation to findings of longitudinal studies reporting significant associations with SEM exposure and mental health problems over time. Whilst Depressive types (Cooper et al., 1999) will use SEM to improve their mood over time, the positive impact on mood is likely to be temporary, resulting in continued use. This continued use is likely to reciprocally increase the likelihood of compulsive use alongside continued low mood over time. It is also

possible that an awareness of having to use SEM to increase mood impacts the individual negatively, by increasing negative thoughts and feelings about themselves, as discussed in Davis's (2001) cognitive-behavioural theory, which further reduces their mood and increases levels of mental health problems over time.

1.4.3.3. Impact of SEM on Gender

Seven studies reported gender differences regarding the relationship between SEM and mental health in children and young adults (Cheung et al., 2018; Hökby et al., 2016; Ma, 2018; Mattebo et al., 2018; Kohut & Štulhofer, 2018; Štulhofer et al., 2019; Willoughby et al., 2014). Although two studies reported that male gender and depression was associated with SEM viewing (Cheung et al., 2018) and that males reporting greater levels of intentional SEM viewing had greater levels of depression than females (Ma, 2018), most of the studies reporting gender differences found associations between female gender and greater levels of depression (Willoughby et al., 2014; Mattebo et al., 2018) or depression and anxiety (Hökby et al., 2016; Kohut & Štulhofer, 2018; Štulhofer et al., 2019). Kohut and Štulhofer (2018) and Štulhofer et al. (2019) proposed suggestions for these gender differences. They stated that females' sex drive has often been overlooked in SEM research and that SEM viewing and expressions of sexual interest have previously been stigmatised or perceived as non-normative. They described that stigmatisation of females' viewing SEM, alongside how women are often depicted in SEM, could reduce females' self-esteem and mental health (Kohut & Štulhofer, 2018; Štulhofer et al., 2019).

The research literature has discussed depictions of women in SEM and states that females are often portrayed as submissive to males (Brown & L'Engle, 2009). Research

findings have also shown that SEM viewing can increase negative body views (Häggström-Nordin et al., 2006; Lofgren-Martenson & Mansson, 2010). Relating these findings to Social Comparison Theory (Festinger, 1954), it is possible that females within the review studies negatively compared themselves to women in SEM and that these negative comparisons with themselves impacted their self-esteem and reduced their mental health. Consequently, it is possible that female children and young adults' experience greater depression and anxiety from SEM viewing due to the stigmatisation of females viewing SEM, the portrayal of females within SEM or negative comparisons of their body image with females in SEM. Further research is required to explore which of these factors are the strongest predictors for reductions in mental health.

1.4.4 Critical review of the literature

1.4.4.1 Studies' definitions of SEM

As discussed, eight studies (Cheung et al., 2018; Doornwaard et al., 2016; Hökby et al., 2016; Kim, 2001, 2011; Mattebo et al., 2018; Luder et al., 2011; Tsitsika, et al., 2009) did not provide a definition of SEM, describe the type of content or medium of access. Of these studies, only two referred to the lack of definition within their limitations (Mattebo et al., 2018; Luder et al., 2011). These two studies discussed that the lack of definition within their research could have meant that participants' understanding of what constitutes as SEM varied; therefore, they discussed that their results may have differed if there was a consistent understanding between participants through providing a definition of SEM (Mattebo et al., 2018; Luder et al., 2011). Consequently, the lack of a consistent definition of SEM across studies may account for some of the variation between studies' findings.

1.4.4.2 Accidental, Unwanted or Intentional SEM Exposure

The studies reviewed examined exposure to or use of SEM; however, only two (Ybarra & Mitchell, 2005; Luder et al., 2011) studies examined whether the exposure was accidental, unwanted or intentional. Ybarra and Mitchell (2005) found that of their sample only 15% had intentionally viewed SEM. This is similar to other research findings regarding the prevalence of unwanted exposure to SEM (Madigan et al., 2018).

Although Luder et al. (2011) found that there was no significant difference between unwanted and intentional exposure in relation to depression, it is possible that the mixed findings between the review studies are due to other factors, including whether the exposure was unwanted or intentional or the type of content to which they were exposed. It is possible that accidental or unwanted exposure to some types of SEM, such as violent or illegal content, is likely to have a greater negative impact on mental health. It is also likely that content seen by participants varied, which may account for some of the variation in study findings regarding associations between SEM exposure and mental health. Moreover, the impact of SEM exposure on the individual is likely to also be dependent on individual characteristics such as personality, development, prior experiences, family, demographic and environmental factors, all of which may be difficult to measure and/or control for within a study.

1.4.4.3 Influence of other factors relating to SEM

As only two studies investigated the relationship between SEM exposure and mental health as their primary objective (Kohut & Stulhofer, 2018; Stulhofer, et al., 2019), the other studies included other factors relating to SEM exposure; therefore, the

exploration of SEM with mental health symptoms was limited. Conversely, the inclusion of other variables of interest in the remaining papers meant that other factors alongside mental health, which are known to increase the likelihood of mental health problems, were explored; such as levels of self-esteem (Cheung et al, 2018; Doornwaard et al., 2016; Kim, 2001, 2011; Štulhofer, et al., 2019), loneliness (Cheung et al, 2018), self-efficacy (Kim, 2001, 2011), self-worth (Willoughby, et al.,2014), impulsivity (Kohut & Štulhofer, 2018; Willoughby, et al.,2014) adverse family environment (Kohut & Štulhofer, 2018) and parent or caregiver bond (Ybarra & Mitchell, 2005). As these studies were correlational in design, none were able to examine whether the presence of these factors increased levels of depression and anxiety (rather than SEM exposure), whether it was the addition of these factors that resulted in SEM viewing, or whether these factors increased the likelihood of greater negative impact on mental health from SEM exposure. Consequently causation, in relation to the relationship between SEM exposure and mental health, cannot be inferred.

1.4.4.4 Comparison with Previous Review including SEM and Mental Health

Compared to Alexandraki et al.'s (2018) review which found 11 studies that included mental health in association with pornography use, the current review found 15 papers exploring these relationships. Although none of the studies in the current review were published prior to the start date of Alexandraki et al.'s searches (1st January 2000), five studies included in this review were published after their cut-off date of the 1st May 2017 (Cheung et al., 2018; Kohut & Štulhofer, 2018; Ma, 2018; Mattebo et al., 2018; Štulhofer et al., 2019), demonstrating that further research has been conducted investigating associations with SEM and mental health in the last three years.

Five studies included in Alexandraki et al.'s (2018) review were excluded from the current review as they met the current review's exclusion criterion. Two studies were excluded as they explored unwanted exposure via sexual solicitation (Chang et al., 2016; Wolak, Mitchell & Finkelhor, 2007). One study was excluded due to exploring voluntary sexual exposure on the internet through distribution of content (Jonsson, Priebe, Bladh & Svedin, 2014). One study reported on emotional problems (Ševčíková, Šerek, Macháčková & Šmahel, 2013) and another study reported emotions of happiness versus sadness (Cho, 2016) but neither study specifically reported associations with clinical features/symptomatology of anxiety, depression or other mental health problems and thus were not included within the current review.

Six of the studies discussed in the current review (Ybarra & Mitchell, 2005; Tsitsika et al., 2009; Luder et al., 2011; Svedin et al., 2011; Doornwaard et al., 2016; Mattebo et al., 2013) were also included in Alexandraki et al.'s review (2018), however the current review provided greater depth of detail on each of these studies' findings and discussed findings in consideration with existing theories related to SEM. Furthermore, the current review incorporated four studies that were published within the timeframe of Alexandraki et al.'s (2018) searches that had not been included in their review (Kim, 2001, 2011; Willoughby et al., 2014; Hökby et al., 2016). Despite the inclusion of different studies, overall conclusions between the two reviews remain similar, that predominantly studies found a significant relationship between SEM and reductions in mental health.

1.4.4.5 Quality of the Studies

Overall, the quality of studies was moderate with one study achieving high-quality classification. Although studies included a broad range of nationalities within their samples, they tended to use non-probability, convenience sampling, instead of random sampling, increasing sampling bias and reducing generalisability of the findings. Furthermore, all the studies used self-report measures. Cheung et al. (2018) highlighted this as a limitation explaining that controlling the quality of data is harder using self-report measures than in face-to-face interviews, as researchers are unable to clarify confusion regarding the questions. Conversely, Durant, Carey and Shroder (2002) found that self-report measures regarding sexual content, due to their anonymity, provided more reliable data. Svedin et al. (2011) claimed that the anonymity of self-reporting increases the validity of a study's results. Additional to the potential validity of self-reported results, the studies used a broad range of reliable measures. However, often they did not discuss the validity of all the included measures or they used questions extracted from validated measures rather than using the existing validated measure, thus reducing the quality of assessment.

1.4.4.6 Variation between Studies' Findings

The age range analysed between the studies was between 10 and 21 years. Although brain research suggests that the pre-frontal cortex continues to develop until approximately age 25 (Arain et al., 2013), it is likely that older participants would have developed more maturity and would have a greater understanding of the content they are viewing and consequently would experience SEM differently to younger children. Greater

understanding and higher maturity levels may reduce the negative impact SEM exposure has on their mental health. This may also account for some of the variation between studies' findings as they include differing age groups of participants. Furthermore, Alexandraki et al. (2018) explained that, within adolescence in which some research definitions include from aged 10 (Ybarra & Mitchell, 2005), exposure to SEM is a normative experience. This suggests that for the age group examined, it is potentially a normal part of sexual development and is not problematic. However, as children are being exposed to the internet at younger ages than 10, due to easy access and portable devices (Ofcom, 2019), it is possible that children of younger ages are exposed to SEM and that, as they are not yet at normative developmental age to view this content, their experiences may impact upon their mental health more significantly. It will be important for future research to determine the impact of age of exposure, particularly under aged 10, on mental health.

Moreover, longitudinal analyses between studies varied in length from four months to 2.5 years, which may account for the variation in findings between longitudinal associations in the studies. Even though the longest longitudinal period was 2.5 years, this is still a relatively short period of time to determine long-term effects of SEM on mental health. Future studies could conduct longer duration longitudinal studies to determine the relationship over time.

1.4.5 Strengths and Limitations of the review

The current review is the only systematic review to focus solely on the relationship between SEM exposure and mental health in children and young adults. The review

expanded on a previous review which briefly discussed the relationship between SEM and mental health (Alexandraki et al., 2018). While Alexandraki et al. (2018) included 11 studies, through a systematic synthesis of the literature this review found further studies, reviewing 15 papers in total. This review provided a greater exploration of the included studies as its sole focus was on mental health and SEM exposure. This singular focus was a strength of this review, enabling a greater depth of discussion on the relationships between SEM and mental health than has been discussed in previous reviews.

Furthermore, the current review adhered to PRISMA guidelines (Moher et al., 2009), completing a systematic search of the literature. The review also included searches of unpublished research (in addition to published research) to account for publication bias (in which studies that are published tend to report significant result) and to attempt to include all study findings exploring relationships between SEM and mental health in children and young adults. The review also utilised a well-validated assessment tool to complete a rigorous assessment of quality of the included papers. Moreover, the initial screening process was secondary screened to reduce reviewer bias, enhance the reliability of papers included and increase the robustness of the review.

However, there were also limitations of the current review. Although the review searched for published and unpublished literature, conducted reference searches and searches of other sources (such as Google Scholar), the review only used five of the many literature databases. Furthermore, of these five databases, four were specifically for published literature (PsycInfo, Medline, CINAHL and Web of Science) and only one was for unpublished literature (ProQuest Dissertations and Theses Global). If other databases

were included, potentially further literature on relationships between SEM and mental health in children and young adults may have been found.

There was a substantial volume of results produced when using the search terms in ProQuest Global; therefore, for feasibility, the search terms were refined to be included either in the title and/or abstract of the paper for this database. By refining the search terms in this manner, it ensured that papers produced by ProQuest were more relevant to the current review. However, potentially some papers on the relationship between SEM and mental health may have been filtered out at this early stage because they did not have the search terms in the title or abstract.

Moreover, there is a multitude of terminology used for SEM, mental health and children and young adults. The search terms aimed to be as inclusive of all the variants as possible, but there is a possibility that papers using other terms were filtered out at this stage. For example, it is possible that some studies may have used the terms erotic/erotica or obscene material. These search terms were initially included; however, they were removed from the final search terms as their inclusion produced many irrelevant papers. The term “obscene material” tended to include non-SEM material, such as in biological human and non-human matter, and erotic/erotica referred to erotic literature which was an exclusion criterion.

A further limitation is that an inclusion criterion required texts to be in, or translated into, English. Four papers were excluded because translations were unavailable. It is possible that relevant papers were excluded from the review because they were written in other languages.

1.4.6 Future Research and Reviews

As studies exploring the relationship between SEM and mental health as their primary objective were limited to only two studies, future studies could explore this in greater detail. Studies could explore whether there are relationships with other mental health disorders, additional to anxiety and depression. Furthermore, regarding gender differences in associations between SEM and mental health in children and young adults, future studies could explore which factors (such as stigmatisation of SEM viewing, depictions of women in SEM or comparisons with body image) are the strongest predictors of reductions in females' mental health.

As there are several variants and research definitions for SEM, it would be important for future studies to provide participants with a definition of SEM, in addition to describing types of content and the medium for accessing this content, to ensure that there is greater consistency within participants understanding of what constitutes as SEM.

As children are accessing the internet at younger ages (Ofcom, 2019), and likely to be exposed to SEM at younger ages than participants included in these reviewed studies, future research should include the impact on children of younger ages. As there are ethical implications with including young children in SEM research, research could include older samples in retrospective studies gathering age of first exposure and the impact of this on the individual. Moreover, as the included studies varied in length of longitudinal analyses and differed in findings regarding whether mental health problems remained consistent over time, studies should identify potential longer-term impacts of SEM exposure on mental health by conducting longitudinal analyses over a longer period of time. Studies

could also include other factors that could exacerbate mental health problems and control for these confounding variables within the analyses. As none of the studies measured whether there were positive impacts of SEM, future studies should incorporate this into their research.

Further research on the impact of gender differences may also be required, due to the inconsistencies found between genders within the reviewed studies. The papers included in the review were all quantitative in design, revealing a lack of qualitative studies exploring relationships between SEM and mental health in children and young adults. Future research could include qualitative, or mixed methods designs, to incorporate verbal feedback from participants regarding perceived impacts of SEM.

Future reviews could include a greater number of databases and studies written in other languages to determine whether there is more published and unpublished literature on the relationship between SEM and mental health in children and young adults.

1.4.7 Clinical Implications and Conclusions

Studies identifying associations between SEM exposure and mental health problems highlight the importance of increasing awareness among parents and teachers regarding the ease of access and the potential impacts of exposure to SEM. They encourage open communication between children and young adults with their parents or supporting professionals to enable identification of early warning signs (Doornwaard et al., 2016), for teaching on how to avoid unwanted exposure to SEM (Mattebo et al., 2013) and to provide support for those experiencing negative impacts from SEM exposure. The

studies suggest that their findings help to further the knowledge base, particularly given the limited available research on the relationship between SEM and mental health.

In relation to the attempts in 2019 to implement age controls on SEM websites (DCMS, 2019) which were subsequently discarded, it is possible that the findings of these studies may support the justification of controls. However, as this review shows, the research specifically on SEM in relation to mental health in children and young adults is limited; causal inferences cannot be inferred due to the nature of the studies and the studies' findings regarding associations varied. The studies and the current review recommend that further research is conducted to obtain a more consistent picture of the impact of SEM on children and young adults' mental health. Potentially, with further research, there may be enough significant empirical evidence to better understand whether management or control of SEM websites would be beneficial for reducing children's SEM exposure and may provide insight into appropriate interventions to support children and young adults who experience negative impacts from SEM (Ma, 2019).

Chapter 2 The impact of age on initial exposure to sexually explicit material: Accessibility to content, mental health and relationship implications

2.1 Introduction

2.1.1 Sexually Explicit Material (SEM)

SEM can be defined as content depicting “sexual activity in obvious, unconcealed ways” (Kelley et al., 1989, p.58) and “is primarily intended to arouse the viewers sexually” (Efrati & Amichai-Hamburger, 2019, p.1867). Research definitions vary, ranging from descriptive content, within erotic literature, to visual content including pictures of nudity intended to arouse and images or videos of sexual acts (Braun-Courville & Rojas, 2009; Peter & Valkenburg, 2009; Reid et al., 2011).

The internet enables the increasing ability to access SEM privately, at any time and on any internet accessible device. Cooper’s (1998) ‘Triple A Engine’ Theory postulated that ease of accessibility, affordability and the anonymity of the internet has made it an attractive medium for viewing SEM and current estimates suggest over 2.3 billion websites contain SEM (McDowell, 2018) with 28,258 users viewing SEM every second (Porn Stats, 2018).

The Digital Economy Act (2017) stated that all SEM websites should be restricted to adults (aged 18 and over). However, as statistics show that children as young as three have their own internet accessible devices (Ofcom, 2019), there have been increasing concerns regarding children’s ability to access internet SEM and whether there are immediate and longer-term consequences of SEM exposure when accessed at early ages.

These concerns furthered research regarding whether SEM should be considered a Public Health Concern/Crisis (Perrin et al., 2008). Potenza (2019) explained that while many individuals are likely to view SEM without significant negative impacts, there are a subset who may develop health problems following SEM exposure. Nelson and Rothman (2020) explained that SEM itself is not a Public Health Crisis as it is not an acute event, does not lead to imminent death and does not overwhelm community resources. They stated that pathologising SEM could stigmatise those viewing SEM and restrict sexual freedom. However, they stated that SEM exposure will negatively impact some individuals and that further research is required to determine factors relating to SEM exposure which could result in negative consequences for some (Nelson & Rothman, 2020). The current study investigates factors of age of initial exposure, emotional reaction to content and the medium of SEM exposure (internet versus non-internet content), regarding potential immediate and longer-term associations of SEM exposure.

2.1.2 Age of Exposure to SEM

Research using university samples reported that 93% of males and 62% of females had their first exposure to SEM before age 18 and that exposure prior to age 13 was uncommon (Sabina, Wolak & Finkelhor, 2008). Sinković, Štulhofer and Božić (2013) reported associations between age of initial exposure to SEM with risky sexual behaviours in adulthood. Contrary to Sabina et al. (2008), they found that, on average, age of initial exposure to SEM was lower than 13 (11.51 years for males and 13.48 for females; Sinković et al., 2013). This indicated that an individual's age, at time of initial exposure, may be related to specific behaviours both immediately (within childhood) and longer-term

as an adult, suggesting potential associations between age of first exposure to SEM and longer-term consequences.

While some adolescent research reports that SEM viewing is a normative developmental experience (Alexandraki et al., 2018) that is beneficial for exploration of sexuality and increasing sex education (Simon et al., 2015), other research contends that early exposure to SEM may be a risk factor for immediate and longer-term impacts of SEM, due to children lacking emotional maturity and sexual knowledge to understand and process the content available on the internet (Owens et al., 2012). Livingstone, Haddon, Görzig and Olafsson (2011) found that younger children reported greater negative emotional reactions to online sexual images than adolescents. Furthermore, Benedek and Brown (1999) postulated that children up to age 9 can confuse less extreme SEM content as violence because they appear unable to comprehend the unfamiliar auditory stimuli and repetitive movements, interpreting this as inflicting pain, which could relate to longer-term impacts for these children's emotional wellbeing.

To discover impacts of earlier exposure to SEM, research has investigated SEM exposure in individuals younger than 18 (Alexandraki et al., 2018) and included children as young as 10 (Ybarra & Mitchell, 2005; Ybarra, Mitchell, Hamburger, Diener-West & Leaf, 2011). Ybarra and Mitchell (2005) found that 52.5% of their sample of 10 to 17-year olds reported unwanted and accidental exposure to online SEM. They found that, of those disclosing intentional SEM viewing, older children were more likely to report intentional/wanted exposure (20% of 14 to 17 year olds versus 8% of those 10 to 13). However, Braun-Courville and Rojas (2009) found that 42% of adolescents reported exposure to SEM and 66% of those reported that the exposure was unwanted; though the

authors suggested a potential response bias within reporting of unwanted exposure.

Although studies on exposure to SEM have included children from age 10 upwards and have reported whether their exposure was intentional or accidental, seemingly none of the studies identified participants' age at first exposure to SEM. Consequently, it is possible that the age of first exposure was before 10 and that incidences of, and impact upon, those accessing internet SEM at earlier ages is currently unknown.

2.1.3 Impact of SEM exposure on Mental Health

Research on the potential addictive nature of SEM prompted Cooper et al.'s (1999) theory of internet users. As discussed in Chapter 1, the theory identifies "At-Risk Users" (p.88) with potential for developing SEM addictions as those originally suffering depression, dysthymia or anxiety (Cooper et al., 1999). The theory postulates that these individuals use SEM to improve mood and that they lapse into a cycle of increasingly using SEM as a mood enhancer; thus, SEM becomes addictive. Davis (2001) used his cognitive-behavioural theory of internet use to explain that accessing SEM to relieve depression could increase individuals' negative evaluation of themselves. These negative self-evaluations may increase depressive symptoms creating a cycle of SEM use resulting in greater depressive symptoms over time. Consequently, it is possible that earlier SEM exposure, alongside existing depression or anxiety symptomatology, may result in SEM use to enhance mood, increasing negative evaluations of the self and increasing mental health problems into adulthood. Conversely, Perry (2018) only found associations between SEM exposure and depression if SEM use was incongruent with moral or religious beliefs, suggesting that broader social contexts could be moderating factors within relationships between SEM exposure and depression.

