



Rapid Evidence Assessment

Characteristics and vulnerabilities of victims of online-facilitated child sexual abuse and exploitation

Disclaimer

This Rapid Evidence Assessment is prepared at IICSA's request. The views expressed are those of the authors alone.

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Glossary

There are numerous terms used to describe many of the behaviours, practices and offences covered in this report. In general, reference is made to the Luxembourg Guidelines (ECPAT International, 2016), which establish agreed international definitions for key terms, acts and behaviours. Any deviation reflects specific domestic policy and law or other terms, acts and behaviours not covered in the Luxembourg Guidelines. No changes have been made to the terms used by other researchers so on occasion terms are used by others that are not recommended in the Luxembourg Guidelines.

The following terms are used throughout as described below:

Category of Child Sexual Abuse Images –

Category A	Images involving penetrative sexual activity; images involving sexual activity with an animal or sadism
Category B	Images involving non-penetrative sexual activity
Category C	Other child sexual abuse images not falling within categories A or B i.e. with some sexually suggestive content

Sexual Offences Definitive Guideline, Sentencing Council, (2013).

Chatroom - A site where users can communicate through text or video, either in real time or post text that others can respond to later. Chatrooms pre-date Social Networking Sites but have continued and now include features such as Webcam live streaming.

Child - Any person under the age of 18.

Child Sexual Abuse - Sexual abuse of children involves forcing or enticing a child or young person to take part in sexual activities. The activities may involve physical contact and non-contact activities such as involving children looking at, or in the production of sexual images, watching sexual activities, encouraging children to behave in sexually inappropriate ways, or grooming a child in preparation for abuse including via the internet. Child sexual abuse can be carried out by an adult or another child (known as peer abuse) (IICSA, 2017).

Child sexual abuse includes child sexual exploitation - Sexual exploitation of children is a form of child sexual abuse. It involves exploitative situations,

contexts and relationships where a child receives something, as a result of them performing, and/or another or others performing on them, sexual activities. Child sexual exploitation can occur through the use of technology (IICSA, 2017).

Cyberbullying - Bullying that happens online, using social networks, games and mobile phones, is often called **cyberbullying** (NSPCC nd).

Grooming - *Sexual grooming/online sexual grooming* refers to the process of establishing/building a relationship with a child either in person or through the use of the Internet or other digital technologies to facilitate *either online or offline* sexual contact with that person (ECPAT International 2016). Grooming was recognised in English law in S15 of the Sexual Offences Act 2003.

Harmful Sexual Behaviours - A term used to describe “problematic sexual behaviours that lie outside normative developmental parameters and can be experienced as harmful or abusive by others. Such behaviours may impact on both victims and the young people who display them, as well as their respective families” (Smith, Allardyce, Hackett et al., 2014, p267).

Online Platform - A term used to describe web based programs. It is used in this report to indicate something more than a website, although access to a platform is usually through a website. For example, Facebook is a platform in which children can perform a multitude of actions and tasks.

Self-generated sexual content/material involving children - Sexual images (or other material) produced by children, depicting themselves. Such images may be more or less sexualised, and may have been produced either freely or as a result of coercion (ECPAT International 2016).

Sexual extortion of children - A form of extortion that is sexual in nature that is carried out against a child. The abbreviation to ‘sextortion’ is not favoured because “it does not show clearly that it is a matter of sexual exploitation against a child and risks trivialising a practice that can produce extremely serious consequences” (ECPAT International, 2016, p. 52).

Solicitation of children for sexual purposes - Defined by ECPAT International (2016, p51) as involving: (i) contacting a child; (ii) (if online, through information and communication technology); (iii) with the intent of luring or inciting the child; (iv) to engage in any sexual activity by any means, whether online or offline.

Sexting - “Sexting” has been defined as the “self-production of sexual images”, or as the “exchange of sexual messages or images” and “the creating, sharing and forwarding of sexually suggestive nude or nearly nude images through mobile phones and/or the internet”. Sexting is a form of self-generated sexually explicit content and the practice is “remarkably varied in terms of context, meaning, and intention” (ECPAT International, 2016, p. 44).

Social networking site (SNS) – A social network site is an online platform, which supports social networking with anyone on any shared interest.

Transgender - Umbrella term (rather than a specific identity), used to describe those whose gender identity does not match the sex assigned to them at birth. Trans identities can take a number of forms (ONS, 2017).

Victims - The term ‘victim’ is used when making reference to pre-sexual abuse, the sexual grooming phase, during the sexual abuse or immediately after disclosure. At all other points, the term victims and survivor should be used. (Victim and survivor consultative panel, for IICSA).

Executive Summary

Introduction

This report considers the evidence about children's characteristics, vulnerabilities and resilience to online-facilitated child sexual abuse (CSA). Online-facilitated CSA refers to the process of establishing/building a relationship with a child either in person or using the Internet or other digital technologies to facilitate *either online or offline* sexual contact with that child.

The report has been commissioned by the Inquiry into Child Sexual Abuse (IICSA or 'the Inquiry'). The aim of 'the Inquiry' is to investigate whether public bodies and other non-state institutions have taken seriously their responsibility to protect children from sexual abuse in England and Wales, and to make meaningful recommendations for change, to help ensure that children now and in the future are better protected from sexual abuse.

The Inquiry has launched 13 investigations into a broad range of institutions. One of the investigations focuses on the institutional responses to child sexual abuse and exploitation facilitated by the Internet. This is referred to as the internet investigation. The internet investigation is exploring the nature and extent of the use of the internet and other digital communications technology to facilitate child sexual abuse. This report answers the primary question: what is known about the characteristics, vulnerabilities and on- and offline behaviour of victims of online-facilitated child sexual abuse and exploitation?

Method of data gathering and analysis

A Rapid Evidence Assessment (REA) methodology was used, which involves gathering data in the form of academic papers, reports and other relevant information within a relatively short timescale. The aim is to produce an overview of the current state of evidence on a selected topic. Whilst methodological rigour is important, the search methodology is not as extensive as a systematic review; this is one of the limitations to an REA. It was agreed that a wide range of research would be included: quantitative, qualitative, mixed methods and reviews. However, some data sources such as books and research over 10 years old were excluded.

The stages of this REA included development of a search strategy, searches of 22 academic databases and publisher repositories and a call for literature. Subsequent, blind double coding of studies ensured quality assurance. Research that was of poor methodological quality was eliminated from the study. 6620 references were initially identified and, of these, 73 papers and reports were

found to meet the research quality criteria and to be relevant to the overarching and sub research questions (see Findings below).

Overview of the research

Research has been undertaken mainly in the UK, Europe, the United States of America and Canada. Predominantly the research found was quantitative in nature including two large-scale and longstanding projects i.e. EU Kids Online overseen by the London School of Economics and the work of the Crimes Against Children Centre at the University of New Hampshire, USA. Much of the quantitative and qualitative research involves children and young people as research participants; however, the capturing of their thoughts and experiences of sensitive topics remains a challenge.

An important finding in this REA is the under reporting of young children who are subject to online-facilitated child sexual abuse (hereafter CSA). This finding has emerged from comparing the studies of internet content and reported cases, although it is not referred to in the research studies themselves and no explanation is recorded. We might hypothesise that it is in part due to the fact that infants and very young children may not understand what is happening to them or be able to verbalise their experience (NICE, 2017) but this is clearly an area for further research.

Second, there is a significant variation in definitions and concepts utilised in the research that makes direct comparison problematic. Each of the key terms are open to variation both within a single country and internationally. One example, online-facilitated CSA, is also described in the literature as sexual solicitation, luring or grooming even though there are differences between each of these terms. Such differences highlight the challenges in considering research from other countries and any translation of findings to the English/Welsh context must be done with caution.

A third finding is that much research examined for the REA is unclear about whether the 'perpetrator' is an adult or a child. If it was the latter, then again there was a lack of specificity about whether the child was a peer (in same age range) or if an older child was targeting a much younger child.

Fourth, online-facilitated CSA overlaps with many complex behaviours and social phenomena that are not fully understood including:

- Children's access to adult pornography and what effect this may have on them;

- Relationships, if any between viewing adult pornography and peer to peer behaviour both within and out with intimate relationships in childhood;
- Whether 'sexting' in some circumstances is an extension of standard adolescent sexual development or a new phenomenon;
- The relationship between cyberbullying and/or online harassment in online-facilitated CSA.

Moreover, online CSA is embedded in a set of contested socio-cultural norms including:

- Gender differences and patriarchy;
- Diversity and equality;
- Early sexualisation;
- Legality of choosing to share self-generated sexual content/material involving children.

Finally, it is important to recognise that the majority of children continue to use the Internet without experiencing harm. Even when children are exposed to unwanted online sexual content or are approached by unknown individuals, most children have a set of successful coping strategies. In managing unwanted experiences, many children develop important digital skills that contribute to their overall resilience.

Findings

The overarching question that this research seeks to answer is:

What is known about the characteristics, vulnerabilities and on- and offline behaviour of victims of online-facilitated child sexual abuse and exploitation?

The REA enables conclusions to be drawn with varying levels of confidence and to identify gaps in research evidence.

What do we know and can be confident about?

- Girls are more likely to be victims of *reported* online-facilitated CSA;
- Adverse childhood experiences such as physical and sexual abuse and exposure to parental conflict makes children more vulnerable to online victimisation;
- Above average internet use increases vulnerability when interacting with other characteristics, such as having a disability or low self-esteem;
- In approximately one quarter of reported cases, the perpetrator is a family member.

What can we be less confident about?

- Depending on the data source, 11-14 is the age group most vulnerable to online-facilitated CSA but this may be because adolescents are more often sampled in research studies;
- Risky online behaviours, such as sharing personal information and arranging to meet unknown contacts offline, may increase chance of online-facilitated CSA;
- Some platforms may enhance vulnerability but these change over time as children migrate to new platforms;
- Vulnerability is diverse and influenced by social factors such as gender and culture although the extent of this influence is unclear. For example, boys and girls appear to be vulnerable in different ways, as are disabled children and children living in varying cultural contexts;
- Boys and transgender children are also victims and may be over represented for specific types of online-facilitated CSA and child sexual exploitation (CSE);
- Between a third and a half of victims may already know the perpetrator.

What don't we know?

- How ethnicity, culture or global region of residence is associated with victimisation for online-facilitated CSA and CSE;
- Differences in victim characteristics between peer and adult perpetrated online-facilitated CSA and CSE;
- How and if victim characteristics have changed in a rapidly changing online environment;
- How to identify when a child/young person becomes 'situationally' vulnerable.

To facilitate more specific analysis, the main research question was followed by a number of subsidiary questions; these proved challenging to answer as there is not a tailored literature or research base that directly addresses these questions. This meant that data had to be extracted from studies that had a relevant but wider remit.

Are there any distinguishing characteristics or factors that make children either more vulnerable, or more resilient, to online sexual victimisation, including victimisation by peers?

The distinguishing characteristics that contribute to children being more vulnerable are not linear, but accumulative. These characteristics include:

- A history of child maltreatment, especially physical and sexual abuse and parental conflict;
- Disability, with a particular research focus on children with learning disabilities;
- Social isolation, from family, peers and community;
- Exploring sexuality online especially for Lesbian, Gay, Bi, Trans (LGBT) young people;
- Children from higher income households, but may be less important as online access becomes more widespread;
- Amount of time spent online;
- Participating in risky offline behaviours such as early use of alcohol and drugs, delinquency, non-school attendance and early sexual intercourse.

Distinguishing characteristics that contribute to children being more resilient are:

- Male sex;
- Being older (15 plus);
- Psychological characteristics such as having a 'sensation seeking personality' or high self-efficacy.

Is there any research that has tried to establish vulnerability profiles or typologies, based on children's characteristics and behaviours?

There are few attempts to develop typologies, which may reflect the diversity of different forms of online-facilitated CSA and CSE and the diversity of victims and survivors. We found no typologies of victims of online-facilitated CSE but include some attempts to categorise the relationship between internet use and risk and also self-generated sexual content in Section 5.

Is there a relationship between 'sexting' and/or production of self-generated sexual material and sexual extortion or online sexual solicitation?

- Sexting is poorly defined but tends to include the intentional sharing of images, video or textual messages with sexual content to another, who is usually but not always a peer;
- Prevalence rates for sexting across retrieved studies vary from 15% to 48% of the sampled child population;
- Girls feel under more pressure to send self-generated sexual content and appear to be more harmed by it if the image is shared again;
- There is no established causal relationship between sexting and online-facilitated CSA. Limited evidence found in this REA indicates that perpetrators will encourage children to send them self-generated sexual

content/material and some may then use this to threaten the child into sharing further images/ live webcam footage or to meet in person;

- The minority of children who send sexual images in exchange for money or material goods are often subject to child sexual exploitation both on and offline;
- Online-facilitated child sexual abuse is perpetuated through the extraction of self-generated images and videos from their original source.

What are the characteristics and vulnerabilities of victims of transnational online child sexual abuse, where either the victim or the perpetrator is based in England and Wales?

None of the retrieved studies addresses transnational online-facilitated CSA, where either the victim or perpetrator is based in England and Wales.

Research gaps

In light of the evidence in this report, the following research gaps were identified:

- a. Most studies that collect data on characteristics and vulnerabilities are cross sectional studies, taking data from a single time point. There is a lack of research evidence on longer-term changes in characteristics, vulnerabilities, resilience and impacts. There is also a gap in understanding specific impacts for sub groups such as children with a disability, ethnic minority children, looked after, migrant and asylum seeking and LGBT children, all of whom may be at greater risk;
- b. No research was found on the under reporting of the on and offline sexual abuse and exploitation of very young children;
- c. Many studies fail to clearly delineate the age of the perpetrator, in particular making the distinction between child and adult explicit. Thus, a research gap is understanding any differential characteristics, vulnerabilities, resiliencies and impacts between child on child and adult to child CSA;
- d. No studies collect data into online resilience based on a valid resilience scale. It is therefore difficult to compare resilience in the context of online-facilitated CSA and other forms of abuse or trauma;

- e. Data on sexting is complicated by varying definitions and lack of information on national or cultural location. It is also lacking technical analysis to aid the assessment of the extent to which apparently self-generated sexual content/material involving children is truly so and not the result of grooming or coercion;
- f. There is an absence of typologies of victims of online-facilitated child sexual exploitation (CSE), that includes children who appear to be most vulnerable i.e. children who are being or have been sexually abused, homeless children, missing from school, migrating or seeking asylum and 'looked after children'.

Introduction

The aim of the Independent Inquiry into Child Sexual Abuse (IICSA or ‘the Inquiry’) is to investigate whether public bodies and other non-state institutions have taken seriously their responsibility to protect children from sexual abuse in England and Wales, and to make meaningful recommendations for change, to help ensure that children now and in the future are better protected from sexual abuse. Child sexual abuse (CSA) involves forcing or enticing a child or young person under the age of 18 to take part in sexual activities. It includes contact and non-contact abuse, such as involving children in looking at, or in the production of, sexual images, watching sexual activities, encouraging children to behave in sexually inappropriate ways, or grooming a child in preparation for abuse including via the internet.

The Inquiry has launched 13 investigations into a broad range of institutions. The investigations will give a voice to victims and survivors of child sexual abuse, enable the Inquiry to understand how institutions have failed to protect children from sexual abuse and make practical recommendations to ensure better institutional protection for children in the future.

One of the investigations focuses on the institutional responses to child sexual abuse and exploitation facilitated by the internet. This is referred to as the Internet Investigation.

This report informs IICSA’s investigation into the Internet and Child Sexual Abuse. The Internet Investigation is exploring the nature and extent of the use of the internet and other digital communications technology to facilitate child sexual abuse; the adequacy of government policy and statutory and regulatory frameworks to protect children from sexual abuse facilitated by the internet; and the response of law enforcement agencies, the criminal justice system and the technology industry (including internet service providers, providers of online platforms, and other relevant software companies) to child sexual abuse facilitated by the internet.

Rapid Evidence Assessment¹ methodology was applied to examine research on the overarching question it seeks to answer; that is, **what is known about the characteristics, vulnerabilities and on- and offline behaviour of victims of**

¹ See

<http://webarchive.nationalarchives.gov.uk/20140305122816/http://www.civilservice.gov.uk/networks/gsr/resources-and-guidance/rapid-evidence-assessment/what-is>

online-facilitated child sexual abuse and exploitation? This question is addressed through examining four data sources. Research that provides data on:

- Distinguishing characteristics or factors that make children either more vulnerable, or more resilient, to online sexual victimisation, including victimisation by peers;
- Vulnerability profiles or typologies, based on children's characteristics and behaviours;
- Self-generated sexual material, including the relationship between 'sexting' and/or production of self-generated sexual material and sexual extortion or online sexual solicitation;
- The characteristics and vulnerabilities of victims of transnational online child sexual abuse, where either the victim or the perpetrator is based in England and Wales.

Background

The background to this study includes the increasing concern about children's early exposure to sexualised images, advertising, language and behaviours both on and offline. Often referred to as premature sexualisation, the concerns are based on a belief that exposure to sexualised images, including adult pornography, may affect how children understand themselves and others and influence their future sexual relationships. Two thirds of 15-16 years olds have seen pornography online with a clear gender distinction emerging with far more boys choosing to do so (Martellozzo, Monaghan, Adler...and Horvath, (2016). This study based on a mixture of online forums, online survey and focus groups with children and young people also finds that a 'substantial minority' of children and young people want to copy pornographic acts (Martellozzo, et al., 2016). Moreover, young people attribute sexist attitudes and expectations within their own relationships to viewing pornography (Coy, Kelly, Elvines... Kanyeredzi, 2013). The early sexualisation of children and young people is part of the context in which children may become victims of online child sexual abuse.

Children go online to engage in communication with their social networks of family, friends and peers (Davis, 2009; Sheldon, 2009; Livingstone, Haddon, Görzig, and Ólafsson, 2011a++; boyd, 2014). Online technologies continue to develop to make such communication easier and more varied than it has ever been. It has always been the case that children communicate with friends but the Internet has widened these networks exponentially (Mesch and Talmud, 2010). In this expanding arena, friendship takes on new meanings; existing friendship

networks extend to the acquaintances of others, intimate personal details can be shared with people who have only just made a connection, children can establish friendships online that do not continue in other contexts.

In 2016, 12-15 year olds in the UK spent an average of 20 hours and six minutes online per week and 72% had a social media profile (OfCom, 2016). Internet use amongst younger children is growing; in 2016, 3-4 year olds spent an average of 8 hours and 18 minutes online, up from 6 hours and 48 minutes in the previous year. The internet is a necessary and positive experience for many children, greatly expanding educational and social experience. At the same time, the internet can pose risk of harm including online-facilitated sexual abuse and exploitation. Understanding what might make children vulnerable and resilient to sexual abuse and exploitation online is therefore critical. As in the offline world, what is understood as sexual abuse is dependent on interpretation across time and space. What a child considers acceptable to them in the present may change when they examine activities retrospectively as an adult (Wattam and Woodward, 1996) and what is considered as harmful online by a child from one cultural or geographical context may not be so in another (Livingstone, et al., 2011a). This means that context is an important component in understanding the meaning and consequences of harmful behaviours.

EU Kids Online (Hasebrink, Livingstone, Haddon and Ólafsson 2009+) have classified new risks that have been introduced by the online environment: *content risks* describe the receipt of risky material, e.g., pornographic images or videos, whether mass-produced or created by the sender. There have always been content risks but the internet has expanded their scope, scale and accessibility. Pornographic material is both readily available and frequently presented to children in the form of pop-ups or links from sites popular with young people; *contact risks* involve an online party attempting to get the child to participate in risky interaction, whether online or offline. The internet extends contact risks because the range of potential contacts (both perpetrators and victims) has greatly extended covering a much wider population nationally and internationally; and *conduct risks*: where the child himself/herself is perpetrator of conduct that may lead to risk to others is expanded in relation to online-facilitated child sexual abuse and exploitation.

May-Chahal, Mason, Rashid...Greenwood, (2014) proposed a fourth category of *normative risk* following a school based study with children aged between 11-17 (N=785). It was found that certain criteria were used to determine identity in online decisions regarding the age and gender of people who approached them. These mirrored normative criteria that also apply offline. For example, content was categorised in terms of what boys and girls normally talk about, such as boys

talk about sport, girls talk about shopping. A second normative device was to categorise age and gender according to the way people talk, for example, 'they used slang such as soz which I associate with a younger person' (May-Chahal et al., p 604). These strategies work offline because there is a visual correlate but online, where the visual correlate can be absent or potentially false, they resulted in correct identification of age and gender of correspondents only 16% of the time. These normative decision making criteria therefore expose children to risks of deception.

Research retrieved in this REA reinforces the findings of Webster, Davidson and Bifulco (2014) who propose three dimensions to children's vulnerability to online sexual grooming: sexual, cognitive and social. Sexual vulnerability refers to the sexual features or markers attended to by the online "groomer" including the persistent online use of sexually explicit language, conversations about sex on social networking sites (SNS) and pictures of young people in a state of undress. Two features, naivety and/or the desire to be taken seriously as a sexually mature, person underpin this vulnerability. Cognitive vulnerability refers to features that indicate a young person may be open to sexual grooming through the way they are thinking. For example, some boys and girls are reported to be *'intrigued by the idea of contact with an older man'* (Webster, Davidson, Bifulco and Grove-Hill 2010, p19), or children may be vulnerable because they think of themselves in a negative way through having low self-esteem. Finally, with regard to social context, as with offline sex offending, children targeted are those who appear to be isolated or lonely or have problematic parent relationships (Webster et al., 2014).

Perpetrators do not always need to conceal their identities or ages in order to gain online and offline contact as children freely engage with them knowing they are an adult (Taylor, 2010). Such risky behaviour is explained through theories of online disinhibition (Suler, 2004) and deindividuation (Zimbardo, 1969). In particular the concepts of dissociative anonymity and invisibility, loss of individual responsibility and sensory overload can contribute to disinhibition to established behavioural norms and predispose some young people to take risks online in an environment where they feel they cannot be identified (Webster et al., 2014). Opportunities to experiment with identity have opened up like never before; children can be adults, boys can be girls and vice versa along with many other identity possibilities. For example, 40% of children admit to making false claims about themselves online (Livingstone and Bober, 2004) and various individual examples demonstrate highly adventurous and potentially dangerous masquerading (Hernwall, 2005).

Furthermore, children and young people are living in a digital world where on/offline distinctions do not represent separate social spaces (May-Chahal, et al., 2014). The online environment now mediates almost all child activities, such that analysing online/offline distinctions in child abuse becomes almost impossible. Over the last decade, for example, the use of digital technology has rapidly expanded both the opportunities for, and the scale of, trafficking for the purposes of sexual exploitation through false adverts for work, bitcoin payment which is harder to trace and the production of false documentation (Europol, 2014; Hughes; 2014; Leary, 2014; Sarkar, 2015; Walby Apitzsch, Armstrong...Tunte 2016a). The Internet has become an essential component in the procurement, demand and business dealings of sex traffickers and in the detection of children who have been trafficked for the purposes of sexual abuse and sexual exploitation (Sykiotou, 2007; Latonero, 2011; 2012).

Despite child sexual abuse activity occurring in the online domain, it is still primarily presented as an offline crime that is facilitated and extended in scope and reach by digital technologies. In part, this is because in the majority of cases the act of sexual assault or exploitation is perpetrated offline, though even this is now transformed by Internet pay per view sex sites (Europol, 2014; Leary 2014). However, an approach that artificially divides the offline and online elements of child sexual abuse will work against its reduction and prevention and will not protect victims. Europol (2014) refer to a 'blurring (of) the line between the online and 'real world' crime' (p70) yet the distinction between on/offline still influences the ways in which such crimes are monitored and investigated.

Consequently, a definitional challenge for the present study therefore was what counted as online-facilitated child sexual abuse and/or exploitation. The following definition guided our search and analysis:

Definition of a child

The definition of a child in the present study is in line with the United Nations Convention on the Rights of the Child (UNCRC) in Article 1; that is, anyone under the age of 18. Many studies in general refer to young people who may be any age between 16 – 25; hence, ECPAT² International (2016) recommend that this term should be used with caution. Thus, where the ages of children under 18 were not clearly identified in data collection, those studies were excluded from analysis. Variations in the age of consent – excepting those applying the UNCRC definition – are particularly key in relation to some online activities including sexting and

² End Child Prostitution and Child Trafficking; an international NGO network dedicated to the fight against sexual exploitation of children.

self-generated sexual content. This study does not consider the legal implications of self-generated sexual material but notes that guidance from UKCCIS³ indicates that young people “need education, support or safeguarding, not criminalisation” (2017, p8).

