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**Online Child Sexual Offending: Psychological Characteristics of
Offenders and the Process of Exploitation**

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Doctorate in Clinical Psychology

The University of Edinburgh

May 2017

Word count: 25,261

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Acknowledgements

Firstly, I would like to thank my academic supervisors, Dr Emily Newman and Dr Ethel Quayle, for their invaluable research guidance over the last three years. You have been reliable, generous of your time, and had confidence in my ability at times I did not. Secondly, I would like to thank my clinical supervisor, Dr Louise Tansey. Your clinical perspective has been refreshing and grounding, and there is much advice you have given that I will take forward with me.

This doctoral course has seen me commute from London to Edinburgh on a weekly basis. I could not have succeeded without the support of my incredible husband, Peter, who without complaint managed household affairs and largely took care of our little girl, Rosie. Thank you also to my mum for welcoming me back into my childhood home on the days I was Edinburgh-based. You have encouraged me in my ambitions my whole life, without which I would not be where I am today.

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Portfolio Abstract

Background and Objectives: The rise in cases of online child sexual exploitation has become a global problem. Understanding both the psychological profiles of this offender group and the strategies employed during the process of exploitation, is crucial for aiding prevention and detection of these crimes as well as informing treatment and educational programmes. Thus, there were two main aims of the thesis. Firstly, a systematic review was conducted to investigate the psychological characteristics of online child sexual offenders (OCSO). Secondly, research was carried out to examine the utility of a pre-existing process model of grooming in the online sexual exploitation of children (O'Connell, 2003).

Methodology: A systematic search of papers published between 2006 and 2016 was carried out. Those eligible for inclusion measured psychological characteristics using psychometric tools. A quality checklist was designed to appraise the methodological robustness of each paper. For the research study, qualitative content analysis of 63 online chat logs between offenders and children was undertaken. Logs were initially coded for correspondence to stages and strategies outlined by O'Connell, and additional codes assigned to themed text that did not fit this model.

Results: The systematic review revealed fourteen papers for inclusion, and collective strengths and weaknesses were identified. Compared to contact offenders, few differences in psychological characteristics were identified; however tentative evidence suggests that online offenders experience greater interpersonal deficits whilst contact offenders present with more antisocial difficulties. Qualitative content analysis of chat logs revealed partial support for O'Connell's model. Several offender strategies proposed to take place during the sexual stage were evidenced. However, no logs showed evidence of all six stages. Additional offender strategies identified included flattery and minimising their behaviour. Various child strategies were identified, with children refusing all sexual advances in the majority of logs (n=34).

Conclusions: Generic sexual offender treatment packages may not best meet the needs of OCSO. An alternative is discussed. Future research should focus on the development of psychometric tools for use with OCSO. Offenders appear heterogeneous in their approach to online sexual exploitation of children. Effective educational programmes must emphasise the speed at which many offenders will introduce sexual content, for whom traditional notions of grooming do not apply.



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Chapter One

Psychological Characteristics of Online Child Sexual Offenders: A Systematic Review

Abstract

Understanding the psychological profiles of online child sexual offenders (OCSO) is critical for the development of effective crime prevention and treatment programmes, yet existing theories are largely based on research with contact offenders. This systematic review critically evaluated research to date on the psychological characteristics of OCSO, taking into account methodological quality of included studies. Relevant databases and journals were searched and studies screened according to inclusion and exclusion criteria. Fourteen studies were included for review, with a good level of inter-rater reliability established. Results indicate that OCSO experience more interpersonal and mood regulation difficulties, whilst contact offenders present with more antisocial traits. It is difficult to draw conclusions regarding mixed offenders, due to the paucity of studies. Results are tempered by collective methodological weaknesses, including a lack of representative samples or measures designed for OCSO. Implications for treatment, methodological challenges of research with this population, and recommendations for future research are discussed.