Research investigating relationships between SEM exposure and mental health in adults and children has reported varied findings. Bridges and Morokoff (2011) found that higher SEM use was associated with greater levels of depression in adult men. Weaver et al. (2011) found associations between SEM viewing, depressive symptoms, decreases in overall mental and physical health and lower quality of life in adults. A review of adolescent studies reported effects on adolescents' "behavioural, cognitive and emotional wellbeing" (Koletic, 2017, p.119) from viewing SEM. A recent systematic review, conducted by the author (Chapter 1) on SEM exposure and mental health in children and young adults, found that research predominantly indicates associations between SEM exposure and mental health problems in children and young adults. SEM exposure was specifically related to depression and anxiety (Kim, 2001; Kim, 2011; Luder et al, 2011; Willoughby et al., 2014; Doornwaard et al., 2016.; Hökby et al., 2016; Cheung et al., 2018; Ma, 2018; Mattebo, et al., 2018; Kohut & Štulhofer, 2018; Štulhofer et al., 2019); however, findings varied regarding whether the relationship remained consistent over time.

One suggestion for the inconsistency in findings over time was that by Daneback Sevicikova and Jezeck (2018) who conducted adolescent longitudinal studies (over six months) and reported changes over time in their perceptions of SEM. They reported that adolescents were 'less bothered' (p.76) by SEM over time and suggested that this indicated a level of desensitisation or normalisation of SEM meaning there is less emotional impact from the content when viewed. This could indicate that, over time, emotional impact is reduced and consequently there is less of a longer-term impact on mental health.

The above content suggests that further research is required to determine whether there are longer-term impacts of exposure to SEM over time (particularly from early ages) on mental health and potential desensitisation to, or normalisation of, content.

2.1.4 Impact of SEM exposure on Relationship Satisfaction

Studies report varied findings in both adult and adolescent samples regarding associations between SEM exposure and relationship factors. Grov, Gillespie, Royce and Lever (2011) reported associations in adults of higher SEM use with greater negative feelings between romantic partners. However, when studying SEM viewing between partners, SEM reportedly increased sexual frequency and reduced boredom within the partners' sex lives (Grov et al., 2011). Another study reported that when both partners view SEM, intimacy and openness about desires and fantasies are increased (Daneback, Traeen & Mansson; 2009). Furthermore, Kohut, Fisher and Campbell (2017) found that couples reported "no negative effects" (p.585) of SEM and that positive perceptions of SEM use included improving sexual communication, comfort, expression and experimentation within the relationship.

Conversely, other studies with adults and adolescents reported that SEM viewing increased negative comparisons regarding body image or sexual performance and was associated with decreases in sexual satisfaction and lower overall relationship satisfaction (Bridges & Morokoff, 2011; Peter & Valkenburg, 2014; Tylka, 2015).

A systematic review of adolescent studies reported that exposure to SEM was related to a preoccupation with sex, changes in sexual behaviours, norms and attitudes towards genders, reduced self-esteem and sexual satisfaction (Koletic, 2017). A study with

a college sample also reported associations between SEM exposure and lower levels of relationship satisfaction, commitment and intimacy (Minarcik, Wetterneck & Short, 2016). Other adolescent research, including longitudinal studies, have reported longer-term associations between SEM and reduced sexual satisfaction and poorer relationship satisfaction (Braun-Courville & Rojas, 2008; Brown & Engle, 2009; Peter & Valkenburg, 2009, Morgan, 2011).

‘Script Theory’ (Gagnon & Simon, 1973) has been used to explain why, for some individuals, SEM exposure can have negative impacts on relationship satisfaction. The theory postulates that when viewing SEM, particularly content that is perceived as non-normative, learnt scripts regarding sex may alter. This alteration of sexual scripts could foster unrealistic expectations from partners within relationships and that when these expectations of specific sexual practices are not met, relationship satisfaction is reduced. Lawrence and Byers (1995) developed the Interpersonal Exchange Model of Sexual Satisfaction (IEMSS) postulating that SEM produces arousal with an expected level of sexual reward, if this level of arousal or reward cannot be replicated, relationship satisfaction alongside overall well-being decreases (Yucel & Gassanov, 2010). Consequently, as there is seemingly more research regarding SEM and negative impacts on relationships for adolescents and mixed findings within adult samples, it is possible that the age at which an individual is exposed to SEM is a factor regarding the impact on immediate and longer-term relationship satisfaction.

2.1.5 Impact of SEM exposure over time

As discussed, studies designed to explore any associations between age of SEM exposure and subsequent mental health and relationship satisfaction have reported mixed findings. Although longitudinal adolescent studies have been conducted, these tend to be of relatively short duration. Therefore, literature suggests that research is needed to discover longer-term associations between exposure to SEM, mental health and relationship satisfaction, particularly when initial exposure to SEM is at an early age. As identified by Nelson and Rothman (2020) it is also important to determine whether any long-term associations with mental health and relationship satisfaction are related to exposure to SEM and not a by-product of each other or due to other environmental factors such as experiencing difficult life events. Moreover, as potential desensitisation/normalisation to content may alleviate longer-term impacts on mental health (Daneback et al., 2018), it is important to explore whether individuals' perceptions of different types of SEM change over time and whether perceptions of the impact of SEM alters with time.

2.1.6 The Current Study

This study aimed to investigate whether there were relationships between age of first exposure to SEM and longer-term mental health and relationship satisfaction. The study was designed to explore whether early initial exposure to SEM has longer-term associations with individuals' mental health and perceived relationship satisfaction in adulthood, even when controlling for life events that may impact on mental health and relationship satisfaction. The study also aimed to investigate related factors such as emotional reaction to first SEM experiences, to explore whether it is the emotional reaction

to the experience that relates to any longer-term associations with mental health and relationship satisfaction.

As there are ethical and legal implications with including child participants in SEM research, the present research used adult participants in a retrospective study, quantitatively reporting their age of initial exposure, medium of exposure and the perceived impacts of SEM for them (both at the time of initial exposure and any longer-term impacts).

The study also aimed to explore changes in perception of SEM content over time. It aimed to discover whether there is a broader generational difference in age of first exposure to SEM and impact on mental health and relationship satisfaction, to determine whether individuals who have always had regular access to the internet are exposed to SEM at younger ages, than those who had access to the internet at older ages, and are more likely to have greater impacts on their mental health and relationship satisfaction.

2.1.7 Research Question and Hypotheses

The overarching research question is: ‘What are the factors relating to potential longer-term impacts of SEM exposure?’

The study has four hypotheses:

H1: Earlier access to the internet will be associated with earlier exposure to SEM.

H2: Earlier exposure to SEM will be associated with:

- a. poorer current mental health outcomes
- b. lower levels of relationship satisfaction

even when covariates such as stress-related life events are included.

H3: Negative emotional reactions to first/early experiences of SEM will be associated with poorer current mental health and lower levels of relationship satisfaction.

H4: There will be significant differences between:

- a. Individuals' perceptions of the impact of their first experiences of SEM content versus if they were to see the same content now.
- b. Individuals' perceived impact of SEM on them as a child versus the impact as an adult in relation to their mental health and relationships.

2.2 Method

The research was developed in the following three stages:

1. Questionnaire development and Public Involvement Group

After developing a proposed design and questionnaire, specifically for the study (Impact of SEM Questionnaire), a public involvement group was held to gather general public feedback on the design and proposed measures. The group attendees highlighted the importance of including potential factors relating to longer-term impacts of SEM on mental health and relationship satisfaction to increase public awareness regarding the study findings. The group informed decisions on the measures used, shaped the main empirical study methodology and further enhanced the Impact of SEM Questionnaire. Further details of the Public Involvement Group can be found in Appendix D and E.

2. Test- Retest Reliability

Thirty-six university students completed a test and retest of the Impact of SEM Questionnaire, designed for the main research study, to gather the questionnaire's test-retest reliability over a period of a month. Intraclass correlation coefficients (ICC) were computed to discover test-retest reliability of the items within the questionnaire. The analysis indicated that the Impact of SEM Questionnaire had 'good test-retest reliability' (ICC = .793; Koo & Li, 2016). Further description of the test-retest methodology is in Appendix (G).

3. Main Empirical Study

The subsequent content describes the methodology of the main empirical quantitative research. All aspects of the research were examined and approved by the University of Southampton Ethics Committee (Appendix C).

2.2.1 Inclusion/Exclusion Criteria

Participants were required to be aged 18 or over, with internet access to complete online measures. A definition of SEM was given, enabling participants to identify whether they had viewed this content. Participants were asked not to complete further questions if they had not seen SEM.

2.2.2 Design

The study employed a cross-sectional and correlational within-participants design. Quantitative data was collected from five measures: one questionnaire on the impact of SEM, a relationship satisfaction measure, two mental health measures, and a measure of

life events. The life events measure was included as a control, to discover whether early exposure to SEM was associated with current mental health and relationship satisfaction when controlling for significant life events experienced within the last year.

Power analysis was conducted using G*Power (Faul, Erdfelder, Lang & Buchner, 2007) to discover the required sample size to produce results with both a medium effect size ($p^2 = 0.15$) and a small effect size ($p^2 = 0.02$). When designing the study hypotheses, it was ascertained that multiple regression analyses would be utilised to discover any associations between earlier exposure to SEM with poorer mental health and lower relationship satisfaction when controlling for covariates. Therefore an a priori power analysis to test multiple linear regressions, allowing for up to five predictors, was conducted. The a priori test identified that a minimum of 92 participants were required to produce a medium effect size ($p^2 = 0.15$) and 647 participants were required for a small effect size ($p^2 = 0.02$) testing a two tailed hypothesis with 80% power and a significance of $p < .05$. The researcher hoped to recruit enough participants to detect a small effect size ($p^2 = 0.02$).

2.2.3 Participants

The collected sample, recruited online, consisted of 369 participants (93 males, 271 females, 2 Non-binary, 1 Gender fluid and 2 individuals who preferred not state their gender) ranging from ages 18 to 76 (mean age 25.4). Participants were students from the University of Southampton ($n = 264$) and members of the general public ($n = 105$). Southampton students were recruited through advertisement within the University via the University research participation site and through the University social media webpages.

General public members and non-Southampton University students were recruited through social media-based research participation webpages and a research participation website named Call for Participants. Southampton University students received research participation credits and non-Southampton students and general public members were offered entries to a prize draw for participation.

2.2.4 Materials

The following presents the quantitative measures used within this study.

2.2.4.1 Quantitative Measures

The Impact of SEM Questionnaire (Appendix I) was designed specifically for the study and included some adapted items from Gonsalves' (2010) 'Use of Sexually Explicit Material Survey' (which assessed for behaviours associated with SEM exposure).

The Impact of SEM Questionnaire was developed to assess self-perceived impacts of SEM exposure. It included items assessing age of initial exposure, medium of exposure (via internet or non-internet SEM), any emotional reactions to, and perceived impacts of, exposure to SEM (positive and negative), changes in perceptions of SEM over time and perceived longer-term impacts of SEM in relation to mental health and relationship outcomes. Demographic questions were included within this questionnaire and participants rated their responses on Likert Scales. Test-retest analyses of the questionnaire suggests it has 'good test-retest reliability' (ICC=.793; Koo & Li, 2016; Appendix G).

Relationship Assessment Scale (RAS; Dicke & Hendrick, 1998; Appendix J) measures global relationship satisfaction. This scale was selected as it assesses individuals'

self-perceived satisfaction within any form of intimate relationship. It has an internal consistency of .91 and has strong predictive validity, including with individuals who are dating (Vaughn & Matyastik Baier, 1999). Participants rated their satisfaction on seven 5-point Likert scales; items 4 and 7 are reverse scored, and the total score is divided by 7 to provide a mean satisfaction score. Scores range from 1 (low relationship satisfaction) to 5 (high relationship satisfaction). Participants were prompted to report their relationship status, those identifying as single were asked to consider their most recent intimate relationship when completing this scale.

Clinical Outcomes in Routine Evaluation (CORE-10; Connell & Barkham, 2007; Appendix K) is a 10-item screening tool, widely used in mental health settings across the U.K. (Evans et al., 2000). The measure assesses levels of psychological distress which, when above clinical thresholds, relate to the presence of mental health disorder symptomatology. The measure includes questions associated with anxiety, depression, trauma, subjective wellbeing, overall social and physical functioning, risk to self and others (Connell & Barkham, 2007). A score of 10 or lower indicates difficulties are below the clinical threshold. A score of 11-14 suggests 'mild' symptoms, 15-19 suggests moderate, 20-24 indicates moderate-severe symptoms and a score of 25 and above indicates severe symptoms of psychological distress. Barkham et al. (2012) reported an internal reliability of .90 and concluded that the measure has "good psychometric properties" (p. 3).

Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983: Appendix L) is a 14-item scale, widely used within clinical practice and research literature (Stern, 2014). The tool is National Institute for Health and Care Excellence (NICE) recommended

and is a suitable measure for assessing anxiety and depression levels in members of the general population (Stern, 2014). A score of seven or lower does not indicate clinical levels of anxiety or depression. Scores of 8-10 indicate mild symptoms, 11-14 indicate moderate and 15-21 indicate severe symptoms of anxiety and/or depression (Stern, 2014). A review assessing the validity of the HADS, reported average Cronbach's alpha for the anxiety scale of $\alpha = .83$, and $\alpha = .82$ for the depression scale (Bjellund, Dahl, Haug & Nekelmann, 2001).

The study included the CORE-10 and HADS as they were identified by the Public Involvement Group as the most appropriate mental health measures for the study and because they both provide differing valuable information regarding mental health. The Public Involvement Group highlighted these measures as shorter than other mental health measures, such as the CORE-OM (Evans et al., 2000), ensuring quicker and easier completion in addition to providing scores for overall levels of psychological distress (including symptomatology of multiple mental health disorders; CORE-10), and assessing for clinical ranges specifically for depression and anxiety respectively (HADS). The Public Involvement Group discussed that these shorter measures were required to reduce completion time and increase retention rate of participants completing the study.

Social Readjustment Rating Scale (SRRS; Holmes & Rahe, 1967; Appendix M) measures personal stress levels by providing 43-items of significant life events that can heighten susceptibility to stress-induced health problems. Participants indicate whether they have experienced the life event in the last year. Points are allocated to each stress-related event; a total score of 150 points or less indicates low susceptibility to stress-induced health problems, 150-300 points implies a 50% chance of major stress-induced

health problems and a score of 300 points relates to an 80% chance of major stress-induced health problems. The reliability of the SRRS was assessed by Gerst, Grant, Yager and Sweetwood (1978) and they reported that rank ordering of the measure's items remained consistent for both healthy adults ($r=.96$ to $.89$) and for patients with mental health problems ($r=.91$ to $.70$), indicating the appropriateness of the measure for individuals of the general population.

2.2.5 Procedure

The quantitative measures were input into an online questionnaire (I-survey) and participants were invited to complete the questionnaire. Participants clicked the survey link and were directed to an information sheet (Appendix H) and consent tick box. Following consent, each participant completed the measures in the subsequent order: The Impact of SEM Questionnaire, RAS, CORE-10, HADS and the SRRS. After completion, a debrief was displayed (Appendix H). Participants were subsequently directed to a link for their e-mail address should they wish to enter the prize draw (those not requiring research credits). A separate link was used to collect e-mails to ensure participant responses were not associated with e-mail addresses to protect anonymity and confidentiality.

2.2.6 Data Analysis

Participant responses from the quantitative measures were analysed using SPSS v.26. Data screening and cleansing was completed. Participant responses containing missing data were included, providing that sufficient data could be obtained from the remaining content. Consequently, of the 369 participants who completed the quantitative measures,

four were removed from the final data set due to patterned responses, leaving a total of 365 participants (261 students, 104 non-students; Table 5).

Demographic information and descriptive statistics were analysed along with inferential statistics. These included reliability analyses of the measures used; correlational and linear regression analyses to discover whether there were associations between early exposure to SEM, current mental health and relationship satisfaction. Multiple regressions were conducted to determine whether any significant associations found within the linear regressions remained significant when controlling for stress-related life events.

Within samples t-tests were also conducted to discover any significant differences in perceptions of SEM over time. Principal components analysis of emotional reactions towards first experiences, followed by a one-way ANOVA, was used to discover whether emotional reactions to first/early experiences were related to current mental health and relationship satisfaction.

Variables used in these analyses were those of current mental health, relationship satisfaction, stress-related life events, age of exposure, emotional reaction to content, perceptions of differing SEM content and perceptions of the impact of SEM over time. Current mental health comprised of three variables; one containing participants' total CORE-OM scores, to provide analysis relating to individuals' levels of psychological distress, and two variables of participants' levels of anxiety and depression using total scores from the HADS anxiety and depression subscales. The variable of relationship satisfaction comprised of participants' total mean scores from the RAS and the stress-related life events variable comprised of participants' total scores on the SRRS. Age of

exposure to SEM, emotional reaction to content and perceptions of differing SEM and the impact of SEM over time were all measured using the Impact of SEM Questionnaire. The age of exposure variable comprised of participants responses of their age at which they had their first/early experience of SEM. The variables for emotional reaction to content and perceptions of SEM and its impact over time will be discussed within the results section.

2.3 Results

Table 5 presents key sample demographics from the final 365 participants included within the study analyses. The full sample demographics table can be found in Appendix N.

Table 5. Sample Demographics

Demographic Variable		<i>M (SD)</i>
Gender Identity <i>n</i> (%)		
- Male	92 (25.2)	
- Female	268 (73.4)	
- Non-binary	2 (0.5)	
- Gender Fluid	1 (0.3)	
Age range of sample	18-76	25.42 (10.99)
Ages <i>n</i> (%)		
- 18 -24	249 (67.7)	
- 25-39	83 (22.6)	
- 40-76	31 (8.4)	
Ethnicity <i>n</i> (%)		
- White British	246 (66.8)	
- Any other White background	57 (15.5)	
- Black or Black British	17 (4.6)	
- Asian or Asian British	18 (4.9)	
- Mixed Race	15 (4.1)	
- Other Ethnic Groups	10 (2.7)	
Occupation <i>n</i> (%)		
- Student	261 (70.9)	
- Employed	79 (21.5)	
- Other	25 (6.8)	

Relationship status <i>n</i> (%)	
- Single	112 (30.4)
- In a relationship	172 (46.7)
- Other	81 (22.2)
Reporting a current mental health diagnosis <i>n</i> (%):	106 (28.7)

2.3.1 SEM Exposure Experiences

Participants reported their ages of first internet access between ages two and fifty-eight, with a mean age 12.44 (standard deviation of 7.82). All participants reported having seen SEM; however, age and means of first/early exposure varied. Table 6 presents descriptive statistics from the Impact of SEM Questionnaire regarding individuals' first SEM experiences (the age and medium of their first/early SEM exposure alongside whether the exposure was accidental or intentional) and subsequent types of SEM they had been exposed to. Further details of descriptive statistics from the Impact of SEM Questionnaire can be found in Appendix O.

Table 6 First/Early SEM Exposure Experience and Subsequent Types of SEM Content

<i>Questionnaire Items</i>		<i>M (SD)</i>
Age of First or Early experience - Range	5-65	13.28 (5.58)
Age of First or Early Experience <i>n</i> (%)		
- Age 5		4 (1.1)
- Age 5 - 9		45 (12.5)
- 10-12 years old		128 (35.6)
- 13-16 years old		156 (43.3)
- Over 16 years		31 (8.6)

Where the SEM was viewed <i>n</i> (%)	
- On the internet (via any internet accessible device)	254 (69.0)
- Not seen on the internet (such as on television or in a magazine).	110 (29.9)
- Missing data	1 (0.3)
Exposure to SEM was accidental or Intentional <i>n</i> (%)	
- Accidental	155 (42.1)
- Intentional	63 (17.1)
- Friends showed me this material	136 (37.0)
- Other (seen on tv, in sexual health video, shown by a partner)	11 (3.1)
Overall types of SEM Content seen <i>n</i> (%):	
- Pictures of nudity intended to arouse	351 (95.4)
- Scenes of sexual acts between a male and female.	356 (96.8)
- Scenes of sexual acts between individuals of the same sex.	314 (85.3)
- Sexual acts involving 3 or more people at one time.	279 (75.8)
- Scenes involving dominance and submission.	276 (75.0)
- Scenes involving an animal and human	152 (41.3)
- Content involving individuals who looked like they could be underage.	160 (43.5)
- Content involving sexual violence.	199 (54.0)

Table 6 shows that the age of first exposure to SEM ranged from as young as 5 (1.1%) to 65 (0.3%). The highest frequency of individuals reported first viewing SEM at age 12 (17.1%); however, by age 12, 30.6% of participants had seen SEM. Sixty-nine percent of participants were initially exposed to SEM via the internet and 42.1% reported this exposure as accidental. Furthermore, when reporting on subsequent experiences of SEM, 54% of the sample had seen extreme content involving sexual violence, 41.3% had

seen bestiality and 43.5% reported that they had been exposed to content involving individuals who look underage (Table 6).

2.3.2. Mental Health, Relationship Satisfaction and Life Events

Of the 365 participants, 106 (29%) reported a current mental health diagnosis and 246 (67.4%) reported being in an intimate relationship (Table 5). Table 7 displays the mental health (CORE-10 and HADS), relationship satisfaction (RAS) and life events (SRRS) scores.