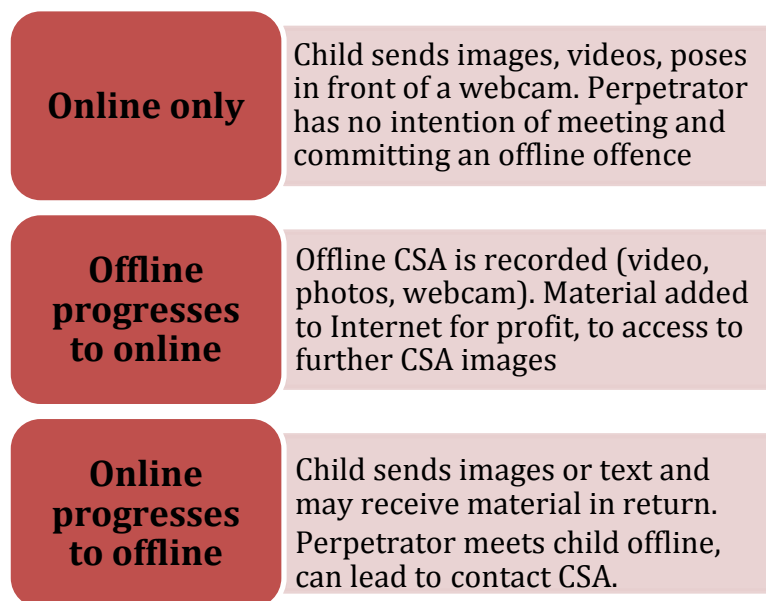
Definition of Online-Facilitated Child Sexual Abuse

Child sexual abuse (sexual abuse of children involving force or enticement to take part in sexual activities) where the online environment is involved at any stage of the offence. This includes both:

- The production, preparation, consumption, sharing, dissemination or possession of child sexual abuse material;
- The solicitation of children for sexual purposes of children (sometimes called ‘grooming’), whether or not this results, or is intended to result, in a contact offence. (ECPAT International, 2016).

This REA found three interlinking forms (Fig. 1) of online-facilitated sexual abuse, all of which can be for commercial gain or for the exchange of something of value, though might not be, depending on perpetrator motivation.

Figure 1: Forms of Online-Facilitated Child Sexual Abuse (CSA)



Perpetrator Types

A major challenge in the research reviewed was the lack of clarity about who was being defined as a perpetrator. In particular it was often unclear if another child or peer was being described or if it was an adult, and whether the child or adult

³ UK Council for Child Internet Safety

was known or previously unknown to the child prior to meeting online. In relation to adults, three main categories appear in the research:

1. **Unknown Adult:** Adult is a stranger and adopts a scattergun approach to contact children and young people online to see who responds (described in Katz, 2013+; Whittle, Hamilton-Giachritsis, and Beech 2015+);
2. **Adult known to the Child:** Adult is acquainted with the child, often in a semi-professional capacity, lives locally or the adult may have sexually abuse the child off line (Wolak and Finkelhor, 2016+). They target them specifically online. This can include men pretending to be women online (Leander, Christianson, and Granhag, 2008++; Whittle, et al., 2015+) or adults who encourage children to perform online sexual acts to get better grades at school (see Mishna, McLuckie and Saini 2009+);
3. **Adult is a Family Member:** Adult is a member of the family/ extended family, such as a father posting sexualised images and sexual abuse of his 8 year old daughter online (Leonard 2010-; Wells, Mitchell, and Ji, 2012++).

The REA also examines victim characteristics and vulnerabilities in so-called 'peer on peer' abuse. As a term, 'peer on peer' abuse is complicated because it includes several different sub-groups including children and young people who sexually offend against their peers as well as young people who specifically target much younger children. The term 'peer on peer' can obscure the distinction between 'true' (same-age) perpetrators and victims on the one hand, and adolescent perpetrators of CSA against very young victims on the other. These distinctions are difficult to make as the online environment changes the meaning of relational terms. For example, terms such as 'friend' and 'boyfriend'; some 'boyfriends' maybe older children or young adults, some 'friends' may be friends of friends or may never have met face to face.

For the purposes of this review, four categories of peer sexual abuse were noted, some of which dovetail with understandings of adolescents with sexually harmful behaviours.

1. Adolescents who sexually offend against other children both on and offline (Belton and Hollis, 2016-; Smith et al., 2016; Stevens, Hutchin, French, and Craissati 2013++) which includes:
 - a. Peer on peer (age range >5 years)
 - b. Those who specifically target infants and young children;
2. Adolescents who access use/ and or reproduce child sexual abuse images but do not engage in contact offences (Beier et al., 2016-; Belton and Hollis, 2016-) which includes:

- a. Peer on peer (age range >5 years)
- b. Those who specifically target infants and young children;
3. Peer on peer abuse within what are described in research as 'dating' or 'romantic' relationships (Barter, Stanley, Wood...Hellevik 2015+; Stanley Barter, Wood, ...Överlien, 2016+; Zweig, Dank, Yahner and Lachman 2013++);
4. Online bullying between children and young people that includes an element of sexual victimisation amongst peers (Cooper, Quayle, Jonsson, and Svedin, 2016+).

Report structure

The report addresses each element of the main question thematically. The first section reviews the nature of the research. The second section presents research relevant to characteristics and vulnerability, which maybe short or long term, situational or behavioural. Resilience has been interpreted broadly in the third section since few studies focus directly on it. Rather, the research reports on whether or not victims feel harmed, coping strategies and environmental factors that make harm less likely. In the fourth section, the focus is on self-generated sexual content/material involving children including sexting. Finally, the small amount of research that considers victimisation typologies is summarised in Section 5.

Methodology

Following a competitive tender procurement process, the Department of Sociology at Lancaster University were commissioned to undertake a Rapid Evidence Assessment (hereafter REA). An REA gathers, analyses and reports on as much literature as possible within a specified period to inform policy development. The REA guidance and toolkit issued by the Government was followed in this project (GSRC, nd). A limitation in an REA is time (both time to carry out the project and time limits placed on relevant research to be included); decisions have to be taken at key points as to where to limit searches given the time restraints. These decisions have been noted in detail in the methodology.

When conducting an REA, it is important to ensure that the terms used to search the literature properly reflect the research questions. One way of doing this is to fit the research questions into a framework. REA's often adopt a PICO (**P**opulation, **I**ntervention, **C**ontrol and **O**utcome) model to guide search terms and retrieval decisions (Richardson, Wilson, Nishikawa and Hayward, 1995; GSRC, nd). Populations are defined for the search terms, only research that reports on interventions with that population comparing them with groups who

do not get the intervention (control groups) and assessing differences in outcomes. Given the nature of the data, which included little on interventions or control groups, it was considered unlikely that a great deal would fit into the PICO methodology. The SPIDER framework (Cooke, Smith, Booth, 2012) offered greater relevance to the IICSA research questions as they are directed at characteristics, vulnerabilities, resilience and behaviours. This framework is derived from the PICO model but allows inclusion of a broader spectrum of research without compromising quality assessment (Cooke et al., 2012). Population of interest remains similar but is renamed 'Sample' and 'Phenomena of Interest', which can then include such categories as CSA including CSE, replaces 'Intervention'. Control (or comparison group) is substituted with 'Design' since comparison is only applicable where two interventions are being assessed, whereas design can include comparative methods but also several others. The descriptor 'Evaluation' replaces 'Outcome' to enable inclusion of a range of different findings. Finally, a descriptor of 'Research' is added to generate a means of capturing the breadth of methods that may form part of the data set (see Figure 2).

Figure 2: The SPIDER framework applied to Online-facilitated CSA

<u>S</u>ample (Population of Interest)	Children and adolescents who are victims of online-facilitated CSA/CSE
<u>P</u>henomena of Interest	Online-facilitated CSA/CSE victimisation
<u>D</u>esign	All relevant (e.g. meta-analysis, survey, longitudinal, interview, focus group, case study).
<u>E</u>valuation	Characteristics, vulnerabilities, behaviours, resilience, typologies.
<u>R</u>esearch	Quantitative, qualitative, mixed

Pilot Search

Two specialist librarians (Caroline Gibson and Tanya Williamson) conducted a pilot to test the search strategy to ensure that a manageable number of relevant results could be achieved (Appendix A). The aim was to maximise the number of relevant articles and research papers retrieved. Our search strategy was made up of a number of search strings, each of which are key terms that are searched

for individually and together to build up to a sensitive and specific overall search. The pilot results illustrated the power of key words in the right search order to influence outcome. For example, the number of results retrieved from combining the Sample, Phenomena of Interest and Evaluation strings returned 1588 but when combined with the 'Design' string this reduced to 78 results. The design category was removed at this stage as it was limiting the results far too drastically. After some testing we also added solicitation/ blackmail/extortion to the sample as this found new and relevant results.

For some databases the search strings were too long e.g. JSTOR, ATM digital. Other databases place a limit on number of wildcards (a way of truncating a search term so that all the possible variations of that word are searched for e.g. child*, sext*) and Boolean operators (AND/ OR) that can be used. Such restrictions led to the development of bespoke search strings for these databases (See Appendix C). One platform would only allow a single study to be extracted at a time; we therefore limited of results to the first 50 searches on the database.

Sources and Grey Literature:

A range of databases was searched including social science, humanities, historical and technical databases/sites (see Appendix C). The latter were included based on previous experience of searching for data on trafficking and technology (Walby et al., 2016a). For example, technology databases contain accounts of research that reports on technology linked behaviour of children that might place them at risk or increase their resilience. Other papers were also hand searched to identify additional references not already picked up by the database searches.

Grey literature, such as reports, conference proceedings and government publications, was accessed through online searching in national and international non-governmental organisations (NGOs), Research Councils, English and Welsh Government and European Union websites. In addition, the Inquiry requested that a call for literature be issued (Appendix D). Key academics and other figures known for their work in online abuse were e-mailed individually to see if they had any pending relevant articles/articles in press/conference presentations and reports.

In total 51 individuals or agencies, and one network were contacted with a request for literature. Ten individuals replied, some with further information and others who did not have anything additional to contribute (see Table 1).

Table 1: Response from Call for Literature

Response	Number
Did not respond	41
Responded but had no further information	5
Responded with further information	5
Responded with further information that was relevant	4
Responded with further information that was relevant and new to research team	1

Final Search

Following the pilot, one specialist librarian ran a complete search of the relevant databases with the bibliographic results imported into EndNote⁴. To maintain quality assurance, a second specialist librarian re-ran and checked the search. It was not until this second search had been conducted that duplicate papers were removed from the results. A detailed breakdown of returns per database can be found in Appendix C.

Given the volume of data (N=5297), the citations were then imported into 'Covidence' for ease of management. Covidence is software that assists the process of systematic reviewing. The program enabled all the researchers to screen titles and abstracts independently, affording the opportunity for all data to be either double- or triple-blind coded. Double blind coding involves two reviewers scoring a piece of research without knowing what the other person has scored; in this way, bias is reduced. This was followed by a double blind coding of the remaining references on a full-text basis, applying the agreed inclusion and exclusion criteria (see Appendix E). The team discussed any coding disagreements before making a decision to include or exclude.

Each study to be included was critically appraised based on EPPI criteria for methodological rigour (internal/external validity, ethics, clarity of reporting, conflict of interest) and significance to the research question(s) subject to data extraction. Studies were appraised as belonging to one of four groups represented symbolically as follows:

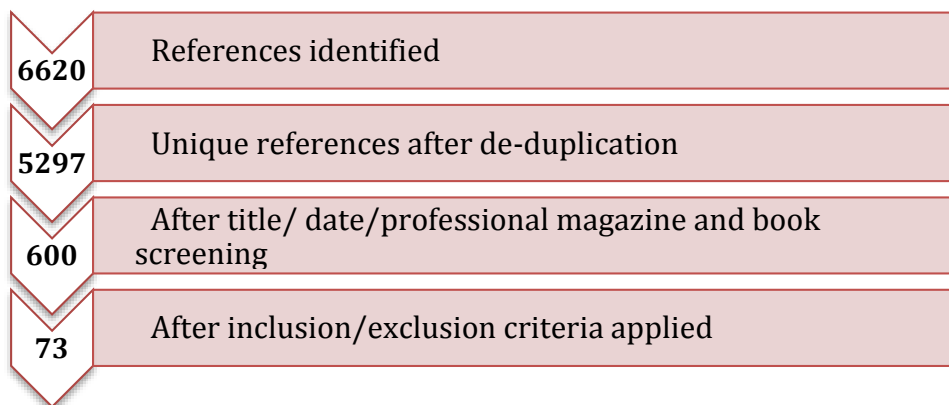
++ Rigorous study, method and analysis clearly articulated, discussion supported by results/findings, highly relevant to research question;

⁴ Endnote is a reference management software package, used to save and manage references.

- + Good study, most aspects of method /analysis explained, relevant to research question;
- Limited study, some parts of method or analysis not fully explained, or only partially relevant;
- Poor study, key aspects of method/analysis not explained, or not relevant to research question.

Summary data was recorded on a form (Appendix G) and the quality of the research was analysed using extraction sheets for quantitative, qualitative and secondary review data (Appendix H). Of the total 5297 unique references, 73 were finally included in the analysis (See Figure 3).

Figure 3: Number of included sources for final review



Challenges and Limitations

There were a number of challenges encountered during the REA. First, the number of studies of potential relevance retrieved after the exclusion criteria were applied (N=600) and the management of such a large number within the confines of an REA. Secondly, the difficulties in disaggregating data relating to online-facilitated CSA/CSE from internet harassment and bullying research. Thirdly, lack of definitional clarity meaning that very few studies compare the same phenomena.

Synthesis

Two of the reviewers read all full reports. The data was summarised descriptively and synthesised qualitatively. Reviewers extracted data that addressed each element of the research question. For example, research that contained findings on sexual solicitation and self-generated sexual content/material involving children, or where characteristics that heightened vulnerability or resilience were recorded. No studies directly addressed the overarching research question and themes were identified only through careful

extraction of data from studies that had some data relevant to the subsidiary questions.

Ethics

The project was granted ethical approval by the Faculty of Arts and Social Sciences and Lancaster University Management School Research Ethics Committee (ref: FL16159) and by IICSA's own internal Research Ethics Committee⁵. Whilst much of the data for the REA is in the public domain, it was possible that non-published data would be shared with us through the call for literature. With this in mind, specific restrictions were placed on the call for literature and safeguards were put in place in case an individual sent in a non-anonymised personal case study.

⁵ <https://www.iicsa.org.uk/research-seminars/research>

Section 1: Overview of Retrieved Studies

All the studies included in this REA that address the question in relation to characteristics, vulnerabilities and resilience are summarised in Table 3. Brief details of the author, date, country in which the study was conducted, research design, sample characteristics and measure used to collect data on online-facilitated CSA are provided, along with the assessment of quality based on the EPPI criteria as described above.

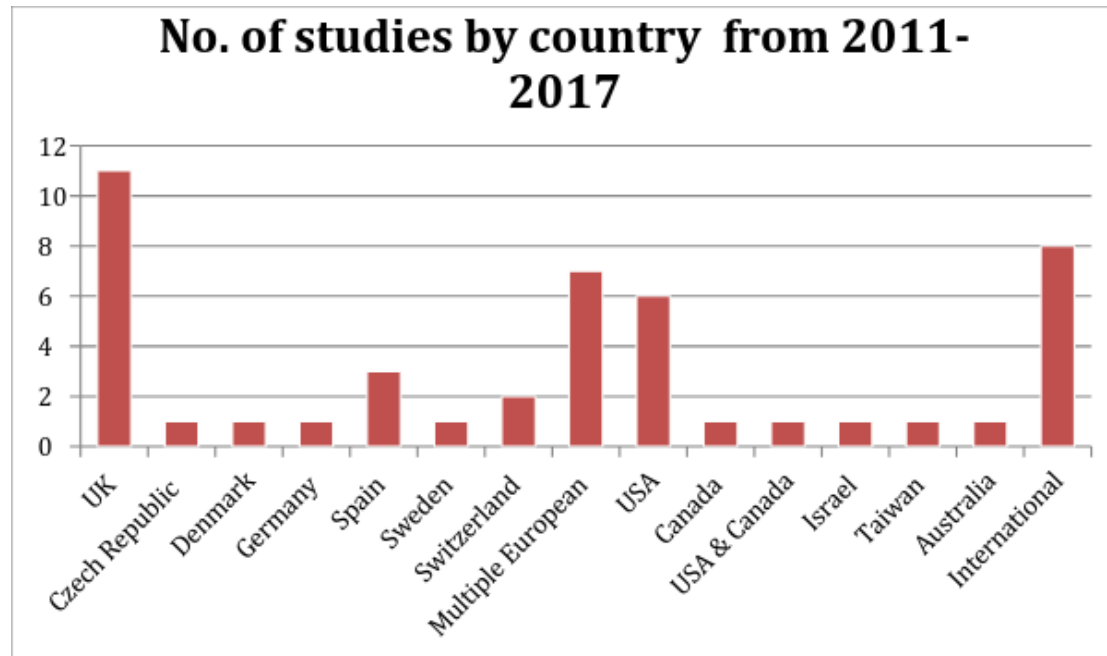
The research literature comprises quantitative, qualitative, mixed methods and technical research. Randomised control trials, quasi-experimental design, case control or evaluation studies are rare in the field. The primary data available to answer questions concerning the relationship between online-facilitated child sexual abuse and/or child sexual exploitation and victim characteristics, vulnerability, behaviours, resilience, sexting and self-generated sexual content is therefore only able to demonstrate associations. Although significant relationships may be found between variables, using statistical tests (such as age or gender, sexuality or socio-economic status (SES)), these relationships are limited, firstly by the number of variables measured and secondly, they do not provide evidence of a causal relationship.

Even where a characteristic or factor is statistically significant, it may not be causal. For example, a consistent finding is that girls are more likely to victims of online-facilitated CSA than boys are but this does not mean that being a girl causes them to be more vulnerable. In this example, we know that boys and transgender children can also be vulnerable. Thus, some factor other than gender could be causing that vulnerability. We know that girls are also more likely to be sexually abused or exploited offline (Radford, Corral, Bradley...Collishaw, 2011++). The internet reflects and extends the offline world in many respects and, in this case, it is more likely to be gender relations in wider society that influence how women and girls are perceived and treated and therefore increase their vulnerability (Walby et al., 2016a). A further significant influence at the societal level is that of culture. Across Europe and beyond there are significant variations in the legal age of consent. These domestic laws are complicated when applied in practice, with frequent successful claims being made that the perpetrator thought the victim was older than she or he actually was (Kelemen and Johansson, 2013).

Online-facilitated child sexual abuse (CSA) which can include child sexual exploitation (CSE) has been studied extensively over the last decade in many countries. In our retrieved studies, there is an over representation of studies from the Global north and far fewer from developing countries and Middle and

South East Asia (Table 2). This finding may be an artefact of our search. Although we did not specify country as a search term, we did limit retrieved studies to those printed in English.

Table 2. Number of studies by country from 2011-2017⁶



Included studies use quantitative, qualitative, reviews and mixed methods designs. The final data set contains; large-scale national and international surveys focused on internet use in the general child population, (such as the EU Kids Online and Youth Internet Safety Surveys (YISS) (see below for further details)). It also includes large and small-scale secondary analyses of law enforcement and non-governmental organisation (NGO) data (Mitchell, Finkelhor, Wolak and Turner, 2011b +; Palmer 2015-) and smaller scale qualitative studies of in depth interviews with victims (e.g. Quayle, Jonsson and Lööf, 2012+; Whittle, Hamilton-Giachritsis and Beech, 2013+). Many of the sources collected data either prior to or during 2010 and are thus somewhat dated in a fast changing online environment. Access, devices, online platforms, content and behaviours have all changed significantly over the last seven years. Use of mobile phones, for example, has transformed where and how children go online, with many more children now going online at a younger age, for lengthier periods and often away from adult supervision (OfCom, 2016).

⁶ This time frame was chosen to follow on from the data in Ainsaar and Lööf (2011, eds.) literature review

Certain characteristics, such as age, gender and socio-economic status (SES) may indicate vulnerability. Different understandings of vulnerability influence the theoretical positioning and design of included studies. Some presume that all children are vulnerable, a position related to their age and dependent status as being under 18. According to this interpretation, framed by the United Nations Conventions of the Rights of the Child (1989), children require protection because of their innate vulnerability. This position would classify all sexual acts consented to under the age of 16 (in the UK) and all unwanted sexual acts and content experienced online under the age of 18 as *a priori* CSA. Others argue that a universal application of vulnerability to all children renders them passive and ignores their 'agency' (James and Prout, 2000). This position would take account of the child's response to unwanted sexual acts and content online and may not include them within a definition of online-facilitated CSA if they do not lead to harm. Furthermore, vulnerability can be widely interpreted and is a fluid, not a fixed, phenomenon. It can include factors at the level of the individual, as well as familial and environmental influences that "might threaten or challenge healthy development" (Daniel, et al., 1999, p73).

Overview of Main Data sources

Some studies provide more detail of relevance to the IICSA questions than others do. More details about these studies are provided here.

The EU Kids Online project issued a number of reports based on a survey of a random stratified sample of 25,142 children aged 9-16 years across 25 European countries, including the UK (Hasebrink, Görzig, Haddon...Livingstone, 2011++). Their research consisted of a specially developed and piloted survey instrument used for individual interviews at home with children and young people and their parents (Livingstone, Haddon, Görzig, and Ólafsson, 2011b). Sensitive questions were self-completed by children either online or by pen and paper and included questions about on and offline risks and online harm. The authors of this study note a number of limitations including interviews at home with parents in the house (Livingstone et al., 2011b). Moreover, despite the random stratified sample from each country, it is noted that the most socially excluded children may not have been included (Livingstone et al., 2011b). The project was extended to include a further eight countries during 2011-2014 and a qualitative interview study was added to the design (Tsaliki, Chronaki, and Ólafsson, 2014++).

Exposure to sexual content and the harm caused by this content was included in the EU Kids Online survey. Three questions were relevant to this REA: whether the child had received a sexual message (15% had done so), or had seen sexual images (14% had this experience) and whether they were upset by either of

these (4% were). Details of the sender, whether adult or child, were not collected. These questions do not map directly onto the definition of online-facilitated CSA adopted in the REA but it is clear that a proportion of those experiencing sexual content and feeling upset, at a level of severity that lasted a 'couple of months or more' would constitute children encompassed by the definition used in this review. The EU Kids Online project also considers risk of harm by various groupings of vulnerability that they categorise as: children who have some psychological difficulties, children from a minority or discriminated against group and disabled children (Livingstone, et al., 2011a ++). The risk of harm considered covers a spectrum of online activity and behaviours, but includes those that can be linked to online grooming, such as meeting a contact offline who was initially met online.

A second group of survey studies were the Youth Internet Safety Surveys (YISS-1, YISS-2 and YISS-3) conducted in the United States (US) between 1999 and 2010 (Mitchell, Jones, Finkelhor and Wolak 2013++; Tynes and Mitchell, 2014+). Parents and children in households selected through random digit dialing (N= approximately 1500 for each wave) responded to a telephone interview. The interviewers spoke first to the parent(s) and with their consent went on to speak to the child. The interviewers asked to speak to the child alone and this question was repeated during the interview. The authors do not acknowledge this as a limitation but clearly parental presence and consent may have influenced children's responses. Limitations that were identified include the reduction in participation rates over the decade, partly due to more people using mobile phones rather than landlines, and the potential impact of changing meanings of online interactions over time. Unwanted solicitation of children for sexual purposes in the previous year was measured through three screener questions to the children: In the past year, did anyone on the Internet ever try to get you to talk about sex, ask you for sexual information about yourself, or ask you to do something sexual, 'when you did not want to' (Jones, Mitchell and Finkelhor, 2011, p180++). Similar to EU Kids Online, distress was measured on a scale asking if the child was 'upset or afraid' by the experience (range 1-5). Children who responded 'very' or 'extremely' to any of the screener questions were grouped as 'solicited youth' and their characteristics analysed compared with those who were not solicited.

Alongside survey studies, Police investigative files provide a rich source of data, although they only include those cases where a perpetrator or an offence has been identified and are not representative of all victims and survivors. The largest study of this kind is the National Juvenile Online Victimization study (N-JOV) in the US (Mitchell, Finkelhor and Wolak, 2011a++). Data was collected as follows:

- An initial postal survey was sent to a representative sample of “law enforcement agencies” (N=2598) which reported involvement in 3,322 arrests meeting the initial criteria for “internet facilitated child sexual exploitation”;
- Cases were then followed up with telephone interviews (N=1,063), sampled on volume of cases dealt with and type of case. To be included, a case had to involve a child 17 years or younger who had been sexually abused or exploited (or an attempt had been made to do so) during 2006, where money was exchanged (this excluded solicitation of children for sexual purposes through gifts or other means) and the internet played a role in the crime. Where there were multiple victims (30% of cases) the primary victim was selected for analysis (most seriously victimised or the youngest where victimisation was similar);
- Two main categories emerged: profiteering (selling child sexual abuse images or selling the child for sexual abuse) and purchasing (buying CSA images or CSA directly);
- In the case of child sex abuse images, victims were unknown and although 316 victims were identified only 37 fitted the criteria so that victim data reported here relates only to child sexual exploitation involving exchange for money;
- The same methodology was applied in the National Juvenile Prostitution Study (N-JPS) (Wells, et al., 2012++), which identified young people involved in 132 cases of CSE.