Keywords: online, sexual offender, psychological characteristics

Introduction

The introduction and continued growth of the internet as a Worldwide communication tool has cultivated new ways of interacting with others, improved ease and speed of access to information, as well as the ability complete many tasks within the convenience of one's home (Armstrong & Mellor, 2016). Whilst online forums are used responsibly by most, new opportunities have arisen for those with deviant intentions. One example is those with a sexual interest in children (Holt, Blevins, & Burkert, 2010; Merdian, Curtis, Thakker, Wilson, & Boer, 2013). The internet has dramatically changed the economic landscape for such individuals, arguably providing comfortable conditions for offending, with its perceived anonymity and lower risk of detection (Briggs, Simon, & Simonsen, 2011; Jung, Ellis, & Malesky, 2012; Shannon, 2008). Those who previously, outside of a few European countries, found it difficult to access sexual abuse images (SAI) of children are now privy to an almost limitless supply (Jung et al., 2012; Lanning, 2001). Certainly, ongoing rapid technological change means that the infrastructure within homes is constantly evolving; becoming increasingly interconnected and allowing the flexible consumption and sharing of media (Ley et al., 2014). This poses a substantial challenge for policing and criminal justice systems (Elliott & Beech, 2009), and the proliferation in cases of online child sexual abuse and exploitation has become a global problem (Gupta, Kumaraguru, & Sureka, 2012; Internet Watch Foundation, 2016; National Society for Prevention of Cruelty to Children [NSPCC], 2016; Tomak, Weschler, Ghahramanlou-Holloway, Virden, & Nademin, 2009). In 2015 alone, the Internet Watch Foundation identified 68,092 URLs containing child SAI; an increase of 118 percent from the previous year (NSPCC, 2016). Whilst the majority of online sexual offenders have been convicted of possession or distribution of SAI (Magaletta, Faust, Bickart, & McLearn, 2014; Wolak, 2011), the internet is also used by a proportion of offenders to solicit cybersex from children and lure victims for the purpose of future contact offending.

To aid law enforcement agencies in the detection of these crimes, inform prevention programmes designed to protect potential child victims, and provide effective treatment for offenders, an understanding of the psychological profiles of online child sexual offenders is crucial. However, given that the internet is a relatively new medium for the commission of such crimes, existing theories of child sexual abuse are largely based upon research with contact offenders. One such influential theory was developed by Ward and Siegert (2002). The Pathways Model was an attempt to incorporate salient features of previously prominent

theories (Finkelhor, 1984; Hall & Hirschman, 1992; Marshall & Barbaree, 1990) whilst also addressing limitations. This resulted in a multifactorial model suggestive of four distinct, interacting etiological pathways to child sexual abuse, each associated with a core set of psychological vulnerabilities. These dysfunctional psychological mechanisms are assumed to be influenced by learning events, cultural and biological factors. It is hypothesised that the first pathway, Intimacy Deficits, is typified by offenders who possess normal sexual scripts and offend only at specific times of adversity, such as extended periods of loneliness, rejection or compromised adult relationships. Sexual scripts are beliefs about how men and women should interact and behave in sexual relationships. The second pathway, Deviant Sexual Scripts, contains offenders with dysfunctional attachment styles who possess subtle distortions of sexual scripts. For these individuals, interpersonal proximity is only achieved by sexual contact. Emotional Dysregulation is the third etiological pathway, characterised by offenders who possess normal sexual scripts, however struggle to self regulate emotions. The fourth pathway, Antisocial Cognitions, contains individuals who possess general pro-criminal attitudes in the absence of distorted sexual scripts. A fifth pathway, Multiple Dysfunctional Mechanisms, refers to individuals with pronounced deficits in all four primary psychological mechanisms, and is suggested most likely to contain 'pure paedophiles'. Despite partial evidence to support the Pathways model, questions remain regarding its utility with online sexual offenders. Middleton, Elliott and Mandeville-Norden (2006) found that based on responses to psychometric measures mapped to the primary mechanisms, almost half of the sample could not be assigned to any of the five pathways. In concluding, the authors note that only a small number of participants scored highly on measures of self deceptive enhancement and image management. This makes it unlikely that results were confounded by social desirability effects, and raises the possibility that a proportion of online sexual offenders do not share the psychological vulnerabilities traditionally associated with contact sexual offenders.