Table 7. Descriptive Statistics from the Mental Health, Relationship Satisfaction and Life Events Measures

Measure	<i>n</i> (%)	<i>M</i> (<i>SD</i>)
CORE-10 Scores		
Level of psychological distress		11.31 (7.15)
- Score of 10 or below (below clinical threshold)	195 (53.5)	
- 11-14 mild	67 (18.4)	
- 15-19 moderate	55 (15.1)	
- 20-24 moderate-severe	25 (6.8)	
- 25+ severe	23 (6.2)	
HADS		
Levels of Anxiety		7.40 (4.27)
- Score of 7 or below (below clinical threshold)	201 (55.1)	
- 8-10 mild	81 (22.2)	
- 11-14 moderate	59 (16.1)	
- 15-21 severe	24 (6.6)	
Levels of Depression		4.15 (3.44)
- Score of 7 or below (below clinical threshold)	257 (82.6)	
- 8-10 mild	46 (12.7)	
- 11-14 moderate	12 (3.3)	
- 15-21 severe	5 (1.4)	

RAS

Level of relationship satisfaction 1 (low satisfaction) – 5 (high satisfaction)		3.89 (0.91)
- 1-2 (low satisfaction)	57 (15.7)	
- 3 (average satisfaction)	102 (28.1)	
- 4-5 (high satisfaction)	204 (56.2)	

SRRS

Level of life event-based impact on health.		186.16 (134.62)
- 150 pts or less low susceptibility to stress-induced health problems.	177 (48.5)	
- 150-300 pts, 50% chance of major stress-induced health problems.	128 (35.3)	
- 300+pts, 80% chance of major stress-induced health problems.	60 (16.2)	

Note: Clinical Outcomes in Routine Evaluation (CORE-10), Hospital Anxiety and Depression Scale (HADS), Relationship Assessment Scale (RAS), Social Readjustment Rating Scale (SRRS)

Although 29% reported a mental health diagnosis, 46.5% scored above clinical thresholds for symptoms of psychological distress (CORE-10), 44.9% scored above thresholds for anxiety (HADS) and 17.4% scored above clinical thresholds for Depression (HADS; Table 7). On the RAS, 83.4% rated average to high levels of satisfaction within their relationship; 15.7% reported low levels of satisfaction. The SRRS showed that 51.5% experienced stress-related life events within the last year, increasing their chances by 50-80% of major stress-induced health problems (Table 7).

2.3.3 Reliability Analyses

Reliability analyses were calculated for all measures with total scores (Table 8). As the Impact of SEM Questionnaire was not designed to produce an overall total score Cronbach’s alpha was not conducted for this measure.

Table 8. Reliability analyses of quantitative measures

Measure	Cronbach's alpha (α)
CORE-10	.85
HADS	.87
RAS	.91
SRRS	.77

Note: Clinical Outcomes in Routine Evaluation (CORE-10), Hospital Anxiety and Depression Scale (HADS), Relationship Assessment Scale (RAS), Social Readjustment Rating Scale (SRRS).

Descriptors of internal reliability were used from George and Mallery (2003) who deemed that a Cronbach's alpha of $>.9$ was "excellent", $>.8$ was "good", and $>.7$ was "acceptable" (p.231). The SRRS was found to have "acceptable" levels of internal reliability, the CORE-10 and HADS had "good" internal reliability and the RAS had "excellent" internal reliability (Table 8; George & Mallery, 2003, p.231).

2.3.4 Correlations of Age of Exposure

Correlational analyses were conducted to discover associations between the variables. There was a highly significant positive correlation between participant current age and age of internet access, $r(363) = .89, p < .001$, indicating that older participants' initial access to the internet was at an older age. There was also a significant moderate positive correlation between participant current age and age of first SEM exposure, $r(363) = .50, p < .001$, suggesting that older participants had their first exposure to SEM at an older age. Associations between earlier access to the internet and accessing SEM at younger ages produced a moderate positive correlation, $r(359) = .56, p < .001$, indicating that younger individuals who access the internet are more likely to access SEM at younger ages.

Correlations were conducted to discover whether there were associations between early exposure to SEM and current negative mental health outcomes and lower levels of relationship satisfaction (Table 9).

Table 9. Correlations between SEM exposure, Mental Health and Relationship Satisfaction

<i>Variable</i>	CORE-10	HADS - Anxiety	HADS - Depression	RAS
Age of First (or Early) Exposure to SEM	-.17**	-.24**	-.09	.05
CORE-10	-	.74**	.66**	-.32**
HADS -Anxiety		-	.59**	-.13*
HADS -Depression			-	-.31**
RAS				-

Note: ** Correlation is significant at the $p < .01$, * Correlation is significant at the $p < .05$

Age of exposure to SEM was significantly negatively correlated with current overall psychological distress (CORE-10) and anxiety (HADS) suggesting that the older the initial exposure, the lower the psychological distress and anxiety (Table 9); however, the correlation was small. Contrastingly, age of initial exposure to SEM was not significantly correlated with current depression (HADS) or relationship satisfaction (RAS).

2.3.5 Regression Analyses of Age of Exposure (Hypothesis 1 and 2)

A simple linear regression analysis was performed to determine whether earlier internet access was associated with earlier exposure to SEM. The linear regression showed that earlier access to the internet was significantly associated with earlier exposure to SEM, $F(1,357) = 158.83$, $p < .001$, of which early internet access accounted for 30.6% of the variance in earlier exposure to SEM (Adjusted $R^2 = .306$). As earlier access to the internet accounted for 30.6% of the variance in earlier exposure to SEM, univariable linear

regressions were conducted to explore whether earlier access to the internet was associated with current mental health and relationship satisfaction (Table 10).

Univariable linear regressions were also conducted to explore whether earlier exposure to SEM was associated with poorer current mental health and lower relationship satisfaction. Further linear regression analyses were conducted to explore whether there were associations between significant life events, current mental health and relationship satisfaction and whether there were associations between current relationship satisfaction and mental health (Table 10).

Table 10 Linear Regression Analyses

Predictor Variable	Criterion Variables	β	F	df	p	Adjusted R^2
Age of First Exposure to SEM	CORE-10	-.17	10.69	358	.001**	.026
	HADS-Anxiety	-.24	21.25	358	<.001***	.053
	HADS-Depression	-.09	3.10	366	.079	.006
	RAS	.05	.94	356	.334	.000
Stress-related life Events (SRRS)	CORE-10	.30	38.10	363	<.001***	.093
	HADS-Anxiety	.34	46.96	363	<.001***	.112
	HADS-Depression	.35	50.31	360	<.001***	.120
	RAS	-.10	3.32	361	.069	.006
Relationship Satisfaction (RAS)	CORE-10	-.32	41.62	361	<.001***	.101
	HADS-Anxiety	-.32	6.43	361	.012*	.015
	HADS-Depression	-.31	38.48	358	<.001***	.095
Age of internet access	CORE-10	-.22	17.62	362	<.001***	.044
	HADS-Anxiety	-.27	27.65	362	<.001***	.068
	HADS- Depression	-.05	1.00	359	.318	.000
	RAS	.02	.11	360	.745	-.002

Note: *** $p < .001$, ** $p < .01$, $p < .05$ *

Table 10 shows that earlier exposure to SEM was significantly associated with overall current psychological distress (CORE-10), $F(1,358) = 10.69$, $p < .01$, accounting for 2.6% of the variation in psychological distress. Earlier exposure to SEM was also

significantly associated with anxiety (HADS), $F(1,358) = 21.25, p < .001$ accounting for 5.3% of the variation in current anxiety. However, earlier exposure to SEM was not significantly associated with current depression (HADS) or relationship satisfaction (RAS). Similarly, earlier access to the internet was significantly associated with current psychological distress (CORE-10), $F(1,362) = 17.62, p < .001$ accounting for 4.4% of the variation, and current anxiety (HADS) $F(1,362) = 27.65, p < .001$ accounting for 6.8% of the variation but was not significantly associated to current depression (HADS) and relationship satisfaction (RAS). Life events (SRRS) and relationship satisfaction were significantly associated with all mental health measures (Table 10).

As stress-related life events (SRRS) were not significantly associated with relationship satisfaction (RAS) these were used as predictor variables, alongside age of exposure to SEM in a multiple regression analysis, with psychological distress (CORE-10) and anxiety (HADS) as criterion variables. Multiple regressions were conducted to discover whether age of exposure to SEM was significantly associated with these mental health outcomes when controlling for stress-related life events (SRRS) and relationship satisfaction (RAS; Table 11).

Table 11. Multiple Regression Analyses of Age of First Exposure to SEM with Mental Health, Controlling for Relationship Satisfaction and Life Events

Predictor Variables	Model 1: Criterion CORE-10					Model 2: Criterion HADS- Anxiety				
	B	SE.B	β	t	p	B	SE.B	β	t	p
Age of First SEM Exposure	-.16	.06	-.12	-2.57	<.05**	-.15	.04	-.20	-3.99	<.001*
RAS	-2.28	.38	-.29	-6.08	<.001*	-.46	.23	-.10	-2.01	<.001*
SRRS	.01	.00	-.27	5.54	<.001*	.01	.00	.31	6.23	<.05**

Note: Model 1- Age of Exposure, Relationship Satisfaction, Life Events (predictors), CORE-10 (criterion). Model 2- Age of Exposure, Relationship Satisfaction, Life Events (predictors), HADS Anxiety (Criterion). ** $p < .05$, * $p < .001$.

Regression model 1 shows that even after controlling for relationship satisfaction and stressful life events, age of first exposure to SEM continued to be significantly associated with increased symptoms of current psychological distress (CORE-10), with age of exposure, life events and relationship satisfaction accounting for 19% of the variation in psychological distress, $F(3,354) = 28.97, p < .001$ Adjusted $R^2 = .190$. Similarly model 2 shows that after controlling for relationship satisfaction and stressful life events, age of exposure continued to be significantly associated with current anxiety (HADS), with age of exposure, life events and relationship satisfaction accounting for 15.6% of the variation in anxiety, $F(3,354) = 23.07, p < .001$ Adjusted $R^2 = .156$. This shows that when controlling for life events and relationship satisfaction, age of first exposure remains independently associated with CORE-10 and HADS anxiety scores (Table 11).

As age of internet access accounted for 30.6% of the variance in earlier exposure, age of internet access was subsequently included into regression models 1 and 2 as a predictor variable to control for age of internet access (Table 12).

Table 12. Multiple Regression Analyses of Age of First Exposure to SEM with Mental Health, Controlling for Relationship Satisfaction, Life Events and Age of Internet Access

Predictor Variables	Model 1: Criterion CORE-10					Model 2: Criterion HADS- Anxiety				
	B	SE.B	β	t	p	B	SE.B	β	t	p
Age of First SEM Exposure	-.01	.08	-.01	-.17	.864	-.06	.05	-.09	-1.32	.188
RAS	-2.02	.42	-.26	-4.80	<.001*	-.48	.26	-.10	-1.84	.065
SRRS	.02	.00	.30	5.39	<.001*	.01	.00	.32	5.78	<.001*
Age of First Internet Access	-.14	.06	-.17	-2.61	<.05**	-.09	.03	-.18	-2.77	<.05**

Note: Model 1- Age of Exposure to SEM, Relationship Satisfaction, Life Events and Age of First Internet Access (predictors), CORE-10 (criterion). Model 2- Age of Exposure to SEM, Relationship Satisfaction, Life Events and Age of First Internet Access (predictors), HADS Anxiety (Criterion). ** $p < .05$, * $p < .001$.

Table 12 shows that after controlling for relationship satisfaction (RAS), stress-related life events (SRRS) and age of first internet access, age of exposure to SEM was no longer significantly associated with current psychological distress or anxiety. Results of regression model 1 and 2 (in Table 12) indicate that age of first internet access remains significantly associated with current psychological distress, $F(4,269) = 19.74, p < .001$ Adjusted $R^2 = .215$ and anxiety, $F(4,269) = 18.20, p < .001$ Adjusted $R^2 = .201$, even after controlling for significant life events and relationship satisfaction.

2.3.6 Emotional reactions to first/early experiences (Hypothesis 3)

In the Impact of SEM Questionnaire, participants were asked to rate on a Likert Scale of 1-5 (1= not at all, 5= Extremely) how strongly they felt specific emotions (listed in Table 13) when they saw the content of their first/early SEM experience. To discover whether the reported emotional reaction to first/early experiences was associated with current mental health and relationship satisfaction, a principal component analysis (PCA) with varimax rotation was conducted. This produced three components (Table 13) with eigenvalues greater than one and visual inspection of the scree plot indicated 3 components at the point of inflection. The Kaiser-Meyer-Olkin (KMO; Kaiser, 1974) was .84 and Bartlett's Test of Sphericity was statistically significant ($p < .001$) indicating that the data was factorable and suitable for a PCA. Component 1 comprised of positive emotional responses and therefore was labelled "positive emotional reactions". Component 2 mapped onto basic negative emotions of fear, sadness and disgust and consequently was termed "negative emotional reactions". Component 3 comprised of negative emotions relating to the self and were therefore classed as "negative self-focused emotional reactions".

Table 13. Principal Components Analysis

Emotions	C1: Positive emotional reactions	C2: Negative emotional reactions	C3: Negative self-focused emotional reactions
Excited	.86		
Aroused	.85		
Happy	.85		
Intrigued	.82		
Amused	.53		
Disgusted		.81	
Upset		.78	
Traumatized		.76	
Confused		.62	
Ashamed			.88
Guilty			.86
Embarrassed			.74
Eigenvalues	3.33	2.58	2.40
% of variance	27.71	21.47	20.00

Note: Emotions from Question 4 in Impact of SEM Questionnaire (Appendix I).

Subsequently, a one-way ANOVA was conducted using the components from the PCA with current mental health outcomes and relationship satisfaction (Table 14).

Table 14 One-Way ANOVA using the Emotion based Components developed from the PCA

Component from Measure		<i>F</i>	<i>df</i>	<i>p</i>	η^2
PCA					
C1: Positive emotional reactions	CORE-10	1.44	341	.103	.078
	HADS Anxiety	1.19	341	.260	.065
	HADS Depression	2.14	339	.003*	.112
	RAS	.72	339	.808	.041
C2: Negative emotional reactions	CORE-10	1.64	346	.062	.066
	HADS Anxiety	2.36	346	.003*	.093
	HADS Depression	.88	344	.590	.037
	RAS	.88	344	.592	.037
C3: Negative self-focused	CORE-10	2.79	349	.001*	.087
	HADS Anxiety	3.38	349	<.001**	.104

emotional reactions	HADS Depression	1.46	347	.137	.048
	RAS	1.42	347	.154	.047

Note: ** $p < .001$, * $p < .01$. The positive emotional reactions component includes the following emotions: excited, aroused, happy, intrigued, amused. The negative emotional reactions component includes disgusted, upset, traumatised and confused. The negative self-focused emotional reactions component includes being ashamed, guilty and embarrassed.

Table 14 shows that there was a significant relationship between emotions recalled at first/early exposure to SEM and current mental health outcomes. Positive emotional reactions (C1) had a significant main effect on current depression levels (HADS), $F(20,339) = 2.14$, $p < .01$, $\eta^2 = .112$.

Negative emotional reactions and negative self-focused emotional reactions (C2 and C3) had a significant main effect on current anxiety (HADS; C2, $F(15,346) = 2.36$, $p < .01$, $\eta^2 = .093$, C3, $F(12,349) = 3.38$, $p < .001$, $\eta^2 = .104$). However, only negative self-focused emotional reactions (C3) had a significant effect on current psychological distress (CORE-10; $F(12,349) = 2.79$, $p < .01$, $\eta^2 = .087$). These findings indicate that positive emotional reactions (C1) to first/early experiences of SEM were related to higher current depression levels and negative emotional reactions (C2 and C3) were related to higher current anxiety levels. However, only negative self-focused emotional reactions (of shame, guilt and embarrassment; C3) were significantly related to higher current psychological distress levels.

2.3.7 Perceptions of SEM over time (Hypothesis 4)

Within subjects paired samples t-tests were conducted to explore variations in individuals' perceptions of the impact of SEM over time regarding their experiences of differing types of SEM and their perceptions of the impact of SEM on them as a child versus as an adult.

Regarding perceptions of their experiences of differing types of SEM, participants reported their emotional reaction to various SEM content (on a Likert Scale of 1-5, 1 = strong negative emotional reaction, 5 = strong positive emotional reaction) at first/early exposure versus if they were to view the same content now (Table 15). Each of the following t-tests conducted between first experience versus same content now were analysed independently, removing participant responses of 0 (0= never seen the content) to ensure means provided reflected perceptions of the impact of the SEM.

Initially, participants reported on the impact of their first exposure to SEM compared with their perception of the likely impact if they were to view the same content now. Subsequently, participants reported the first exposure of other various types of SEM compared with the perception of the likely impact if they were to see that content again now (Table 15). In the following t-tests a stricter alpha level of <.01 was used to account for multiple comparisons (Table 15 and Table 16).

Table 15. Paired samples t-test between perceptions of first experience of SEM content versus if they were to see the same content now

Type of SEM	<i>M (SD)</i> First Experience	<i>M (SD)</i> Same Content Now	95% Confidence Interval		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
			Lower Confidence Interval	Upper Confidence Interval				
Content of First/Early Experience	2.88 (1.05)	3.36 (.79)	-.60	-.37	-8.27	363	<.001**	.52
Pictures of nudity intended to arouse	3.30 (1.07)	3.74 (.85)	-.56	-.32	-7.10	352	<.001**	.46
Scenes of sexual acts between males and females	3.33 (1.10)	3.79 (.96)	-.58	-.35	-7.82	355	<.001**	.45

Chapter 2

Scenes of sexual acts between individuals of the same sex	3.35 (1.29)	3.59 (1.01)	-.38	-.10	-3.43	329	.001*	.21
Sexual acts involving 3 or more people at one time	3.44 (1.43)	3.47 (1.05)	-.21	.14	-3.62	311	.717	.02
Scenes involving sexual dominance and submission	3.22 (1.57)	3.33 (1.22)	-.29	.07	-1.24	308	.214	.08
Sexual acts involving an animal and a human	2.27 (1.96)	1.32 (.80)	.66	1.24	6.44	185	<.001**	.64
Content involving individuals who look like they could be underage	2.52 (1.98)	1.43 (.88)	.80	1.37	7.58	196	<.001**	.71
Content involving scenes of sexual violence	2.33 (1.85)	1.64 (1.07)	.45	.95	5.58	232	<.001**	.46

Note: **p<.001, *p<.01, Questions 7 and 9 on the Impact of SEM Questionnaire. Respondents reported on Likert Scales of 1 (strong negative reactions) to 5 (strong positive reactions). Participants stated N/A if they had not seen this content; responses of N/A were removed from this analysis.

There were significant differences in perceptions of SEM content for all types of SEM, except for scenes of sexual acts involving three or more people and scenes of sexual dominance and submission. The means for content of the first/early experience of SEM show that initially, on average, individuals experienced slightly negative emotional

reactions to this experience. However, if they were to see the same content now, on average, they rated they would not experience positive or negative emotions to the content seemingly being more indifferent to the content.

The means for pictures of nudity, scenes between males and females and scenes between individuals of the same sex increased slightly. They all remained within the score of 3 (not experiencing positive or negative reactions) but had increased towards 4 (slightly positive emotions) over time.

Conversely, on average over time individuals felt stronger negative emotions, shifting from a score of 2 (slightly negative reactions) to a score of 1 (strong negative reaction), towards more extreme content such as involving animals and humans, individuals who look underage or content involving sexual violence.

Within subjects t-test analyses were also conducted to explore whether there were significant differences in individuals perceived impact of exposure to SEM as a child versus as an adult, in relation to their relationship satisfaction and mental health (Table 16). Participants rated on Likert Scales of 1-5 (1=Strongly Disagree, 5=Strongly Agree) their perceptions regarding the impact of SEM (both positive and negative) on their mental health and relationship satisfaction as a child and as an adult.

Table 16. Paired samples *t*-test between perceptions of the impact of SEM as a child versus as an adult

Variable	<i>M</i> (<i>SD</i>) Impact as a Child/Teen	<i>M</i> (<i>SD</i>) Impact as an Adult	95% Confidence Interval		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
			Lower Confidence Interval	Upper Confidence Interval				
Overall Negative Impact on Relationships	2.05 (1.08)	2.00 (1.01)	-.04	.15	1.22	364	.222	.05
Overall Positive Impact on Relationships	2.52 (.96)	2.88 (1.08)	-.44	-.27	-8.12	364	<.001**	.35
Overall Negative Impact on Mental Health	2.15 (1.10)	2.02 (1.03)	.04	.22	2.78	364	.006*	.12
Overall Positive Impact on Mental Health	2.41 (.89)	2.59 (.98)	-.24	-.10	-4.80	364	<.001**	.19

Note: ** $p < .001$, * $p < .01$, Question 9 on the Impact of SEM Questionnaire. Respondents reported on Likert Scales of 1 (strongly disagree) to 5 (strongly agree).

There was no significant difference regarding perceptions of the impact of exposure to SEM leading to a negative impact on relationships as a child versus as an adult (Table 16). However, there were significant differences in individuals' perceptions of the positive impact of SEM. Individuals rated slightly higher for positive impact on relationships and mental health as an adult, toward a 3 'neither agree nor disagree', however responses remained in the 'disagree' category, suggesting that on average individuals disagreed that there was a positive impact on mental health and relationships as an adult. Moreover, on average adults disagreed more that exposure to SEM had a negative impact on their mental health as an adult, than they did as a child.

2.4 Discussion

This study utilised quantitative analyses to explore the research question: 'What are the factors relating to potential longer-term impacts of SEM exposure?' Results indicated that it was the emotional reaction to first/early SEM exposure that was associated with poorer current mental health in adulthood, rather than age of initial SEM exposure. Earlier exposure to SEM was found to be significantly associated with psychological distress and anxiety when controlling for stress-related life events and relationship satisfaction. However, when controlling for the age of internet access, earlier SEM exposure was no longer associated with these mental health outcomes. The following content further discusses these findings, alongside the study's hypotheses, and gives potential explanations regarding emotional reaction to content relating with longer-term mental health outcomes and the variation in findings regarding age of exposure when controlling for life events and relationship satisfaction versus when controlling for age of internet access.