There are far fewer qualitative studies that are relevant to the research question. Methods used include individual interviews (Quayle et al., 2012+; Whittle et al., 2013+), focus groups (Kolpakova, 2012+; Smahel and Wright, 2014++) and online diary recording (Wisniewski, Xu, Rosson...and Carroll, 2016+) or a mixture of methods (e.g. Ringrose, Gill, Livingstone and Harvey, 2012+). Most of the qualitative studies examine the issue of online CSA from a child or young person’s perspective. Two distinct groups can be identified. First, studies that explore young people’s general experiences and attitudes to online use including unwanted sexual exposure online. Interestingly, several of these studies ask young people to talk in the third party, so that they are recounting the experiences of their friends not their own direct experience; it is unclear how this affects the data. The second group, are children who are known to be victims and survivors of online-facilitated child sexual abuse through records held by Police or therapeutic services. Approaches include individual interviews, where children often talk very frankly about their experiences (Quayle et al., 2012+; Palmer, 2015-; Whittle et al., 2013+) or retrospective analysis of ‘victim’ accounts in investigative records (Leander et al., 2008 ++; Katz, 2013+).

Several reviews have been included in this REA, but others were excluded (despite being seemingly relevant) as a result of their search strategy and analysis being entirely absent or of poor quality. There were three systematic reviews relevant to some elements of the research question (Jones, Bellis, Wood...Officer, 2012 ++; Klettke,, Hallford and Mellor, 2014++; Mishna, Cook, Saini, Wu and MacFadden, 2011++). Ainsaar and Lööf's (2011, eds.+) literature review of online behaviour related to child sexual abuse has a similar scope to this REA and as such provided a useful starting point. The review is based on a database of 218 publications (in 2011) from across Europe as part of the ROBERT ⁷project. One advantage of the scale of their project is that publications other than those in English have been included. Ainsaar and Lööf (2012, eds.+) note an increase in literature covering this subject from 2007, which is the start date of this REA.

Finally, there are studies that identify victim characteristics in relation to self-generated sexual content. The majority of these assess the prevalence, characteristics and experiences of children who send and receive such content (Jonsson, Priebe, Bladh, and Svedin. 2014++; Klettke et al., 2014++). Self-generated material covers a wide range, including 'sexting' content sent between young people with mutual consent as well as content that may be coerced; the true extent of which is not known from analysis of the images. Few studies analyse the characteristics of children featured in the content itself, with most technical studies collecting data on hashtags and image characteristics (camera properties, facial recognition and features of the environment) particularly where this content has been extracted and transferred from source into websites and other online platforms, such as file sharing sites for commercial or exchange purposes. An exception is the study carried out by the Internet Watch Foundation (IWF, 2015++) that assessed 3803 images and videos collected from the Internet over a three-month period in 2014.

Although the research questions included transnational CSA we found no studies that focused specifically on victims of this form of abuse. This does not mean that these victims were not present in the studies under review, but in all studies on victims reviewed, data on the location and nationality of the perpetrator was lacking. Some studies mention that perpetrators may be in different countries to the victim and others study children in countries where the perpetrator may be from the UK (e.g. Wachs, Vazsonyi, Wolf and Junger, 2016+). We only know this from the rare comments of victims in the qualitative studies, or from our wider knowledge of offline facilitated CSA which focuses on perpetrators and case reports that suggest UK nationals have sexually groomed children from low income countries such as the Philippines for live streaming or commercial gain

⁷ ROBERT: Risk Taking Online Behaviour Empowerment through Research and Training. Details available at <http://childcentre.info/robert/about-the-project/>

(UNICEF, 2017). The nature, extent and characteristics of victims in online-facilitated transnational CSA is therefore a serious research gap given the far reaching global links that the Internet provides.

Table 3: Summary of Included Studies on Characteristics of Victims of Online-facilitated Child Sexual Abuse and Exploitation

(Note; blank spaces occur where the data was not mentioned or unavailable)

Authors	Date	EPPI	Country	Data Source	Method	Sample size N =	Gender	Age	Measure
Ainsaar and Lööf (eds)	2011	+	Europe	NA	Literature Review	218 included studies	NA	NA	NA
Barter, Stanley, Wood...and Hellevik	2015	+	Bulgaria, Cyprus, England, Italy and Norway	School sample across 5 countries (45 schools)	Survey administered at school	4,564 subsample of 3227	Approx 50% across sample	14-17	Intimate partner violence and abuse in young people's relationships
Baumgartner, Valkenburg, and Peter	2010	++	Holland	Random sample of online panel	Online Survey	1765	49% female, 51% male	12-17	Risky sexual behaviours and sexual solicitation online; comparing adult and juvenile populations
Beier, Oezdemir, Schlinzig... Hellenschmidt	2016	-	Germany	Self-selecting	Case Study	49	1 female, 48 male	12-18	Children with a sexual preference for children
Belton and Hollis	2016	-	UK	NA	Literature Review	NA	NA	NA	Sexually harmful behaviour in children
Brown, Brady, Franklin, Bradley...and Sealey	2016	+	International	NA	Rapid Evidence Review	NA	NA	NA	CSA and CSE
Carrick-Davies	2011	+	UK	Young People in Pupil Referral Units and staff	Focus Groups and interviews	3-7 in each 4 focus groups		15-17	Online risks to young people in PRU's
Chang, Chiu, Miao, Chen, and Chiang	2016	++	Taiwan	Probability-proportionate-to-size sampling method results in sample of 26 schools	Self-administered questionnaires undertaken twice (2010 and 2011)	2315		15-16	Survey based on YISS and Youth Risk Behavior Surveillance System
Cooper, Quayle, Jonsson, and Svedin	2016	+	International	NA	Literature Review	88 records	NA	NA	NA

Dank, Lachman, Zweig and Yahner	2014	++	USA	Cross sectional sample of 7 th -12 th grade young people in American schools.	Paper survey on a single day at school	5 647	52.3% female, 47.2% male	12-19	Mixture of validated and non-validated measures exploring teen dating violence incl. cyber abuse
Davidson, De Marco, Bifulco... Puccia	2016	+	England, Ireland and Italy	Industry Case studies Stakeholder interviews Police Survey Young People Survey In depth interviews with young people	Mixed methods	1166	837 female, 239 male	Cohort of 18-25	Non-validated measure but available for scrutiny
Edinburgh, Blabobil, Harpin, and Saewy	2015	++	USA	Children attending a Child Advocacy Centre for sexually exploited runaway adolescents	In depth forensic interviews and self-report survey	62	55 female, 7 male	12-17	Mixture of measures incl. UCLA PTSD Trauma screen Child's Report of Parenting Behavior Inventory, support and control subscales
Franklin, and Smeaton	2017	+	UK	Young people and Professionals	On line surveys and interviews	27	20 female, 7 male	12-23	At risk on online CSE
D'Haenens, Vandoninck and Donoso	2013	++	25 European countries incl. UK	Random stratified survey sampling of some 1,000 children (9-16 years old) per country	EU Kids Online methodology	571, a subsample of 25, 142		9-16	Multiple measures used and raw data available
Hasebrink, Livingstone, Haddon and Ólafsson	2009	+	25 European countries incl. UK	Random stratified survey sampling of some 1,000 children (9-16 years old) per country	EU Kids Online methodology	25, 142	50%		Multiple measures used and raw data available
Hasebrink, Görzig, Haddon, Kalmus and Livingstone	2011	++	25 European countries incl. UK	Random stratified survey sampling of some 1,000 children (9-16 years old) per country	EU Kids Online methodology	25, 142	50%	9-16	Multiple measures used and raw data available
Helweg-Larsen, Schütt and Larsen	2012	++	Denmark	Nationally representative sample	Multimedia computer-based self-interviewing program	3707	1832 female, 1875 male	14-17	Conflict Tactic Scale, ADHD SDQ and non-validated measures
Holt, Bossler, Malinski and May	2016	++	Kentucky, USA	One suburban school	Online Survey Instrument available in school	439	50.1% female	13-18	Non-validated survey
Internet Watch Foundation	2015	++	UK	Proactively sourced content from search engines, historic IWF data and leads from public	3 month analysis of youth produced sexual content	3,803 images and videos	Of under 15: 630 female, 47 male, 10 both sexes	667 <15 3136 16-20 years	NA

Jones, Bellis, Wood... Officer	2012	++	International	17 studies	Systematic Review	NA	NA	NA	NA
Jones, Mitchell and Finkelhor	2011	++	USA	Random digit dialing across national sample of households	Three national telephone surveys	4561	51% male	10-17	YISS 1, YISS 2 and YISS 3
Jonsson, Priebe, Bladh, and Svedin.	2014	++	Sweden	Random stratified sample	Paper survey at school	3,288	54.2% female, 45.8% male	16-22, mean age 18.3	Baltic Sea Regional Study of Adolescent's Sexuality with added questions about the Internet.
Katz	2013	+	Israel	Investigative interviews	Exploratory	20	19 female and 1 male	11-14	Online-facilitated CSA
Klettke, Hallford and Mellor	2014	++	International	8 databases	Systematic Review	NA	NA	NA	NA
Kolpakova (ed)	2012	+	7 European countries including the UK	Young people who were considered to be at increased risk	Focus groups	27 focus groups			Online-facilitated CSA
Kopecký, K. Hejsek, L., Kusá, J... Marešová	2015	-	Czech Republic	Sample of record via counselling centre	Textual analysis	267 records			Online-facilitated CSA
Leander, Christianson and Granhag	2008	++	Sweden	Pre-determined sample	Analysis of Police interviews and chat logs	68	100% female	11-19	Online-facilitated CSA
Livingstone Haddon, Görzig, and Ólafsson	2011a	++	25 European countries incl. UK	Random stratified survey sampling of some 1,000 children (9-16 years old) per country	EU Kids Online methodology	25,142		9-16	Multiple measures used and raw data available
Livingstone Haddon, Görzig, and Ólafsson	2011b	++	25 European countries incl. UK	Random stratified survey sampling of some 1,000 children (9-16 years old) per country	EU Kids Online methodology	25,142		9-16	Multiple measures used and raw data available
Livingstone and Görzig	2014	++	25 European countries incl. UK	Random stratified survey sampling of some 1,000 children (9-16 years old) per country; subsample for this study is older	EU Kids Online methodology	18,709	50% split	11-16	Multiple measures used and raw data available
Lobe, Livingstone, Ólafsson and Vodeb	2012	++	25 European countries incl. UK	Random stratified survey sampling of some 1,000 children (9-16 years old) per country	EU Kids Online methodology	25,142	50%	9-16	Multiple measures used and raw data available

Martellozzo, Monaghan, Adler...Horvath	2016	+	UK	Nationally representative sample	Focus groups Online Survey Online discussion forum	34 1001 40	47% female 52% male 1% non-binary	11-16	Survey questions in appendix
Mishna, McLuckie, and Saini,	2009	+	Canada	Posts from children & young people to free 24 hour, national, bilingual phone and web Counselling referral and information service	Exploratory	364	269 female 75 male	6-24. mean = 14.5	Child victims of Internet/mobile and/or sexual victimisation
Mishna, Cook, Saini, Wu and MacFadden	2011	++	International	Systematic review of effectiveness of cyberabuse interventions	Systematic Review	NA	NA	NA	NA
Mitchell, K. J., Finkelhor, D., and Ybarra, M.	2007a	++	USA	Random digit dialing across national sample of households	One national telephone survey	1501	47% female, 53% male	10-17	YISS 1
Mitchell, Finkelhor and Wolak,	2007b	++	USA	Random digit dialing across national sample of households	Two national telephone surveys	1500	50% female and male	10-17	YISS 1 and 2
Mitchell, Finkelhor, and Wolak	2007c	++	USA	Random digit dialing across national sample of households	One national telephone survey	1500	50% female and male	10-17	YISS 2
Mitchell, K., Wolak, J., and Finkelhor, D.	2008	++	USA	Random digit dialing across national sample of households	One national telephone survey	1500	50% female and male	10-17	YISS 2
Mitchell, Finkelhor, Jones and Wolak	2010	++	USA	Stratified sample of law enforcement agencies	Mail and telephone survey	2322 arrest cases with SNS	NA		National Juvenile Online Victimization (N-JOV) Study
Mitchell, Jones and Finkelhor	2011a	++	USA	Stratified sample of law enforcement agencies	Wave 2 data, which surveyed arrests in 2006 for internet-related sex crimes against minors	569 arrest cases	NA	13-18	National Juvenile Online Victimization (N-JOV) Study
Mitchell, Finkelhor, Wolak...Turner	2011b	+	USA	Nationally representative sample via random digit dial (RDD)	Telephone survey	4046	49% female, 51% male	2-17	National Survey of Children's Exposure to Violence (NatSEV) using JVQ
Mitchell, Jones, Finkelhor and Wolak	2013	++	USA	Random digit dialing across n sample of households	Three national telephone surveys	Subsample 620 sexually solicited youth	70% female, 30and male	10-17	YISS1, YISS 2 and YISS 3

Mitchell, Ybarra and Korchmaros	2014	++	USA	Harris Poll Online (HPOL) opt-in panel ($n = 3,989$ respondents) and referrals from GLSEN ($n = 1,918$ respondents).	Self-administered online survey	5542	Data presented by sexual orientation	12-17	Teen Health and Technology Online Survey
Mohler-Kuo, Landolt, Meidert, Schönbacher, and Schnyder	2014	++	Switzerland	National random stratified sample	Survey using a self-reported computer-assisted questionnaire on a laptop in school	6787	3236 female, 3551 male	13 to 20 but: 97% 14-16	Newly developed Child Sexual Abuse Questionnaire (CSAQ)
Montiel, Carbonell and Pereda	2016	++	Spain	Stratified randomized national sample		3897	2049 females, 1836 males	14-16.9 years	Juvenile Online Victimization Questionnaire
Mueller -Johnson, Eisner and Osbuth	2014	++	Switzerland	Probability Proportion to Size (PPS) cluster sampling via schools and regions	Survey using a self-reported computer-assisted questionnaire on a laptop in school	6749	52.2% males	mean age was 15.41 years	Newly developed Child Sexual Abuse Questionnaire (CSAQ) and Juvenile Victimization Questionnaire
Normand and Sallafranque St	2016	-	International	International literature	Literature review	NA	NA	NA	Risk to youth with intellectual disability to online abuse
Palmer	2015	-	UK	Survey data from 15 Barnardo's services Interviews with 34 staff, 11 young people, 8 parents and carers	Surveys and interviews	NA	Not given	Not given	Online CSE
Priebe, Mitchell and Finkelhor	2013	++	USA	Random digit dialling of households	Survey	1,560	50% split	10-17	YISS 3 At risk on online CSE
Quayle, Jonsson, and Lööf,	2012	+	Sweden, UK, Germany, Italy, Denmark and Russia		Semi structured interviews, coded thematically	27	82% female	12-18	Victims of online-facilitated sexual abuse
Quayle and Newman	2016	++	Canada	Online reports from the public to a national helpline	Content analysis	264	207 female 34 male. Rest unknown	9-17 with mean of 13.47	'Luring' or online grooming
Ringrose, Gill, Livingstone and Harvey	2012	+	UK	From 2 high schools in London	Focus groups, interviews and online ethnography	35	17 female, 18 male	12-13 and 14-15	Interview schedules available
Shannon	2008	+	Sweden	Cases from 14 out of 21 Swedish Police Areas	Case file analysis	315 cases	90% female	<18	NA
Smahel and Wright	2014	++	Belgium, the Czech Republic, Greece, Italy, Malta, Portugal, Romania,	School based sample	56 focus groups and 114 interviews	378	185 female, 183 male	9-16	Common topic guide with lists of questions was used across the nine countries

			Spain, and the United Kingdom.						
Staksrud, Ólafsson, and Livingstone.	2013	++	25 European countries	3 stage random probability clustered sample	EU Kids Online Methodology	25,142	50%	9-16	Multiple measures used and raw data available
Stanley, Barter, Wood...Overlien	2016	+	Bulgaria, Cyprus, England, Italy, Norway	Non-random sampling	Paper survey administered at school Individual interviews	4564 91	67 female, 24 male	14-17 13-19	Mixture of measures new and previously used by authors to explore Intimate Partner Violence
Stevens, Hutchin, French and Craissati	2013	++	UK	Non-random sample: all those referred to a treatment centre	Case file analysis using checklist	184	100% male	10-21, mean 16.07	Children with sexually harmful behaviour
Tsaliki, Chronaki and Ólafsson	2014	++	25 European countries	EU Kids online and Net Children Go Mobile reports	Comparative analysis	NA	NA	9-16	EU Kids Online and Net Children Go Mobile
Tynes and Mitchell	2014	++	USA	Random digit –dialling for national telephone survey	National telephone surveys	1560	50% male	10-17	3 rd YISS
Valkenberg and Peter	2011	+	International	NA	Review	NA	NA	NA	NA
Villacampa and Gomez	2017	+	Spain	Regional stratified school sample	Survey administered at school in 2015	489	50.1% female 49.9% male	14-18	Inspired by YISS; 44 item questionnaire
Wachs, Vazsonyi, Wolf and Junger	2016	+	Germany, the Netherlands, the USA and Thailand	School sample but unclear how they were selected in each country	Survey either administered online or via paper in classroom	2,162	54.6% female	11-19	Mixture of validated and new survey instruments
Walker, Sancı, and Temple-Smith	2013	+	Australia	Purposive sampling through recreation, health and education	Individual interviews; inductive approach	33	18 females, 15 males	15-20	Sexting

Wells, Mitchell and Ji	2012	++	USA	Cases reported to law enforcement	Exploratory Analysis	312	91%female, 9% male	69% <15 31% 16-17	National Juvenile Prostitution Study (N-JPS)
Wells and Mitchell	2014	++	USA	Random digit dialling across national sample of households	National telephone survey	1560	50% female	10-17	YISS 3
Whittle, Hamilton-Giachritsis and Beech	2013	+	UK	Victims of confirmed internet CSA	Semi-structured interviews	8	6 female, 2 male	13-18	Online-facilitated CSA
Whittle , Hamilton-Giachritsis and Beech	2014	+	UK	Victims of confirmed internet CSA	Semi-structured interviews	8	6 female, 2 male	13-18	Online-facilitated CSA
Whittle , Hamilton-Giachritsis and Beech	2015	+	UK	Victims of confirmed internet CSA	Semi-structured interviews	3	3	12-14	Online-facilitated CSA
Wisniewski, Zu, Rosson...Carroll	2016	+	USA	Sample achieved via e-mail to school, community and one database	Thematic coding of online diary entry	68	42 females, 26 males	13-17	Online risk
Wilkinson, Whitfield, Hannigan, Ali and Hayter	2016	+	International	NA	Meta ethnographic analysis	4 studies included	NA	NA	Sexting
Wolak, Mitchell and Finkelhor	2007	++	USA	Random digit dialling across national sample of households	Two national telephone surveys	1500	49% female, 51% male	10-17	YISS 1 and YISS 2
Wolak and Finkelhor	2011	++	USA	Sexting cases referred to Police between 2008-2009	Case file analysis	550 cases			Sexting
Wolak and Finkelhor	2016	+	USA	Self-selecting sample from Adverts on Facebook	Online survey	1631	83% female	18-25	Sextortion
Zweig, Dank, Yahner and Lachman	2013	++	USA	Convenience sampling from 10 schools in 3 North eastern states of the US	Paper and pencil survey administered at school	5647	52% female, 47% male	12-18	Mixture of newly created and adapted measures

Section 2: Characteristics and Vulnerabilities

This section assesses the research to identify characteristics and factors that individually or in combination increase vulnerability to online-facilitated CSA and CSE. They include findings on; age, gender, ethnicity, disability, sexuality, psychological factors, poly-victimisation and accumulating risk, living in care, internet usage and risky online behaviours. We also include a short commentary on Routine Activity Theory proposed by Holt, Bossler, Malinski and May (2016++); one of the few attempts to theorise vulnerability beyond analyses of correlated factors.

Age

Findings on the age of victims are mixed. School based and random probability population samples are already limited by age in their sampling procedures, with the result that studies involving children under 11 are rare, apart from the EU Kids Online project which deliberately included children aged from 9 upwards (Livingstone et al., 2011a ++). In general, older adolescents (14-17) appear to experience more online-facilitated CSA including CSE than younger adolescents (12-14) (Baumgartner, Valkenburg and Peter, 2010++; Montiel, Carbonell, and Pereda 2016++; Tynes and Mitchell, 2014++). These ages reflect the age groups in the sample at the time the data was collected. However, Wachs et al. (2016+) found no significant differences in age for those who had online contact with an adult who was sexually grooming them and those who did not (Mean=14.2 v Mean = 14.6), and nor did Villacampa and Gomez (2017+).

Age characteristics from CSA images: Older children are more likely to send and receive self-generated sexual content including sexual images (Hasebrink et al., 2011++; Klettke et al., 2014++).

IWF (2015++) note that determining the ages of children from images over 16 is challenging, widening the category to 16-20 in their assessment to ensure inclusion of 16-18 year olds. A key finding was a significant difference in the severity of content involving children between 15 year old and under and those aged 16 and above (to 18). 17.5% of the images and videos retrieved involved children under 15 and almost half (46.9%) of this content was classified as in categories A or B⁸. For those over 16, just over a quarter (27.6%) was in category A or B. Thus, in this sample, younger children were more frequently the victims of severe online-facilitated CSA. Furthermore, 42.5% of the total Category A and B content was of children under 11.

⁸ See glossary

IWF (2015++) analysis of images found that ‘all of the content assessed as depicting children aged 15 years or younger had apparently been harvested from its original upload location and collected on third party websites, meaning that control over its removal or onward distribution had been lost’ (p4). The circumstances (whether it was self-generated or not) in which material was originated could not be identified. However, 85.9% (n=573) of images or videos of children under 15 were created using a webcam and laptop and ‘the children depicted could often be seen moving their laptop or typing on the laptop keyboard whilst the content was being created’ (IWF, 2015, p16++). It should be noted that this migration from source signals a key feature of some online-facilitated CSA in that it continues the virtual sexual exploitation of a child for an indefinite period.

The analysis of webcam content in the IWF (2015++) study found that the time taken for children to engage sexually online was ‘extremely short’. Although no temporal measure is given, they suggest this may reflect a change in online grooming behaviour, as in some instances children were sharing sexualised content with someone they had not interacted with before. In their study of what they term ‘Sextortion’, Wolak and Finkelhor (2016+) find that young people share images more quickly with newly acquired online contacts than they would do with someone they were in a relationship with. 27% of respondents in their study shared an image within one day of establishing a new online contact, compared to only 2% of those who knew the perpetrator in person. Although their sample was made up of self-selecting 18-25 year olds, the majority were teenagers who were asked to reflect back on their experiences when younger. CEOP (2013) notes that a key difference between on and offline grooming for CSA is both method and timescale; sexual grooming online occurs much faster, with perpetrators threatening children to comply almost as soon as contact is made. This difference is attributed to the “availability of thousands of potential victims online at any one time” combined with “the investment of small amounts of time by perpetrators” (CEOP, 2013, p 10).

Other technological features thought to contribute to the expansion of online grooming for CSA are:

1. Rise in accessibility and ownership of smartphones and tablets (IWF, 2015++);
2. The ‘darknet’, through which internet use can be hidden (CEOP, 2013);
3. Peer to Peer sharing; where large files of images (still and moving) can be shared via a decentralised network (CEOP 2013);
4. Larger screens and higher processing power of devices such as laptops make webcam easy to use (IWF, 2015++);

5. Developing distribution techniques; live video streaming of child sexual abuse, especially but not exclusively from resource poor countries (CEOP, 2013);
6. Technology allows a perpetrator to hide their true identify, both in relation to age and gender (Wolak and Finkelhor, 2016+);
7. Perpetrators can stalk victims online and threaten to share information and images publically (Wolak and Finkelhor, 2016+).

Reported cases: Although it is likely that younger children experience severe online-facilitated CSA they are less likely to be reported. Research on police cases, although limited by the fact that the data only represent cases where the police and other agencies have been involved, find a higher representation of adolescent children. Such studies are both large and small scale with samples ranging from 20 to 569 (see Table 3). Whilst sampling methods vary, the sampling frame is not stratified by age, gender or ethnicity in advance. Cases are usually sampled by type (e.g. suspected child sexual abuse) or period of interest (e.g. between 2010 and 2011). This important finding regarding the under reporting of young children has emerged from comparing the studies of internet content and reported cases, although it is not referred to in the research studies themselves and no explanation is recorded. We might hypothesise that it is in part due to the fact that infant and very young children may not understand what is happening to them or be able to verbalise their experience (NICE, 2017) but this is clearly an area where data is lacking.

In the US, the NJOV study found 71% of victims of online CSA were aged 12 and over (Mitchell 2011a++). Likewise, in Shannon's (2008+) study of 315 Police reports in Sweden over 60% of the victims were aged between 11-14. Shannon also notes that: the youngest group of victims (aged under 13) are subject to more Internet only contacts (44%) and fewer crimes committed at an offline meeting (8%). Katz, (2013+) in her analysis of investigative transcripts from cases (n=20) of online-facilitated CSA in Israel found that all were aged 11-14. During the investigative interviews, eight of the 20 children stated that they had met the perpetrator offline, which had resulted in sexual assault and or rape.

CSE: Amongst cases of CSE in the National Juvenile Prostitution Study (N-JPS) there is a significant difference in age between those whose exploitation involves the Internet in some way and those where it does not, with children under 15 more likely to be recruited and/or 'advertised' online than those aged 16-17 (Wells, et al., 2012++). The authors suggest that 'younger children' can be hidden in vague advertising online whereas it is much harder with offline street based exploitation to hide the age of the children.