The Integrated Theory of Sexual Offending (ITSO; Ward & Beech, 2006) assimilates elements of the Pathways Model; however greater attention is given to neurobiological factors associated with child sexual abusers. The ITSO postulates difficulties in the following psychological domains: deviant sexual interests, dysfunctional schemas, problematic attachment and impulsivity/mood problems. There is some evidence to support the applicability of the ITSO to SAI offenders. For example, Taylor and Quayle (2003) and Ward (2000) outlined two levels of cognitive distortions reported by online offenders: offense-level and sexual abuse-level. The former relates to the appropriateness of engaging with child SAI

and perceived consequences for the victims concerned. The latter relates to the appropriateness and perceived consequences of sexual contact between children and adults. However, there remains concern that existing models overlook unique aspects of online offending. In an extensive review of the literature, Elliott and Beech (2009) caution that "by continually endeavoring to apply sexual offender theory to internet offenders we are not capturing the individual qualities of this offense type that could allow us to construct better methods of prevention, assessment and treatment" (p.191).

Indeed, there is evidence that contact and online child sexual offenders differ on a range of demographic, risk and psychological factors. Online offenders tend to be younger and better educated (Babchishin, Hanson, & Hermann, 2011; Neutze, Seto, Schaefer, Mundt, & Beier, 2011). A review of comparisons between the two groups by Babchishin et al. (2011) concluded that online offenders show lower levels of impression management and higher levels of deviant sexual interest in children. Despite the fact that sexual interest in children is one of the best predictors of contact offenses, online offenders appear to have relatively low levels of re-offending or future contact offending compared to contact offenders (Babchishin, Hanson, & VanZuylen, 2014; Seto, Hanson, & Babchishin, 2011). Possible explanations include that online offenders demonstrate greater victim empathy, fewer cognitive distortions, and less antisocial traits than contact offenders (Babchishin et al., 2011; Long, Alison, & McManus, 2013), which may act as barriers to offending. Thus, they may engage in fantasy, accept it is morally wrong, and not act on it even if opportunity for contact offense arises (Elliott & Beech, 2009).

In addition to the problems associated with pigeon-holing internet offenders into etiological theories of contact offending, it is increasingly accepted that online sexual offenders are a heterogeneous group. Researchers have distinguished this population based on motivation to offend (Briggs et al., 2011; Elliott & Beech, 2009; Lanning, 2001; Merdian et al., 2013), with typologies largely based on four groups. Fantasy-driven offenders commit crimes to fuel a sexual interest in children, without expressed intent to meet offline. They can be further distinguished as those who access SAI and do not directly victimise a child, and those who directly victimise a child by engaging them in cybersex. Contact-driven offenders use the internet as part of a larger pattern of offending, including SAI and online grooming of children in order to facilitate offline offenses. Periodically prurient offenders act sporadically, impulsively or out of curiosity, potentially with a wider interest in pornography not specific to children. Commercial exploitation offenders produce or trade images for financial gain.

With only a paucity of findings to date, research comparing different types of online

offenders is in its infancy. However, mixed offenders (with both online and contact offenses) have shown recidivism rates comparable to those of contact offenders (Harris & Hanson, 2004), which are higher than rates for those with SAI only convictions (Graf & Dittmann, 2011). In comparing contact offenders with two online only offender groups, SAI and contact-driven, Seto, Wood, Babchishin and Flynn (2012) found that SAI offenders showed the most deviant sexual interests. Both online offender groups had lower capacity for relationship stability than contact offenders. This supports the hypothesis that the internet is a particularly important medium for those who experience difficulties in forming interpersonal relationships (Middleton et al., 2006; Quayle & Taylor, 2003). Empirical advancement on internet sexual offending groups has so far been limited by samples including offenders with different motivations and offending behaviours. Most notably, studies have often combined SAI offenders with mixed offenders, taking little account of the heterogeneity within online offender groups (Babchishin et al., 2011). In recognition of this methodological shortcoming, in a recent meta-analysis Babchishin et al. (2014) compared psychological and demographic characteristics of SAI only, contact only, and mixed offender groups. Findings indicated that the groups differed on specific psychological characteristics: psychological barriers to offending and antisociality. Contact and mixed offenders were more antisocial than SAI offenders, and compared to contact and mixed offenders, SAI offenders had a greater number of barriers to offending, such as greater victim empathy and fewer cognitive distortions. In contrast to the findings of Seto et al. (2012), mixed offenders were found to be most paedophilic, followed by SAI offenders. Babchishin et al. (2014) conclude that in the management and treatment of online SAI offenders, cautious consideration of co-existing contact offenses is recommended. Furthermore, critical to our advancement in understanding etiological and risk factors for these offender groups is clear sample compositions. One major limitation of this analysis was the lack of consideration of the methodological robustness of the individual studies included; not an uncommon feature of meta-analyses (Petticrew & Roberts, 2008). The current systematic review assessed and critically appraised the methodological quality of included studies, as well as considering novel research published up to 2016.