2.4.1 Earlier exposure to SEM

The study explored whether earlier internet access was related to earlier SEM exposure. Linear regression analyses showed that earlier internet access was significantly associated with earlier SEM exposure; therefore hypothesis 1 'Earlier access to the internet will be associated with earlier exposure to SEM' was supported. However, earlier internet access only accounted for 30.6% of variance within early exposure to SEM, suggesting that additional factors also account for early SEM exposure.

Research literature has suggested that age of SEM exposure may be a factor relating to whether individuals experience longer-term impacts from SEM (Owens et al.,

2012; Sinković et al., 2013). While previous research has assessed associations between SEM and mental health in children as young as 10 (Ybarra & Mitchell, 2005), the present study found that 12.5% of participants were exposed to SEM before age 10 and four participants reported SEM exposure as young as 5 (Table 6). Furthermore, Sabina et al. (2008) reported that SEM exposure before age 13 was uncommon; however, 48.1% of the current sample reported SEM exposure before age 13 (Table 6), indicating that nowadays individuals may be more commonly exposed to SEM under age 13.

Similar to Ybarra and Mitchell's (2005) findings that 52.5% of their sample reported unwanted and accidental exposure to SEM, the present study found that 42.1% reported their first exposure as accidental, 37% reported being shown content by friends and only 17.1% intentionally searched for SEM (Table 6). However, although participants reported accidental exposure or exposure via friends, it was not ascertained as to whether the exposure was unwanted.

The study therefore explored whether earlier SEM exposure was associated with longer-term impacts on mental health and relationship satisfaction. Regarding hypothesis 2 'Earlier exposure to SEM will be associated with (a) poorer current mental health outcomes and (b) lower levels of relationship satisfaction, even when covariates such as stress-related life events are included'; the hypothesis was not supported. Earlier exposure to SEM was significantly associated with greater levels of current psychological distress (CORE-10) and anxiety (HADS), in adulthood, when controlling for current relationship satisfaction and stress-related life events (Table 11). However, linear regressions showed that earlier exposure only accounted for 2.6% of the variation in current psychological distress and 5.3% of the variation in current anxiety, suggesting that additional factors also

account for longer-term impacts on psychological distress and anxiety. Moreover, when controlling for age of internet access (as it accounted for 30.6% of the variance in early SEM exposure) earlier exposure to SEM was no longer associated with current psychological distress (CORE-10) or current anxiety (HADS; Table 12) and age of internet access remained significantly associated with psychological distress and anxiety in adulthood. These findings could potentially suggest that, rather than the age at which an individual is initially exposed to SEM, it could be the age at which individuals access the internet and are exposed to a variety of internet content, including internet SEM, that relates to anxiety and psychological distress in adulthood. Thus, this could potentially suggest it is also the type of content individuals are exposed to that relates to longer-term anxiety and psychological distress. Conversely, as most of the sample (67.7%) were participants who had internet access from an early age, when controlling for younger ages within the internet access variable, this could have controlled for younger ages within the age of exposure to SEM variable and consequently the association was no longer significant.

Unlike previous longitudinal studies finding relationships between SEM exposure, increased depression (Ma, 2018) and lower relationship satisfaction over time (Braun-Courville & Rojas, 2008; Brown & Engle, 2009; Peter & Valkenburg, 2009, Morgan, 2011), the current study found that age of exposure to SEM was not significantly associated with longer-term depression (HADS) or relationship satisfaction (RAS). Consequently, other factors relating to SEM exposure require investigation regarding associations studies found between depression and SEM. The present study found that stress-related life events and current relationship satisfaction were associated with current

depression at the univariable level (Table 10). Therefore, it is possible that in previous studies which found associations between age of exposure and longer-term depression or relationship satisfaction that factors such as stress-related life events or current relationship satisfaction were confounding variables within associations between SEM and depression.

2.4.2 Emotional reaction to SEM

Cooper (1998) postulated that with the development of the internet came increased accessibility and availability of ever-increasing types of internet SEM. This study found that 54% of the sample had been exposed to SEM involving sexual violence, 41.3% had seen SEM involving bestiality and 54% had seen SEM involving individuals who appear underage. Although the specific ages that the above content was viewed were not collected, findings could indicate the prevalence of this extreme and/or illegal content available on the internet that may potentially be accessed by children.

Livingstone et al. (2011) reported that younger children experience greater negative emotional reactions to sexual content and Owens et al. (2012) explained that this was due to lacking sexual experiences and knowledge to process the content viewed. This study analysed reported emotional reactions to first/early experiences to explore whether these were factors related to longer-term impacts of SEM on mental health and relationship satisfaction.

Regarding hypothesis 3 'Negative emotional reactions to first/early experiences of SEM will be associated with poorer current mental health and lower levels of relationship satisfaction', the hypothesis was partially supported. Findings suggested a significant relationship between participants who experienced negative emotional reactions and

negative self-focused emotional reactions (C2 and C3; Table 14), to their first/early SEM exposure, with longer-term current anxiety (HADS) into adulthood. Furthermore, negative self-focused emotional reactions of shame, guilt and embarrassment (C3) were also associated with current psychological distress (CORE-10). This indicated that negative emotional reactions to first/early SEM experiences could be related to current psychological distress and anxiety within adulthood, though effect sizes were small. As age of exposure was not significantly associated to longer-term mental health outcomes when controlling for age of internet access, it is possible that it is the type of SEM individuals are exposed to that relates to their emotional reaction to the content alongside an individual's developmental age and ability to understand or process the content (Owens et al., 2012). Furthermore, it is possible that negative emotional reactions were related to whether the SEM exposure was incongruent with individual (or internalised family and social) moral and religious beliefs, as found in Perry (2018), or whether individuals negatively compared themselves with characters within the SEM such as is suggested in Social Comparison Theory. Relating with Social Comparison Theory (Festinger, 1954; Chapter 1), potentially those who already negatively compare themselves with others in daily life, may have greater negative emotional reactions to SEM due to negatively comparing themselves and their body type to those in SEM. These negative self-comparisons of body type have been found to lower self-esteem and are associated with poorer mental health in the longer-term (Peter & Valkenburg, 2014; Tylka, 2015)

Script Theory (Gagnon & Simon, 1973) and the Lawrence and Byers (IEMSS;1995) model of sexual satisfaction postulated that viewing SEM alters learnt scripts about sex and can produce levels of reward or arousal; these new scripts can foster unrealistic

expectations about sexual relationships and when levels of arousal cannot be replicated within relationships, there are reductions in relationship satisfaction. In contrast to this theory and model, the current study found that neither negative nor positive emotional reactions to first/early experiences were significantly associated with current relationship satisfaction. These findings from the current study are supported by those of a recent study, concluding that there are no significant associations between SEM exposure and relationship satisfaction (McNabney, Hevesi & Roland, 2020).

Interestingly, findings of the current study showed an association between participants who experienced positive emotional reactions (C1) to their first early SEM exposure and current depression levels (HADS) in adulthood. This could indicate that for some individuals there may be shorter-term enjoyment but longer-term negative impacts of SEM. A potential theoretical explanation for this is Cooper et al.'s (1999) "At-Risk Users", suggesting that individuals with underlying predispositions or depressive symptoms before their first SEM exposure, who experience enjoyment, may subsequently use SEM to improve their mood. Consequently, a cycle of SEM viewing to enhance mood may increase short-term pleasure but in the longer-term result in addictive SEM use (Cooper et al., 1999). Davis's (2001) cognitive-behavioural theory adds to Cooper et al.'s (1999) theory by suggesting that addictive SEM use, due to requiring SEM for enjoyment, may over time negatively impact individuals' self-evaluations, increasing low mood and depressive symptoms in the longer-term; therefore it is possible that shorter-term enjoyment of SEM could relate to longer-term negative impacts for some individuals.

2.4.3 Perceptions of SEM over time

Longitudinal adolescent research found that, over a six-month period, perceptions of SEM changed and adolescents were ‘less bothered’ (Daneback et al., 2018, p.76) by content over time. Daneback et al. (2018) suggested a normalisation or desensitisation to SEM over time, reducing its emotional impact. The current study investigated reported changes in perceptions of SEM content and its impact over time to explore any perceived longer-term impacts of SEM.

Regarding hypothesis 4a, ‘There will be significant differences between: Individuals’ perceptions of the impact of their first experiences of SEM content versus if they were to see the same content now’, analysis showed significant differences in perceptions of most types of content over time (except for scenes involving three or more people, scenes of sexual dominance and submission; Table 15); therefore the hypothesis was partially supported.

For the impact of the content seen at first SEM exposure, there was a slight shift in sample mean scores from negative emotional reactions to not experiencing positive or negative emotions (potentially no impact) if they were to see the same content now. This could indicate normalisation, or desensitisation, of the content meaning that over time it has less emotional impact on the individual (Daneback et al., 2018) or that initial exposure was at an age where individuals did not have developmental understanding of the content (Owens et al., 2012) and with age, greater sexual development and increased understanding, the same content would no longer have an impact for the individual.

Although there were significant differences in perceptions regarding pictures of nudity, scenes between males and females and scenes between individuals of the same sex (slightly increasing towards more positive reactions to this content), the mean scores suggested that responses remained within not experiencing positive or negative reactions over time. This could mean that, for some participants, the content was perceived more positively over time; however, for others there was no impact from this content.

Contrastingly, on average, individuals felt stronger negative emotions towards more extreme SEM (including bestiality, individuals who appear underage and content involving sexual violence). These shifts suggest that with increased age and developmental experiences more extreme content evoked stronger negative emotions over time. Consequently, it is possible that individuals only become desensitised (reducing emotional impact; Daneback et al., 2018) to certain types of SEM that are potentially more normative and that with age, greater understanding and sexual experience, more extreme content is perceived as non-normative and evokes greater negative emotional reactions.

Regarding hypothesis 4b, 'There will be significant differences between: Individuals' perceived impact of SEM on them as a child versus the impact as an adult in relation to their mental health and relationships', the hypothesis was partially supported. There were no significant differences between ratings of negative impact on relationships in childhood versus adulthood. However, there were significant differences in positive impacts on relationships and negative impacts on mental health in childhood versus adulthood (Table 16). On average, individuals disagreed that there was a positive impact on mental health and relationships both in childhood and adulthood and disagreed more that there was a negative impact of SEM on mental health as an adult. These results

potentially suggest that individuals did not perceive any impact of SEM on their relationships and mental health as a child or an adult. As research literature has suggested that viewing SEM is perceived as a normative developmental experience (Alexandraki et al., 2018) it is possible that individuals may not perceive any impacts of SEM on mental health and relationships due to a more accepted societal view that SEM viewing is normative and healthy. Consequently, SEM exposure may only be perceived as having negative impacts on mental health and relationships when effects are immediate or longer-term consequences are overt, such as SEM addictions or desensitisation to more extreme content.

2.4.4 Clinical Implications

The current study findings indicated that the emotional reaction to first/early SEM exposure was associated with longer-term mental health implications. As age of exposure was not significantly related to longer-term mental health when controlling for internet access, the current study discusses other potential suggestions for these emotional reactions relating to the study findings and existing theory. With the increasing accessibility of diverse types of SEM, including extreme and illegal content, it is possible that negative emotional reactions may relate to the type of content accessed. However, it is also possible that these relate to internal (or internalised family and cultural) views regarding SEM, negative comparisons with individuals in SEM or evaluations of the self from viewing SEM. Consequently, as discussed by Nelson and Rothman (2020) overall SEM itself is not a Public Health Crisis but there may be a subset of individuals who experience negative impacts (Potenza, 2019), based on their individual experience of SEM, their idiosyncratic

beliefs and the type of SEM viewed, that may relate with longer-term mental health problems into adulthood.

Therefore, it is hoped that this study increases awareness of the potential indicators for longer-term negative impacts of SEM, such as the emotional reaction to content, so that services can provide tailored clinical interventions and enhance systemic support for those experiencing negative impacts of SEM exposure. Increasing understanding of the potential factors relating to longer-term negative impacts, and being comfortable to discuss SEM openly may enable individuals to process the content viewed which may reduce potential longer-term negative impacts of SEM. Therefore, the current study recommends increasing awareness within services to provide education to parents, teachers and clinical staff regarding factors relating to longer-term impacts and supporting individuals who have negative experiences following SEM exposure.

Currently, negative impacts of SEM tend to only be identified within addiction services where an individual expresses SEM addiction. This study hopes to increase awareness and prompt open discussions within services. It recommends that schools work towards including SEM within education for parents on internet safety (discussing effectiveness of parental controls on devices for very young children) and within education for children on internet safety and in sex education classes (explaining types of content available on the internet and prompting open discussions about the portrayal of sexual acts within the SEM as well as the potential emotional impact of SEM), with the aim that increased openness may mitigate potential negative impacts. It is also envisaged that these discussions will enable individuals to have greater knowledge and understanding of SEM which may help to reduce negative emotional impacts and enable children and young

people to make informed decisions about the reality of the content regarding re-enactment of scenes. The study also hopes that an awareness of potential risk factors to longer-term impacts of SEM will enable open discussions within child and adolescent and adult services for early detection and support regarding any negative impacts from SEM exposure.

2.4.5 Strengths and Limitations

Strengths of the current research were that it was the first retrospective study to investigate age of initial SEM exposure and emotional reaction to content in relation to longer-term impacts on mental health and relationship satisfaction. Furthermore, a questionnaire was developed, specifically for the study, which was strengthened by public involvement feedback, enhancing the questionnaire's face validity and test-retest analysis indicated that the questionnaire had good reliability (Appendix G).

The study included a large sample with a broad age range and provided more up-to-date data on ages of initial exposure to SEM and indicated the prevalence of varying types of content which is potentially available to children. Findings also highlighted the prevalence of accidental versus intentional viewing and suggested that nowadays, with portable internet accessible devices, there may potentially be higher incidences of children being shown SEM by friends. Although there may potentially be response bias within the data, the anonymity of the online self-reporting method used could increase the validity of the study's findings (Durrent et al., 2002; Svedin et al., 2011). The study also showed a broader generational difference, with those who have always had easy internet access

being more likely to be exposed to SEM at younger ages and highlighted potential indicators for longer-term impacts and potential implications of SEM exposure.

Unlike some previous research, the questionnaire developed for the study incorporated positive and negative impacts of SEM exposure and discussion of the findings provided suggestions for clinical and systemic support for those experiencing negative impacts and ways in which negative impacts could potentially be mitigated.

However, there were limitations of the current study. The study required 647 participants to detect a small effect size ($p^2=0.02$); therefore, although the current sample size was large, it was only able to detect a small to medium effect size ($p^2=0.04$). Nevertheless, with the current sample size of 365 participants the study had greater than 99% power to detect medium effects ($p^2=0.15$). However, the quantitative findings should be interpreted cautiously as associations produced small effect sizes with the amount of variability accounting for the association tending to be small. Furthermore, the correlational design of the study suggests that only associations can be reported and causality cannot be inferred.

As the study was retrospective in nature, it relied on individuals' ability to recall episodic/autobiographical memories. The study included individuals up to age 76; therefore, memory regarding first experiences and the emotional responses may be impacted as time span increases between first exposure and current age. Furthermore, 29% of the sample had prior mental health diagnoses; research has suggested that mental health problems, particularly depression, can impact on recall of autobiographical memories

(Tulving, 2002); thus, it is possible that ages of exposure and emotional responses to SEM are not recalled exactly.

Furthermore, the study was purely quantitative in design and therefore descriptions of individuals' experiences were not gathered which may have provided greater depth to the quantitative findings. Moreover, factors of gender, ethnicity, sexual orientation, religious or cultural beliefs, personality type and family and social attitudes that may impact on SEM experiences were not analysed within this study.

There are also limitations relating to the measures used. The life-events measure (SRRS) only included life events within the last year and therefore did not account for historical events (prior to the last year) which may have been related to current mental health and relationship satisfaction. As the research focused on the age of exposure and emotional reaction to the SEM content, associations between the type of exposure (intentional versus accidental) and age of SEM exposure or emotional reaction to the content were not analysed. However, descriptive statistics were reported for type of exposure from the Impact of SEM Questionnaire data. On this questionnaire, individuals responded as to whether their exposure to SEM was intentional, accidental, whether friends showed them the content or "other" with a comment box enabling them to add details regarding their exposure type. However, participants were neither specifically asked whether they were shown SEM by older friends or same age peers nor whether they were shown SEM by adults (for example, by being sent content by an adult over the internet, shown by adult family members or by adult family friends). Participants may not have felt comfortable to provide details regarding exposure via adults within the comment box; therefore, it is possible that emotional reactions reported regarding the SEM content may

be heightened by the circumstances surrounding the exposure to SEM, such as forced SEM viewing or grooming to watch SEM, and may not solely be related to the content viewed in the SEM.

2.4.6 Future Research

Future research could analyse age of initial SEM exposure and emotional reaction to content, alongside other individual factors such gender identity, sexual orientation, ethnicity, individual and family attitudes, beliefs, religious and cultural values. Studies could include measures of personality type such as erotophilia/erotophobia scales, assessing an individual's disposition to respond positively or negatively to sexual content in SEM, as this may impact on individuals' perceptions and experiences of SEM. Furthermore, future studies could include qualitative data to provide themes regarding individuals' experiences of SEM and perceived longer-term impacts, both positive and negative, of SEM exposure.

Moreover, future retrospective or longitudinal studies could explore whether earlier exposure and emotional responses to content are related and whether emotions are related to the type of SEM viewed, age and developmental understanding to process the content or circumstances surrounding the SEM viewing. Studies could also explore whether there are associations between type of exposure (including intentional, accidental, shown by same age, older peers, via adults over the internet, via adult family members or adult family friends) and collect data regarding the emotional reaction to SEM in relation to longer-term mental health and relationship satisfaction.

Future adolescent studies could ask individuals their age of first SEM exposure, the content of that exposure with the emotional response and whether they have seen subsequent types of content (with the ages at which they viewed these and emotional responses to the subsequent content), alongside the medium by which each of these types of content were accessed. This may enhance reliability regarding the age of initial exposure and emotional responses to content (as recall is less likely to be impacted over time) and whether the content was accessed via the internet. Furthermore, it would strengthen research knowledge regarding the types of SEM that children are accessing and the ages at which they are accessing this content.

Appendix A Adaptation of the Newcastle-Ottawa Scale (Wells et al., 2009) for Evaluating Cross-Sectional/Survey Studies (based on adapted version created by Hillen et al., 2017)

Maximum score: 16 points

1. Clearly Stated Aim

- i. The study aim is clearly stated, precise and relevant in light of the available literature. **
- ii. The study aim is described, but not with sufficient precision *
- iii. The study aim is not described the reader is required to infer the aim from the text.

2. Subject Selection

a. Representativeness of the Sample

- i. Truly representative of the average in the target population (all subjects or random sampling) (including if only one institution) **
- ii. Somewhat representative of the average in the target population (non-random sampling) *
- iii. Selected group of users
- iv. No description of the sampling strategy

b. Sample Size

- i. Justified and satisfactory **
- ii. Justified, not satisfactory or satisfactory, not justified *
- iii. Paper does not include enough information to determine whether sample size is satisfactory or justified.

c. Non-respondents

- i. Response rate is assessed and satisfactory (>70%). Comparability between respondents and non-respondents' characteristics is assessed **
- ii. Two of three *
- iii. One or none of three *

d. Ascertainment of the exposure (risk factor)

- i. Validity and reliability of tools are discussed **
- ii. Validity is not discussed but the tool's reliability is discussed*
- iii. No description of measurement tools' validity or reliability.

3. Comparability

a. Confounding Factors are Controlled.

- i. The study controls for potential confounder(s). *
- ii. The study does not control for potential confounding factors.

b. The Subjects in Different Outcome Groups are Comparable, Based on Study Design or Analysis.

- i. The study subjects in different groups are comparable, based on design or analysis.*

4. Outcome

a. Assessment of the Outcome

- i. Independent blind assessment **
- ii. Record linkage **
- iii. Self-report *
- iv. No description

b. Statistical Test

- i. The statistical test used to analyse the data is clearly described and appropriate, and the measurement of association is presented, including confidence intervals and probability level (p value). (All present) **
- ii. The statistical test used to analyse the data is clearly described and appropriate, and the measurement of association is presented, including confidence intervals and probability level (p value). (Two of three present) *
- iii. The statistical test is not appropriate, not described, or incomplete.