Gender

Several European and US studies report that girls are significantly more likely to be victims of online-facilitated CSA and CSE than boys (Baumgartner et al., 2010 ++; Davidson, DeMarco, Bifulco...and Puccia, 2016+; Helweg-Larsen, Schütt and Larsen, 2012++; Mitchell et al., 2013++; Mohler-Kuo, Landolt, Maier...and Schnyder 2014 ++; Tynes and Mitchell, 2014++; Wachs et. al. 2016 +). Although these cross-sectional studies⁹ cited above consistently find girls are at heightened risk of online sexual solicitation there are exceptions. For example, gender differences are not as significant in Asian samples (Wachs et. al., 2016+; Chang, Chiu, Miao...and Chiang, 2016++). Measures used to define online child sexual abuse and sexual exploitation vary across studies and there are clear indications that victim gender characteristics differ depending on the type of victimisation experienced. EU Kids Online reports 15% of 9-16 year olds had received a sexual message with gender differences described as 'negligible' but boys were more likely to have seen sexual images online. Of those children who experienced sexual content 25% were upset by it (4% of the total) and girls were 'more upset' (Hasebrink et al., 2011++) although this distinction disappears in relation to offline contact. Montiel et al. (2016++) find that in Spain, girls are significantly more likely to be victims of online grooming (24.2% v 9.4%, $p < .05$) and sexual pressure online (14.6 v 9.6, $p < .05$) but there were no gender differences in exposure to sexual content or sexual coercion. Gender differences in the data is tentatively attributed to popular stereotypes, which reinforce male aggression and violence and female passivity. In contrast, in one Spanish region, Villacampa and Gomez (2017+) report no significant gender differences in online grooming where the adult perpetrator specifically tried to get the child to talk about sex. However, girls were significantly more likely to be victims of grooming which commenced with them talking about themselves. The authors do not offer any explanation for this difference.

Transgender: US studies indicate that the risk of receiving unwanted and distressing sexual advances online is significantly higher for transgender young people. In one study, 45% of transgender young people experienced this in contrast to 11% for boys and 19% for girls who do not identify as transgender (Mitchell, Ybarra and Korchmaros, 2014++). Research on cyber dating abuse, which included being pressured into sending sexual images, supports this finding with rates of 56.3% for transgender young people in comparison to 23.3% v 28.8% ($p < 0.01$) for others (Dank, Lachman, Zweig, and Yahner, 2014++).

⁹ i.e. those that collect data at a specific moment in time and consider two or more variables to determine patterns of association

Self-generated sexual content/material involving children: Findings on gender differences for self-generated sexual content/material involving children are mixed. In a systematic review, Klettke et al. (2014++) report that:

- six out of the twelve studies they retrieved find no correlation between self-generated sexual content and gender;
- three find girls are more likely to send sexual content than boys;
- two find boys are more likely to receive such content.

However, girls are significantly over represented in self-generated sexual content found online (80.4% v 19.6%) (IWF, 2015++).

Reported cases: Analyses of police files also find that victims are more likely to be female. In Sweden, Shannon (2008+) analysed the data of 315 sexual offence reports held by the Police with 358 young people affected, of whom 92% were female. In the US National Juvenile Online Victimization (N-JOV) study, 82% of victims of Internet facilitated sex crimes where the child could be identified (N=316) were female (Mitchell et al., 2011a++). However, case data collected from the police inevitably misses a large proportion of victims, particularly boys. If boys are less likely to admit being upset by experiencing sexual content online (Hasebrink et al., 2011++), it maybe they are less likely to disclose online-facilitated CSA where they are victims. This should not be taken to mean that boys are not victims. For example, one of the N-JOV cases:

'(I)nvolved a 32-year-old male offender who police found had established and was operating his own for-profit C[hild] P[ornography] website. They discovered more than 300,000 images of boys and more than 6,000 images of girls engaged in sex acts and various states of nudity on his several computers. The offender was not found to have produced the images' (Mitchell et al., 2011a, p 56).

According to the Child Exploitation and Online Protection Centre (CEOP) males account for a higher proportion of online sexual extortion than other CSA types (NCA, 2016+). In Spain, García, López and Jiménez (2014+) find boys are significantly more likely to be exposed to unwanted 'strong sexual content' (45.1% v 31.0%). Similarly, boys in Taiwan are significantly more likely to be exposed to unwanted 'online pornography' (25.8% v 19.1%) and here unwanted online sexual solicitation was also more frequent for boys (15.9% v 10.2%) (Chang et al., 2016++). This is an unusual finding and as the authors note it stands in contrast to other studies. The increased frequency of online unwanted experiences is attributed to boys' higher usage of internet chatrooms and online games; further research is necessary to determine if there is a cultural aspect to this gender difference.

Ethnicity

The review identified little published evidence that met the quality criteria on the ethnicity of victims of online-facilitated CSA, either in terms of basic data collection or as a specific thematic feature. An exception is the study by Tynes and Mitchell (2014++), which found no significant differences in rates of solicitation of children for sexual purposes between black and non-black young people in YISS 3. Where ethnicity is recorded in other studies, it is difficult to estimate its relevance beyond the country in which data is collected. For example, the N-JOV study (Mitchell et al., 2010+) identifies 84% of cases where the CSA offence was internet-facilitated (n= 316) as 'non-Hispanic white', 5% as 'Hispanic white', 3% as 'non-Hispanic black', 4% as mixed race or other, 1% as Asian and 1% as 'American Indian or Alaskan Native'. Similarly, in the EU Kids Online study, being of minority ethnic identity varies across country. Thus, findings on ethnicity are unlikely to translate in the same way in other national contexts such as the UK.

Self-generated sexual content/material involving children; Klettke et al (2014++) report three studies that found black and African American children are more likely than white or Latino children to send self-generated sexual content, although this is not supported by YISS 3 (Tynes and Mitchell, 2014++). However, it is notable that most of the self-generated content harvested from websites in the IWF study (2015++) appeared to involve children and young people described as 'from overseas'. This assessment was based on analysis of principally video content where background items, regional accents and explicit references make it possible to determine geographic location (IWF, 2015++). It has also been found that that male immigrant children in Sweden were more likely to engage in "risk-taking sexually in both online and offline environment" (Jonsson et al., 2014++, p 187). The authors speculate that male migrant children may be more risk-taking sexually, although it may be the only way for these children to earn money to survive. The online CSA of migrant and refugee children is under researched despite a substantial body of literature on trafficking of children for sexual exploitation.

Disability

Children with a disability have been identified as being more vulnerable than the general child population to sexual abuse offline (Stalker and McArthur, 2009). A systematic review of 17 included studies between 1990-2010 provides a pooled estimate of 13.7% for the prevalence of sexual violence offline for disabled children (Jones, Bellis, Wood... and Officer, 2012++). This compares to rates of 5% for sexual abuse, 6.1% attempts to coerce or force a child into CSA and 10.8%

experiencing unwanted sexual exposure in the general UK child population (Radford et al., 2011++).

Research included in this REA indicated that disabled children may be at higher risk for online-facilitated CSA and that gender differences may be reversed; disabled boys may be at equal or greater risk (Mueller-Johnson, Eisner and Osbuth 2014++). Several tentative explanations are offered to account for this finding including that physical disability renders boys more vulnerable, whereas girls are seen as vulnerable a priori. An alternative explanation relates to the perpetrator who often is a peer; within this context “male-on-male sexual bullying [may be] reflective of dominance-related strategies to gain status within the peer group” (Mueller-Johnson et al., 2014++, p3198). Mohler-Kuo et al. (2014++) examined lifetime and past year sexual online victimisation in a sample of physically disabled (self-defined) Swiss schoolchildren. All had higher prevalence when compared to non-physically disabled children but physically disabled boys were significantly more at risk: lifetime rates for males were 17.26% v 9.08% for females (OR 2.19, past year OR 2.01). Disabled children in the EU Kids Online study (comprising 6% of the sample¹⁰) found meeting new online contacts offline more upsetting and were also at heightened risk for seeing or receiving sexual content (Livingstone et al., 2011a++).

Online-facilitated CSE: Franklin and Smeaton (2017+) have produced the first study in the UK to identify and explore support services for children and young people with learning disabilities who are at risk of CSE. Adopting a mixed method approach, the authors surveyed all Local Authorities in England, interviews with 34 professionals and 27 children and young people. Whilst online risk emerges as a theme it is not extensively explored; the focus is on off line CSE. Findings about online risk are tentative; young people said that they use the Internet to relieve social isolation suggesting that this may put them at greater risk of online grooming. Heightened vulnerability to online-facilitated CSE is attributed in part to a lack of recognition by adults and society as a whole that children with learning disabilities have developing sexual needs, which contributes to “over protection, disempowerment, social isolation” in their lives (Franklin and Smeaton, 2017+, p476).

Explaining disability as a vulnerability to online-facilitated CSA: Kolpakova Ed (2012 +) found disabled children had poorer skills relating to risk-management online. Moreover, they also find that disabled children are more likely to be socially isolated. As part of the ROBERT project spanning seven

¹⁰ This compares with 6% in the general child population (ONS, 2014)

European countries, focus groups were held with children who were deemed vulnerable. Ten of the 27 focus groups involved disabled children¹¹, ranging from 13-to 18>. Kolpakova et al., (2012++) finds that disabled children could give an account of how to keep safe in the off-line world but could not conceptualise what this might look like online. The implication is that children with disabilities may be at greater risk to online-facilitated CSA and CSE.

In contrast, Normand and Sallefranque (2016-) hypothesise that greater parental and carer involvement in learning disabled children's lives may instead be a protective factor. Their aim was to explore this and other hypotheses regarding 'online sexual solicitation' via a literature review. Whilst they found 57 papers related to online sexual solicitation, only two of those referred to children with learning disabilities and only one paper was based on empirical data (i.e. Wells and Mitchell, 2014). Consequently, most of their arguments regarding the vulnerability of children with learning difficulties in this paper are based on inferences from the literature regarding sexual abuse in general (not online).

Lesbian Gay Bisexual and Transgender (LGBT) young people

Studies explore whether LGBT young people may be at greater risk of online grooming with the hypothesis that it might be safer to explore sexuality online rather than off-line. This assumption manifests in the review of Barnardo's services for children at risk of CSE (Palmer, 2015 -). Support workers have identified a rise in the number of young gay males using their services after online contacts have resulted in abuse; suggesting that young gay males go online for social interactions and positive sexual identity confirmation that is much harder to source offline (Palmer, 2015-). Kolpakova et al. (2012 +) caution against such assumptions. Findings from five focus groups with LGB young people as part of the ROBERT project indicate that the sample had a good understanding of potential risk and employed a number of strategies to help them 'test' the identity of an online contact before they agreed to meet up in person.

However, as Staksrud, Ólafsson, and Livingstone (2013 ++) report, digital competence does not reduce risk of online-facilitated CSA for children in the EU Kids Online study and it is likely that increased exposure including talking about sex online will increase the vulnerability to online-facilitated CSA for LGBT young people. In a US study of cyber dating abuse (CDA), including sexual abuse, Dank (2014++) found being a victim of CDA in the total sample (n=3745) was 26.3% but was significantly higher for lesbian, gay and bisexual young people in comparison to heterosexual young people (37.2% v 25.7% p<0.01). A further US

¹¹ These included physical disabilities, global developmental delay, downs syndrome, dyslexia, learning difficulties (dyslexia), ASD, hearing-impairment.

study finds that LGB youth are significantly more likely than heterosexual boys and girls to receive unwanted and distressing sexual advances, requests for sexual favours, and sexual comments or gestures online. 42% of lesbian/queer girls, 41% of bisexual girls and 30% of gay/queer boys reported this, compared with 4% for heterosexual boys and 12% for heterosexual girls (Mitchell et al., 2014++).

Psychological Factors

Psychological characteristics may make children more vulnerable to harm. The psychological factors that are most frequently explored in relation to online-facilitated CSA are depression, sensation seeking¹² and self-efficacy. For example, YISS 2 found that children who scored higher on a scale for depression were at higher risk of unwanted exposure to sexual content online (OR 2.3) (Wolak et al., 2007++). Whilst victims of solicitation of children for sexual purposes were significantly more likely to score highly on a range of psychosocial factors as those measured by the Child Behaviour Checklist¹³ (Mitchell, Finkelhor and Ybarra, 2007a++).

Participation in risky online behaviours is associated with solicitation of children for sexual purposes in several studies (Baumgartner et al., 2010++; Hasebrink et al. 2011++; Mitchell et. al. 2007a++). These include posting or sending personal information to people only met online, adding online only contacts to address books and talking about sex

The EU Kids Online project does not operationalise a definition of CSA/CSE and instead measures harm from experiences of unwanted sexual content or receiving unwanted requests for sexual information. The authors maintain a 'vulnerability' hypothesis was confirmed by their data;

¹² Sensation seeking is defined as "the need for varied, novel and complex sensations and experiences and a willingness to take physical and social risks for the sake of such experience" (Zuckerman, 1979, p10).

¹³ The Child Behaviour Checklist is a validated measure containing empirically based syndrome scales based on factor analyses coordinated across the forms.

- Anxious/Depressed
- Withdrawn/Depressed
- Somatic Complaints
- Social Problems
- Thought Problems
- Attention Problems
- Rule-Breaking Behavior
- Aggressive Behavior (<http://www.aseba.org/schoolage.html>)

'(T)hat children with certain demographics (younger age, girls) and psychological features (high psychological difficulties, low self-efficacy and sensation seeking) have a more difficult time in coping with the risk they encounter and are more likely to experience harm' (Hasebrink et al., 2011++, p52).

High scores in sensation seeking, being older and self-efficacy were associated with encountering more sexual content online. Hence, within our definition of CSE/CSA these psychological characteristics could also be interpreted as further increasing vulnerability even though the child does not acknowledge being harmed at the time.

Palmer (2015 -) likewise finds that there are three new groups of children who can be considered more vulnerable to online grooming; children with disabilities, children with mental health problems and children testing out their sexuality. Caution should be exercised in interpreting this body of evidence, which consist of a commentary on snapshot data from September 2014, as there is little detail on methodological approach or analysis. This data includes the finding that Barnardos have supported 259 children for support with CSE with an online component; the majority of whom were female (234). Moreover, Barnardos staff also note that they are supporting new groups of children and young people, those whom have never been known to support services before (Palmer, 2015-).

Looked after children

Surprisingly there is a paucity of data on the experiences of looked after children/children in state care and online-facilitated CSA. Both studies that are included are tangential. Brown, Brady, Franklin and Sealey, (2016+) establish that living in residential care renders some children and young people more susceptible to offline CSE. Far less is known about the relationship, if any, between living in residential care and increased risk of online-facilitated child sexual abuse or exploitation. There are several reasons why young people in care might be more vulnerable; they have experienced adverse life circumstances leading to being in state care, they may be looking for someone to connect with who understands them and they are less likely to be supervised when online. One European study found that children who were currently living in residential care were less able to describe the behaviours of an individual who might pose a risk online in comparison to other distinct groups of vulnerable children such as those with disabilities and LGBT young people (Kolpakova, 2012 +). In particular, Kolpakova (2012+) noted that males might be more vulnerable as in their sample, they were more willing to meet unknown online contacts off-line.

Homeless and runaway children

In a mixed methods study of sexually exploited runaway adolescents aged between 12-17 years seen at a Child Advocacy Centre (N = 62, 55 girls and 7 boys) in the US, Edinburgh (2015++) found many of the children were advertising sexual services on websites such as Backpage. Other studies of trafficking, including child victims, similarly note the use of mobile phones and websites such as Facebook and LinkedIn to advertise sexual services (Walby et al., 2016a). This online activity clearly increases the vulnerability of a child to further sexual exploitation.

Socio-Economic Status

Relationships between socio-economic status (SES) and online-facilitated CSA and CSE have been analysed in both European and US research. Across Europe, the evidence suggests that children from higher SES groups may be more likely to experience unwanted sexual contact or exposure (Hasebrink et al., 2011++). In the US, the N-JOV study in the US found that 62% of victims of all forms of reported internet-facilitated child sexual abuse lived in households with incomes over \$20,000. A further analysis of victims where SNS were involved found they were more likely to live in suburban or urban areas with both biological parents in higher income households ($p < 0.01$) (Mitchell et al., 2010++) than those without SNS involvement. All three YISS surveys included SES measures, but the analysis indicates that SES is not significantly associated with online-facilitated CSA and CSE. The YISS note that higher income households are overrepresented in their survey sample. This overrepresentation is likely to be an artefact of device availability and access to the Internet, which is a criterion for inclusion in many of the studies under review (Hasebrink et al., 2011++; Jones et al., 2012++). As device access and use has increased across all socio-economic groups since these studies were conducted any conclusions from these findings are limited.

Relationship to perpetrator

As is the case in the context of offline CSA, victims of online-facilitated CSA identified in law enforcement cases are likely to know the perpetrator of the abuse. The N-JOV study (Mitchell et al., 2011a++) found that the perpetrator was known to the child in over half of cases, either as acquaintances (27%, including neighbours, teachers, family friends) or family members (26%). The study did not explore the difference between victims of online and offline CSA. However, this analysis was included in the N-JPV study (Wells, et al., 2012++) finding that online-facilitated 'juvenile prostitution' (CSE) cases were more likely to involve perpetrators who were family members or acquaintances (26% v 5% of non-online-facilitated cases). It is not clear from these studies whether the family member was also a member of the victim's household.

In a sample of UK, Irish and Italian adults, 15% (n=169) were solicited online by someone they did not know during their childhood (Davidson et al., 2016+). 19% (n=214) of the total sample were solicited by someone met online, and in addition to those not known, perpetrators were described as:

- a 'boyfriend/girlfriend at that time' (16% n = 183);
- a 'friend/acquaintance from school' (8% n = 93);
- a 'friend/acquaintance from somewhere else' (9% n = 104);
- 'someone else the respondents were interested in' (12% n = 140);
- someone else the respondents 'knew' (6% n = 71).

Girls were significantly less likely to know the perpetrator than boys, which may suggest that boys are more suspicious of online strangers, lending support for tailored gender sensitive e-safety initiatives.

Poly-victimisation

The majority of children will experience at least one adverse life event during their childhood. For example, in the US National Survey of Children's Exposure to Violence (NatSCEV) study, 70% of all children sampled were victims of peer and/or sibling abuse including bullying and 59% had been exposed to community violence (Mitchell et al., 2011a++). This compares with 63.2% and 66.5% respectively in the UK (Radford et al., 2011++) using similar measures. Thus, victimisation research finds that many children are likely to experience at least one form of victimisation. However, approximately 20% of children will experience multiple forms, referred to as poly-victimisation (Finkelhor, Ormrod and Turner, 2007). This term conceptualises the multiple and accumulative stressors that some children experience with evidence "that victimisations create vulnerability for other victimisations" (Finkelhor et al., 2010, p. 291). Primarily a concept used in America, several studies have considered if experience of previous victimisation, both online and offline, increases the risk of online-facilitated CSA and CSE.

Previous history of adverse childhood experiences (ACE)¹⁴ does feature in the backgrounds of children who are subject to online-facilitated CSA and CSE in the US. Wolak et al., (2007++), in an analysis of the YISS 2 data, find that 37% of their sample (n=1422) report peer or other interpersonal victimisation in the past year. For victims of unwanted exposure to sexual content online this was

¹⁴ This term originated in the Adverse Childhood Experiences Study, which has followed child maltreatment victims since 1997 (see The Adverse Childhood Experiences (ACE) Study". *cdc.gov*. Atlanta, Georgia: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Violence Prevention. May 2014).

42% compared with 31% for those with no exposure ($p < 0.5$). The relationship between previous history of physical or sexual abuse was not significant. However, the limited time frame of events in the past year is worth noting as it does not include any previous/historical episodes of abuse. Arrest data from a nationally representative longitudinal study of policing agencies does find that factors such as a history of physical or sexual abuse are significantly higher for victims of CSE ($p < 0.001$) (Mitchell et al., 2011a). Victims were significantly more likely to report other forms of abuse from the same partner including non-sexual online dating abuse, sexual coercion, psychological abuse or physical violence ($p < 0.001$). Finally, the NatSCEV study found 96% of victims of online abuse (including solicitation of children for sexual purposes) had experienced multiple forms of victimisation, as measured by the Juvenile Victimization Questionnaire, concluding that online victimisation may be part of a 'generalised vulnerability' (Mitchell et al., 2011a++, p133).

European research lends support to this theory. Wachs et al. (2016+) tested whether 'cyberbullying' made children more vulnerable to online grooming. Results revealed significant direct effects of online bullying victimisation on the likelihood of having experienced online grooming victimisation in the past ($p < .001$) and on self-esteem ($p < .001$). Poly-victimisation was also the most significant risk factor for school children in Spain (Monteil et al., 2016) and physically disabled children in Switzerland (Mueller-Johnson, 2014++).

Accumulative and situational vulnerability

The direction of the relationship between poly-victimisation and online-facilitated CSA is not clear from research; whether prior victimisation predisposes towards a vulnerability to future abuse or whether it indicates an underlying vulnerability caused by some other factor.

One of the challenges is that these factors can accumulate over a significant period of time (a childhood) but only interact in harmful ways later on. Moreover, on occasions the trigger event can appear to be relatively insignificant (such as an argument with parents) but renders the child vulnerable at that moment in time; the implication being that predicting which children may be more vulnerable to online CSA is challenging. Research based on interviews with children and young people who were subject to online-facilitated CSA illustrate the challenges well.

Quayle, et al., (2012+) interviewed 27 children subject to offline sexual abuse because of online interactions. The young people were aged between 12 -18 and 82% were female. A common narrative is of a young person who is feeling vulnerable and isolated, often with a history of abuse, who uses the internet like

many other children and young people to shape their sense of self. However, these young people also use online communication as a form of comfort, to 'self-soothe' (Quayle et al., 2012+, p37). After an online exchange, that is generally perceived positively, the young person meets the perpetrator. At this point, for nearly all, the situation moves out of their control and they are sexually abused.

A group of papers based on one study highlight the nuances and intricacies of individual cases of online-facilitated CSA (Whittle, et al., 2013 +; Whittle, et al., 2015+). Whittle, et al. (2013+) and Whittle et al., (2015 +) explore the accounts of victims (n=8) of online-facilitated CSA through individual interviews. The sample is drawn from cases known to CEOP¹⁵ and in six of the eight cases, a perpetrator had been charged and convicted. The interview data was used to hypothesise about the risk, vulnerability of the young people who became victims and to gather their views on the process and its impact on them. The research is significant in that it tracks the process of solicitation of children for sexual purposes from the perspective of the young person and explores how they made sense of it. Each young person's experience is quite different as summarised below (see Table 4). Blank spaces occur when the data could not be attributed a specific child; however, all the young people experienced online solicitation for sexual purposes.

Of significance, is that each of the girls involved perceived the perpetrator to be their "boyfriend". Such beliefs are also common in offline accounts of child sexual exploitation (Palmer and Foley, 2016). In relation to the young people's accounts, Whittle, Hamilton-Giachritsis and Beech (2014+) find that three children in the study sample (n=8) had good historical and current relations with parents but that "*this relationship was temporarily jeopardised prior to the offence (sometimes due to illness, bereavement or work)*" (Whittle et al., 2014, p1188). The hypothesis is that this situational vulnerability can lead the child to act or respond in atypical ways and thus to become vulnerable to being groomed online.

¹⁵ Child Exploitation and Online Protection Centre

Table 4: Examples of features of online-facilitated CSA from victim accounts

Gender	Age - at time of contact	Online	Offline	Perpetrator details
Female	12	Spoke first online	Met offline within days led to multiple episodes of sexual intercourse	Male, 28 years old, who lived nearby
Female	12			Male, aged 17, case treated as 'sexting'
Female	12			Male
Female	13			Male
Female	14	Sent sexual photos after a few months	Met in his home town, ran away together for a week, 1 episode of CSA	Male, 49 years old
Female	14	Spoke for several weeks online. Shared sexual photos and videos	Met and had sexual intercourse on 2 occasions	Male, aged 20
Male	13	Sent semi-naked photos		Same male in both cases but masquerading as female online. Known to both boys offline.
Male	14	Sent semi-naked photos		

(Source: Summarised from data in Whittle et al., 2013 and Whittle et al., 2015)

In Shannon's (2008+) study this situational vulnerability does not emerge until the young person find themselves in an offline situation from which it was impossible to escape. Based on analysis of Swedish police reports of sexual offences committed against children under 18 where they met the perpetrator online (n=315), Shannon provides rich detail of how this vulnerability emerges off-line;

"these children had most commonly sneaked out of the house, run away, or lied to their parents about where they were going, and they had often agreed to meet the perpetrator in another town, which they were not familiar with, and where there was nobody they could turn to for help" (Shannon, 2008+, p176).

Of note in the study is the different responses of those who arrange to meet a perpetrator offline; some walked away at the last minute without contact, others made contact. Of those who met a perpetrator, most (no exact figures given)

were sexually assaulted at that first meeting usually whilst they were under the influence of alcohol given to them by the perpetrator. Few studies have explored in detail what makes a young person change their mind and walk away from a potentially dangerous situation when they agree to meet someone offline.