The aim of this systematic review was to critically appraise the available literature regarding the psychological characteristics of child sexual offenders who use online forums in the commission of their crimes, including SAI, solicitation, and mixed offender groups. Examining psychological features between these groups is likely to have implications for crime detection and prevention strategies, as well informing offender management and

treatment policy. In turn, this will facilitate the efficient use of resources at a national and local public service level. A systematic review adopts a clear approach to identifying relevant studies, and rigorous methods to critically appraise key features of study design that may introduce internal or external bias (National Institute for Health and Care Excellence [NICE], 2012). Thus, this review aimed to complement previous literature reviews and meta-analyses, whilst also evaluating the methodological quality of included studies.

Methodology

The current review adhered to recommended guidelines developed by the Centre for Reviews and Dissemination (CRD) at the University of York (CRD, 2009), and the Scottish Intercollegiate Guidelines Network 50 (SIGN 50) Methodology Checklist (SIGN, 2013a). Ethical approval was granted by The University of Edinburgh School of Health in Social Science ethics committee (see Appendix C).

Inclusion and Exclusion Criteria

Study design

Studies were eligible for inclusion if they cited the investigation of psychological characteristics of online child sexual offenders as a primary aim or research question, were quantitative and descriptive in nature. Eligible studies had to utilise self report psychometric tools primarily designed to measure psychological characteristics. The term ‘psychological characteristics’ comprises personality traits, attitudes or emotional states. Studies that used measures designed for other purposes (e.g. risk assessment) were excluded. Due to translation limitations, studies had to be available in English. Only original research studies published in peer reviewed journals were included.

Population

Eligible studies included a sample with an offense history relating to the online sexual abuse or exploitation of children. Studies were excluded if they included female or juvenile (under 18 years old) offenders, as current literature regarding these groups is sparse.

Literature search strategy

Between September and October 2016 the primary author (HB) conducted a search of the following electronic databases: EMBASE, MEDLINE, ProQuest Dissertations and Theses Global, and PsycInfo. ProQuest was included in the original search as it may have highlighted eligible theses that were published in a peer reviewed journal at a later date. Advanced search strategies used the keywords listed in Table 1.1. Due to electronic database indexing errors that can occur (Petticrew & Roberts, 2008), additional search measures were undertaken to identify any eligible papers previously missed. Content lists of key journals identified during the scoping process (*Psychology, Crime & Law*, and *Sexual Abuse: A Journal of Research and Treatment*) were hand searched between 2006 and 2016. The reference list of a recent relevant meta-analysis (Babchishin et al., 2014) was also reviewed.

These measures identified one additional paper for inclusion within the review (Meridian, Curtis, Thakker, Wilson, & Boer, 2014).

Table 1.1 Electronic Database Advanced Search Terms

Search Term String	
Term 1	online OR internet OR web OR “social media” OR “social network*” AND
Term 2	offend* OR perpetrator* OR criminal* OR prisoner* AND
Term 3	“sex offend*” OR abus* OR pedophil* OR paedophile* OR solicitat* OR pornograph* OR groom*

NB: American/British spelling; *: truncation for multiple endings

Study selection

After duplicates were removed, searches via electronic databases and hand yielded 1085 publications. Titles were screened, with those obviously unrelated to the current review or investigating excluded populations disregarded. This process resulted in 144 studies.