Appendix B Quality Assessment (breakdown of scores shown in Table 4)

Reference	Clearly stated Aim (max 2 stars)	Subject Selection (maximum 2 stars) <i>a. Representativeness of the Sample</i>	Subject Selection (max 2 stars) <i>b. Sample Size</i>	Subject Selection (max 2 stars) <i>c. Non-respondents</i>	Subject Selection (max 2 stars) <i>d. Ascertainment of the exposure (risk factor)</i>	Comparability (max 1 star) <i>a. Confounding Factors are Controlled.</i>	Comparability (max 1 star) <i>b. The Subjects in Different Groups are Comparable, Based on Study Design or Analysis.</i>	Outcome (Max 2 stars) <i>a. Assessment of the Outcome</i>	Outcome (max 2 stars) <i>b. Statistical Test</i>	Total max 16 or 15 If studies do not include different outcome groups (Percentage)
1. Cheung et al. (2018).	ii.*	iii. (no stars)	i.**	iii.*	i.**	ii (no stars)	N/A	iii.*	ii.*	8/15 (53%)
2. Doornwaard et al. (2016).	i.**	iii. (no stars)	ii.*	iii.*	ii.*	i.*	N/A	iii.*	ii.*	8/15 (53%)
3. Hökby et al. (2016)	i.**	i.**	iii. (no stars)	ii.*	i.**	i.*	N/A	iii.*	i.**	11/15 (73%)
4. Kim (2001)	i.**	ii.*	ii.*	ii.*	ii.*	ii. (no stars)	N/A	iii.*	ii.*	8/15 (53%)
5. Kim (2011)	i.**	ii.*	ii.*	i.**	ii.*	ii. (no stars)	N/A	iii.*	ii.*	9/15 (60%)

Appendix B

6. Kohut & Štulhofer (2018)	ii. *	ii.*	ii.*	iii.*	ii.*	i.*	i.*	iii.*	ii.*	9/16 (56%)
7. Luder et al. (2011)	i. **	ii.*	i.**	ii.*	i.**	i.*	i.*	iii.*	i.**	13/16 (81%)
8. Ma (2018)	i. **	ii.*	iii.	ii.*	ii.*	i.*	i.*	iii.*	i.**	10/16 (62%)
9. Mattebo et al. (2013)	i. **	ii.*	i.**	ii.*	i.**	ii. (no stars)	i.*	iii.*	i.**	12/16 (75%)
10. Mattebo, et al. (2018)	i. **	ii.*	i.**	iii.*	ii.*	ii. (no stars)	i.*	iii.*	ii.*	10/16 (62%)
11. Štulhofer, et al. (2019)	ii. *	ii.*	ii.*	ii.*	i.**	i.*	i.*	iii.*	i.**	11/16 (68%)
12. Svedin, et al. (2011)	i.**	ii.*	i.**	ii.*	ii.*	ii (no stars)	i.*	iii.*	i.**	11/16 (68%)
13. Tsitsika et al. (2009)	i.**	i.**	i.**	ii.*	iii (no stars)	i.*	i.*	iii.*	i.**	12/16 (75%)
14. Willoughby et al. (2014)	ii. *	ii.*	iii. (no stars)	iii.*	i.**	i.*	i.*	iii.*	ii.*	9/16 (56%)
15. Ybarra & Mitchell (2005)	iii (no stars)	ii.*	i.**	i.**	iii. (no stars)	i.*	i.*	iii.*	i.**	10/16 (62%)

Note: Scoring system corresponds with questions in Appendix A

Appendix C Ethics Approval

Ethics Approval Confirmation for Public Involvement and Test-Retest Analyses

ERGO II
Ethics and Research Governance Online

UNIVERSITY OF
Southampton

Home Submissions

48080.A2 - Associations of exposure to SEM - Public Involvement Group (Amendment 2)

Submission Overview | Submission Questionnaire | Attachments | History

Details

Status Approved
Category Category **C**
Submitter's Faculty Faculty of Environmental and Life Sciences (FELS)

The end date for this study is currently 31 October 2019

[Request extension](#)

If you are making any other changes to your study please create an amendment using the button below.

Latest Review Comments

26/06/2019 13:27:02 - Committee: Approved
Comments:
Good luck in your research!

Ethics Approval Confirmation for Main Empirical Research Study

ERGO II
Ethics and Research Governance Online

UNIVERSITY OF
Southampton

Home Submissions

52871 - Associations of exposure to Sexually Explicit Material

Submission Overview | Submission Questionnaire | Attachments | History

Details

Status Approved
Category Category **B**
Submitter's Faculty Faculty of Environmental and Life Sciences (FELS)

The end date for this study is currently 31 May 2020

[Request extension](#)

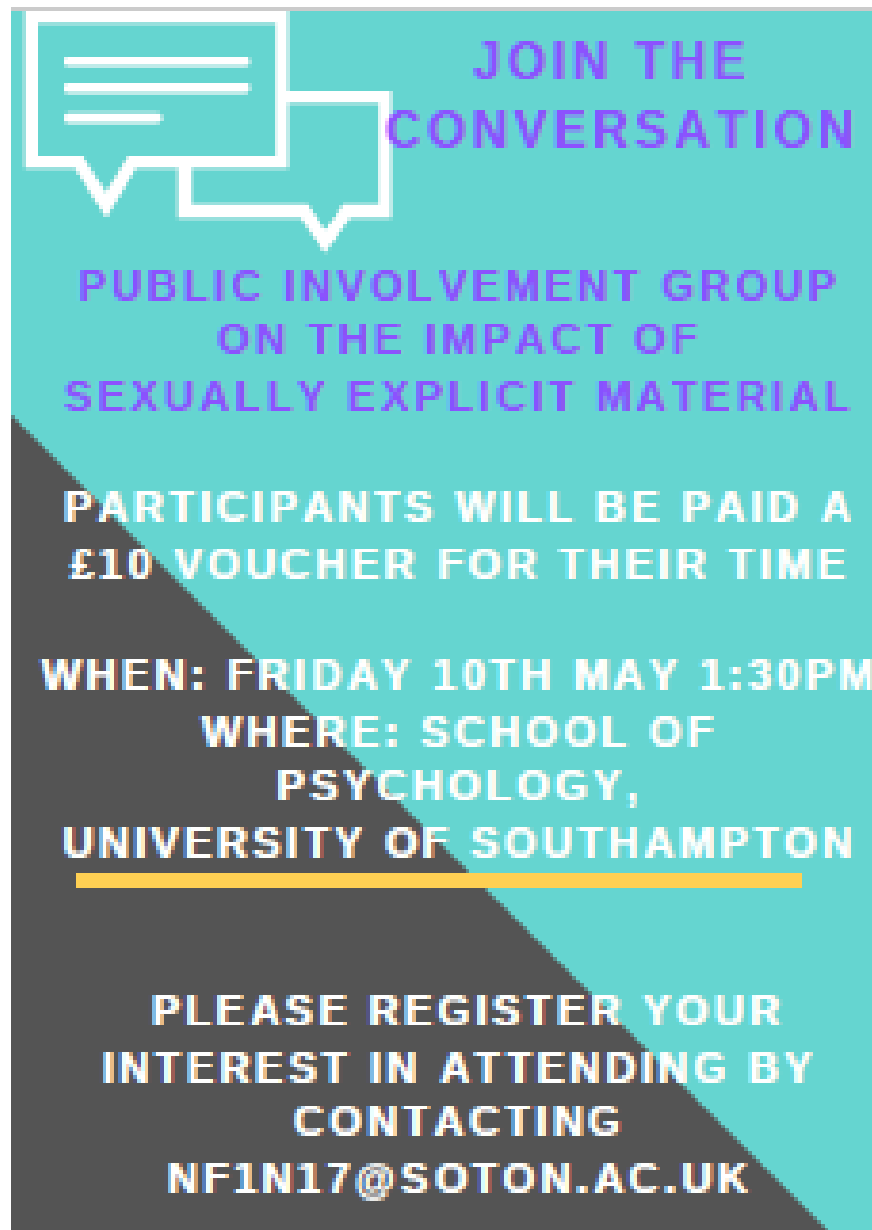
If you are making any other changes to your study please create an amendment using the button below.

Latest Review Comments

16/10/2019 12:09:41 - Committee: Approved
Comments:
Good and very thorough ethics application!

**Appendix D Public Involvement – Advert, Program and
Feedback Sheets**

Public Involvement Advert/Poster

A poster for a public involvement group. The top half has a teal background with a white speech bubble icon on the left. The text is in purple and white. The bottom half has a black background with white text. A yellow horizontal line is under the location information.

**JOIN THE
CONVERSATION**

**PUBLIC INVOLVEMENT GROUP
ON THE IMPACT OF
SEXUALLY EXPLICIT MATERIAL**

**PARTICIPANTS WILL BE PAID A
£10 VOUCHER FOR THEIR TIME**

WHEN: FRIDAY 10TH MAY 1:30PM
**WHERE: SCHOOL OF
PSYCHOLOGY,
UNIVERSITY OF SOUTHAMPTON**

**PLEASE REGISTER YOUR
INTEREST IN ATTENDING BY
CONTACTING
NF1N17@SOTON.AC.UK**

Public Involvement Program on the Day

The Impact of Sexually Explicit Material

Contact Details:

Nicky Fisher
(nfin17@soton.ac.uk)

or

Dr Emma Palmer-Cooper
e.c.palmer-
cooper@soton.ac.uk
023 8059 1895

Shackleton Building (44)
School of Psychology
University of
Southampton
University Road
SO17 1BJ

Public Involvement Group

Friday 10th May 2019
1:30-3pm
Shackleton Building (44)
Room 2103

School of Psychology,
University of Southampton

Those who wish to participate in
this research discussion will be
offered a £10 voucher for their time.

What is this Public Involvement Group about?

You are invited to take part in a group discussion on a research project investigating the impact of Sexually Explicit Material and whether age of initial exposure and accessibility to content are factors associated with the impact on mental health, relationships and potential desensitisation to the material over time.

Alongside already well-developed questionnaires the research aims to devise a questionnaire specific to investigating the impact of Sexually Explicit Material.

We are inviting you to give feedback on the research topic idea and the questionnaire developed for the study. Your feedback will help to further shape the questionnaire and ensure that it is relevant and ensure it includes questions of importance to the general public.

In this meeting, your honest thoughts, comments and suggestions about the research will be welcomed to enhance the study.

1:30pm -Start
Refreshments and
Welcome

Introductions

What is Sexually Explicit
Material and how it is
defined in research

An explanation of the
proposed research and
materials

Discussion and feedback
on the study and materials

Any further comments

3pm - Close

Public Involvement Feedback Sheets

Gender Identity:

Age:

Brief section about you (e.g. occupation, why you attended this group, your experience before this group of research related to this topic, or personal/work experience related to the topic):

.....
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.....

How was your experience of this Public Involvement Group?

.....
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.....
.....

Any other comments?

.....
.....
.....
.....

Appendix E Public Involvement Methodology and Analyses

Participants

Students and members of the general public were invited to attend the Public Involvement Group on the 10th May 2019, held at the University of Southampton. Attendees were recruited via social media and dissemination of posters (Appendix D) within the University of Southampton campus.

Initially, 10 individuals (6 females, 4 males) contacted the researcher to register their attendance at the group. Of these attendees, 7 were undergraduate students, 2 were postgraduate students and 1 was a retired police officer.

Design and Procedure

The public involvement group was designed to gather public views on the research project, its' intended design and gather feedback on measures used, in particular the questionnaire designed specifically for the study (*Impact of SEM questionnaire*). The group lasted 1.5 hours.

Attendees were given a brief presentation of:

- SEM and its definitions within research
- previous research findings on the impact of SEM
- the proposed research studies
- potential measures -including the one devised for the study.

Attendees were asked throughout the presentation to comment/give feedback of their opinions and suggestions. Attendees were then given copies of all potential measures for their feedback, with specific focus on the Impact of SEM questionnaire.

Results/Analyses

Of the original 10 attendees who registered to attend, 4 (3 males, 1 female) attended the group on the day. The following table depicts demographic information collated from feedback sheets (Appendix D).

Gender Identity	Age	Occupation/ Course/ Reason for attendance
Male	23	Undergraduate Student -Interest in the impact of SEM.
Female	29	PHD student -Worked on research on porn and porn consumer.
Male	27	Postgraduate student – Interest in the study.
Male	20	Undergraduate Student -Attended talks/conferences on SEM and SEM consumer.

Attendees feedback informed and shaped the research methodology of the main study and enhanced the Impact of SEM Questionnaire (developed for the study). Attendees identified the importance of including impact of SEM exposure on mental health and relationships and identified the CORE-10 and HADS (mental health measures) as the most appropriate measures. They highlighted that these were shorter measures than other mental health measures (such as the CORE-OM) and would be quicker and easier to complete yet give both impact of anxiety and depression levels (HADS) and overall psychological distress (CORE-10). They felt shorter measures were required to reduce completion time and increase the likelihood that individuals will continue to completion of the study.

**Appendix F Test Retest Analyses -Information and Debrief
Sheet**



Participant Information Sheet

Study Title: Survey on sexually explicit material and relationships

Researcher: Nicola Fisher

ERGO number: 47561

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to take part. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

This study is being conducted as part of a Doctorate in Clinical Psychology thesis. The researcher, a Doctorate student at The University of Southampton, is designing a questionnaire to use as part of a research study on sexually explicit material.

Why have I been asked to participate?

You have been asked to participate as a test-retest phase of the study to help the researcher analyse whether the questionnaire is valid and is measuring what is intended.

What will happen to me if I take part?

This is a two-part study. If you decide that you would like to take part, **you will be asked to complete an online questionnaire which will take approximately 10–15 minutes to complete** and you will be awarded 2 credits for your participation.

At the end of the questionnaire you will be asked to click a separate link to input your e-mail address (this will not be linked to your responses) so that the researcher can contact you in a month's time and send you the link to complete the same questionnaire again. You will receive a further 2 credits for this participation. **Giving 4 credits in total for this study.**

If you do not require credits, you can choose to enter a prize draw for a £25 amazon voucher, you will get one entry for the first part of the study and then a further entry when the second part has been completed in a month's time. **You can let us know about this in the study questionnaire.**

Are there any benefits in my taking part?

You will be given credits towards your course for participation. Your responses will also help to assess the validity of this questionnaire to use in future research.

Are there any risks involved?

The questions are of a sensitive nature and will ask about access to and experiences of sexually explicit material, your emotions/feelings, mood and relationships. The questionnaire will not ask you to go into details about your own personal experiences but may ask questions on your reactions to specific content. Although the questionnaire will not go into detail on your personal experiences, we ask that you complete this while you are on your own, both to avoid distractions and so that you feel able to give open and honest responses, as your data will not be identifiable.

If you experience any distress when completing the questionnaire, you can stop at any time and your data will not be used.

If you experienced any distress during or following this research, please do contact:

- Your GP if you require support or a referral regarding your mental health.
- Your local mental health team if you are already under a mental health team.
- You can also access the university counselling service through contacting the enabling service. This can be done via telephone, drop-in or live chat. Please see <https://www.southampton.ac.uk/edusupport/contact.page> for more details.
- You can contact the Student Life Team (who support student wellbeing) on 023 8059 8180 (available 24 hours a day, seven days a week. Student Life are based within Halls of Residence and support all University of Southampton students).
- Samaritans on 116 123 or <https://www.samaritans.org/how-we-can-help-you/contact-us>
- Mind (mental health charity) on <https://www.mind.org.uk/>
- Relate (relationship support) <https://www.relate.org.uk/>

What data will be collected?

Data will be collected via online questionnaires, this data will be viewed and analysed by the researcher and potentially supervisors. Future requests to view the data (for research purposes) will only be able to see the data in raw data format (and all generated personal IDs will be removed).

You will be asked demographic information such as your age, gender identity and ethnicity and you will also be asked questions on your experiences of sexually explicit material, but you will not be asked to give your name or any other identifying information. You will be asked to generate your own personal ID and this will be linked to the data (which will only be viewed by the researcher and potentially researcher's supervisors whilst inputting data to avoid duplication).

In this part of the study your responses will be only used to do test-retest analyses your individual responses and demographic information will not be interpreted.

Will my participation be confidential?

Your participation and the information we collect about you during the course of the research will be kept strictly confidential.

Only members of the research team and responsible members of the University of Southampton may be given access to data about you for monitoring purposes and/or to carry out an audit of the study to ensure that the research is complying with applicable regulations. Individuals from regulatory authorities (people who check that we are carrying out the study correctly) may require access to your data. All of these people have a duty to keep your information, as a research participant, strictly confidential.

Appendix F

Your responses will be stored as data on password protected computers and the university server. Data will be anonymised with participant-generated unique ID numbers.

To ensure that you are happy to continue, you will be asked to tick the consent box.

Do I have to take part?

No, it is entirely up to you to decide whether or not to take part. If you decide you want to take part, you will need to sign a consent form to show you have agreed to take part.

What happens if I change my mind?

You have the right to change your mind and withdraw at any time without giving a reason and without your participant rights being affected.

To withdraw from the study, you can just exit the online webpage and your data will not be used. If however, you have pressed the submit button online, your data cannot be withdrawn unless you contact the researcher with your personal ID.

Following the end of data collection (the closure of the online link) unfortunately data will not be able to be withdrawn as this will be in the analysis phase.

What will happen to the results of the research?

Your personal details will remain strictly confidential. Research findings made available in any reports or publications will not include information that can directly identify you without your specific consent.

The research will be written up as part of a thesis and it is anticipated that this will be published. Should you wish to receive a copy of the final research this can be done via contacting the researcher and can be sent once final versions are approved or the research has been published.

Where can I get more information?

For more information on the study please contact:

Researcher – Nicky Fisher nf1n17@soton.ac.uk

Researcher's Supervisors – Professor Roger Ingham Roger.Ingham@soton.ac.uk
Dr Emma Palmer-Cooper E.C.Palmer-Cooper@soton.ac.uk

What happens if there is a problem?

If you have a concern about any aspect of this study, you should speak to the researchers who will do their best to answer your questions.

If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Data Protection Privacy Notice

The University of Southampton conducts research to the highest standards of research integrity. As a publicly-funded organisation, the University has to ensure that it is in the public interest when we use personally-identifiable information about people who have agreed to take part in research. This means that when you agree to take part in a research study, we will use information about you in the ways needed, and for the purposes specified, to conduct and complete the research project. Under data protection law, 'Personal data' means any information that relates to and is capable of identifying a living individual. The University's data protection policy governing the use of personal

data by the University can be found on its website (<https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page>).

This Participant Information Sheet tells you what data will be collected for this project and whether this includes any personal data. Please ask the research team if you have any questions or are unclear what data is being collected about you.

Our privacy notice for research participants provides more information on how the University of Southampton collects and uses your personal data when you take part in one of our research projects and can be found at <http://www.southampton.ac.uk/assets/sharepoint/intranet/Is/Public/Research%20and%20Integrity%20Privacy%20Notice/Privacy%20Notice%20for%20Research%20Participants.pdf>

Any personal data we collect in this study will be used only for the purposes of carrying out our research and will be handled according to the University's policies in line with data protection law. If any personal data is used from which you can be identified directly, it will not be disclosed to anyone else without your consent unless the University of Southampton is required by law to disclose it.

Data protection law requires us to have a valid legal reason ('lawful basis') to process and use your Personal data. The lawful basis for processing personal information in this research study is for the performance of a task carried out in the public interest. Personal data collected for research will not be used for any other purpose.

For the purposes of data protection law, the University of Southampton is the 'Data Controller' for this study, which means that we are responsible for looking after your information and using it properly. The University of Southampton will keep identifiable information about you for 10 years after the study has finished after which time any link between you and your information will be removed.

To safeguard your rights, we will use the minimum personal data necessary to achieve our research study objectives. Your data protection rights – such as to access, change, or transfer such information – may be limited, however, in order for the research output to be reliable and accurate. The University will not do anything with your personal data that you would not reasonably expect.

If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University's data protection webpage (<https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page>) where you can make a request using our online form. If you need further assistance, please contact the University's Data Protection Officer (data.protection@soton.ac.uk).

Thank you for taking time to read the information sheet and considering to take part in the research.

Title: Survey on sexually explicit material and relationships

Debriefing Statement (Version 1, 03/03/2019)

ERGO ID: 47561

Thank you for taking part in this research, your participation is very much appreciated and will help enhance the design of this questionnaire as a measure of the impact of sexually explicit material.

The aim of this study was to analyse the validity of this questionnaire in assessing the impact of sexually explicit material. It is anticipated that, should the questionnaire be a valid measure, it will be used alongside other questionnaires in a future research study which will assess the overall impact of sexually explicit material.

The results of this study will not include your name or any other identifying characteristics. The research did not use deception. You may have a copy of this summary if you wish and you may also have a summary of the research findings once the project is completed. If this is of interest to you, please contact the researcher and make this request.

If you have any further questions, please contact me *Nicola Fisher* on nf1n17@soton.ac.uk

Thank you for your participation in this research.

It is hoped that this study did not cause you any distress. If, due to personal experiences, this has caused you distress/discomfort. Please see below for a list of services you can access for support.

Thank you once again for participating.

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Support Services:

If you experienced any distress during or following this research, please do contact:

- Your GP if you require support or a referral regarding your mental health.
- Your local mental health team if you are already under a mental health team.
- You can also access the university counselling service through contacting the enabling service. This can be done via telephone, drop-in or live chat. Please see <https://www.southampton.ac.uk/edusupport/contact.page> for more details.
- You can contact the Student Life Team (who support student wellbeing) on 023 8059 8180 (available 24 hours a day, seven days a week. Student Life are based within Halls of Residence and support all University of Southampton students).
- Samaritans on 116 123 or <https://www.samaritans.org/how-we-can-help-you/contact-us>
- Mind (mental health charity) on <https://www.mind.org.uk/>
- Relate (relationship support) <https://www.relate.org.uk/>

Appendix G Test-Retest Methodology and Analyses

Participants

The sample consisted of University Students aged 18 and over. Participants were recruited via advertisement within the University of Southampton and through social media, with an aim of obtaining up to 50 participants.

Design

The test-retest had a within-participants design, as participants completing the online questionnaire at Time 1 (test phase) also completed the same questionnaire a month later (Time 2; retest phase).

Materials

The test-retest used the *Impact of SEM Questionnaire* (Appendix I), which had been developed for the study and further enhanced by Public Involvement feedback. The questionnaire incorporated some adapted items from Gonsalves (2010) 'Use of Sexually Explicit Material Survey', which assesses for frequency of SEM use, behaviours associated with SEM exposure and potential types of SEM content available. The questionnaire was designed to obtain the perceived impact of SEM exposure, alongside assessing age of internet access, age of initial SEM exposure, whether the exposure was accidental or intentional, any emotional reaction to the exposure and perceived impact of first and subsequent exposure to SEM on mental health and relationships. The questionnaire also included various types of content available on the internet to determine whether these had been viewed by the sample and any potential changes in perceptions to content over time.

The questionnaire was input into an online survey (I-survey) and participants completed the study at both test and retest phases to assess whether the Impact of SEM

Questionnaire had test-retest reliability (participant responses remained consistent over time).