Internet Use

Certain online behaviours are associated with higher rates of online-facilitated CSA and CSE. However, many of these behaviours occur within a broader context of children and young people's positive and healthy internet use (Hasebrink et al., 2011++; Baumgartner et al., 2010++). Several studies highlight the role of the internet as a legitimate or important space to develop new friendships and for some, romantic relationships for young people (Carrick-Davies, 2011+; Kolpakova, 2012 +; Mishna et al., 2009+; Stanley, 2016+; Baumgartner et al., 2010). Adopting a participatory approach, Carrick-Davies (2011+) explores risks that vulnerable young people, excluded from schools and being taught in Pupil Referral Units (PRUs), encounter online and through their mobile phones. Mixed methods, including an online survey tool with PRU staff and four semi-structured focus groups with young people aged between 15-17, explored general online experiences. The children did not mention online grooming in their discussions although they did refer to concerns about harassment. The frequency and intensity of online use by these young people is particularly striking: *"mobile communication is now the single most important activity many vulnerable Y(oung) P(eople) rely on to give them identity, connection and a sense of community"* (Carrick-Davies, 2011+, p 2).

One question is whether different ways of using the internet may make some children more vulnerable to online-facilitated CSA and CSE. A number of factors are relevant; device type used to go online, location where device is used and then the different platforms used by children and young people. Perpetrators in 28% cases (n=1,631) asked young people to switch to different platforms to interact further (Wolak and Finkelhor, 2016).

Time online

OfCom (2015) report that in the UK children 8-11 spend an average of 11.1 hours per week online and that this increases to 18.9 hours for 12-15s. Time spent online and the number of activities children participate in online may be an indicator of vulnerability. Victims of solicitation for sexual purposes are likely to spend more than 2 hours per day on the Internet than other children (13% v 45%) (Mitchell et al., 2013++). Hasebrink et al. (2011++) put forward a 'usage hypothesis', which was confirmed in their data;

'(T)hat those who use the internet more and in more ways as measured by places used, number of activities online, minutes of use and risky online activities (such as adding people to an address book who had not been met face-to-face) would also experience more sexual content online' (Hasebrink et al., 2011, p48).

This content may be more or less harmful but includes content that fits within our definition of online-facilitated CSA and CSE. Similar findings regarding higher than average internet usage and online-facilitated CSA and CSE vulnerability are reported in single country studies including Denmark (Helweg-Larsen et al., 2012++), the US (Mitchell et al., 2007b++), Switzerland (disabled children only) (Mueller-Johnson et al., 2014++) and Taiwan (Chang et al., 2016++).

None of the retrieved studies examined interaction effects between time spent online and other vulnerabilities.

Platform type

Both chat room and SNS use are significantly higher for solicited young people ($p < .001$). However, cases initiated in chat rooms have decreased between 2000 and 2010 (64% v 16%) while SNS cases have increased significantly (0% to 58%, $p < .001$). This reflects a broader change in internet activity by children (Mitchell et al. 2013++). YISS found no significant difference in internet use for children who had unwanted exposure to sexual content across several measures, with the exception of use of file sharing programs to download images from the internet (OR 1.9) (Wolak et al. 2007++). No further information on these programs is provided.

Some online platforms have also been associated with vulnerability. The YISS study finds that children who frequently use chat rooms and SNS may be more vulnerable to online-facilitated CSA and /CSE than those who do not (Mitchell et al., 2007a++). The same study finds that email, instant messaging and blogging are also significantly associated with higher risk. Villacampa and Gomez (2017+) distinguish between vulnerability to being groomed by a peer, which is significantly associated with SNS use rather than chat room use (55% v 27%) and grooming by an adult. An important gap in research is the increasing use of applications (apps) to access online content and activities. These are potentially a high-risk platform for online-facilitated CSA, owing to geolocation features, ease of access and mobile use, yet are under-explored in any large-scale survey in relation to children and young people. A few studies are beginning to emerge with college students that reveal the popularity of dating apps and the

heightened risk of sexual abuse in encounters first established online (Choi, Ha Wong and Tak Fong, 2016).

Staksrud et al., (2013++) propose a complex relationship between internet use and harm that may be mediated by digital skills and the design or affordances (such as privacy settings) of different platforms. Logistic regression analysis of the EU Kids Online dataset finds that children who use SNS encounter more sexual content risks and are also more likely to meet up with someone they first met online. Those with higher levels of digital competence are also more likely to experience sexual content risks. This may change with rapidly changing levels of digital skill development since this data was collected.

Where the sexual content, request or meeting first occurs seems to influence the degree of harm felt by children. A child is significantly more likely to be upset meeting a new contact offline if the first contact was by email and more likely to be upset receiving requests for sexual information initiated in a gaming website ($p < .05$). No explanation is offered for this (Staksrud et al., 2013++) but it may be that at the time of data collection contact through these activities was made by more aggressive perpetrators (that adults were more likely to use email, for example) or alternatively, that children did not expect sexual solicitation in these activities.

61% of children in the EU Kids Online data set participated in a SNS. It is within this context that some children freely share personal information, including to new and unknown contacts and this may make them more vulnerable. That is, the more children engage in risky behaviour online, the more they may encounter online-facilitated CSA and CSE. Such risky behaviour includes talking about sex online, posting or sending personal information including photos and videos and adding people they first met online to their friends list and all are significantly related to online-facilitated CSA and CSE ($p < .001$) (Mitchell et al., 2007++). The EU Kids Online study measures three elements of risky behaviour; the display of address and phone number on SNS profiles, having more than 100 contacts and making an SNS profile public. Having a public profile was only found to increase the probability of meeting new online contacts offline, whereas the other behaviours (i.e. having more than 100 contacts and displaying contact details on SNS profiles) increases the probability of seeing and receiving sexual content and meeting someone offline (all $p < .05$) (Staksrud et al., 2013++). Since this study was completed the average number of friends in SNS has grown; for example, in the US the average number of friends for children aged 12-17 on Facebook in 2014 was 521 (Statista, 2017). This therefore weakens claims of contacts being a risk factor and future analysis may be improved by a focus on the nature and type of connections.

Using the internet to access adult pornography

Children are exposed to adult pornography online. This includes children who actively seek adult pornographic material and those who are unintentionally exposed (through pop ups or friends sending links to sites). Martellozzo, Monaghan, Adler...Horvath (2016+), in their recent study of experiences of children in the UK, finds that children were as likely to find pornography by accident as to find it deliberately. It is predominantly boys who actively seek adult pornography online (Martellozzo et al., 2016+) aged 14-16 (Smahel and Wright 2014 ++) or 14-17 (Stevens, 2012 ++). This finding is consistent across a 5-country European country study (Stanley et al., 2016+). However, the rates of exposure to online adult pornography vary between boys in each country and the lowest rate was found in England at 39% (Stanley, et al., 2016+). These findings must be set within a developmental context; the internet has not caused them to seek out adult pornography but provides a different and easier medium to do so. Of interest to this REA is whether the viewing of adult pornography affects or influences children and young people to sexually coerce other children and young people? Stanley et al., find that "regular viewing of online pornography was associated with a significantly increased probability of having sent sexual images/ messages" (Stanley et al., 2016, p.4+) although there is no explanation given for this finding. As the authors acknowledge, a definition of adult pornography was not offered to the research participants so the data could include children seeing either adult pornography or child sexual abuse images.

Meeting someone offline

According to Hasebrink et al. (2009+), meeting a contact made online in the offline world is the least common but arguably most dangerous risk. Data from the EU Kids Online project reveals considerable consistency in the figures across Europe; around 9% (1 in 11) online teens went to such meetings, rising to 1 in 5 in Poland, Sweden and the Czech Republic. Children most likely to meet an online contact offline scored higher on self-efficacy and sensation seeking measures, participated in riskier online and offline behaviours, and had parents who placed fewer restrictions on their internet activities. Rates were similar for boys (9%) and girls (8%) but differed significantly by age (2% of 9-10 year olds v 16% of 15-16 year olds) (Staksrud et al., 2013++). 11% of those who met such a contact face to face were upset by it, two thirds of these contacts were with a child of their own age, and 'a few said something sexual happened' (Livingstone et al., 2011a ++, p27).

Quayle and Newman (2016++) find that a third of all requests from perpetrators to victims were to meet offline but that only 7.83% result in contact. This finding is based on analysis of public reports about suspected grooming and trafficking

to a Canadian helpline. Contact does not necessarily lead to sexual assault but it is at this point children and young people are at their most vulnerable. Age and identity deception is not always a feature of these relationships, which children believe to be genuine (Whittle et al., 2015+). Even though children are often aware of the potential risk of meeting a stranger, the grooming process can be so successful that it reduces this sense of risk: *'he was such a nice person that they did not believe it could be dangerous to meet him'* (Shannon 2008+, p175).

Relationship between offline and online experience

A number of behaviours in young people are considered to indicate heightened risk of harm to child development such as early use of alcohol and drugs, delinquency, non-school attendance and sexual intercourse (with multiple partners). The evidence on the relationship between offline behaviours and being a victim of online grooming is unclear and never presented as causal although some correlations can be identified. Wolak et al. (2007++) found significant associations between rule breaking behaviour (as measured by the Child Behaviour Checklist) and wanted exposure to sexual content online ($p < 0.5$).

Risk migration is the term coined by Livingstone et al. (2011a++) to describe the interrelationship between on and offline risks. They note that of children and young people who use the internet (n 25,142), those who saw sexual content online (14%) or received sexual messages (15%) were more likely to be exposed to a range of offline risk behaviours. These included being in trouble with teachers or the police, being drunk and having sexual intercourse.

Theoretical approaches

The majority of theoretical approaches were inductive and very few papers attempt to explain vulnerability deductively by testing out a specific theory. The most common approach is to conduct multi-variate and logistic regression or factor analyses on cross-sectional or longitudinal survey data to explore a range of characteristics associated with the likelihood of risk of online-facilitated CSA. Whilst this is helpful, it does not explain why these factors may emerge as increasing the probability of online-facilitated CSA and CSE, leaving researchers to hypothesise possible causes. Inductive research is also limited by the variables selected for measurement; vulnerability is thus arrived at retrospectively. The deductive method begins with a theory and tests it out.

One of the few deductive examples in our data set was Holt et al. (2016++), who offer a variant of routine activity theory by combining routine activity theory with Gottfried and Herschi's (1990) theory of crime. In this framework, firstly, 'a motivated offender, suitable target, and lack of capable guardians must converge

in time and space for crime to occur’ and secondly, it is theorised that ‘individuals with low self-control make impulsive decisions that increase exposure to motivated offenders, decrease the utility of guardians, and generally increase their vulnerability of victimization’ (Holt et al., 2016++, p 109-110). The theory was tested on a sample of school children in Kentucky (n=439) and found some support. Increased exposure to opportunistic perpetrators and low self-control (using a validated measure) increased being asked to talk about sex online. The presence of peers who tried to get the child to talk about sex was a significant predictor for victimisation. Gender differences remained significant throughout and separate models were therefore developed for boys and girls. Girls were more likely to be victimised if they had a SNS profile and peers who viewed sexual materials online. Boys were more likely to be victimised if they viewed sexual materials and posted pictures of themselves online. The significance of guardian or computer mediation disappeared at this point although had been shown to reduce risk marginally in the initial analysis. This theory begins to identify how girls and boys appear to be differently vulnerable as it suggests that girls are more likely be victimised in the context of peer relationships, whereas boys may be more vulnerable to opportunistic perpetrators who observe sexual behaviour and content generated by the victim.

Summary of the evidence on characteristics and vulnerabilities

Question	Findings
What do we know and can be confident about?	<ul style="list-style-type: none"> ● Girls are more likely to be victims of reported online-facilitated CSA ● Although younger children (9-11) are less likely to experience online-facilitated CSA and CSE it might be of a more serious nature and more upsetting when they do ● Approximately one quarter of reported cases involve a family member as the victim’s perpetrator ● Offline victimisation from a range of adverse child experiences makes children more vulnerable to online victimisation ● Certain characteristics make children more vulnerable to online-facilitated CSA; having psychological difficulties ● Above average internet use increases vulnerability when interacting with other characteristics
What can we be less confident about?	<ul style="list-style-type: none"> ● Boys and transgender children are also victims and may be over represented for

	<p>specific types of online-facilitated CSA and CSE</p> <ul style="list-style-type: none"> ● Vulnerability is diverse; boys and girls are vulnerable in different ways, as are disabled children and children living in varying cultural contexts ● Between a third and a half of victims may already know the perpetrator ● Some platforms may enhance vulnerability but these change over time as children migrate to new platforms
<p>What don't we know?</p>	<ul style="list-style-type: none"> ● How ethnicity, culture or global region of residence may be associated with victimisation particularly for transnational online-facilitated CSA and CSE ● Differences in victim characteristics between peer and adult perpetrated online-facilitated CSA and CSE ● How victim characteristics and vulnerabilities have changed in a rapidly changing online environment ● How different sources of vulnerability interact ● How to identify when a child/young person becomes 'situationally' vulnerable ● Which children and what contexts increase vulnerability to transnational online-facilitated CSA (where either the victim or the perpetrator is in the UK)

Section 3: Resilience

Resilience in its conventional meaning is the capacity to return to a steady state after experiencing a negative event (Luthar, Cicchetti and Becker, 2000). In relation to child abuse, it does not mean that a child is not harmed but rather, having experienced harm, it does not have continuing adverse impact. It differs from primary prevention, which is directed at stopping an incident of online-facilitated CSA from occurring in the first place. In the included research, resilience to harm from online-facilitated CSA was most frequently analysed in terms of 'not being bothered' or 'distressed' by potentially harmful sexual content or online solicitation for sexual purposes and by mediating factors such as parenting quality, parent mediation of online activity and levels of social support.

Resilience develops in response to exposure to online risk

Many children show resilience to a broad spectrum of online risk, of which exposure to sexual content or sexual solicitation is a small part. These broader risks include cyberbullying, online harassment, and what Wisineiski et al. (2016+) call 'information sharing breaches', when a child shares information about another without consent. Children and young people employ a range of strategies to deal with different threats and risks, enabling them to develop a portfolio of online skills. In Wisineiski et al. (2016+) American study focusing on experiences and responses to different forms of online risk, children adopted a range of active strategies including 'laughing' about unwanted content and simply deleting it. Sixty-eight children aged 13-17 recorded their weekly online experiences for eight weeks. The diary was pre-coded so that participants had to select if their risk experience(s) online were about information sharing problems, online harassment, sexual solicitation and exposure to sexual content. The researchers analysed the results looking for risk levels, how children managed the risks they experienced and what helped them cope. Only three of the sample sent sexual messages. However, 28% noted at least one sexual solicitation in the period (it is unclear if this was from a peer or an adult). Two girls (14 and 15 years) were asked for offline meetings, one of whom met the individual, was given alcohol and then sexually assaulted (Wisineiski et al., 2016+).

Developing digital skills and literacy enables most children to manage a degree of risk online (Livingstone and Görzig, 2014++; Ringrose et al., 2012 +; Wisniewski, et al., 2016 +). This includes the risk of being exposed to unwanted sexual content, being approached by a stranger online to become 'friends', requests to send sexual images and requests to meet offline. Children and young people cope with these risks in a number of ways. A distinction is made between

active and passive coping strategies. Active coping strategies involve blocking and deleting contacts that children no longer feel comfortable with and telling someone about their experience. Passive coping strategies include stopping online use or avoidance, a strategy adopted by 18% - 25% of children in the EU Kids Online study (D'Haenens, Vandonink and Donoso, 2013++). The strategy adopted may depend on the type of risk experienced: the YISS 3 study found young people who reported sexual solicitation were more likely to use active coping strategies whilst those exposed to sexual material used passive strategies (Priebe, Mitchell and Finkelhor, 2013++). They also found that young people who described themselves as very upset or embarrassed were more likely to disclose serious sexual solicitation to their parents. Other than being upset, being female and living with both biological parents, few other characteristics were found to be predictive of disclosure. However, it is not clear how effective telling others was in reducing the harm and building resilience.

Certain psychological characteristics are associated in research with the likelihood of successfully negotiating online risks, including that of a sexual nature. Children, but especially girls are noted to develop resourceful ways of managing the continuous sexualised pressure both on and off-line such as; lying about having a boy/girlfriend, delaying and deferring requests, and being assertive (Ringrose et al., 2012+). These methods resonate with the concept of self-efficacy (a belief in one's ability to successfully accomplish a task or goal), which was identified by Hasebrink et al. (2011++) as promoting resilience. Self-efficacy was one of the psychological variables explored by Hasebrink et al. (2011++) using a four item scale adapted from Schwazer and Jerusalem (1995). They find that there is no gender difference in relation to self-efficacy and children who meet an online contact offline. The potential for harm in such situations is more likely to result from being younger, having lower levels of self-efficacy and if the child already has 'psychological difficulties' (measured by Goodman's Strength and Difficulties Questionnaire).

Another psychological characteristic associated with high internet use and positive exposure to risk is 'sensation seeking' behaviours. Sensation seeking behaviour is characterised by children and young people who seek out new experiences, take risks [on and offline] and are disinhibited (Livingstone and Görzig, 2014++). An analysis of the EU Kids online data tested whether sensation seeking provided resilience to harm from receiving sexual messages on the basis that sensation seekers may find these experiences 'more pleasurable' (Livingstone and Görzig, 2014++). Some support for sensation seeking as a protective factor was found, but this reduced when gender (being female), age (being younger) and psychological difficulties were included.

Does all high-risk content cause harm?

Resilience strategies also vary depending on the emotional response to the risk. EU Kids online have adopted a model distinguishing between risk of seeing or receiving sexual and unwanted content online versus risk of being harmed by it. Children who are younger and female are more likely to experience distress whereas older children tend to show more resilience (Hasebrink et al., 2011).

1. Not bothered

In the EU Kids Online data, the more likely a child was to see sexual images the less likely they were to be bothered by it (Lobe, Livingstone, Ólafsson and Vodeb, 2012++). This may be because some children seek out explicit sexual images as a way of experimenting and learning about sex. Other studies reinforce the hypothesis that children are not always bothered by exposure to sexual content online (Smahel and Wright, 2014++; Wisniewski et al., 2016+).

2. Actively seeking out new 'risky experiences'.

Studies by Quayle et al. 2012+, Wisniewski et al. 2016+ and Whittle et al. 2013+ all find that some of their sample seek sexual content or contact online. For some young people this appears to be no more than a curiosity about sex (Quayle et al., 2012+). Significantly, other young people can be distinguished by the fact they actively seek high risk experiences online (Wisniewski, 2016+). In the context of this study, high-risk behaviours include sharing sexual images online and engaging in sexual contact off line. However, other studies suggest a link between high-risk off line behaviours and high-risk online behaviours. Livingstone et al. 2011a++ define this process as 'risk migration'. The direction of this migration is not clear.

3. Offline contact within the context of a perceived 'relationship'

Within the research, another profile emerged of young people who claim to share sexualised images and even meet someone offline out of choice (it is often unclear if this is a peer or an adult). There are multiple aspects to consider in balancing a child's right to 'agency' versus their right to be protected. Quayle et al. (2012+) find that a few of their sample had chosen to meet offline to have a sexual encounter; more often this was an actual exchange, with a young person asking for money in return for a sexual act. Far more of the young people in their study shared images and met offline in the context of what they understood to be a developing romantic relationship.

Prevention messages may promote resilience

The three waves of the YISS study show a significant decline in solicitation of children for sexual purposes over the last decade and an increase in children disclosing solicitation incidents to friends. This leads the researchers to

speculate that prevention messages may have had an impact; in 2005, 38% of victims had received preventative education from schools and 27% from law enforcement whilst in 2010 this had risen to 59% and 49% respectively. However, there is little evidence for this claim. A systematic review of programmes aimed at preventing cyber abuse found only three interventions meeting robust evaluation criteria (i.e. using pre-/post-test measures and control group participants who did not receive the prevention campaigns) since 2000 (Mishna, et al., 2011++). Two of these were aimed at preventing risk online including sexual victimisation risks. Both were associated with an improvement in internet safety knowledge but had no effect on risky behaviour (Mishna et al., 2011++).

Digital skills

Staksrud et al., (2013++) in an additional analysis of EU Kids Online, explore whether digital competence affords resilience from harm. They find a complex relationship; children with higher levels of digital skills encounter more risks online but, contrary to their hypothesis, this does not reduce the amount of harm they experience. However, harm appears to be related to platform; those who receive sexual messages from a gaming platform are more likely to be upset by it, as are children who meet online contacts through email and then go on to meet them offline. The authors propose that advising SNS users to ensure they 'really know' their contacts, keep their profile private and not display personal information would reduce risk.

Technology driven resilience

Research by Rashid et al. (2013) resulted in the development of software to identify deception by adults grooming children online. The program uses Natural Language Processing to detect age and gender in computer mediated communications. The tool was successfully adopted by law enforcement and used to aid investigations of possible grooming offences. Applications are beginning to appear in mainstream use. For example, "tootoot"¹⁶ is a reporting platform designed for children to use in schools that encourages them to message any worries about bullying and unwanted behaviours online. These technology driven approaches may help to make children more resilient by giving children tools that enable them to protect themselves from harm or to report to others more easily. However, as with most prevention initiatives, they have yet to be rigorously evaluated.

¹⁶ <https://tootoot.co.uk/>

Gaps in the evidence: What cannot be answered or addressed

Several validated scales are used to measure resilience, such as the Child and Youth Resilience Measure (Liebenberg, Ungar, and Vijver, 2012). However, we found no evidence of the application of such scales in the research reviewed here. Conclusions about resilience are therefore necessarily tentative, arrived at from a synthesis of the findings from the included studies. Future research might consider application of existing scales to explore resilience more comprehensively and enable analysis of a wider range of factors that might mediate the risk of online-facilitated CSA. However, current scales were developed to measure resilience in the offline environment and further work is required to establish their relevance and validity in testing resilience in online activities and contexts.

Summary of evidence on resilience to online-facilitated CSA

Question	Findings
<p>What do we know and can be confident about?</p>	<ul style="list-style-type: none"> ● Children develop their own strategies to cope with online-facilitated CSA. If they succeed this is likely to be related to psychological characteristics such as sensation seeking and self-efficacy, although these are not guaranteed to offer resilience ● The more upset or distressed a child is by online-facilitated CSA the more likely they are to tell others; usually friends or parents ● Children are unlikely to tell others if they are embarrassed or afraid
<p>What can we be less confident about?</p>	<ul style="list-style-type: none"> ● Prevention programmes may help to improve Internet safety knowledge but may not reduce risky behaviour ● Technology driven approaches may increase resilience in online environments
<p>What don't we know?</p>	<ul style="list-style-type: none"> ● What works in building resilience, for whom, when and how?

Section 4: Self-generated sexual content/material involving children

This section addresses the relationship between self-generated sexual material and online-facilitated child sexual abuse and exploitation. Self-generated sexual material potentially comprises a wide range of media including:

- Still photographs, including those that are time limited and disappear from the receiver very quickly (i.e. 30 seconds);
- Videos, taken on the phone or via webcam;
- Blogs;
- Vlogs (video blogs);
- Avatars;
- Text messages;
- Emails.

Self-generated sexual content/material involving children can include posing partially undressed, naked, or exposing genitals, masturbation and live webcam recordings of sexual intercourse, or other sexual acts (Jonsson, et al., 2014++). According to Smahel and Wright (2014 ++) such sexual communication is not commonly perceived as problematic by young people; in fact it may be done intentionally for amusement. However, Ringrose et al. (2012+) and Stanley et al. (2016+) both highlight the gender norms that make girls and young women feel pressured to comply with requests for sexual talk and images both on and offline as part of their everyday negotiations with friends and peers.

Such activities are also covered by the term 'sexting', of which there is no single agreed definition. There are several components to the concept of sexting. First, it involves the intentional sharing of sexualised images of the self with another or receiving such electronic communication (Klettke et al., 2014++). The phenomena occurs between peers, irrespective of whether they have any form of intimate relationship. Some authors limit sexting to just the sharing of images or videos whilst others include text messages of a sexualised nature (Klettke et al., 2014++). 'Sexualised' is not always clearly defined, with the IWF (2015++) stating that it must include nude or semi-nude images or 'erotic' communication. This communication can be limited to just cellular phone use (Klettke et al., 2014++) or via the Internet (Kopecký, Hejsek, Kusá...and Marešová, 2015-) and SNS. Walker, Sanci and Temple-Smith (2013+) note that sexting is not a term used by young people and that there is no single word that captures a growing phenomenon. Moreover, the idea of 'voluntary sexual exposure' (Jonsson et al., 2014++) is complicated by the age of the child and their developmental level; a child may choose to share an image of themselves without realising what the

online consequences of this might be. Finally sexting is not gender neutral; according to several studies girls face considerable pressure to share sexual images (Cooper, et al., 2016+; Ringrose et al., 2012+; Walker et al., 2013 -; Wilkinson , Whitfield, Hannigan...Hayter, 2016 +).