Abstracts of the remaining studies were examined according to the inclusion and exclusion criteria, resulting in 21 potential studies for inclusion. At this stage, full copies of the articles were obtained. Reasons for exclusion at this point on are summarised in Appendix A. In total, fourteen studies met the criteria and were included within the current review. Reference lists of the included fourteen studies were searched for additional eligible studies; however this yielded no further results (see Figure 1.1).

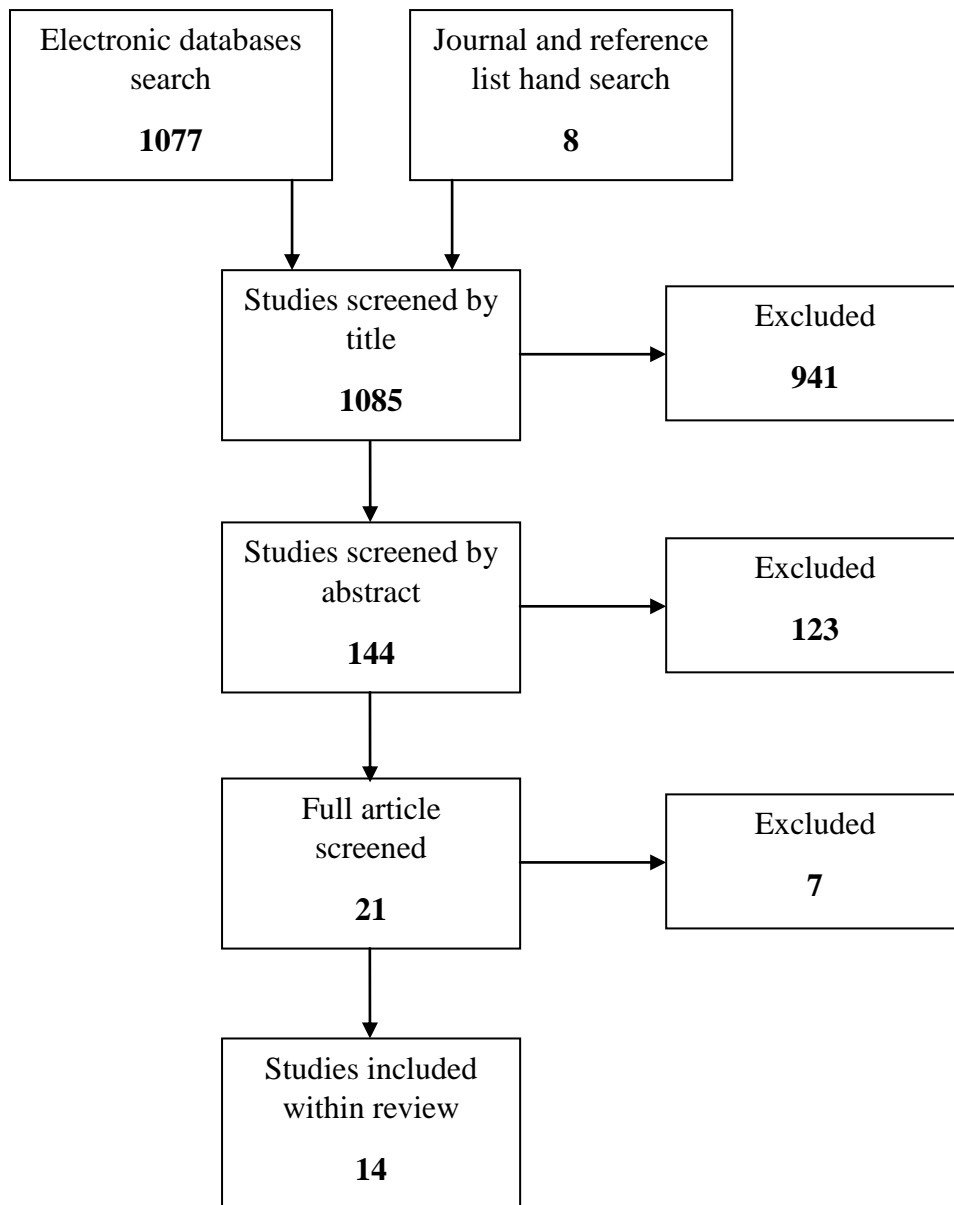


Figure 1.1 Literature search process diagram

Quality Assessment of Included Studies

To evaluate the methodological quality of each study, a suitable quality rating tool was developed. This tool was adapted from both the SIGN 50 (2013) critical appraisal checklist for cohort studies, and NICE (2012) quality appraisal checklist for quantitative studies reporting correlations and associations. The tool consisted of twelve criteria, designed to assess the risk of selection and detection bias (see Appendix B). Each criterion was awarded a score of 1 (YES), or 0 (NO/CANNOT SAY). To assess inter-rater reliability of the checklist, one third of the papers were randomly assigned for review to a researcher uninvolved in the study. An adequate inter-rater consistency level with Kappa co-efficient .57 was found (Randolf, 2008), and any differences reconciled through discussion.

Results

Ten of the fourteen included studies consisted of a sample of online-only offenders; however no mixed (online plus contact) offender sample. The remaining four included both online-only and mixed offender samples. Findings from these two groups of studies are presented separately, for clarity. Regarding online-only offenders, the vast majority of offenses related to possession or distribution of SAI; however a small number of other online offenses, such as making or trading indecent images and videos, and sexual solicitation of children were also included. Regarding mixed offenders, all had committed a combination of SAI and contact sexual offenses; however the type of SAI offense was not specified in three of the studies (Armstrong & Mellor, 2016; Howitt & Sheldon, 2007; Merdian et al., 2014). See Table 1.2 for a summary of included studies and Table 1.3 for quality criteria ratings across studies.

Table 1.2 Summary of included studies

Author (date), country	Data collection method	Sample (N)	Psychometric Measures	Main Findings