Procedure

Participants were invited to take part in the online questionnaire through advertisements within the University and social media. Participants received an online Information Sheet (Appendix F) and tick box consent form. It was explained in the information sheet that test-retest individual responses and demographic data would not be interpreted as this was a test-retest reliability phase of the study. Participants then completed the Impact of SEM Questionnaire, which took approximately 10-15 minutes. Participants received either two credits towards their research participation requirements for completion of the test phase or, for those not requiring course credits, an entry into a prize draw. Participants then received an online debrief (Appendix F) explaining that they would be contacted in a month's time to participate in the retest phase. They were asked to input an e-mail address for this contact into a separate link so that their responses and e-mail addresses could not be linked. A month later, participants were contacted and e-mailed the link for the same questionnaire. They received either a further 2 credits (4 credits in total for the test and retest phases) or a further entry into the prize draw for completion at this stage.

Results/Analysis

Forty-four participants completed the test phase (Time 1); however, only 36 participants completed the retest phase (Time 2). Therefore, eight participants responses from the test phase were removed so that there were 36 participants test and retest data. Subsequently, intraclass correlation coefficients (ICC) were conducted to assess the test-retest reliability of the items within the Impact of SEM Questionnaire. Interpretation of the

intraclass correlation coefficients suggested that, overall, the Impact of SEM Questionnaire has ‘good test-retest reliability’ (ICC = .793), with 95% confidence intervals suggesting between moderate-excellent reliability (CI:.574 - .933; Koo & Li, 2016).

**Appendix H Main Research Study - Information Sheet and
Debrief**



Participant Information Sheet

Study Title: Survey on sexually explicit material, wellbeing and relationships

(Version 2, Date: 08/10/2019)

Researcher: Nicola Fisher

ERGO number: 52971

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to take part. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

This research study is being conducted as part of a Doctorate in Clinical Psychology thesis. The researcher, a Doctorate student at The University of Southampton, aims to explore people's access to and experiences of sexually explicit material and their perceptions of the impact of this material on their emotions/feelings, mood and relationships.

Why have I been asked to participate?

The research aims to investigate adults' experiences of this material. It aims to include both a student and general public members within the participant responses.

What will happen to me if I take part?

If you decide that you would like to take part, **you will be asked to complete an online questionnaire which will take approximately 35–45 minutes to complete** and you can choose to be awarded **6 participation credits** towards your course **or entries into a £50 prize draw**. You can let us know this in the questionnaire.

Are there any benefits in my taking part?

You will be offered the choice of course participation credits or entry into a £50 prize draw for both parts of the study. Your responses will also help to improve our understanding and the research literature on the impact of sexually explicit material.

Are there any risks involved?

The questions in this survey are of a sensitive nature and will ask about access to and experiences of sexually explicit material, your emotions/feelings, mood and relationships. The questionnaire will not ask you to go into details about your own personal experiences but may ask questions on your reactions to specific content.

If you experience any distress when completing the online questionnaire, you can stop the study at any time and your data will not be used. There are support services below and in the debrief should you experience any distress. If you decide to do the extra interview, if this is completed online again you can stop the study at any time.

If you experienced any distress during or following this research, please do contact:

- Your GP if you require support or a referral regarding your mental health.
- Your local mental health team if you are already under a mental health team.
- You can also access the university counselling service through contacting the enabling service. This can be done via telephone, drop-in or live chat. Please see <https://www.southampton.ac.uk/edusupport/contact.page> for more details.
- You can contact the Student Life Team (who support student wellbeing) on 023 8059 8180 (available 24 hours a day, seven days a week. Student Life are based within Halls of Residence and support all University of Southampton students).
- Samaritans on 116 123 or <https://www.samaritans.org/how-we-can-help-you/contact-us>
- Mind (mental health charity) on <https://www.mind.org.uk/>
- Relate (relationship support) <https://www.relate.org.uk/>

What data will be collected?

For this survey, data will be collected via online questionnaires, this data will be viewed and analysed by the researcher and potentially supervisors. Future requests to view the data (for research purposes) will only be able to see the data in raw data format

You will be asked demographic information such as your age, gender identity and ethnicity and you will also be asked questions on your experiences of sexually explicit material but you will not be asked to give your name or any other identifying information. You will be given a computer-generated participant number and this will be linked to the data (which will only be viewed by the researcher and potentially researcher's supervisors whilst inputting data to avoid duplication).

For those who wish to receive prize draw entries you will be asked to click a separate link (which will not be associated with the data you input) to fill out your email address for the prize draw.

Will my participation be confidential?

Your participation and the information we collect about you during the course of the research will be kept strictly confidential.

Only members of the research team and responsible members of the University of Southampton may be given access to data about you for monitoring purposes and/or to carry out an audit of the study to ensure that the research is complying with applicable regulations. Individuals from regulatory authorities (people who check that we are carrying out the study correctly) may require access to your data. All these people have a duty to keep your information, as a research participant, strictly confidential.

Your responses will be stored as data on password protected computers and the university server.

For those completing online versions, consent will be collected by ticking the consent box and continuing to participate in the study. Data will be anonymised with computer generated participant numbers.

Do I have to take part?

No, it is entirely up to you to decide whether or not to take part. If you decide you want to take part, you will need to sign a consent form to show you have agreed to take part.

What happens if I change my mind?

You have the right to change your mind and withdraw at any time without giving a reason and without your participant rights being affected.

To withdraw from the study, you can just exit the online webpage and your data will not be used. If however, you have pressed the submit button online, your data cannot be withdrawn unless you contact the researcher with your participant number.

Following the end of data collection (the closure of the online link) unfortunately data will not be able to be withdrawn as this will be in the analysis phase.

What will happen to the results of the research?

Your personal details will remain strictly confidential. Research findings made available in any reports or publications will not include information that can directly identify you without your specific consent.

The research will be written up as part of a thesis and it is anticipated that this will be published. Should you wish to receive a copy of the final research this can be done via contacting the researcher and can be sent once final versions are approved or the research has been published.

Where can I get more information?

For more information on the study please contact:

Researcher – Nicky Fisher nf1n17@soton.ac.uk

Researcher's Supervisors – Professor Roger Ingham Roger.Ingham@soton.ac.uk
– **Dr Emma Palmer-Cooper** E.C.Palmer-Cooper@soton.ac.uk

What happens if there is a problem?

If you have a concern about any aspect of this study, you should speak to the researchers who will do their best to answer your questions.

If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Data Protection Privacy Notice

The University of Southampton conducts research to the highest standards of research integrity. If the survey contains personal data which could identify you then:

1. The University of Southampton is the 'Data Controller' for this study, which means that we are responsible for looking after your information and using it properly.
2. The University of Southampton will keep identifiable information about you only for as long as it is necessary to verify and defend, when required, the process and outcomes of the research. Any link between you and your information will be removed as quickly as is feasible, provided your research is not impacted as a result.
3. We will only use your data/information as set out in this Participant Information Sheet and in accordance with our Data Protection Policy and our Privacy Notice for Research Participants.
4. We will not do anything with your personal data that you would not reasonably expect."

If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University's data protection webpage where you can

make a request using our online form. If you need further assistance, please contact the University's Data Protection Officer (data.protection@soton.ac.uk)

Thank you for taking time to read the information sheet and considering to take part in the research.

Title: Survey on sexually explicit material, wellbeing and relationships

Debriefing Statement (Version 1, 30/09/2019)

ERGO ID: 52971

Thank you for taking part in this research, your participation is very much appreciated and will help enhance the knowledge on the impact of sexually explicit material.

The aim of this research was to investigate the impact of exposure (either accidental or intentional) to sexually explicit material. The study hopes to discover whether longer-term exposure (via early initial exposure and continued exposure following this) affects individual's mental health (mood/feelings/emotions), impacts relationships and whether it increases the likelihood that individuals become desensitised to this material. The study also wishes to investigate if there is a difference in impact for individuals who have always had regular (easy) access to the internet versus those who were unable to have regular access until they were older to determine whether ease of accessing sexually explicit material is associated with earlier initial exposure to content and greater impact from exposure.

It is anticipated that the results of the questionnaires will enable associations to be made between exposure to sexually explicit material, mental health, relationship satisfaction and desensitisation to material. Research literature suggests there are differing impacts of sexually explicit material on individuals. Adults report both positive and negative impacts and research on adolescents suggest greater levels of depression, lower relationship satisfaction and desensitisation to the material. This study asks participants to give retrospective responses to obtain the longer-term impact of exposure over time. It hopes to determine whether there is a positive or negative impact of exposure to sexually explicit material over time.

Your data will help our understanding of exposure to sexually explicit material. It possible that the findings will show both positive experiences of sexually explicit material as well as negative experiences and the study hopes to be able to give detail to both aspects of experiences.

Once again results of this study will not include your name or any other identifying characteristics. The research did not use deception. You may have a copy of this summary if you wish and you may also have a summary of the research findings once the project is completed. If this is of interest to you, please contact the researcher and make this request.

If you have any further questions, please contact *Nicola Fisher* on nf1n17@soton.ac.uk

Thank you for your participation in this research.

It is hoped that this study did not cause you any distress. If, due to personal experiences, this has caused you distress/discomfort, please see below for a list of services you can access for support.

Thank you once again for participating.

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Support Services:

If you experienced any distress during or following this research, please do contact:

- Your GP if you require support or a referral regarding your mental health.
- Your local mental health team if you are already under a mental health team.
- You can also access the university counselling service through contacting the enabling service. This can be done via telephone, drop-in or live chat. Please see <https://www.southampton.ac.uk/edusupport/contact.page> for more details.
- You can contact the Student Life Team (who support student wellbeing) on 023 8059 8180 (available 24 hours a day, seven days a week. Student Life are based within Halls of Residence and support all University of Southampton students).
- Samaritans on 116 123 or <https://www.samaritans.org/how-we-can-help-you/contact-us>
- Mind (mental health charity) on <https://www.mind.org.uk/>
- Relate (relationship support) <https://www.relate.org.uk/>

If you would like to explore further in this area of research, here are a couple of references for further reading:

Daneback, K., Sevicikova, A., & Jezeck, S. (2018). Exposure to online sexual materials in adolescence and desensitization to sexual content. *Sexologies*, 27, e71-e76.

Minarcik, J., Wetterneck, C. T., & Short, M. (2016). The effects of sexually explicit material on romantic relationship dynamics. *Journal of Behavioural Addictions*, 5(4), 700-707.

Appendix I Impact of SEM Questionnaire

Some of this content has been adapted from Gonsalves (2010) Use of Sexually Explicit
Material Survey

Version, 1 Date 07/10/2019

Demographic Information:

What is your age?

What is your gender identity? Male . Female: . Other, please state:.....

Ethnicity please tick:

White

British .

Irish .

Mixed

White and Black Caribbean .

White and Black African .

White and Asian .

Asian or Asian British

Indian .

Pakistani .

Bangladeshi .

Black or Black British

Caribbean .

African .

Other Ethnic Groups

Chinese .

Other Pleaser state :

Occupation: Student Employed . Retired Unemployed Voluntary

Other:.....

1. Since what age (roughly) did you have access to the internet?

(1A) If you have always had regular access to the internet please tick the box .

(1B) If not, please state what age you had regular access to the internet:

Sexually explicit material definition:

Sexually explicit material can be defined as material “which depicts sexual activity in obvious, unconcealed ways”. Research definitions of sexually explicit material range from images/video recordings of sexual acts (pornographic content) to including images of nudity intended to be sexually arousing.

Please think of these definitions when answering the following questions.

2. Have you ever seen sexually explicit material? Yes No (if no please do not complete any further questions -*on the online version answering ‘no’ at this point will redirect individuals to the debrief page as only individuals who have seen this are included in the study*).

3. Do you remember the first time you saw sexually explicit material? Yes No

If you answered no to the above question, please think of an early experience of this material.

(3A) Please tick if you are using your: 1st experience or
Early Experience

(3B) At what age, roughly, was your 1st (or if you cannot remember this, your early experience) of SEM?

(3C) Please tick how you saw this sexually explicit material at the time you are thinking of:

- A picture from the internet seen on my mobile
- A video from the internet seen on my mobile
- A picture from the internet seen on a computer/laptop
- A video from the internet seen on a computer/laptop
- An internet website pop-up
- On television
- On video/DVD
- In a magazine
- A picture on friend’s mobile or laptop
- A video on a friend’s mobile or laptop
- Other: please state.....

(3D) Please tick whether the exposure was intentional or accidental?

- I searched for and watched this material (intentional)
- I accidentally saw this material
- Friends showed me this material
- Other: please state.....

4. When you saw this material please rate how strongly you felt the following emotions (1=not at all, 5= Extremely)

Emotion:	1 Not At All	2 Slightly	3 Moderately	4 Very	5 Extremely
(4A) Confused					
(4B) Excited					
(4C) Embarrassed					
(4D) Ashamed					
(4E) Guilty					
(4F) Traumatized					
(4G) Upset					
(4H) Disgusted					
(4I) Happy					
(4J) Aroused					
(4K) Intrigued					
(4L) Amused					

5. Thinking of this experience, please rate how much you agree or disagree with the following statements:

	1 Strongly Disagree	2 Disagree	3 Neither Agree nor Disagree	4 Agree	5 Strongly Agree
(5A) I felt this experience had a negative impact on me					
(5B) I felt this experience has a positive impact on me.					
(5C) Following this experience, I began to search for other sexually explicit material like this					
(5D) Following this experience, I searched for different sexually explicit material					
(5E) This experience put me off looking for sexually explicit material completely.					
(5F) Following this, I did not look at sexually explicit material until I was much older.					

(5G) Following this I started to spend more time searching for sexually explicit content.					
(5H) I felt that this experience had a negative impact on my subsequent relationships.					
(5I) I felt that this experience had a positive impact on my subsequent relationships.					
(5J) I felt that this experience had a negative impact on my mental health.					
(5K) I felt that this experience had a positive impact on my mental health.					
(5L) I wanted to speak to someone about what I had seen after my experience.					
(5M) I sought support/spoke to someone about what I had seen.					

6. When thinking of the overall impact of this first (or early experience) please rate on the scale the emotional impact then versus the emotional impact if you were to see the same content now:

Very strong negative emotions

Very strong positive emotions

Time	1 I experienced strong negative emotions to this material (strong negative emotional impact)	2 I experienced slightly negative emotions to this material (slightly negative emotional impact)	3 I did not experience negative or positive emotions to this material	4 I experienced slightly positive emotions to this material (slightly positive emotional impact)	5 I experienced strong positive emotions to this material (Strong positive emotional impact)
(6A) 1 st or early experience:					
(6B) If I were to see the same content now:					

7. Following this experience, please state if you have seen any of the content below. **Please rate the emotional impact/ reaction at the time of first exposure to this content** (please note that this can include content you have searched for and also content that you have seen by accident, e.g. an internet pop-up or shown/sent the content by friends). If you have never seen the content please put N/A

Content	Time	0 N/A I have never seen this content	1 I experienced strong negative emotions/ reactions to this material (strong negative emotional impact/ reaction)	2 I experienced slightly negative emotions/ reactions to this material (slightly negative emotional impact/ reaction)	3 I did not experience negative or positive emotions/ reactions to this material	4 I experienced slightly positive emotions/ reactions to this material (slightly positive emotional impact/ reaction)	5 I experienced strong positive emotions/ reactions to this material (Strong positive emotional impact/ reaction)
(7A) Pictures of nudity intended to arouse	1 st or early experience						
(7B) Scenes of Sexual acts between a male and female	1 st or early experience						
(7C) Scenes of Sexual acts between individuals of the same sex	1 st or early experience						
(7D) Sexual acts involving 3 or more people at one time	1 st or early experience						
(7E) Scenes involving sexual dominance	1 st or early experience						

and submission							
(7F) Sexual acts involving an animal and a human	1 st or early experience						
(7G) Content involving individuals who looked like they could be underage	1 st or early experience						
(7H) Content involving scenes of sexual violence	1 st or early experience						

8. Please now rate **the emotional impact/reaction if you were to see the same content now** (Please note if you have not seen the content before, please put N/A, please do not guess how you might react).

Content	Time	0 N/A I have never seen this content	1 I experienced strong negative emotions/ reactions to this material (strong negative emotional impact/ reaction)	2 I experienced slightly negative emotions/ reactions to this material (slightly negative emotional impact/ reaction)	3 I did not experience negative or positive emotions/ reactions to this material	4 I experienced slightly positive emotions/ reactions to this material (slightly positive emotional impact/ reaction)	5 I experienced strong positive emotions/ reactions to this material (Strong positive emotional impact/ reaction)
(8A) Pictures of nudity intended to arouse	If I were to see the same content now.						

Appendix I

(8B) Scenes of Sexual acts between a male and female	If I were to see the same content now.						
(8C) Scenes of Sexual acts between individuals of the same sex	If I were to see the same content now.						
(8D) Sexual acts involving 3 or more people at one time	If I were to see the same content now.						
(8E) Scenes involving sexual dominance and submission	If I were to see the same content now.						
(8F) Sexual acts involving an animal and a human	If I were to see the same content now.						
(8G) Content involving individuals who looked like they could be underage	If I were to see the same content now.						
(8H) Content involving scenes of sexual violence	If I were to see the same content now.						

9. Thinking overall of your exposure to sexually explicit material please rate the following:

	1 Strongly Disagree	2 Disagree	3 Neither Agree nor Disagree	4 Agree	5 Strongly Agree
(9A) I feel that overall my exposure to SEM had a <u>negative</u> effect on my relationships as a child/teen					
(9B) I feel that overall my exposure to SEM had a <u>positive</u> effect on my relationships as a child/teen					
(9C) I feel that overall my exposure to SEM has had a <u>negative</u> effect on my relationships now (as an adult)					
(9D) I feel that overall my exposure to SEM has had a <u>positive</u> effect on my relationships now (as an adult)					
(9E) I feel that overall my exposure to SEM had a <u>negative</u> impact my mental health when I was a child/teen.					
(9F) I feel that overall my exposure to SEM had a <u>positive</u> impact my mental health when I was a child/teen.					
(9G) I feel that overall my exposure to SEM has had a <u>negative</u> impact on my mental health now (as an adult).					
(9H) I feel that overall my exposure to SEM has had a <u>positive</u> impact on my mental health now (as an adult).					
(9I) I feel that I am less bothered by SEM content than I used to be.					

10. Have you ever voluntarily (intentionally) viewed any form of SEM? (You will not be asked any questions on your use other than how often this was viewed)

Yes No Prefer not to say

- (10A) If Yes, how often have you intentionally viewed SEM? (please tick one)

Every day 2 to 3 times a week Once a week
 Once every 2 weeks Once every 3 weeks Once a month
 Once every 3 months Once every 6 months Once a year

I don't view SEM intentionally

11. What would you consider your relationship status to be:

Single

Casually Dating

In a relationship

Married

Divorced

Separated

Other:

12. Lastly, please state whether you have ever had been diagnosed with a mental health problem:

Yes

No

13. If yes, please state what the mental health diagnosis was:

..... please tick if you prefer not to say

If there anything you would like to add about your experiences of Sexually Explicit Material?

Appendix J Relationship Assessment Scale

(Dicke & Hendrick, 1998)

Please mark on the answer sheet the letter for each item which best answers that item for you.

How well does your partner meet your needs?

A	B	C	D	E
Poorly		Average		Extremely well

In general, how satisfied are you with your relationship?

A	B	C	D	E
Unsatisfied		Average		Extremely satisfied

How good is your relationship compared to most?

A	B	C	D	E
Poor		Average		Excellent

How often do you wish you hadn't gotten in this relationship?

A	B	C	D	E
Never		Average		Very often

To what extent has your relationship met your original expectations:

A	B	C	D	E
Hardly at all		Average		Completely

Appendix J

How much do you love your partner?

A	B	C	D	E
Not much		Average		Very much

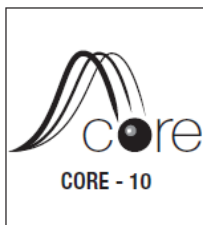
How many problems are there in your relationship?

A	B	C	D	E
Very few		Average		Very many

NOTE: Items 4 and 7 are reverse scored. A=1, B=2, C=3, D=4, E=5. You add up the items and divide by 7 to get a mean score.

Appendix K Clinical Outcomes in Routine Evaluation (CORE-10)

(Connell & Barkham, 2007)



PLEASE READ THIS FIRST

This form has 10 statements about how you have been
OVER THE LAST WEEK.

Please read each statement and think how often you felt that way last week.

Then tick the box which is closest to this.

Over the last week	<i>Not at all</i>	<i>Only Occasionally</i>	<i>Sometimes</i>	<i>Often</i>	<i>Most or all the time</i>
1 I have felt tense, anxious or nervous	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
2 I have felt I have someone to turn to for support when needed	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
3 I have felt able to cope when things go wrong	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
4 Talking to people has felt too much for me	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
5 I have felt panic or terror	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
6 I made plans to end my life	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
7 I have had difficulty getting to sleep or staying asleep	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
8 I have felt despairing or hopeless	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
9 I have felt unhappy	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
10 Unwanted images or memories have been distressing me	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

Total (Clinical Score*)

*** Procedure:** Add together the item scores, then divide by the number of questions completed to get the mean score, then multiply by 10 to get the Clinical Score.

Quick method for the CORE-10 (if all items completed): Add together the item scores to get the Clinical Score.

THANK YOU FOR YOUR TIME IN COMPLETING THIS QUESTIONNAIRE

Appendix L Hospital Anxiety and Depression Scale (HADS)

(Zigmond & Snaith, 1983)

Hospital Anxiety and Depression Scale (HADS)

Tick the box beside the reply that is closest to how you have been feeling in the past week.
Don't take too long over you replies: your immediate is best.