Several literature reviews explore the phenomena of 'sexting' (Cooper, et al., 2016+: Wilkinson et al., 2016+). A systematic review of empirical and non-empirical studies into young people and 'sexting' found 88 studies from 2009 to 2014. The search criteria extend beyond a focus on under 18's to include up to 25's. In relation to the focus of REA, they find that sexting can move from consensual to non-consensual amongst peers and that some 'vulnerable'¹⁷ children "may unwillingly become the victims of unwanted sexual solicitations or exploitation" (Cooper et al., 2016+, p 712). As this research includes 'young adults', findings need to be considered with caution, although the authors' suggestion that sexting should be understood within adolescent social and digital development resonates across the age groups. Wilkinson et al. (2016+) conducted a meta-ethnographic synthesis on five research papers on sexting, with a view to informing health care practitioners about the phenomena. There is little in their analysis that directly addresses solicitation of children for sexual purposes although they do establish 'costs and benefits' of sexting as one of their core four themes.

Prevalence

Sexting behaviours appear to be on the increase amongst peers. Random probability samples from the US between 2009-2012 give a mean prevalence rate of receiving sexually suggestive texts of 15.64% (Klettke et al., 2014++). This is similar to the rate found in the EU Kids Online study during the same period (2009-10) for receiving a sexual message¹⁸ (15% of 9-16 year olds). It is not clear if these sexual messages are from peers or adults (Hasebrink et al., 2011++).

The Safeguarding Teenage Intimate Relationships (STIR) project found just under half of a pan European sample (n= 3277) of 14-17 year olds in a boyfriend or girlfriend relationship sent and received sexts (Stanley et al., 2016+), illustrating that sexting is a normalised and reciprocal activity within some peer relationships. As a multi country study, there were national differences so the English sample (n=401 girls and 323 boys) reported the highest rates (44% of girls and 32% of boys sent sexts and 49% of girls and 47% of boys received sexts). Approximately three quarters of those sending also received sexts,

¹⁷ Understood in this study as having a history of child abuse, depression, social isolation or lack of family and community/peer support

¹⁸ In this study sexting is limited to the sending of sexual messages and does not include images

confirming that sexting is often a mutual peer activity. Higher rates found in the STIR project suggest that the sending and receiving of sexual messages and images may be increasing, although their sample only included teenagers in dating relationships. As part of a study into young people's use of pornography, Martollez et al. (2017) asked their sample why they take and share nude or semi-nude photos of themselves; 69% wanted to take such photos and 20% did not. Again, a gender difference is apparent with girls sharing images because they have been asked to whereas boys choose to share their images.

Request for images from adults

Despite the growing body of research on sexting very little makes an explicit link between sexting and online-facilitated CSA. This distinction is complicated by definitions of choice and coercion as well as a lack of clarity in some studies as to whether they are referring to peer exchange or the sharing of sexualised images by a child with an adult. In two of the included studies, children and young people reported that they were asked to produce and share sexual images, usually in response to a perpetrator's request (Leander et al., 2008 ++; Quayle and Newman, 2016++). Leander's (2008++) detailed analysis of police interviews and records of chat logs between one perpetrator and multiple female victims (n=68), aged between 11-19 at time of contact, demonstrate a graduated response. This research analyses a high profile single case in Sweden, in which a male perpetrator groomed girls online masquerading as a female recruiter for a modelling agency. Although the study focuses on the discrepancies in victim accounts (despite online evidence confirming contact/ self-generated material being shared), the relevant data for this REA concerns the range and frequency of the behaviours of the young people involved, including:

- The majority of victims discussed sexual preferences (84%);
- The possibility of meeting up (65%);
- Sent nude photos (40%);
- Participated in websex (28%);
- Took clothes off in front of a live webcam (19%).

There is also a discrepancy between what a perpetrator requests and what sexualised behaviours the child or young person is prepared to engage in. Quayle and Newman's (2016++) study of public reports to an online site, found that 93.37% of perpetrators (both young people and adults) requested images from a child/young person. A third of the sample, received a request to meet offline although actual contact was recorded in 7.38% (n=13).

For some children, image sharing was understood to be part of a developing romantic relationship (Whittle et al., 2015 +). In contrast, others have told

researchers that they experienced image sharing as threatening and that they felt under pressure to comply with requests to share images (Quayle and Newman, 2016 ++; Stanley et al., 2016+). In a sample of 7th (age 12) to 12th (age 17) grade school students Zweig et al. (2013++) found that females were twice as likely as males to experience what the authors term “online sexual dating abuse” (i.e. peer-on-peer online-facilitated CSA in the context of a relationship) (15% v 7%).

Research indicates that the production of self-generated sexual images can also be part of an exchange/ transaction. Nine children were offered money for sexualised images or offline sex in Quayle and Newman’s (2016++) study; in one of these cases it was the child, aged 13 who was offering sexual acts in return for money. Wells et al. (2012++) note in their US study that in their sample (n=14) it was family members and adults in a child’s life that were making such requests. These authors also note that another manifestation of this ‘exchange’ includes, in one case, siblings who advertised their younger sibling for child sexual exploitation (Wells et al., 2012). In instances of CSE, children may provide sexual images to secure off-line meetings for financial gain, as noted by Quayle et al., 2012+; Quayle and Newman 2016++). Despite the apparent exercise of agency in such situations, these children remain vulnerable to sexual abuse and violence.

Sexting and sexual extortion

Even where sexting is consensual, it may have negative consequences that are not anticipated and may then become non-consensual. For some children and young people the consequences of images generated within an intimate relationship being shared is of great concern. Images can be saved by the recipient and used to humiliate and shame the sender as a form of revenge and to gain peer approval and status (Cooper et al., 2016+). Walker et al. (2013) note images being posted on SNS such as *Rate my Girlfriend*. Klettke (2014++) reported one study (the AP-MTV survey, 2009) that found 17% of those who received sexts passed them on to someone else and 14% of those who had sent a sext suspected it would be shared without their permission. In the STIR project 9-42% of girls and 9-13% of boys reported their partners had shared their self-generated images; the range represents the differing experiences of young people across four of the five countries in the study. Whilst it is unclear from the data whether these images had been shared with consent or not, the likelihood is the latter given that in England 97% of girls report a negative impact (impact data for boys not given) (Barter et al., 2015+). This study and many others report that there can also be considerable coercion and sexual abuse within peer relationships (Ringrose, et al., 2012+; Stanley et al., 2016+; Zweig et al. 2013++).

The evidence to support the hypothesis that children and young people who have shared an image feel pressured to share more is mixed. Whilst there is evidence that this occurs within peer relationships (Ringrose et al., 2012+; Walker et al., 2013+; Wilkinson et al., 2016+) there is limited data on unknown individuals making such requests of children and young people. Kopecký et al. (2015-) suggest that this is a strategy used by adult online groomers. Images are initially acquired and shared consensually and then the adult goes on to demand more explicit images under threat of humiliation if the child does not comply. Quayle and Newman (2016++) note a range of threats to pressurise children into complying with their demands in nearly 25% of their sample; threats included image sharing, hacking child’s computer or threatening suicide. Overall, this is an evidence gap.

Sexting and Online-facilitated Child Sexual Abuse

There is limited evidence in the studies under review to indicate a causal link between sending and receiving sexual messages and online-facilitated CSA. With the exception of a few small scale qualitative studies, no research in our sample clarifies the relationship between receiving self-generated sexual content, or sexually suggestive messages and being coerced into actually doing something following the requests, either online or offline. The STIR project identifies associations between sending sexts and experiencing interpersonal violence and abuse (including sexual abuse) but details of the association between sexting and sexual violence or exploitation specifically are not given (Barter et al., 2015+).

Summary of evidence on sending and receiving self-generated sexual images and messages (sexting)

Question	Findings
<p>What do we know and can be confident about?</p>	<ul style="list-style-type: none"> ● Sexting between peers is experienced by between 15-48% of children in the UK ● Self-generated sexual content/material involving children is more likely to be positively received, tolerated or deleted by boys ● Negative impacts are more likely to be experienced by girls ● Online-facilitated child sexual abuse is continued through the extraction of self-generated images and videos from their original source

<p>What can we be less confident about?</p>	<ul style="list-style-type: none"> ● Between 17-48% of self-generated material will be shared with a third party ● A significant proportion of images and videos hosted on websites and in online peer to peer networks is self-generated and migrated from source
<p>What don't we know?</p>	<ul style="list-style-type: none"> ● The extent to which sexting and self-generated sexual content lead to offline child sexual abuse ● The characteristics and vulnerabilities of children who are the subject of self-generated sexual content/material involving children that becomes abusive ● The characteristics and vulnerabilities of children who are the subject of self-generated sexual content/material involving children that leads to sexual exploitation and sexual extortion ● Why boys appear to be more resilient to negative consequences ● How much apparently self-generated material is truly self-generated and not the result of grooming or coercion

Section 5 Typologies

Typologies can help to identify differences between children that do not rest on single characteristics, enabling more tailored, sensitive and specific interventions. Single characteristics that are associated with online-facilitated CSA victimisation are inevitably general (age, gender, SES, ethnicity and so forth). Identifying which child may be vulnerable and under what circumstances is important. As noted in Section 3 most studies are inductive. The few studies that offer typologies of victims refer to these as profiles. They analyse data to identify latent factors that provide an insight into different behaviours that might heighten risk of online-facilitated CSA. These find distinct clusters around internet use and behaviour patterns as described in Section 2 that could aid the development of more targeted prevention strategies.

Risk Taking Profiles

Victim profiles are presented by Davidson et al. (2016+, n=1166) through a cluster analysis of all the childhood characteristics and childhood online behaviours of young adults in their sample. Patterns of internet use, gender differences, offline and online risky behaviours and experience of sexual solicitation combine so that all respondents were found to belong to one of four distinct types. They were:

- *The adapted adolescent* (46%). Few with this profile reported online requests for sexual information. They are not aggressive to others and although they have a slightly higher propensity to share videos online, these are not identified as having sexual content and are more likely to be linked to social media activity.
- *Inquisitive non-sexual* (26%). Have higher risk taking online, lower offline and most likely to be male. Online risk taking includes visiting adult pornographic sites, downloading illegal material (e.g. unlicensed music videos) and sharing information with strangers. They are least likely to engage in sexting or to receive sexual solicitations.
- *The risk-taking aggressive adolescent* (8%). Most likely to take risks on and offline, to be harassed and to harass others, to receive sexual solicitations and send sexts. Offline risks included truancy and school exclusion, drug and alcohol use, problems with authority and the highest level of on/offline aggression to others.
- *Inquisitive sexual* (20%). Most likely to be female. Watched less adult pornography than the inquisitive non-sexual but were more likely to send sexts and receive sexual solicitations. They were also highly likely to meet up to engage in sexual activity with peers.

Use and Risk Profiles

Children use the internet for many different reasons but they do not all use it in the same way. The EU Kids Online study examined how children across 25 European countries, including the UK, used the internet (time spent, activities and risky behaviours online) and their experiences of online risks (whether they had been exposed to or received requests for sexual content and how upset they were by it). Six different clusters emerged that reveal how children's use can be profiled according to what they do online (school work, gaming, social networking, blogging and so forth) and how they do it (frequency, alone or in groups). These clusters indicate how some children take risks (as described in Section 2) but risky behaviours do not always result in harm. As noted earlier, harm was measured through a question asking whether the child had been 'bothered', felt 'uncomfortable or upset' at seeing sexual content or receiving requests for sexual information.

- *'Low use/learning oriented'* – younger, limited online use mainly for schoolwork or watching videos, the news or reading. Indicators of risk are low but highest likelihood of harm for sexual content and meeting offline.
- *'Low use/social networking site oriented'* – similar to 'low use/learning oriented' but less likely to use the internet for schoolwork and more likely to visit SNS. Far more likely to meet new people but less likely to be upset by this.
- *'Moderate use'* – older than low use clusters (+1.5 years), likely to participate in more internet activities and spend more time online. All risk indicators are higher than low use clusters.
- *'Diverse and risky opportunities'* – average age 13.4 years with the largest number of risky activities and range of activities online, including the more creative, less popular activities, such as blogging and vlogging. This group have the highest level of risk experiences and the lowest likelihood of finding them harmful.
- *'High use/entertainment oriented'* – average age 14 and more likely to be male. This group are online for the longest but do less; watching videos and playing games alone are the main activities with a high likelihood of risk experiences.
- *'Focused social web use'* – more likely to be female, to visit SNS and on average 14.2 years old. They also post photos or music, write blogs or diaries and do instant messaging. The likelihood of risk experience is high and they are likely to be harmed by these experiences
(adapted from Hasebrink et al., 2011++).

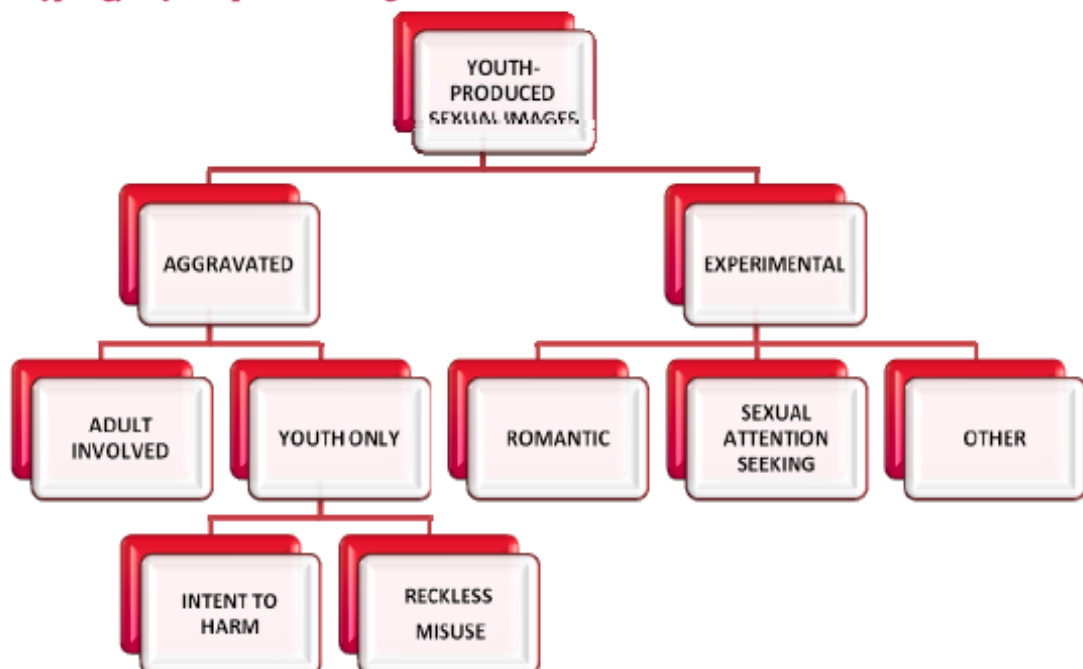
The two profiles most vulnerable to harm are the first and last: those with low use, mainly for learning purposes, and those who use the online environment for focused social web use. This latter group includes a variety of activities that extend social networking into more extensive sharing of personal information

(posting photos and videos, writing blogs and diaries). Although the first group may not often encounter sexual content or requests, they are ill prepared for them when they do. The latter group, however, do not seem to be protected by their heightened digital skills although the reasons for this are not clear (Staksrud et. al., 2012).

Sexting Typology

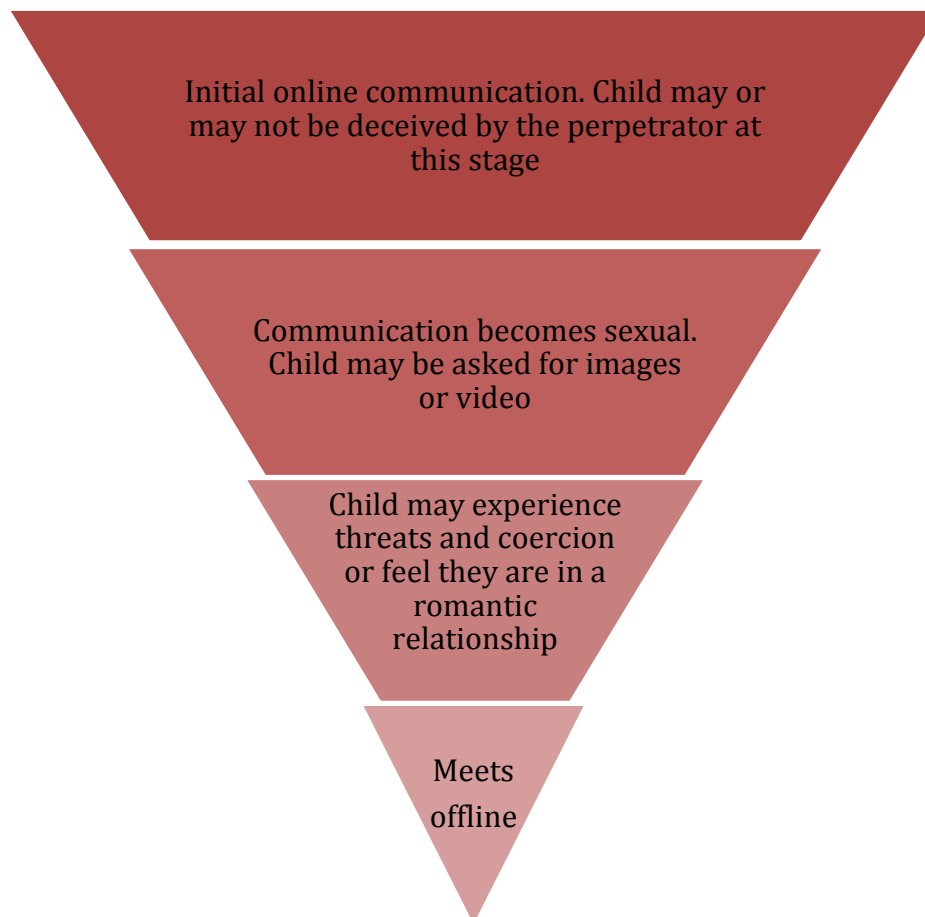
A sexting typology has been derived from an analysis of law enforcement case files (Wolak and Finkelhor, 2011). Two types of ‘self-generated produced sexual images’ are proposed: Aggravated and Experimental. These are further differentiated by intent. Aggravated images may involve an adult or young person in abuse of a child or in the creation or sharing of sexual image without knowledge or permission of the subject. Experimental images, in contrast, are produced voluntarily with consent, in the context of romantic relationships or to gain the attention of others but with no criminal intent (see Figure 1). The typology advances ways of categorising self-generated images and takes account of potential peer and adult coercion in their production, whilst allowing for experimental and consensual production. However, although this model does not account for it, there is a likelihood that many self-generated images which may fit the experimental profile transfer into the aggravated category once they are removed from source and shared online (Cooper et al., 2016+; IWF, 2015++).

Figure 1. Typology of youth-produced image cases known to law enforcement



Typology of the grooming process from victim perspective

Whilst not a typology, several studies provide information from children and young people about the stages involved in the process of online contact to off line meeting (Katz, 2013+; Kopecký et al., 2015 -; Leander et al., 2008 ++; Quayle et al., 2012+; Quayle and Newman, 2016++; Shannon 2008 +; Whittle et al., 2013+) . The perspectives of children and young people, especially those with direct experience, is crucial to further our understanding of online CSA. Moreover, it can guide prevention interventions that help children build resilience to realities of their experiences and to build on typologies of grooming identified in the perpetrator literature (Webster, et al., 2010). At each stage, some children will choose not to engage any further.



Gaps in the evidence: What cannot be answered or addressed

Generally there is a lack of typologies or models / theories of characteristics of victims of online-facilitated CSA. We have addressed this gap more fully in the conclusion.

Summary of the evidence on victim typologies

Question	Findings
<p>What do we know and can be confident about?</p>	<ul style="list-style-type: none"> ● The majority of children use the internet without experiencing harm; these children could be described as having an ‘adapted’ profile
<p>What can we be less confident about?</p>	<ul style="list-style-type: none"> ● Profiles of children vulnerable to harm include those with a: Risk taking aggressive profile Sexually inquisitive profile Low use learning oriented profile Focused social web use profile
<p>What don’t we know?</p>	<ul style="list-style-type: none"> ● Typologies of children subject to online-facilitated CSE ● How typologies relate to ethnic and cultural differences

Conclusion

What is known about the characteristics, vulnerabilities and on- and offline behaviour of victims of online-facilitated child sexual abuse and exploitation?

Addressing the IICSA questions was challenging. The terms ‘online-facilitated child sexual abuse’, or ‘online-facilitated child sexual exploitation’ were not found in the literature. ‘Child Sexual Abuse online’ is a more familiar description but this fails to address the increasing overlap between online and offline abuse. An emerging descriptor is ‘technology enabled’, which has been used more often in the perpetrator literature. The team therefore had to decide which parts of the data contained in the 73 included studies would contribute to a better understanding online-facilitated CSA and/CSE in the absence of any study that would directly map on to the research questions. Examples of categories included were exposure to sexual content or requests for sexual information, whether these were wanted or whether the child was upset by this, with each study having slightly different variations in their definitions. The concept of offline-facilitated or even technology enabled was limited either to studies that reported solely on child sexual abuse that occurred online or on whether the child met an online contact face to face (although the sexual element of that meeting was rarely defined). Considering these limitations, our conclusions are presented below.

Question 1: What are the distinguishing characteristics or factors that make children either more vulnerable, or more resilient, to online sexual victimisation, including sexual victimisation by peers?

Most of the studies allowed some conclusions to be drawn in relation to this question (see Box 1), primarily because demographic data was routinely collected. Characteristics and factors are not linear and vulnerability and resilience depend on an interaction of different aspects of the individual child, their immediate environment (including online) and wider social and cultural factors. For example, children of all ages and genders can be victims of online-facilitated CSA. The likelihood that some will be more vulnerable than others depends on an interaction between certain psychological factors (low in self-efficacy, self-esteem, sensation seeking), what they do online (low use or high use) and their offline experiences both past and present (particularly poly-victimisation). Many authors note that risk taking and exploring sexuality and sex are characteristic of adolescence.

In this context, the only certain characteristic that heightens the risk of online-facilitated CSA is the presence of perpetrators online who opportunistically exploit normal child and adolescent behaviours. In the studies reviewed, the way in which online sexual victimisation is measured precludes the possibility of knowing how many opportunistic online contacts from perpetrators result in that contact escalating into online-facilitated CSA or identifying specific characteristics and vulnerabilities of the victims. Some data is provided on the length of time these sexual solicitations last but more detailed analysis on victim characteristics in these cases is generally lacking. Furthermore, data is provided on meeting contacts offline but only in terms of 'being bothered or upset' which may hide successful grooming where the child does not understand the perpetrator is abusive until weeks, months or even years later.

Gender is the most frequently measured victim characteristic, and studies consistently find that girls are more vulnerable to most forms of online-facilitated CSA than boys are. Boys may be equally or slightly more likely to be exposed to sexual content and solicitations online but are not reported to experience negative consequences as frequently as girls. However, boys and transgender children are also at risk and appear to be more vulnerable to online-facilitated CSA than indicated in studies of offline CSA. Studies that report boys are less likely to be bothered by exposure to sexual content and sexual solicitation do not provide an analysis of cases where they were negatively experienced so we cannot be confident about gender difference in vulnerability and resilience characteristics.

Box 1: What are the distinguishing characteristics or factors that make children either more vulnerable, or more resilient, to online sexual victimisation, including victimisation by peers?	
What do we know and can be confident about?	<ul style="list-style-type: none"> ● Although younger children (9-11) are less likely to experience online-facilitated CSA and CSE it might be of a more serious nature and more upsetting when they do ● Offline victimisation from a range of adverse child experiences makes children more vulnerable to online victimisation ● Being female and having psychological difficulties increases vulnerability to harm from online-facilitated CSA, although boys are more exposed to certain types of risk (such as viewing sexual images online)

	<ul style="list-style-type: none"> ● Above average internet use increases vulnerability when interacting with these other characteristics ● Children develop their own strategies to cope with online-facilitated CSA. If they succeed this is likely to be related to psychological characteristics such as sensation seeking and self-efficacy, although these are not guaranteed to stop abuse ● The more upset or distressed a child is by online-facilitated CSA the more likely they are to tell others; usually friends or parents. ● Children are unlikely to tell others if they are embarrassed or afraid.
<p>What can we be less confident about?</p>	<ul style="list-style-type: none"> ● Boys and transgender children are also victims and may be over represented for specific types of online-facilitated CSA and/CSE ● Between a third and a half of victims may already know the perpetrator ● Some platforms may enhance vulnerability but these change over time as children migrate to new platforms ● Vulnerability is diverse; boys and girls are vulnerable in different ways, as are disabled children and children living in varying cultural contexts. ● Prevention programmes may help to improve internet safety knowledge but may not reduce risky behaviour ● Technology driven approaches may increase resilience in online environments
<p>What don't we know?</p>	<ul style="list-style-type: none"> ● How ethnicity, culture or global region of residence may be correlated with victimisation particularly for transnational online-facilitated CSA and/CSA ● Differences in victim characteristics between peer and adult perpetrated online-facilitated CSA and CSE ● How victim vulnerability and characteristics have changed in a rapidly changing online environment

	<ul style="list-style-type: none"> ● Characteristics of victims of online-facilitated CSA and CSE where the perpetrator or the victim resides in the UK ● How different sources of vulnerability interact ● How to identify when a child/young person becomes ‘situationally’ vulnerable ● What works in building resilience, when and how?
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Question 2: Is there research that has tried to establish vulnerability profiles or typologies, based on children’s characteristics and behaviours?

There are few attempts to develop typologies, which may reflect the diversity of different forms of online-facilitated CSA and CSE and the diversity of victims. We found no typologies of victims of online-facilitated CSE. Some profiles look promising in terms of forming the basis for developing more targeted prevention interventions and aimed at early help. These are listed below as tentative (what we are less confident about) because they rely on two studies (Livingstone et al., 2011a ++ and Davidson et al., 2016+). Neither of these take account of diversity within the profiles. We could find no typologies of victims of online-facilitated child sexual exploitation or transnational abuse where the victim or perpetrator is in the UK.

Summary of the evidence on victim typologies

Box 2:	
Is there research that has tried to establish vulnerability profiles or typologies, based on children’s characteristics and behaviours?	
What do we know and can be confident about?	<ul style="list-style-type: none"> ● The majority of children use the internet without experiencing harm; these children could be described as having an ‘adapted’ profile
What can we be less confident about?	<ul style="list-style-type: none"> ● Profiles of children vulnerable to harm include those with a: Risk taking aggressive profile Sexually inquisitive profile Low use learning oriented profile

	Focused social web use profile
What don't we know?	<ul style="list-style-type: none"> ● Typologies of children who are subject to online-facilitated CSE ● Typologies of children in transnational online-facilitated CSA and CSE where either the victim or the perpetrator is in the UK ● How typologies relate to ethnic and cultural differences

Question 3: What is the relationship between 'sexting' and production of self-generated sexual material and online sexual solicitation?

It is clear from the studies reviewed that there may be a relationship between self-generated sexual content and online solicitation for sexual purposes. However, the relationship is complex (i.e. not linear); the sharing (by self or by another) of self-generated material does not necessarily lead to online-facilitated CSA. A reasonable estimate based on this review would be that approximately one fifth of this material is likely to be shared with a third party, which may then lead to online-facilitated CSA, depending on its trajectory (for example, whether it is harvested by websites hosting child sexual abuse images), or used for sexual extortion to facilitate grooming. There is evidence that all these occur from research with victims and analyses of images but the extent and nature of the relationship is unclear.

Box 3	
What is the relationship between 'sexting' and production of self-generated sexual material and sexual extortion or online sexual solicitation?	
What do we know and can be confident about?	<ul style="list-style-type: none"> ● Sexting between peers is experienced by between 15-48% of children in the UK ● Self-generated sexual content/material involving children is more likely to be positively received, tolerated or deleted by boys ● Negative impacts are more likely to be experienced by girls

	<ul style="list-style-type: none"> ● Online-facilitated child sexual abuse is continued through the extraction of self-generated images and videos from their original source
What can we be less confident about?	<ul style="list-style-type: none"> ● Between 17-48% of self-generated material will be shared with a third party ● A significant proportion of images and videos hosted on websites and in peer to peer networks online is self-generated and migrated from source
What don't we know?	<ul style="list-style-type: none"> ● The extent to which sexting and self-generated sexual content lead to offline child sexual abuse ● The characteristics and vulnerabilities of children who are the subject of self-generated sexual content/material involving children that becomes abusive ● The characteristics and vulnerabilities of children who are the subject of self-generated sexual content/material involving children that leads to sexual exploitation and sexual extortion ● Why boys appear to be more resilient to negative consequences

Question 4: What are the characteristics and vulnerabilities of victims of transnational online child sexual abuse, where either the victim or the perpetrator is based in England and Wales?

No research from the victim perspective was found, although there may be evidence in the perpetrator literature. We address this gap in the research recommendations below.

Research gaps:

The REA identified a number of areas requiring further consideration and research by the wider research community.

a) The need for longitudinal survey research

No single study addresses the REA question and the review conducted here suggests that it is unlikely that any single study could do this given the broad range of behaviours, characteristics and factors involved. This partially explains the broad and fragmented nature of the research literature. Where longitudinal research is commissioned, understanding of vulnerability and resilience to online-facilitated child sexual abuse would be greatly facilitated if consideration was given to including the following:

- A sufficiently large, representative UK sample of children 0-18 who go online (such as that generated for national victimisation prevalence studies (Radford et al., 2011++)).
- Standardised questions such as the NVQ but with validated supplements that allow a more specific analysis of the role of online interaction in different forms of victimisation. Given the increasing ubiquity of online communication, almost every activity will include an online dimension going forward. Survey data must be able to measure the different online and offline transactions and engagements throughout the child's abusive experiences – from contact to conclusion. It is important to know more about the fluidity of on/offline behaviour and contexts if interventions (technical and human oriented) are to have any chance of being effective.
- Tracking respondents across at least 12 months and include trajectory analysis to enable prediction of the most vulnerable situations, settings, interactions and children.
- Tracking respondents to pick up the different perspectives that children have at the time of first contact or incident through to conclusion; for example, there is insufficient data on the number and proportion of incidents that begin as friendly or romantic contact but that develop over time into an abusive relationship. Following these interactions and perceptions over time would improve on knowledge gained through cross-sectional data that only seeks perceptions of incidents at a single point.
- It would be helpful if future research on the topic could seek to identify:

- A broad range of victim characteristics including age, gender, socio-economic status, family context, ethnicity and disability;
- A broad range of potential online contexts including devices used, platforms and activities (e.g. social networking, blogging, vlogging, dating, gaming)
- Perpetrator age, nationality or language and location wherever possible
- The nature of abuse (verbal, aggressive, threatening, use of sexual extortion, type of sexual acts, online only, online to offline, offline to online and so forth);
- Technical, social and human actions the victim took to avoid the situation including reporting and to whom;
- Attitudes of the victim towards the situation;
- Technical, social and human factors that helped the victim manage the situation;
- Impacts over time.

All of these are important features in building resilience to future harm from online-facilitated CSA, yet data is sparse.

b) Under reporting of very young children

An important finding regarding the under reporting of young children has emerged from comparing the studies of internet content and reported cases, although it is not referred to in the research studies themselves and no explanation is recorded. We might hypothesise that it is in part due to the fact that infants and very young children may not understand what is happening to them or be able to verbalise their experience (NICE, 2017) but there may be other factors at play. Given that tablet and mobile phone use is on the rise in children under 10, understanding the potential for online-facilitated CSA in this group is becoming urgent. Surveys that rely on parental report for this age range are unlikely to reflect the true extent of vulnerability for very young children. These cases are highly reliant on detection and discovery rather than disclosure, either through technical means (such as the IWF, 2015 study) or through image analysis in the context of police investigations. Understanding the under reporting of young children could be helped through:

- A review of all cases reported to police forces in England and Wales over the last five years, where images or content concerns a victim under the age of 10 years to identify any patterns or trends;
- An analysis of all image content retrieved to identify the ages of children depicted and the types of abuse they may be subject to;

An assessment of the additional costs associated with victim identification in images concerning children under 10 years (and ideally up to 18) including costs for technological support and time costs for follow up with victims and their families has yet to be undertaken.

c) Resilience

Several validated scales are used to measure resilience, such as the Child and Youth Resilience Measure (Liebenberg, et al., 2012). However, we found no evidence of the application of such scales in the research reviewed here. Conclusions about resilience are therefore necessarily tentative, arrived at from a synthesis of the findings from the included studies. Future research might consider application of existing scales to explore resilience more comprehensively and enable analysis of a wider range of factors that mediate the risk of online-facilitated CSA. We recommend that resilience research could be directed at online-facilitated child sexual abuse and exploitation paying attention to the following:

- Sensitive valid scale development. Current scales were developed to measure resilience in individual characteristics and environmental factors offline and further work is required to establish their relevance and validity in testing resilience in online activities and contexts;
- We found no studies that focused on technically facilitated resilience, such as on the effectiveness of stop and report abuse buttons or on blocking and filtering software for the purpose of preventing online-facilitated CSA/CSE;
- We were unable to answer the question of whether prevention programmes for online-facilitated CSA are effective. Some research suggested that they may help to improve internet safety knowledge but may not reduce risky behaviour or risks more generally. More co-designed child user studies would help to identify what would make a difference here;
- In addition to identifying resilience factors (human and technical) evaluation research could assist in testing out different resilience strategies to inform what works in building resilience, for which children (using measures across a range of clearly defined characteristics), under what circumstances.

d) Sexting

Evidence on sexting is varied and would be improved if more data was available on the following:

- Agreed definitions of sexting to ensure that studies are measuring similar constructs;
- The extent to which sexting and self-generated sexual content lead to online, offline and online-offline child sexual abuse and exploitation;
- Whilst one study was found in the USA, there are no large-scale studies that can assist in identifying the characteristics and vulnerabilities of children who are the subject of self-generated sexual content/material involving children that leads to sexual exploitation and sexual extortion in the UK
- An assessment of the extent to which apparently self-generated material is truly self-generated and not the result of grooming or coercion, which could be aided through technical analysis.

e) Typologies

No typologies or models / theories of characteristics of victims of online-facilitated child sexual exploitation (CSE) were found in the research retrieved for this REA. Longitudinal research would assist with developing such a typology, particularly where CSE is perpetrated within the context of a 'boyfriend' 'girlfriend' relationship. However, it is likely that children most vulnerable to CSE may not be included in random probability sampling. These include children who are homeless, missing from school, looked after children (DfE, 2017) and those migrating or seeking asylum (Walby, Towers, Francis...Palmer 2016b). Where such a study is conducted, we would therefore recommend including a 'top up' sample that includes these vulnerable groups or a separate survey, using snowball sampling, to begin building typologies for CSE. In this context, it will be important to identify how typologies relate to ethnic or cultural differences for children native to the UK and those who migrate to it. There is also a need to understand how changes in sexual attitudes and exposure in wider society impact on online-facilitated CSA.

References

- Ainsaar, M. and Lööf, L. (eds.) (2011). *Online behaviour related to child sexual abuse: Literature report*. Council of the Baltic Sea States, Stockholm: ROBERT project.
- Barter, C., Stanley, N., Wood, M., Aghtaie, N., Larkins, C., Øverlien, C., . . . Hellevik, P. (2015). *Safeguarding Teenage Intimate Relationships (STIR): Connecting online and offline contexts and risks*. Briefing Paper 2. Retrieved from <http://stiritup.eu/wp-content/uploads/2015/06/STIR-Briefing-Paper-2-English-final.pdf>
- Baumgartner, S., Valkenburg, P., and Peter, J. (2010). Unwanted Online Sexual Solicitation and Risky Sexual Online Behavior across the Lifespan. *Journal of Applied Developmental Psychology*, 31(6), 439-447.
- Beier, K., Oezdemir, U., Schlinzig, E., Groll, A., Hupp, E. and Hellenschmidt, T. (2016). "Just dreaming of them": The Berlin Project for Primary Prevention of Child Sexual Abuse by Juveniles (PPJ). *Child Abuse and Neglect*, 52, 1-10.
- Belton, E., and Hollis, V. (2016). *A review of the research on children and young people who display harmful sexual behaviour online*. London: NSPCC.
- Brown, S., Brady, G., Franklin, A., Bradley, L., Kerrigan, N., and Sealey, C. (2016). *Child sexual abuse and exploitation: understanding risk and vulnerability*. London, Early Intervention Foundation.
- boyd, D. (2014). *It's Complicated: The Social Lives of Networked Teens*. Yale University Press, New Haven, CT: USA.
- Carrick-Davies, S. (2011). *Munch-Poke-Ping! Vulnerable Young People, Social Media and E-Safety*. Social Media and Safety. Training and Development Agency.
- CEOP (2013). *Threat Assessment of Child Sexual exploitation and Abuse*. London: Child Exploitation and Online Protection Centre.
- Chang, F., Chiu, C., Miao, N., Chen, P., Lee, C., and Chiang, J. (2016). Predictors of unwanted exposure to online pornography and online sexual solicitation of youth. *Journal of Health Psychology*, 21(6), 1107-1118.

Choi, E., Ha Wong, J., Tak Fong, D. (2016). An Emerging Risk Factor of Sexual Abuse, *Sexual Abuse*. First published date: October-02-2016
10.1177/1079063216672168

Cooke, A., Smith, D., Booth, A. (2012). Beyond PICO: The SPIDER Tool for Qualitative Evidence Synthesis. *Qualitative Health Research*, 22 (10): 1435-1443.

Cooper, K., Quayle, E., Jonsson, L., and Svedin. C. (2016). Adolescents and self-taken sexual images: A review of the literature. *Computers in Human Behavior*, 55, 706-716.

Dank, M., Lachman, P., Zweig, J., and Yahner, M. (2014). Dating Violence Experiences of Lesbian, Gay, Bisexual, and Transgender Youth. *Journal of Youth and Adolescence*, 43(5), 846-857.

Daniel, B., Wassell, S., and Gilligan, R. (1999). *Child Development for Childcare and protection workers*. London, Jessica Kingsley Publishers.

Davidson, J., DeMarco, J., Bifulco, A., Bogaerts, S., Caretti, V., Aiken, M...and Puccia, A. (2016). *Enhancing police and industry practice*. Project Report. Middlesex University.

Davis, K. (2009) 'Adolescent friendships on LiveJournal', *Rocky Mountain Communication Review, Special Forum: New Media, New Relations*, 6(9), pp. 47–50.

Department for Education (2017). *Child Sexual Exploitation: definition and guide for practitioners*. London: HM Government.

ECPAT International (2016). *Terminology Guidelines for the Protection of Children from Sexual Exploitation and Sexual Abuse*. Luxembourg, ECPAT.

Edinburgh, L., Pape-Blabolil, J., Harpin, S., and Saewyc, E. (2015). Assessing exploitation experiences of girls and boys seen at a Child Advocacy Center. *Child Abuse and Neglect*, 46, 47-59.

EUROPOL (2014). *The Internet Organised Crime Threat Assessment (iOCTA)* European Police Office. Retrieved from
<https://www.europol.europa.eu/content/internet-organised-crime-threat-assessment-iocta>

Finkelhor, D., Ormrod, R. K., and Turner, H. (2007). Poly-victimization: A neglected component in child victimization. *Child Abuse and Neglect*, 31, 7–26.

Franklin, A. and Smeaton, E. (2017). Recognising and responding to young people with learning disabilities who experience, or are at risk of, child sexual exploitation in the UK. *Children and Youth Services Review*, 73, 474-48.

Government Social Research Service, (nd). *How to do an REA*. Retrieved from <http://webarchive.nationalarchives.gov.uk/20140305122816/http://www.civilservice.gov.uk/networks/gsr/resources-and-guidance/rapid-evidence-assessment/how-to-do-a-rea>

D'Haenens, L., Vandonink, S. and Donoso, V. (2013). *How to cope and build resilience*. LSE, London: EU Kids Online.

Hasebrink, U., Livingstone, S., Haddon, L. and Ólafsson, K. (2009). *Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online*. LSE, London: EU Kids Online.

Hasebrink, U., Görzig, A., Haddon, L., Kalmus, V., and Livingstone, S. (2011). *Patterns of risk and safety online: in-depth analyses from the EU Kids Online survey of 9- to 16-year-olds and their parents in 25 European countries*. EU Kids Online, Deliverable D5. EU Kids Online, London, UK.

Helweg-Larsen, K., Schütt, N., and Larsen, H. (2012). Predictors and protective factors for adolescent Internet victimization: Results from a 2008 nationwide Danish youth survey. *Acta Paediatrica*, 101(5), 533-539.

Hernwall, P. (2005). 'The creation of the cyborg citizen: Children, cyberspace and 21st century challenges', Institutionen for Kommunikation, Teknik and Design Sodertornshogskola retrieved from www.nada.kth.se/kurser/kth/2D1624/PDF/Litteratur/CyborgCitizen_Hernwall.pdf.

Holt, T., Bossler, A., Malinski, R., and May, D. (2016). Identifying Predictors of Unwanted Online Sexual Conversations Among Youth Using a Low Self-Control and Routine Activity Framework. *Journal of Contemporary Criminal Justice*, 32(2), 108-128.

Hughes, D. (2014). *Trafficking in Human Beings in the European Union: Gender, Sexual Exploitation, and Digital Communication Technologies*, *Sage Open*, 2014. DOI: 10.1177/2158244014553585

Internet Watch Foundation (2015). *Emerging Patterns and Trends Report: online produced sexual content*. Retrieved from https://www.iwf.org.uk/sites/default/files/inline-files/Online-produced_sexual_content_report_100315.pdf

James, A., Jenks, Chris, and Prout, Alan. (1998). *Theorizing childhood*. Cambridge: Polity Press.

Jones, L., Bellis, M., Wood, S., Hughes, K., McCoy, E., Eckley, L., Bates, G., Mikton, C., Shakespeare, T., Officer, A., (2012). Prevalence and risk of violence against children with disabilities: a systematic review and meta-analysis of observational studies, *The Lancet*, 380, 9845, 899-907.

Jones, L., Mitchell, K., and Finkelhor, D. (2011). Trends in youth Internet victimizations: Findings from three youth Internet safety surveys, 2000 – 2010. *Journal of Adolescent Health*, 50: 179-186.

Jonsson, Priebe, Bladh, and Svedin. (2014). Voluntary sexual exposure online among Swedish youth – social background, Internet behavior and psychosocial health. *Computers in Human Behavior*, 30, 181-190.

Jonsson, L., Bladh, S., Priebe, M., and Svedin, G. (2015). Online sexual behaviours among Swedish youth: Associations to background factors, behaviours and abuse. *European Child and Adolescent Psychiatry*, 24(10), 1245-1260.

Leander, L., Christianson, S., Granhag, P.A., (2008) Internet-Initiated Sexual Abuse: Adolescent Victims' Reports About On- and Off-Line Sexual Activities. *Applied Cognitive Psychology* 22: 1260–1274

Leonard, M. (2010). "I did what I was directed to do but he didn't touch me": The impact of being a victim of internet offending. *Journal of Sexual Aggression*, 16(2), 249-256.

Livingstone, S., Görzig, A., Ólafsson, K.(2011a) Disadvantaged children and online risk. LSE, London: EU Kids Online.

Livingstone, S., Haddon, L., Görzig, A., and Ólafsson, K. (2011). Risks and safety on the internet: The perspective of European children. Full Findings. LSE, London: EU Kids Online.

Livingstone, S, and Görzig, A. (2014) "When Adolescents Receive Sexual Messages on the Internet: Explaining Experiences of Risk and Harm." *Computers in Human Behavior* 33 pp.8-15.

Katz, C. (2013). Internet-related child sexual abuse: What children tell us in their testimonies. *Children and Youth Services Review*, 35(9), 1536-1542.

Kelemen, K. C., and Johansson, M. (2013). Still neglecting the demand that fuels human trafficking: A study comparing the criminal laws and practice of five European states on human trafficking, purchasing sex from trafficked adults and from minors. *European Journal of Crime, Criminal Law and Criminal Justice*, 21(3-4), 247-289.

Klettke, B., Hallford, D. and Mellor, D. (2014). Sexting prevalence and correlates: A systematic literature review. *Clinical Psychology Review*, 34(1), 44-53.

Kolpakova, O. (Ed) (2012). *Online behaviour related to child sexual abuse: Focus groups' findings*. Council of the Baltic Sea States, Stockholm: ROBERT project.

Kopecký, K. Hejsek, L., Kusá, J... Marešová, V. (2015). *Specifics of Children Communication and Online Aggressors within the Online Assaults on Children (Analysis of Selected Utterances)*. International Multidisciplinary Scientific Conferences on Social Sciences and Arts

Kopecký, K. (2015). Sexting Among Slovak Pubescents and Adolescent Children. *Procedia - Social and Behavioral Sciences*, 203, 244-250.

Landis, J., and Koch, G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33 (1): 159–174.

Latonero, M. (2011). *Human Trafficking Online: The Role of Social Networking Sites and Online Classifieds*. Los Angeles, CA: University of South California.

Latonero, M. (2012). 'The rise of mobile and the diffusion of technology-facilitated trafficking', *Research Series on Technology and Human Trafficking*. Centre on Communication Leadership and Policy, Los Angeles, CA: University of South California.

Leander, L., Christianson, S., and Granhag, P. (2008). Internet initiated sexual abuse: Adolescent victims' reports about On and Off -line sexual activities. *Applied Cognitive Psychology*, 22(9), 1260-1274

Leary, M. (2014) Fighting Fire with fire: Technology in Child Sex Trafficking, *Duke Journal of Gender Law and Policy*, 21, 289-323.

Leonard, M. (2010). "I Did What I Was Directed to Do but He Didn't Touch Me": The Impact of Being a Victim of Internet Offending. *Journal of Sexual Aggression*, 16(2), 249-256.

Liebenberg, L., Ungar, M., and Vijver, F. (2012). Validation of the Child and Youth Resilience Measure-28 (CYRM-28) Among Canadian Youth. *Research on Social Work Practice*, 22(2), 219-226.

Livingstone, S. and Bober, M. (2004). *UK Children Go Online: Surveying the Experiences of Young People and Their Parents*, London, London School of Economics.

Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011a). *Technical Report and User Guide: The 2010 EU Kids Online Survey*. LSE, London: EU Kids Online.

Livingstone, S., Haddon, L., Görzig, A and Ólafsson, K. (2011b) *EU kids online II: final report 2011*. EU Kids Online, London School of Economics and Political Science, London, UK.

Livingstone, S. and Görzig, A. (2014). "When adolescents receive sexual messages on the Internet: Explaining experiences of risk and harm". *Computers in Human Behavior*, 33: 8-15

Lobe, B., Livingstone, S., Ólafsson, K., and Vodeb, H. (2011). *Cross-national comparison of risks and safety on the internet: initial analysis from the EU Kids Online survey of European children*. Deliverable D6. EU Kids Online, London, UK

Luthar, S., Cicchetti, D., and Becker, B. (2000). The Construct of Resilience: A Critical Evaluation and Guidelines for Future Work. *Child Development*, 71(3), 543-562.

Martellozzo, E., Monaghan, A., Adler, J.R., Davidson, J., Leyva, R. and Horvath, M.A.H. (2016). *I wasn't sure it was normal to watch it*. London: NSPCC.

May-Chahal, C., Mason, C., Rashid, A., Walkerdine, J., Rayson, P., Greenwood, P. (2014). Safeguarding Cyborg Childhoods: Incorporating the On/Offline Behaviour of Children into Everyday Social Work Practices. *British Journal of Social Work*, 44 (3): 596-614.

National Crime Agency (2016). *Annual Strategic Assessment; child sexual exploitation and abuse*. London, HM Gov.

Mesch, G. and Talmud, I. (2010). *Wired Youth: The Social World of Adolescence in the Information Age*. New York, Routledge.

Mishna, F, McLuckie, A, and Saini, M. (2009). Real-World Dangers in an Online Reality: A Qualitative Study Examining Online Relationships and Cyber Abuse. *Social Work Research*, 33(2), 107-118.

Mishna, F, Cook, C., Saini, M., Wu, M. and MacFadden, R. (2011). Interventions to Prevent and Reduce Cyber Abuse of Youth: A Systematic Review. *Research on Social Work Practice*, 21(1), 5-14.

Mitchell K, Finkelhor D, Wolak J. (2001). Risk Factors for and Impact of Online Sexual Solicitation of Youth. *JAMA*, 285 (23):3011-3014.

Mitchell, K., Finkelhor, D., and Ybarra, M. (2007a). The relative importance of online victimization in understanding depression, delinquency, and substance use. *Child Maltreatment*, 12(4), 314-324.

Mitchell, K., Finkelhor, D., and Wolak, J. (2007b). Online Requests for Sexual Pictures from Youth: Risk Factors and Incident Characteristics. *Journal of Adolescent Health*, 41(2), 196-203.

Mitchell, K., Wolak, J., and Finkelhor, D. (2008). Are blogs putting youth at risk for online sexual solicitation or harassment? *Child Abuse and Neglect*, 32(2), 277-294.

Mitchell, K., Finkelhor, D., Jones, L., and Wolak, J. (2010). Use of Social Networking Sites in Online Sex Crimes Against Minors: An Examination of National Incidence and Means of Utilization. *Journal of Adolescent Health*, 47(2), 183-190.

Mitchell, K., Jones, L., Finkelhor, D., and Wolak, J. (2011a). Internet-facilitated commercial sexual exploitation of children: Findings from a nationally representative sample of law enforcement agencies in the United States. *Sexual Abuse: A Journal of Research and Treatment*, 23(1), 43-71.

Mitchell, K., Finkelhor, D., Wolak, J., Ybarra, M., and Turner, H. (2011b). Youth Internet Victimization in a Broader Victimization Context. *Journal of Adolescent Health*, 48(2), 128-134.