D	A		D	A	
		I feel tense or 'wound up':			I feel as if I am slowed down:
	3	Most of the time	3		Nearly all the time
	2	A lot of the time	2		Very often
	1	From time to time, occasionally	1		Sometimes
	0	Not at all	0		Not at all
		I still enjoy the things I used to enjoy:			I get a sort of frightened feeling like 'butterflies' in the stomach:
0		Definitely as much	0		Not at all
1		Not quite so much	1		Occasionally
2		Only a little	2		Quite Often
3		Hardly at all	3		Very Often
		I get a sort of frightened feeling as if something awful is about to happen:			I have lost interest in my appearance:
	3	Very definitely and quite badly	3		Definitely
	2	Yes, but not too badly	2		I don't take as much care as I should
	1	A little, but it doesn't worry me	1		I may not take quite as much care
	0	Not at all	0		I take just as much care as ever
		I can laugh and see the funny side of things:			I feel restless as I have to be on the move:
0		As much as I always could		3	Very much indeed
1		Not quite so much now		2	Quite a lot
2		Definitely not so much now		1	Not very much
3		Not at all		0	Not at all
		Worrying thoughts go through my mind:			I look forward with enjoyment to things:
	3	A great deal of the time	0		As much as I ever did
	2	A lot of the time	1		Rather less than I used to
	1	From time to time, but not too often	2		Definitely less than I used to
	0	Only occasionally	3		Hardly at all
		I feel cheerful:			I get sudden feelings of panic:
3		Not at all		3	Very often indeed
2		Not often		2	Quite often
1		Sometimes		1	Not very often
0		Most of the time		0	Not at all
		I can sit at ease and feel relaxed:			I can enjoy a good book or radio or TV program:
	0	Definitely	0		Often
	1	Usually	1		Sometimes
	2	Not Often	2		Not often
	3	Not at all	3		Very seldom

Please check you have answered all the questions

Total Score Depression (D) _____

Total Score Anxiety (A) _____

Appendix M Social Readjustment Scale (SRRS)

The Holmes-Rahe Life Stress Inventory

The Social Readjustment Rating Scale

(Holmes & Rahe, 1967)

INSTRUCTIONS: Mark down the point value of each of these life events that has happened to you during the previous year. Total these associated pointed.

Life Event

1. Death of spouse 100
2. Divorce 73
3. Marital Separation from mate 65
4. Detention in jail or other institution 63
5. Death of a close family member 63
6. Major personal injury or illness 53
7. Marriage 50
8. Being fired at work 47
9. Marital reconciliation with mate 45
10. Retirement from work 45
11. Major change in the health or behavior of a family member 44
12. Pregnancy 40
13. Sexual Difficulties 39
14. Gaining a new family member (i.e. birth, adoption, older adult moving in, etc.) 39
15. Major business adjustment 39
16. Major change in financial state (i.e. a lot worse or better than usual) 38
17. Death of a close friend 37
18. Changing to a different line of work 36
19. Major change in number of arguments with spouse (i.e. a lot more or less) 35
20. Taking on a mortgage (for home, business, etc.) 31
21. Foreclosure on a mortgage or loan 30
22. Major change in responsibilities at work (i.e. promotion, demotion, etc.) 29
23. Son or daughter leaving home (marriage, college, military, etc.) 29
24. In-law troubles 29
25. Outstanding personal achievement 28
26. Spouse beginning or ceasing work outside the home 26
27. Beginning or ceasing formal schooling 26
28. Major change in living condition (i.e. new home, remodelling, deterioration, etc.) 25
29. Revision of personal habits (i.e. dress, associations, quit smoking, etc.) 24
30. Troubles with the boss 23
31. Major changes in working hours or conditions 20
32. Changes in residence 20
33. Changing to a new school 20
34. Major change in usual type and/or amount of recreation 19
35. Major change in church activity (i.e. a lot more or less) 19
36. Major change in social activities (i.e. clubs, movies, visiting, etc.) 18
37. Taking on a loan (i.e. car, tv, freezer, etc.) 17

- 38. Major change in sleeping habits (i.e. a lot more or less) 16
- 39. Major change in number of family get-togethers (i.e. a lot more or less) 15
- 40. Major change in eating habits (i.e. a lot more or less, eating hours, surroundings) 15
- 41. Vacation 13
- 42. Major holidays 12
- 43. Minor violations of the law (i.e. traffic tickets, jaywalking, etc.) 11

Now, add up all the points you have to find your score.

150pts or less means a relatively low amount of life change and a low susceptibility to stress-induced health problems.

150 to 300pts implies about a 50% chance of a major stress-induced health problem in the next 2 years.

300pts or more raises the odds to about 80%, according to the Holmes-Rahe prediction model.

Sources: Adapted from Thomas Holmes and Richard Rahe. Holmes-Rahe Social Readjustment Rating Scale, Journal of Psychosomatic Research. Vol II, 1967.

Appendix N Full Sample Demographics Table

Sample Demographics (Table 5)

Demographic Variable	<i>M (SD)</i>	
Gender Identity <i>n</i> (%)		
- Male	92 (25.2)	
- Female	268 (73.4)	
- Non-binary	2 (0.5)	
- Gender Fluid	1 (0.3)	
- Missing data	2 (0.5)	
Age range of sample	18-76	25.42 (10.99)
Ages <i>n</i> (%)		
- 18 -24	249 (67.7)	
- 25-39	83 (22.6)	
- 40-76	31 (8.4)	
- Missing data	2 (0.5)	
Ethnicity <i>n</i> (%)		
- White British	246 (66.8)	
- Any other White background	57 (15.5)	
- Black or Black British	17 (4.6)	
- Asian or Asian British	18 (4.9)	
- Mixed Race	15 (4.1)	
- Other Ethnic Groups	10 (2.7)	
- Did not want to state ethnicity	1 (0.3)	
- Missing data	1 (0.3)	
Occupation <i>n</i> (%)		
- Student	261 (70.9)	
- Employed	79 (21.5)	
- Retired	9 (2.4)	
- Unemployed	7 (1.9)	
- Voluntary	4 (1.1)	
- Self-employed	2 (0.5)	
- Homemaker	1 (0.3)	
- Unable to work/disabilities	1 (0.3)	
- Missing data	1 (0.3)	

Appendix N

Relationship status *n* (%)

- Single	112 (30.4)
- Casually Dating	37 (10.1)
- In a relationship	172 (46.7)
- Engaged	1 (0.3)
- Married	36 (9.8)
- Separated	1 (0.3)
- Bereaved	4 (1.1)
- Missing data	2 (0.5)

Reporting a current mental health diagnosis *n* (%):

106 (28.7)

Diagnoses reported *n* (%):

- Anxiety Disorders	24 (6.5)
- Depressive Disorders	17 (4.6)
- Anxiety Disorder along with a Depressive disorder diagnosis	40 (10)
- Other mental health disorders (such as Eating Disorders, Bipolar Disorder, Borderline Personality Disorder)	28 (7.3)
- Prefer not to state	6 (1.6)

**Appendix O Impact of SEM Questionnaire Additional
Descriptive Statistics**

Impact of SEM Questionnaire -Additional Descriptive Statistics

<i>Questionnaire Items</i>	<i>M (SD)</i>
Age of First Internet Access - Range	2-58 12.44 (7.82)
Participants remember the first time they saw SEM <i>n</i> (%)	
- Yes	155 (42.1)
- No	209 (56.8)
- Missing data	1 (0.3)
Reporting impact of the First, or an Early, experience of SEM <i>n</i> (%)	
- First Experience	141 (38.3)
- Early Experience (not the first time they saw SEM)	223 (60.6)
- Missing data	1 (0.3)
Following first or early experience <i>n</i> (%):	
- Searched for other SEM like that they had seen.	137 (37.2)
- Searched for different SEM	131 (35.6)
- Was put off looking for SEM completely.	37 (10)
- Did not look at SEM until they were much older.	119 (32.3)
- Spent more time searching for SEM.	88 (23.9)
- Wanted to speak to someone	42 (11.4)
- Spoke to someone about what they had seen.	32 (8.7)
If they voluntarily view SEM <i>n</i> (%):	
- Yes	284 (77.2)
- No	69 (18.8)
- Prefer not to say	15 (4.1)
Frequency of current intentional SEM viewing <i>n</i> (%):	
- Every day	20 (5.4)
- 2-3 times a week	55 (14.9)
- Once a week	34 (9.2)
- Once every 2 weeks	25 (6.8)

Appendix O

- Once every 3 weeks	20 (5.4)
- Once a month	46 (12.5)
- Once every 3 months	28 (7.6)
- Once every 6 months	27 (7.3)
- Once a year	25 (6.8)
- Don't view SEM intentionally or prefer not to say.	88 (23.9)

References

- Alexandraki, K., Stavropoulos, V., Anderson, E., Latifi, M. Q., & Gomez, R. (2018). Adolescent pornography use: A systematic literature review of research trends 2000-2017. *Current Psychiatry Reviews, 14*(1), 47-58.
doi:10.2174/2211556007666180606073617
- Alsaker, F. D. (1992). Pubertal timing, overweight, and psychological adjustment. *Journal of Early Adolescence, 12*, 396–419.
- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev). Washington, DC: Author.
- American Psychiatric Association.(2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Washington, DC: Author.
- Andershed, H., Hodgins, S., & Tengstrom, A. (2007). Convergent validity of the Youth Psychopathic Traits Inventory (YPI): Association with the Psychopathy Checklist: Youth version (PCL:YV). *Assessment, 14*, 144–154.
doi:10.1177/1073191106298286
- Arain, M., Haque, M., Johal, L., Mathur, P., Nel, W., Rais, A., Sandhu, R., & Sharma, S. (2013). Maturation of the adolescent brain. *Neuropsychiatric disease and treatment, 9*, 449–461. doi:10.2147/NDT.S39776
- Aslund, C., Starrin, B., & Nilsson, K.W. (2010). Social capital in relation to depression, musculoskeletal pain, and psychosomatic symptoms: a cross-sectional study of a large population-based cohort of Swedish adolescents. *BMC Public Health, 10*, 715.

References

- Barkham, M., Bewick, B., Mullin, T., Gilbody, S., Connell, J., Cahill, J., Mellor-Clark, J., Richards, D., Unsworth, G., & Evans, C. (2012). The CORE-10: A short measure of psychological distress for routine use in the psychological therapies. *Counselling and Psychotherapy Research, 13*(1), 3–13.
- Benedek, E.P. & Brown, C.F. (1999). No excuses: Televised pornography harms children. *Harvard Review of Psychiatry, 7*, 236–240.
- Binford, W. (2018). Viewing pornography through a children's rights lens. *Sexual Addiction & Compulsivity, 25*(4), 415-444. doi:10.1080/10720162.2019.1578311
- Bjellund, I., Dahl, A.A., Haug, T.T., & Nekelmann, D. (2001). The validity of the Hospital Anxiety and Depression Scale: An updated literature review. *Journal of Psychosomatic Research, 52*(2), 69-77. doi.org/10.1016/S0022-3999(01)00296-3
- Boies, S. C., Knudson, G., & Young, J. (2004). The Internet, Sex, and Youths: Implications for Sexual Development. *Sexual Addiction & Compulsivity, 11*(4), 343-363. doi:10.1080/10720160490902630
- Boland, A., Cherry, G., & Dickson, R. (2017). *Doing a systematic review: A student's guide*. London: Sage.
- Brandell, J. R., & Brown, S. (2015). The New "Bridge to Adulthood": Searching for Meaning and Cohesion in the Nexus of "Hook-ups," Internet Porn, and Instant Messages. *Smith College Studies in Social Work, 85*(4), 387-408. doi:10.1080/00377317.2015.1089676
- Braun-Courville, D. K., & Rojas, M. (2009). Exposure to sexually explicit web sites and adolescent sexual attitudes and behaviors. *Journal of Adolescent Health, 45*(2), 156-162.

- Bridges, A. J., & Morokoff, P. J. (2011). Sexual media use and relational satisfaction in heterosexual couples. *Personal Relationships, 18*, 562–585.
- Brown, J.D., & L'Engle, K.L. (2009). Sexual attitudes and behaviors associated with U.S. early adolescents' exposure to sexually explicit media. *Communication Research, 36*(1), 129-51.
- Brown, J. D., Keller, S., & Stern, S. (2009). Sex, sexuality, sexting, and sexed: Adolescents and the media. *The Prevention Researcher, 16*(4), 12–16.
- Buscemi, N., Hartling, L., Vandermeer, B., Tjosvold, L., & Klassen, T. P. (2006). Single data extraction generated more errors than double data extraction in systematic reviews. *Journal of clinical epidemiology, 59*(7), 697-703.
doi:10.1016/j.jclinepi.2005.11.010
- Campbell, C. E. (2019). A Child's Right to be Protected from Exposure to Online Pornography: Assessing the Harm Caused by Contemporary Online Pornography and Evaluating Current Regulatory and Legal Frameworks Aimed at Child Protection Online. *International Journal of the Jurisprudence of the Family*, Forthcoming.
- Carr, A. (2006). *The handbook of child and adolescent clinical psychology: A contextual approach* (2nd ed.). New York: Routledge.
- Carroll, J. S., Padilla-Walker, L. M., Nelson, L. J., Olson, C. D., McNamara Barry, C., & Madsen, S. D. (2008). Generation XXX: Pornography Acceptance and Use Among Emerging Adults. *Journal of Adolescent Research, 23*(1), 6-30.
doi:10.1177/0743558407306348
- Ce'nat, J.M., He'bert, M., Blais, M., Lavoie, F., Guerrier, M., & Derivois, D. (2014). Cyberbullying, psychological distress and self-esteem among youth in Quebec

References

- schools. *Journal of Affective Disorders*, *169*, 7–9. doi.org/10.1016/j.jad.2014.07.019 PMID: 25128859
- Chang, F.C., Chiu, C.H., Miao, N.F., Chen, P.H., Lee, C.M., & Chiang, J.T. (2016). Predictors of unwanted exposure to online pornography and online sexual solicitation of youth. *Journal of Health Psychology*, *21*(6), 1107-18.
- Chen, A., Leung, M., Chen, C., & Yang, S. (2013). Exposure to internet pornography among Taiwanese adolescents. *Social Behavior and Personality: An International Journal*, *41*(1), 157–164.
- Chen, S., Weng, L., Su, Y., Wu, H., & Yang, P. (2003). Development of a Chinese internet addiction scale and its psychometric study. *Chinese Journal of Psychology*, *45*, 279–294.
- Cheung, J. C.S., Chan, K. H.W., Lui, Y.W., Tsui, M.S., & Chan, C. (2018). Psychological Well-Being and Adolescents' Internet Addiction: A School-Based Cross-Sectional Study in Hong Kong. *Child & Adolescent Social Work Journal*, *35*(5), 477-487. doi:10.1007/s10560-018-0543-7
- Cho, E. (2016). Frequent internet pornography use: Korean adolescents internet use time, mental health, sexual behavior, and delinquency. *International Journal of Human Ecology*, *17*(1), 27-37.
- Connell, J. & Barkham, M. (2007). CORE-10 User Manual, Version 1.1. CORE System Trust & CORE Information Management Systems Ltd. Retrieved from <http://www.mhtu.co.uk/outcome-monitoring/outcome-core-10-manual.pdf>
- Cooper, A. (1998). Sexuality and the Internet: Surfing into the new millennium. *CyberPsychology & Behavior*, *1*(2), 187-193.

- Cooper, A., Putnam, D. E., Planchon, L. A., & Boies, S. C. (1999). Online sexual compulsivity: Getting tangled in the net. *Sexual Addiction & Compulsivity*, 6(2), 79-104. doi:10.1080/10720169908400182
- Currie, C., Roberts, C., Morgan, A. Smith, R., Settertobulte, W., Samdal, O., & Rasmussen, V.B. (2004). *Young People's Health in Context. Health Behaviour in School-aged Children (HBSC) Study: International Report from the 2001/2002 Survey Health Policy for Children and Adolescents, No.4*. Copenhagen, Denmark: WHO Europe.
- Daneback, K., Træen, B., & Mansson, S. (2009). Use of pornography in a random sample of Norwegian heterosexual couples. *Archives of Sexual Behavior*, 38, 746–753.
- Daneback, K., Ševčíková, A., & Ježek, S. (2018). Exposure to online sexual materials in adolescence and desensitization to sexual content. *Sexologies*, 27(3), 71-76.
- Davis, R. A. (2001). A cognitive–behavioral model of pathological Internet use. *Computers in Human Behavior*, 17, 187–195. doi:10.1016/S07475632(00)00041-8
- Department for Digital, Culture, Media and Sport. (2019). *Age-verification for online pornography to begin in July*. Retrieved December 10, 2019, from <https://www.gov.uk/government/news/age-verification-for-online-pornography-to-begin-in-july>
- Department of Health. (2011). *No Health Without Mental Health: A cross-government mental health outcomes strategy for people of all ages*. Retrieved December 09, 2019, from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/138253/dh_124058.pdf

References

- Derogatis, L. R. (1979). *SCL-90: Administration, scoring and procedure manual for the revised version of the SCL-90*. Baltimore: The John Hopkins University School of Medicine.
- Dicke, A., & Hendrick, C. (1998). The relationship assessment scale. *Journal of Social and Personal Relationships, 15*, 137-142.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71–75.
- Digital Economy Act. (2017). Retrieved April 03, 2020, from <https://www.legislation.gov.uk/ukpga/2017/30/contents>
- Doornwaard, S. M., van den Eijnden, R. J. J. M., Baams, L., Vanwesenbeeck, I., & Bogt, T. F. M. (2016). Lower psychological well-being and excessive sexual interest predict symptoms of compulsive use of sexually explicit Internet material among adolescent boys. *Journal Of Youth And Adolescence, 45*(1), 73-84.
doi:10.1007/s10964-015-0326-9
- Döring, N. M. (2009). The Internet's impact on sexuality: A critical review of 15 years of research. *Computers in Human Behavior, 25*(5), 1089-1101.
- Durant, L. E., Carey, M. P., & Schroder, K. E. (2002). Effects of anonymity, gender, and erotophilia on the quality of data obtained from self-reports of social sensitive behaviors. *Journal of Behavioral Medicine, 25*, 438–467.
- Efrati, Y., & Amichai-Hamburger, Y. (2019). The Use of Online Pornography as Compensation for Loneliness and Lack of Social Ties Among Israeli Adolescents. *Psychological Reports, 122*(5), 1865-1882. doi:10.1177/0033294118797580

- Evans, C., Mellor-Clark, J., Margison, F., Barkham, M., Audin, K., Connell, J., & McGrath, G. (2000). CORE: Clinical Outcomes in Routine Evaluation. *Journal of Mental Health, 9*(3), 247-255.
- Eysenck, S. B. G., & Eysenck, H. J. (1978). Impulsiveness and venturesomeness: Their position in a dimensional system of personality description. *Psychological Reports, 43*, 1247–1255. doi:10.2466/pr0.1978.43.3f.1247.
- Faul, F., Erdfelder, E., Lang, A.G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191
- Festinger, L. (1954a). A theory of social comparison processes. *Human Relations, 7*, 117-140.
- Fisher, N. (2019). *Relationships between exposure to sexually explicit material and mental health in children and young adults; a Systematic Review of the Literature*. Open Science Framework. Retrieved from <https://osf.io/az4ms>
- Gagnon, J. H., & Simon, W. (1973). *Youth, sex, and the future*. In D. D. Gottlieb (Ed.), *Youth in contemporary society* (pp. 211–257). Oxford, UK: Sage.
- George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston: Allyn & Bacon.
- Gerst, M. S., Grant, I., Yager, J., Sweetwood, H. (1978). The reliability of the social readjustment rating scale: Moderate and long-term stability. *Journal of Psychosomatic Research, 22*(6), 519–523.
- Gniech, G., Oettling, T., & Brohl, M. (1993). Untersuchungen zur Messung von ‘‘Sensation Seeking’’. Bremer Beitrage zur Psychologie, Nr.110. Germany: Universität Bremen.

References

- Gonsalves, V. (2010). *Exploring online sexually explicit material: What is the relationship to sexual coercion?* Theses, Dissertations and Student Research: Department of Psychology. University of Nebraska. Retrieved December 10, 2019, from <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1019&context=psychdi>
[SS](#)
- Goodman, R. (1997). The strengths and difficulties questionnaire: a research note. *Journal of Child Psychology and Psychiatry*, 38, 581–586.
- Grov, C., Gillespie, B., Royce, T., & Lever, J. (2011). Perceived consequences of casual online sexual activities on heterosexual relationships: AU.S. online survey. *Archives of Sexual Behavior*, 40, 429–439.
- Grubbs, J. B., Stauner, N., Exline, J. J., Pargament, K. I., & Lindberg, M. J. (2015). Perceived addiction to Internet pornography and psychological distress: Examining relationships concurrently and over time. *Psychology of Addictive Behaviors*, 29(4), 1056-1067. doi:10.1037/adb0000114
- Häggström-Nordin, E., Hansson, U., & Tydén, T. (2005). Associations between pornography consumption and sexual practices among adolescents in Sweden. *International Journal of STD & AIDS*, 16, 102–107.
- Häggström-Nordin, E., Sandberg, J., Hanson, U., & Tyden, T. (2006). “It’s everywhere!” Young Swedish people’s thoughts and reflections about pornography. *Scandinavian Journal of Caring Science*, 20, 386–393.
- Häggström-Nordin, E., Tyden, T., Hanson, U., & Larsson, M. (2009). Experiences of and attitudes towards pornography among a group of Swedish high school students. *The European Journal of Contraception and Reproductive Health Care*, 14, 277–284

- Harter, S. (1985). *Manual for the self-perception profile for children*. Denver, CO: University of Denver.
- Harter, S. (2012). *Self-perception profile for adolescents: Manual and questionnaires*. Denver, CO: University of Denver.
- Hillen, M.A., Medendorp, N. M., Daams, J. G., & Smets, E. M.A. (2017). Patient-driven second opinions in oncology: a systematic review. *The Oncologist*, 22, 1197-1211.
- Hökby, S., Hadlaczky, G., Westerlund, J., Wasserman, D., Balazs, J., Germanavicius, A., . . . Carli, V. (2016). Are Mental Health Effects of Internet Use Attributable to the Web-Based Content or Perceived Consequences of Usage? A Longitudinal Study of European Adolescents. *JMIR Mental Health*, 3(3), e31-e31.
doi:10.2196/mental.5925
- Holmes, T.H., & Rahe, R.H. (1967). The Social Readjustment Rating Scale. *Journal of Psychosomatic Research*, 11, 213-218. doi.org/10.1016/0022-3999(67)90010-4
- Horvath, M., Alys, L., Massey, K., Pina, A., Scally, M., & Adler, J.R. (2013). “Basically...porn is everywhere”. A rapid evidence assessment on the effects that access and exposure to pornography has on children and young people. Office of the Children’s Commissioner. Retrieved December 06, 2019, from <https://kar.kent.ac.uk/44763/1/BasicallyporniseverywhereReport.pdf>
- Huang, H. Y. (2007). *Gratification-opportunities, self-esteem, loneliness in determining usage preference of BBS and Blog among mainland teenagers*. Hong Kong: The Chinese University of Hong Kong.
- Jonsson, L.S., Priebe, G., Bladh, M., & Svedin, C.G. (2014). Voluntary sexual exposure online among Swedish youth—social background, internet behavior and psychosocial health. *Computers in Human Behavior*, 30, 181-90.
- Kaiser, H. (1974). An index of factor simplicity. *Psychometrika* 39, 31–36.