- Mitchell, K., Jones, L., Finkelhor, D. and Wolak, J. (2013). Understanding the decline in unwanted online sexual solicitations for U.S. youth 2000–2010: Findings from three Youth Internet Safety Surveys. *Child Abuse and Neglect*, 37(12), 1225-1236.
- Mitchell, K., Ybarra, M., and Korchmaros, J. (2014). Sexual harassment among adolescents of different sexual orientations and gender identities. *Child Abuse and Neglect*, 38(2), 280-295.
- Mohler-Kuo, Landolt, Maier, Meidert, Schönbucher, and Schnyder. (2014). Child Sexual Abuse Revisited: A Population-Based Cross-Sectional Study Among Swiss Adolescents. *Journal of Adolescent Health*, 54(3), 304-311.
- Montiel, L., Carbonell, E., and Pereda, N. (2016). Multiple online victimization of Spanish adolescents: Results from a community sample. *Child Abuse and Neglect*, 52, 123-134.
- Mueller-Johnson, K, Eisner, M and Obsuth, I. (2014). Sexual Victimization of Youth with a Physical Disability. *Journal of Interpersonal Violence*, 29(17), 3180-3206.
- NICE (2017). *Child Abuse and Neglect; recognising, assessing and responding to abuse and neglect of children and young people [draft guidance]*. Retrieved from <https://www.nice.org.uk/guidance/gid-scwave0708/documents/draft-guideline>.
- Normand, C., and Sallafranque St Louis, F. (2016). Cybervictimization of Young People with an Intellectual or Developmental Disability: Risks Specific to Sexual Solicitation. *Journal of Applied Research in Intellectual Disabilities*, 29(2), 99-110.
- NSPCC (ND). *What is Online Bullying?* Retrieved from <https://www.nspcc.org.uk/preventing-abuse/child-abuse-and-neglect/bullying-and-cyberbullying/what-is-bullying-cyberbullying/>
- OfCOM (2016). *Children and Parents; media use and attitudes report*. Retrieved from https://www.ofcom.org.uk/_data/assets/pdf_file/0034/93976/Children-Parents-Media-Use-Attitudes-Report-2016.pdf
- Office for National Statistics (2017). *Gender identity Update*. Retrieved from <https://www.ons.gov.uk/methodology/classificationsandstandards/measuringquality/genderidentity/genderidentityupdate>

Palmer, E., and Foley, M. (2017). 'I Have My Life Back': Recovering from Child Sexual Exploitation. *British Journal of Social Work*, 47(4), 1094-1110.

Palmer, T. (2015) *Digital Dangers. The impact of technology on the sexual abuse and exploitation of children and young people*. London, Barnardos.

Priebe, G., Mitchell, K., and Finkelhor, D. (2013). To tell or not to tell? Youth's responses to unwanted Internet experiences. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 7(1).

Quayle, E., Jonsson, L. and Lööf, L. (2012). *Online behaviour related to child sexual abuse: Interviews with affected young people*. Council of the Baltic Sea States, Stockholm: ROBERT project.

Quayle, E., and Newman, E. (2016). An exploratory study of public reports to investigate patterns and themes of requests for sexual images of minors online. *Crime Science*, 5(1), 1-12.

Radford, L., Corral, S., Bradley, C., Fisher, H., Bassett, C., Howat, N. and Collishaw, S (2011). *Child abuse and neglect in the UK today*. Retrieved from <https://www.nspcc.org.uk/globalassets/documents/research-reports/child-abuse-neglect-uk-today-research-report.pdf>

Rashid, A., Baron, A., Rayson, P., May-Chahal, C., Walkerdine, J., Greenwood, P. (2013) Who Am I? Analyzing digital personas in cybercrime investigations. *Computer*, 46 (4), 54-61.

Richardson, W., Wilson, M., Nishikawa, J. and Hayward, R. (1995). The well-built clinical question: A key to evidence based decisions. *ACP Journal Club*, 123, A12-13.

Ringrose, J., Gill, R., Livingstone, S., and Harvey, L. (2012). *A qualitative study of children, young people and sexting*. London, NSPCC.

Sarkar, S. (2015). Use of technology in human trafficking networks and sexual exploitation: A cross-sectional multi-country study, *Transnational Social Review: A Social Work Journal*, DOI: 10.1080/21931674.2014.991184

Sentencing Council (2013). *Sexual Offences Definitive Guideline*. Retrieved from http://www.sentencingcouncil.org.uk/wp-content/uploads/Final_Sexual_Offences_Definitive_Guideline_content_web1.pdf

Shannon, D. (2008). Online Sexual Grooming in Sweden—Online and Offline Sex Offences against Children as Described in Swedish Police Data. *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 9(2), 160-180.

Sheldon, P. (2009) 'New relationships? Gender differences in Facebook use', *Rocky Mountain Communication Review, Special Forum: New Media, New Relations*, 6(9), pp. 51–6.

Suler, J. (2004) 'Online disinhibition effect'. *CyberPsychology and Behavior*, 7, pp. 321–6.

Smahel, D. and Wright, M.F. (Eds.) (2014). *The meaning of online problematic situations for children. Results from a qualitative cross cultural investigation in Nine European Countries*. London, EU Kids Online, LSE.

Smith, C., Allardyce, S., Hackett, S., Bradbury-Jones, C., Lazenbatt, A., and Taylor, J. (2014). Practice and policy in the UK with children and young people who display harmful sexual behaviours: An analysis and critical review. *Journal of Sexual Aggression*, 20(3), 267-280.

Staksrud, Ólafsson, and Livingstone. (2013). Does the use of social networking sites increase children's risk of harm? *Computers in Human Behavior*, 29(1), 40-50.

Stalker, K. and McArthur, K. (2009). Child abuse, child protection and disabled children: a review of recent research. *Child Abuse Review*, 21, 1, 24-40.

Stanley, N, Barter, CA, Wood, MJE, Aghtaie, N, Larkins, C, Lanau, A and Överlien, C. (2016). 'Pornography, Sexual Coercion and Abuse and Sexting in Young People's Intimate Relationships: A European Study'. *Journal of Interpersonal Violence*. DOI: 10.1177/0886260516633204

Statista (2017). *Americans who use social networking sites several times per day*. Retrieved from <https://www.statista.com/statistics/232499/americans-who-use-social-networking-sites-several-times-per-day/> (accessed 27/7/17).

Stevens , P., Hutchin , K., French, L., and Craissati, J. (2013). Developmental and offence-related characteristics of different types of adolescent sex offender: A community sample. *Journal of Sexual Aggression*, 19:2, 138-157.

Sykiotou, A. (2007). *Trafficking in Human Beings: Internet Recruitment*. Directorate General of Human Rights and Legal Affairs, Council of Europe.

Taylor, J. (2010) 'The spiral of the online sex offender and how this can be effectively policed', paper presented at Online Child Protection: Future Technologies for Policing the Internet, 27 October, London, available online at www.comp.lancs.ac.uk/isis/index_files/Conference.htm.

Tsaliki, L., Chronaki, D. and Ólafsson, K. (2014). *Experiences with sexual content: What we know from the research so far. EU Kids Online*. London School of Economics and Political Science, London.

Tynes, B. and Mitchell, K. (2014). Black Youth Beyond the Digital Divide. *Journal of Black Psychology*, 40(3), 291-307.

UKCCIS (2017). *Sexting in Schools and Colleges; responding to incidents and safeguarding young people*. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/609874/6_2939_SP_NCA_Sexting_In_Schools_FINAL_Update_Jan17.pdf

UNICEF (2017). *Violence Against Children Fact Sheet*. Retrieved from <https://www.unicef.org/philippines/VACFactsheet.pdf>

Van Royen, K., Vandebosch, H., and Poels, K. (2015). Severe Sexual Harassment on Social Networking Sites: Belgian Adolescents' Views. *Journal of Children and Media*, 1-20.

Villacampa, C. and Gómez, M. (2017). Online child sexual grooming. *International Review of Victimology*, 23(2), 105-121.

Wachs, J., Vazsonyi, W., Vazsonyi, A., Wolf, K. and Junger, M. (2016). A cross-national study of direct and indirect effects of cyberbullying on cybergrooming victimization via self-esteem. *Psicología Educativa*, 22(1), 61-70.

Walby, S., Apitzsch, B. Armstrong, J., Balderston, S., Follis, K., Francis, B., Kelly, L., May-Chahal, C., Rashid, A., Shire, K., Towers, J. and Tunte, M., (2016a). *Study on the Gender Dimension of Trafficking in Human Beings*. European Commission, HOME/2013/ISEC/PR/041-A2. Lancaster University.

Walby, S., Towers, J., Francis, B., Shire, K., Kelly, L., Apitzsch, B.,...and Palmer, E. (2016b). *Study on Comprehensive Policy Review of Anti-Trafficking Projects*. European Commission, HOME/2014/ISFP/PR/THBX/0052. Lancaster University

Walker, S., Sancu, L. and Temple-Smith, M. (2013). Sexting: Young women's and men's views on its nature and origins. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, 52(6), 697-701.

Wattam, C. and Woodward, C. (1996). 'And do I Abuse my Children? ... No! Learning about prevention from people who have experienced child abuse' in *Childhood Matters: report of the National Commission of Inquiry into the prevention of child abuse. Vol 2: Background Papers*, London: The Stationary Office.

Webster, S., Davidson, J., Bifulco, A., Gottschalk, P., Caretti, V., Pham, T., Grove-Hills, J. (2010). *Scoping Report European Online Grooming Project*. Brussels: European Commission Safer Internet Plus Programme.

Webster, S., Davidson, J., Bifulco, A., (2014). *Online offending behaviour and child victimisation: new findings and policy*. Palgrave Macmillan.

Wells., Mitchell, K ., and Ji, K. (2012). Exploring the Role of the Internet in Juvenile Prostitution Cases Coming to the Attention of Law Enforcement. *Journal of Child Sexual Abuse*, 21(3), 327-342.

Wells, M. and Mitchell, K. (2014). Patterns of Internet Use and Risk of Online Victimization for Youth with and without Disabilities. *Journal of Special Education*, 48(3), 204-213.

Whittle, H., Hamilton-Giachritsis, C., Beech, A. and Collings. G. (2013). A review of young people's vulnerabilities to online grooming. *Aggression and Violent Behavior*, 18 (1), 135-146.

Whittle, H., Hamilton-Giachritsis, C., and Beech, A. (2014). In Their Own Words: Young Peoples' Vulnerabilities to Being Groomed and Sexually Abused Online. *Psychology*, 05(10), 1185-1196.

Whittle, H., Hamilton-Giachritsis, C., and Beech, A. (2015). A Comparison of Victim and Offender Perspectives of Grooming and Sexual Abuse, *Deviant Behavior*, 36:7, 539-564

Wilkinson, Y, Whitfield, C., Hannigan, S., Ali, P. and Hayter, M. (2016). A qualitative meta-synthesis of young peoples' experiences of 'sexting'. *British Journal of School Nursing*, 11 (4).

Wisniewski, P. B., Xu, H. F., Rosson, M. M., Perkins, D. and Carroll, J. (2016). *Dear diary: Teens reflect on their weekly online risk experiences*. Conference on Human Factors in Computing Systems - Proceedings, 3919-3930.

Wolak, J., Mitchell, K. and Finkelhor, D. (2007). Unwanted and wanted exposure to online pornography in a national sample of youth internet users. *Pediatrics*, 119, 247-257.

Wolak, J. and Finkelhor, D. (2011). *Sexting; a typology*. Accessed on 24.07.17 at http://www.unh.edu/ccrc/pdf/CV231_Sexting%20Typology%20Bulletin_4-6-11_revised.pdf

Wolak, J. and Finkelhor, D. (2016). *Sextortion: findings from a survey of 1,631 victims*. University of New Hampshire: Crimes Against Children Research Center.

Zimbardo, P. G. (1969). 'The human choice: Individuation, reason, and order vs. deindividuation, impulse, and chaos', in W. J. Arnold and D. Levine (eds), *Nebraska Symposium on Motivation*, Lincoln, University of Nebraska Press.

Zuckerman, M. (1979). *Sensation Seeking: Beyond the Optimal Level of Arousal*. New York, John Wiley and Sons.

Zweig, J M., Dank, M, Yahner, J, and Lachman, P. (2013). The Rate of Cyber Dating Abuse among Teens and how it Relates to Other Forms of Teen Dating Violence. *Journal of Youth and Adolescence*, 42(7), 1063-1077.

Appendix A

Pilot Search Strategy: REA Characteristics and Vulnerabilities of Victims of Online-Facilitated Child Sexual Abuse and Exploitation

- RQ1: What are the **characteristics and vulnerabilities** of victims of online-facilitated child sexual abuse and exploitation?
 - a. What are characteristics and vulnerabilities of victims of **transnational** online child sexual abuse, **where either the victim or the perpetrator is based in England and Wales?**
 - b. What distinguishing characteristics or factors make children more vulnerable, to online sexual victimisation, **including victimisation by peers?**
 - c. What vulnerability **profiles or typologies**, based on children’s characteristics and behaviours, have been developed?
 - d. What are the **on- and offline behaviours** of victims of online-facilitated child sexual abuse and exploitation?

<u>Sample</u> (Population of Interest)	“child” OR “young” OR “peer” OR “youth” OR “adolescent” OR “minor” AND “sexual exploitation” OR “sexual abuse”
<u>AND</u>	
<u>Phenomena of Interest</u>	“online-facilitated” OR “Internet” OR “game” OR “mobile” OR “smartphone” OR “Facebook” OR “Snapchat” OR “Instagram” OR “WhatsApp” OR “Tumblr” OR “platform” AND “extortion” OR “blackmail” OR “sexting” OR “image” OR “video”
<u>RQ1a</u>	Add OR “Transnational” AND “England” OR “Wales”
<u>RQ1 b</u>	Add “peer on peer”
<u>RQ1 d</u>	Add “offline”
<u>AND</u>	
<u>Design</u> – try with and without	“literature review” OR “systematic review”
<u>AND</u>	

<u>E</u> valuation	“characteristics” OR “vulnerab*” OR “behavio*” OR “typology” OR “profil*” OR “risk” OR “age” OR “gender” OR “lesbian” OR “gay” OR “trans*” OR “Bisexual” OR “disab*” OR “ethnic*” OR “race”
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Q2: What distinguishing characteristics or factors make children more resilient to online sexual victimisation, including victimisation by peers?

<u>S</u> ample (Population of Interest)	“child” OR “young” OR “peer” OR “youth” OR “adolescent” OR “minor” AND “sexual exploitation” OR “sexual abuse”
AND	
<u>P</u> henomena of <u>I</u> nterest	“online-facilitated” OR “Internet” OR “game” OR “mobile” OR “smartphone” OR “Facebook” OR “Snapchat” OR “Instagram” OR “WhatsApp” OR “Tumblr” OR “platform” AND “offline”
AND	
<u>D</u> esign – try with and without	“literature review” OR “systematic review”
AND	
<u>E</u> valuation	“characteristics” OR “behavio*” OR “resilience” OR “typology” OR “profil*” OR “risk” OR “age” OR “gender” OR “lesbian” OR “gay” OR “trans*” OR “Bisexual” OR “disab*” OR “ethnic*” OR “race”

RQ3: What is the relationship between self-generated sexual material and online-facilitated child sexual abuse and exploitation?

- What is the relationship between ‘sexting’ and sexual extortion or online sexual solicitation?

<u>S</u> ample (Population of Interest)	“child” OR “young” OR “peer” OR “youth” OR “adolescent” OR “minor”
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	AND “sexual exploitation” OR “sexual abuse”
<u>AND</u>	
<u>P</u>henomena of <u>I</u>nterest	“online-facilitated” OR “Internet” OR “game” OR “mobile” OR “smartphone” OR “Facebook” OR “Snapchat” OR “Instagram” OR “WhatsApp” OR “Tumblr” OR “platform”
<u>AND</u>	
<u>D</u>esign – try with and without	“literature review” OR “systematic review”
<u>AND</u>	
<u>E</u>valuation	“extortion” OR “blackmail” OR “sexting” OR “image” OR “video” OR “self generated” OR “solicitation”

Appendix B: CHILD SEXUAL ABUSE REA |Final Search Strategy

Search terms to be applied to 'All fields' in databases where available so that the title, abstract and subject fields within the bibliographic records are searched.

Once the bibliographic records have been exported to EndNote from the native databases, the records from monographs will be removed as these will be clearly identified.

Search String	Keywords/Phrases
#1	child* OR young OR peer* OR youth* OR adolescen* OR minor* OR teen*
#2	“sexual exploitation” OR “sex* abuse” OR extortion OR blackmail OR coerc* OR solicit*
#3	#1 AND #2
#4	victim* AND child sex*
#5	#3 OR #4
#6	online OR technology OR internet OR digital OR cyber OR game OR gaming OR mobile OR smartphone OR Facebook OR Snapchat OR Instagram OR WhatsApp OR Tumblr OR Twitter OR “social media” OR “social network*” OR “file sharing” OR filesharing OR “cell* phone” OR offline OR sexting OR image* OR video*
#7	characteristics OR vulnerab* OR behavio* OR typolog* OR profil* OR risk* OR factors OR attitude* OR resilience
#8	#5 AND #6 AND #7
#9	Limit to 2007-present
#10	Limit to English

Appendix C: Sample of a tailored search string

Search String	Keywords/Phrases	Number of results	Comments/Observations
#1	child* OR youth* OR adolescen* OR teen*	1,002,054	Removed young, peer, minor
#2	“sexual exploitation” OR “sex* abuse” OR extortion OR blackmail OR coerc* OR solicit*	39,099	
#3	#1 AND #2	24,107	
#4	victim* AND child sex*	10,584	
#5	#3 OR #4	27,421	Superset of Population of Interest
#6	online OR technology OR internet OR digital OR “social media” OR “social network*” OR offline	258,120	Removed facilitated from Online and Technology. Also removed cyber, game, gaming, mobile, smartphone, facebook, snapchat, Instagram, whatsapp, tumblr, twitter, file sharing, filesharing, cell* phone, sexting, image*, video*.
#7	#5 AND #6	1,145	Superset of Phenomena of Interest
#8	characteristics OR vulnerab* OR behavio* OR typolog* OR profil* OR risk* OR factors OR attitude* OR resilience	2,403,667	Superset of Population of Evaluation
#9	#5 AND #6 AND #8	1,017	Of the 821 results if these are limited to English and DOP within last 10 years then there are 624 results.
#10	“literature review” OR “systematic review” OR "meta-analysis" OR "meta-synthesis"	71,398	Superset of Design
#11	#9 AND #10	25	
#12	Limit to 2007-present	23	
#13	Limit to English	21	

Appendix D: Record of Databases Searches

DATABASE	HITS	Notes
Academic Search Complete	765	
ACM Digital	56	
CINHAL	230	
Campbell	1	
Cochrane	254	
Directory of Open Access		
EMBASE	623	
Europe Pubmed (last 12 months only)	11	
IEE Xplore	27	
Ingenta	42	
JSTOR	147	
Medline	601	
NHS evidence	6	
PSYCHINFO	1218	
PROQUEST CENTRAL	523	
SCIENCE DIRECT	687	
Web of Science	783	
Taylor Francis J	50	
SAGE	50	Major issue is that we are limited to one export at time
Springer Link	50	
OUP	12	
ZETOC	125	
Website searches:		
NSPCC	5	
Barnardos	5	
JRF	0	
RAND	0	
ESRC	0	
Social Care Online	42	
EU kids Online	50	
Gov.uk	5	
CORE - (first 100)	4	

Appendix E: Request for Literature: ‘What is known about the characteristics and vulnerabilities of victims of online-facilitated child sexual abuse and exploitation?’

Final closing date for receipt of materials: **28th April 2017**.

The Independent Inquiry into Child Sexual Abuse (IICSA) has commissioned the Department of Sociology at Lancaster University to undertake a rapid evidence assessment of academic and unpublished (grey) literature.

This is an evolving area of research and the Inquiry into Child Sexual Abuse wish to obtain the most up to date data on **characteristics and vulnerabilities of victims of online-facilitated child sexual abuse (CHILD SEXUAL ABUSE) and exploitation (CHILD SEXUAL EXPLOITATION)**.

The findings will provide direction to further research and IICSA investigations, as well as potentially informing policy and practice recommendations.

Areas of particular interest to us include:

- transnational online CHILD SEXUAL ABUSE / CHILD SEXUAL EXPLOITATION (where either the victim or perpetrator is based in England or Wales)
- risk and resilience factors to online victimisation
- online CHILD SEXUAL ABUSE / CHILD SEXUAL EXPLOITATION perpetrated by peers
- typologies of victim characteristics or behaviours
- the relationship between victims’ online and offline behaviours
- the relationship between self-generated sexual material (ie. ‘sexting’) and risk of experiencing online victimisation

How your materials will be used

All materials received as part of this request for literature will be available in full to both IICSA and Lancaster University. All submissions which meet thresholds for quality assurance and relevance to the research questions will be synthesised into a final report, which will be published in due course. Any literature used in the final report will be appropriately referenced.

If you have any queries about IICSA or Lancaster University information security procedures, or how your data will be used, please do not hesitate to contact one of the project leads.

How to share your materials

We would appreciate it if you could send us, or direct us to, any material produced by yourself, colleagues or affiliates, which is either unpublished, in press, or published in non-academic sources. This would include, but is not limited to: emerging findings, research briefings or reports, presentations, or website content. **NOTE: Please do not send any confidential data in which individuals can be identified. If you are concerned that the data you wish to send may be sensitive, please contact one of the project leads to discuss before submitting it.**

Where possible, materials should be sent by email to Emma Palmer at Lancaster University. If you wish to protect your materials, please follow the instructions below to use Lancaster University's secure file transfer system: Zend to. If you are unable to attach a copy of the material, please provide a link or reference to its location.

If you only have hard copies, please send them to e.palmer1@lancaster.ac.uk. You must ensure that any materials sent in hard copy are compliant with copyright law.

We are working to a very short timescale, so would appreciate receiving all materials as soon as possible with a fixed deadline of **28th April 2017** please.

Thank you in advance for your help with this important project and please do not hesitate to contact a member of the team with comments or questions.

Ally Paget, Project Lead for IICSA (alexandra.paget@iichildsexualabuse.org.uk)

Appendix F: Inclusion and exclusion criteria

Inclusion/exclusion criteria		Guidance	Comments
1	EXCLUDE: date of publication before 2007		
2	EXCLUDE: language not English		
3	EXCLUDE publication type: not journal, research report or conference proceeding	Exclude books, dissertation abstracts, professional magazines ad policy and guidance	e.g. Community Care/ Nursing Times etc...
4	EXCLUDE: not about child victims	Exclude if focus is adult perpetrators/offenders	Unless it is child on child offending
5	EXCLUDE research type: Not primary research	Exclude descriptive studies, blogs, editorial, commentary, opinion piece of other ephemera. Include quantitative, qualitative and mixed methods	
6	EXCLUDE by scope: Not about online-facilitated child sexual abuse/child sexual exploitation and victims living in any country	Must include online-facilitated child sexual abuse	Key is facilitation; abuse may occur off line but grooming occurs online or vice versa.
7	EXCLUDE: Not relevant to research question(s)		
8	EXCLUDE: Insufficient details to make a decision	e.g. full article etc. not available	
9	INCLUDE		

Appendix G: Data Collection Form

Question:

1. Characteristics/Vulnerabilities of victims
2. Resilience Factors to online sexual victimisation
3. Relationship between self-generated sexual material and abuse

Study Details					
Abstract					
Sample (Population of Interest)	Child victims of online sexual exploitation				
	Child victims of online-facilitated sexual abuse				
	Other Child victims of Internet/mobile and/or sexual victimisation				
	Sample	N =			
	Gender	FM	M	TRNS	NK
	Sexual Orientation	Straight	LGBT	Mixed	NK
	Ethnicity List using terms in study				
	Age				
	Country				
Phenomena of Interest relevant to research question	Internet				
	Peer to peer				
	Gaming				
	Mobile/smartphone				
	Facebook/Snapchat/Instagram/WhatsApp/Tumblr/Twitter/other (state)				
	Extortion				
	Blackmail				
	Sexting				
	Images				
	Video				

<p><u>D</u>esign</p> <p>Method</p>	<p>Cross sectional/Causal/Longitudinal Cohort/Case Study/RCT/Experimental/Exploratory/Meta Analysis/Observational/Systemmatic Review/Mixed methods</p> <p>Other -</p>	
	<p>Survey/focus group/questionnaire (online/text/telephone/postal/school/other)/observation /case study/interview (online/phone/face to face) (brief description)</p>	
<p><u>E</u>valuation</p>	<p>Vulnerability characteristics/behaviours/typology/protective factors (brief description)</p>	
<p><u>R</u>esearch</p>	<p>Quantitative/Qualitative/Mixed Methods/ Other</p>	
<p>Weighting</p>	<p>--/ -/ +/ ++</p>	
<p><u>Narrative summary of findings relevant to REA</u></p>		

Appendix H: Critical Appraisal for Single Studies (Quantitative example)

Internal validity – sample and approach	Internal validity - performance and analysis.	External validity	Overall validity rating (--/- /+ /++)
<p>Clearly focused question or hypothesis?</p> <p>Sample type and size (demographics)</p> <p>How was the sample achieved?</p> <p>Is the sample representative (of what)?</p> <p>Response rate?</p> <p>Adequate description of methodology?</p>	<p>Has the data collection instrument been validated?</p> <p>Possible effects of administration of data collection</p> <p>Quality of statistical analysis (confidence intervals, significance tests appropriate, weighting)</p> <p>Are conclusions commensurate with statistical analysis?</p> <p>Has the study dealt appropriately with any ethical concerns?</p>	<p>Does the study's research question match the REAQ question?</p> <p>Does the study population match at least one of the groups covered by the REAQ?</p>	