References

- Kandel, D., & Davies, M. (1982). Epidemiology of depressive mood in adolescents: An empirical study. *Archives of General Psychiatry*, *39*, 1205–1212.
doi:10.1001/archpsyc.1982. 04290100065011.
- Kelley, K., Dawson, L., & Musialowski, D. (1989). Three faces of sexual explicitness: The good, the bad, and the useful. In D. Zillmann & J. Bryant (Eds.). *Pornography: Research advances and policy considerations* (pp.57-91). Hillsdale, NJ: Lawrence Erlbaum.
- Kessler, R.C., Adler, L., Ames, M., Demler, O., Faraone, S., Hiripi, E., Howes, M.J., Jin, R., Secnik, K., Spencer, T., Ustun, T.B., & Walters, E.E. (2005). The World Health Organization adult ADHD self-report scale (ASRS): a short screening scale for use in the general population. *Psychological Medicine*, *35*, 245–256.
- Kim, Y.H. (2001). Korean adolescents' health risk behaviors and their relationships with the selected psychological constructs. *Journal of Adolescent Health*, *29*(4), 298-306. doi:10.1016/S1054-139X(01)00218-X
- Kim, Y. (2011). Adolescents' health behaviours and its associations with psychological variables. *Central European Journal Of Public Health*, *19*(4), 205-209.
- Kohut, T., Fisher, W.A., & Campbell, L. (2017). Perceived Effects of Pornography on the Couple Relationship: Initial Findings of Open-Ended, Participant-Informed, “Bottom-Up” Research. *Arch Sex Behaviour*, *46*, 585–602.
- Kohut, T., & Štulhofer, A. (2018). Is pornography use a risk for adolescent well-being? An examination of temporal relationships in two independent panel samples. *PLoS ONE*, *13*(8), 1-20.
- Koletic, G. (2017). Longitudinal associations between the use of sexually explicit material and adolescents attitudes and behaviors: A narrative review of studies. *Journal of Adolescence*, *57*, 119-133.

- Koo, T.K., & Li, M.Y. (2016). A Guideline of Selecting and Reporting Intraclass Correlation Coefficients for Reliability Research. *Journal of Chiropractic Medicine, 85*, 155-163.
- Kroenke, K., Spitzer, R.L., Williams, J.B.W., & Lowe, B. (2009). An Ultra-Brief Screening Scale for Anxiety and Depression: The PHQ-4. *Psychosomatic, 50*, 613–621. doi.org/10.1176/appi.psy.50.6.613 PMID: 19996233
- Lawrence, K., & Byers, E. S. (1995). Sexual Satisfaction in long-term heterosexual relationships: The Interpersonal Exchange Model of Sexual Satisfaction. *Personal Relationships, 2*, 267-285.
- Livingstone, S., Haddon, L., Görzig, A. & Olafsson, K. (2011). *Risks and safety on the internet: The perspective of European children. Full findings*. London: LSE/EU Kids Online.
- Livingstone, S., & Helsper, E. J. (2007). Taking risks when communicating on the internet: The role of offline social-psychological factors in young people's vulnerability to online risks. *Information, Communication and Society, 10*, 619–644.
- Lo, V.H., & Wei, R. (2005). Exposure to Internet pornography and Taiwanese adolescents' sexual attitudes and behavior. *Journal of Broadcasting and Electronic Media, 49*, 221–237.
- Lofgren-Martenson, L., & Mansson, S. (2010). Lust, love, and life: A qualitative study of Swedish adolescents' perceptions and experiences with pornography. *Journal of Sex Research, 47*, 568–579.
- Lovibond, P.F., & Lovibond, S. H. (1995). The structure of negative emotional states: comparison of the Depression Anxiety Stress Scales (DASS) with the Beck

References

- Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33(3), 335-343.
- Luder, M.T., Pittet, I., Berchtold, A., Akre, C., Michaud, P.A., & Suris, J.C. (2011). Associations between online pornography and sexual behavior among adolescents: Myth or reality? *Archives Of Sexual Behavior*, 40(5), 1027-1035.
- Ma, C. M. S. (2018). Relationships between exposure to online pornography, psychological well-being and sexual permissiveness among hong kong chinese adolescents: A three-wave longitudinal study. *Applied Research in Quality of Life*, 14, 423-439. doi:10.1007/s11482-018-9604-5
- 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. doi:10.1016/j.jadohealth.2018.03.012
- Manavis. S. (2019). *The government's age restrictions on porn create more problems than they solve*. Retrieved December 10, 2019, from <https://www.newstatesman.com/politics/uk/2019/04/governments-age-restrictions-porn-create-more-problems-they-solve>
- 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 and Behavioral Pediatrics*, 34(7), 460-468. doi:10.1097/DBP.0b013e31829c44a2
- Mattebo, M., Tyden, T., Haggstrom-Nordin, E., Nilsson, K. W., & Larsson, M. (2018). Pornography consumption and psychosomatic and depressive symptoms among Swedish adolescents: a longitudinal study. *Upsala Journal Of Medical Sciences*, 123(4), 237-246. doi:10.1080/03009734.2018.1534907

- McDowell, J.D. (2018). The Porn Epidemic: Facts, Stats & Solutions. Executive Synopsis. Retrieved April 03, 2020 from <https://www.josh.org/wp-content/uploads/Porn-Epidemic-Executive-Synopsis-9.25.2018.pdf>
- McNabney, S. M., Hevesi, K., & Rowland, D. L. (2020). Effects of Pornography Use and Demographic Parameters on Sexual Response during Masturbation and Partnered Sex in Women. *International Journal of Environmental Research and Public Health*, 17(9), 3130.
- Meerkerk, G., Van den Eijnden, R. J. J. M., Vermulst, A. A., & Garretsen, H. F. L. (2009). The Compulsive Internet Use Scale (CIUS): Some psychometric properties. *CyberPsychology and Behavior*, 12, 1–6. doi:10.1089/cpb.2008.0181
- Mesch, G. S. (2009). Social bonds and Internet pornographic exposure among adolescents. *Journal of Adolescence*, 32, 601–618.
- Minarcik, J., Wetterneck, C. T., & Short, M. (2016). The effects of sexually explicit material on romantic relationship dynamics. *Journal of Behavioural Addictions*, 5(4), 700-707.
- Ministry of Health and Welfare. (1996). *An annual report for health statistics*. Seoul, Korea: Ministry of Health and Welfare.
- Mitchell, K. J., Finkelhor, D., & Wolak, J. (2003). The exposure of youth to unwanted sexual material on the Internet: A national survey of risk, impact, and prevention. *Youth & Society*, 34(3), 330-358
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & The PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med*, 6(7), e1000097. doi:10.1371/journal.pmed.1000097

References

- Mossige, S. (2001). *Ungdoms holdninger til seksuelle krenkelser og overgrep. Ungdommers oppfatning av barn som legitime mål for seksuelle handlingar.* NOVA Rapport. Oslo: Norsk institutt for forskning om oppvekst, velferd og aldring.
- Neeman, J., & Harter, S. (1986). *Manual for the Self-Perception Profile for College Students.* Unpublished manuscript, University of Denver, Denver Colorado.
- Nelson, K.M., & Rothman, E.F. (2020). Should Public Health Professionals Consider Pornography a Public Health Crisis? *The American Journal of Public Health and Pleasure, 110*, 151-153.
- Novak, S., & Clayton, R. (2001). The Influence of School Environment and Self-Regulation on Transitions Between Stages of Cigarette Smoking: A Multilevel Analysis. *Health Psychology, 20*(3), 196–207.
- Ofcom. (2019). Children and parents: Media use and attitudes report 2018. Retrieved December 05, 2019, from https://www.ofcom.org.uk/_data/assets/pdf_file/0024/134907/children-and-parents-media-use-and-attitudes-2018.pdf
- Owens, E.W., Behun, R. J., Manning, J.C., & Reid, R. C. (2012). The impact of internet pornography on adolescents: A review of the research. *Sexual Addiction & Compulsivity, 19*, 99-122.
- Parker, G., Tupling, H., & Brown, L. B. (1979). A parental bonding instrument. *British Journal of Medical Psychology, 52*, 1–10.
- Perrin, P.C., Madanat, H.N., Barnes, M.D., Carolan, A., Clark, R.B., Ivins, N., Tuttle, S.R., Vogeler, H.A., & Williams, P.N. (2008). Health education's role in framing

- pornography as a public health issue: Local and national strategies with international implications. *Journal of Health Promotion and Education*, 15, 11–8.
- Perry, S.L. (2018). Pornography Use and Depressive Symptoms: Examining the Role of Moral Incongruence. *Society and Mental Health*, 8(3), 195-213.
- Peter, J., & Valkenburg, P. M. (2006). Adolescents' exposure to sexually explicit material on the internet. *Communication Research*, 33(2), 178–204.
doi:10.1177/0093650205285369
- Peter, J., & Valkenburg, P. M. (2008). Adolescents' exposure to sexually explicit Internet material, sexual uncertainty, and attitudes toward uncommitted sexual exploration: Is there a link? *Communication Research*, 35, 579–601.
- Peter, J., & Valkenburg, P.M. (2009). Adolescents' exposure to sexually explicit Internet material and sexual satisfaction: a longitudinal study. *Human Communication Research*, 35, 171- 194.
- Peter, J., & Valkenburg, P. M. (2010). Adolescents' Use of Sexually Explicit Internet Material and Sexual Uncertainty: The Role of Involvement and Gender. *Communication Monographs*, 77(3), 357-375.
- Peter, J., & Valkenburg, P.M. (2014). Does exposure to sexually explicit Internet material increase body dissatisfaction: a longitudinal study. *Computers in Human Behavior*, 36, 297- 307.
- Peter, J., & Valkenburg, P. M. (2016). Adolescents and pornography: A review of 20 Years of research. *The Journal of Sex Research*, 53(4-5), 1-23.
- Porn Stats, (2018). Retrieved April 04, 2020, from
<https://www.covenanteyes.com/pornstats/>

References

- Potenza, M. N. (2019). Pornography in the current digital technology environment: An overview of a special issue on pornography. *Sexual Addiction & Compulsivity*, 25(4), 241-247. doi:10.1080/10720162.2019.1567411
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385–401.
- Reid, R. C., Li, D. S., Gilliland, R., Stein, J. A., & Fong, T. (2011). Reliability, validity, and psychometric development of the Pornography Consumption Inventory in a sample of hypersexual men. *Journal of Sex & Marital Therapy*, 37(5), 359– 385.
- Romito, P., & Beltramini, L. (2015). Factors associated with exposure to violent or degrading pornography among high school students. *The Journal of School Nursing*, 31(4), 280-290. doi:10.1177/1059840514563313
- Rosenberg, M. (1965). *Society and Adolescent Self-Image*. Princeton, NJ: Princeton University Press.
- Sabina, C., Wolak, J., & Finkelhor, D. (2008). The nature and dynamics of internet pornography exposure for youth. *CyberPsychology & Behavior*, 11(6), 691-693. doi.org/10.1089/cpb.2007.0179
- Schrimshaw, E. W., Antebi-Gruszka, N., & Downing Jr, M. J. (2016). Viewing of internet-based sexually explicit media as a risk factor for condomless anal sex among men who have sex with men in four US cities. *PLoS ONE*, 11(4), 1-11.
- Ševčíková, A., Šerek, J., Macháčková, H., & Šmahel, D. (201). Extent matters: Exposure to sexual material among czech adolescents. *Journal of Early Adolescence*, 33(8), 1048-71.

- Sherer M, Maddux JE, Mercandane B, Prentice-Dunn, S., Jacobs, B., & Rogers, R.W. (1982). The self-efficacy scale: construction and validation. *Psychological Reports, 51*, 663– 71.
- Short, M. B., Black, L., Smith, A. H., Wetterneck, C. T., & Wells, D. E. (2012). A review of Internet pornography use research: Methodology and content from the past 10 years. *Cyberpsychology, Behavior, and Social Networking, 15*(1), 13-23.
- Siegel, S. (1998). *Applying social comparison theory to women's body image and self-esteem: The effects of pornography*. (58). ProQuest Information & Learning.
- Simon, L.E., Daneback, K., & Ševčíková, A. (2015). The Educational Dimension of Pornography: Adolescents' Use of New Media for Sexual Purposes. In P. Lorentz, D. Smahel, M. Metykova, & M.F. Wight (Eds.), *Living in the Digital Age: Self-Presentation, Networking, Playing and Participating in Politics* (pp.33-48). Masarykova univerzita. Retrieved April 10, 2020, from https://www.researchgate.net/profile/Anna_Sevcikova/publication/279572823_The_Educational_Dimension_of_Pornography_Adolescents'_Use_of_New_Media_for_Sexual_Purposes/links/5596f00e08ae99aa62c8c7d1/The-Educational-Dimension-of-Pornography-Adolescents-Use-of-New-Media-for-Sexual-Purposes.pdf#page=34
- Sinković, M., Štulhofer, A., & Božić, J. (2013). Revisiting the Association between Pornography Use and Risky Sexual Behaviors: The Role of Early Exposure to Pornography and Sexual Sensation Seeking. *Journal of Sex Research, 50* (7), 633-641. doi: 10.1080/00224499.2012.681403

References

- Snell, W. E., & Papini, D. R. (1989). The Sexuality Scale: An instrument to measure sexual esteem, sexual-depression, and sexual-preoccupation. *The Journal of Sex Research, 36*, 256–263. doi:10.1080/00224498909551510.
- Steinberg, L., Sharp, C., Stanford, M.S., & Tharp, A.T. (2013). New tricks for an old measure: The development of the Barratt Impulsiveness Scale-Brief (BIS-Brief). *Psychological Assessment, 25*, 216–226. doi.org/10. 1037/a0030550 PMID: 23148649.
- Stern, A.F. (2014). Questionnaire Review. The Hospital Anxiety and Depression Scale. *Journal of Occupational Medicine, 64*,393-394. Retrieved February 14, 2020, from <https://academic.oup.com/occmed/article/64/5/393/1436876>
- Stewart, D. N., & Szymanski, D. M. (2012). Young adult women’s reports of their male romantic partner’s pornography use as a correlate of their self-esteem, relationship quality, and sexual satisfaction. *Sex Roles: A Journal of Research, 67*(5-6), 257-271. doi:10.1007/s11199-012-0164-0
- Štulhofer, A., Tafro, A., & Kohut, T. (2019). The dynamics of adolescents’ pornography use and psychological well-being: A six-wave latent growth and latent class modeling approach. *European Child & Adolescent Psychiatry, 28*(12), 1567-1579. doi:10.1007/s00787-019-01318-4.
- Sprecher, S. (1989). Premarital sexual standards of different categories of individuals. *The Journal of Sex Research, 26*(2), 232–248.
- 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. doi:10.1016/j.adolescence.2010.04.010
- Szymanski, D. M., Feltman, C. E., & Dunn, T. L. (2015). Male Partners' Perceived Pornography Use and Women's Relational and Psychological Health: The Roles of

- Trust, Attitudes, and Investment. *Sex roles*, 73(5-6), 187-199. doi:10.1007/s11199-015-0518-5
- Thornburgh, D., & Lin, H.S. (2002). Introduction. Youth, pornography, and the Internet (p.17-30). Washington, DC: National Academy Press.
- Tomyn, A.J., & Cummins, R.A. (2011). The Subjective Wellbeing of High-School Students: Validating the Personal Wellbeing Index-School Children. *Social Indicators Research*, 101, 405–418. doi.org/10.1007/s11205010-9668-6
- Tsang, S. K. M. (1997). *Parenting and self-esteem of senior primary school students in Hong Kong*. Hong Kong: Boys & Girls' Club Association of Hong Kong.
- Tsitsika, A., Critselis, E., Kormas, G., Konstantoulaki, E., Constantopoulos, A., & Kafetzis, D. (2009). Adolescent pornographic internet site use: a multivariate regression analysis of the predictive factors of use and psychosocial implications. *CyberPsychology & Behavior*, 12(5), 545-550.
- Tulving. E. (2002). Episodic memory: from mind to brain. *Annual Review of Psychology*, 53, 1–25.
- Tylka, T. L. (2015). No Harm in Looking, Right? Men's Pornography Consumption, Body Image, and Well-Being. *Psychology of Men & Masculinity*, 16(1), 97-107. doi:10.1037/a0035774
- UCLA Center for Communication Policy. (2003). UCLA internet report—year three. *UCLA Center for Communication Policy*.
- Vaughn, M.J., & Matyastik Baier, M.E. (1999). Reliability and validity of the relationship assessment scale. *The American Journal of Family Therapy*, 27(2), 137-147. doi:10.1080/019261899262023

References

- Velezmoro, R., Negy, C., & Livia, J. (2012). Online sexual activity: Cross-national comparison between United States and Peruvian college students. *Archives Of Sexual Behavior, 41*(4), 1015-1025. doi:10.1007/s10508-011-9862-x
- Wallston, K.A., Wallston, R.S., & DeVellis, R. (1978). Development of the multidimensional health locus of control scale. *Health Education Monographs, 6*, 160–70.
- Weaver, J. B., Weaver, S. S., Mays, D., Hopkins, G.L., Kannenberg, W., & McBride, D. (2011). Mental- and Physical-Health Indicators and Sexually Explicit Media Use Behavior by Adults. *Journal of Sexual Medicine, 8*, 764-772.
- Wells, G., Shea, B., O’connell, D., Peterson, J., Welch, V., Losos, M., & Tugwell, P. (2012). The Newcastle-Ottawa Scale (NOS) for Assessing the Quality of Nonrandomized Studies in Meta-analysis. Retrieved November 29, 2019, from http://www.ohri.ca/programs/clinical_epidemiology/oxford.asp
- Whittaker, Z. (2013). *EU votes to reject “porn ban” proposals*. Retrieved December 06, 2019, from <https://www.cnet.com/news/eu-votes-to-reject-porn-ban-proposals/>
- Willoughby, B. J., Carroll, J. S., Nelson, L. J., & Padilla-Walker, L. M. (2014). Associations between relational sexual behaviour, pornography use, and pornography acceptance among US college students. *Culture, Health & Sexuality, 16*(9), 1052-1069. doi:10.1080/13691058.2014.927075
- Wolak, J., Mitchell, K. J., & Finkelhor, D. (2007). Unwanted and wanted exposure to online pornography in a national sample of youth internet users. *Pediatrics, 119*(2), 247–257. doi:10.1542/peds.2006-1891
- World Health Organisation. (2019), *Recognizing Adolescence*. Last Retrieved May 08, 2020, from <https://apps.who.int/adolescent/second-decade/section2/page1/recognizing-adolescence.html>

- Ybarra, M. L., & Mitchell, K. J. (2005). Exposure to Internet pornography among children and adolescents: A national survey. *CyberPsychology & Behavior*, 8(5), 473-486.
- Ybarra, M. L., Mitchell, K. J., Hamburger, M., Diener-West, M., & Leaf, P. J. (2011). X-rated material and perpetration of sexually aggressive behavior among children and adolescents: Is there a link? *Aggressive Behavior*, 37(1), 1-18.
<http://dx.doi.org/10.1002/ab.20367>.
- Yu, T. K., & Chao, C. M. (2016). Internet Misconduct Impact Adolescent Mental Health in Taiwan: The Moderating Roles of Internet Addiction. *International Journal of Mental Health and Addiction*, 14(6), 921-936. doi:10.1007/s11469-016-9641-y
- Young, K.S. (1998). Internet addiction: the emergence of a new clinical disorder. *CyberPsychology & Behavior*, 1, 237-44.
- Yucel, D., & Gassanov, M. A. (2010). Exploring actor and partner correlates of sexual satisfaction among married couples. *Social Science Research*, 39(5), 725-738.
- Yurgelun-Todd, D. (2007). Emotional and cognitive changes during adolescence. *Current Opinion in Neurobiology*, 17, 251-257.
- Zigmond, A.S., & Snaith, R.P. (1983), The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67, 361-370. doi:10.1111/j.1600-0447.1983.tb09716.x
- Zung, W.W. (1965). A self-rating depression scale. *Archives of General Psychiatry*, 12, 63-70.