Armstrong and Mellor (2016) Australia	Self-report data collected from sexual offender treatment programme files Non-offender sample randomly selected via electoral role and invited to take part/complete self-report measures	Mixed offenders (n=20) <i>SAI + CC</i> Online-only offenders (n=32) <i>SAI only</i> Contact offenders (n=32) <i>CC only</i> Contact offenders (n=31) <i>CA only</i> Non-offenders (n=47)	RSQ (Griffin & Bartholomew, 1994); FIS (Descutner & Thelen, 1991); FNES (Watson & Friend, 1969); SADS (Watson & Friend, 1969)	Mixed and online-only: more fearful attachment ($p<0.008$) and negative view of self ($p<0.01$) than non-offenders Online-only: less secure attachment than contact offenders and non-offenders ($p<0.04$); more negative view of self than contact offenders ($p<0.01$); higher social avoidance/distress than non-offenders ($p<0.01$) No differences on other RSQ attachment styles, model of others, FIS or FNES
Bates and Metcalf (2007) U.K.	Self-report offender data collected from probation service files	Online-only offenders* (n=39) <i>2 with previous contact offenses</i> Contact offenders (n=39) <i>Included CC and CA</i> *Type of online offenses not reported	Pre-treatment assessment battery (Beech, 1998) including: VEDS; C&SCQ; sSES; LS; SRI; IRI; LoCS; PDS	Online-only: compared to contact offenders, greater impression management, loneliness and under-assertiveness, fewer cognitive distortions and victim empathy distortions, less externalised locus of control and emotional congruence with children Only difference in impression management was significant
Elliott, Beech and Mandeville-Norden (2013) U.K.	Self-report offender data collected from probation service files	Mixed offenders (n=142) <i>SAI + CC</i> Online-only offenders (n=459) <i>SAI only</i> Contact offenders (n=526) <i>CC only</i>	Pre-treatment assessment battery (Beech, 1998) including: VEDS; C&SCQ; sSES; LS; SRI; IRI; LoCS; BIS; PDS	Mixed: compared to online offenders, greater victim empathy distortions, personal distress, perspective taking and lower over-assertiveness. Higher empathic concern than contact offenders Online-only and Mixed: Less cognitive and victim empathy distortions, external locus of control, over-assertiveness and impulsivity, and higher fantasy scores than contact offenders All effect sizes small except victim empathy ($r=0.21$)
Elliott et al., (2009) U.K.	Self-report offender data collected from probation service files	Online-only offenders (n=505) <i>SAI only</i> Contact offenders (n=526) <i>CC only</i>	Pre-treatment assessment battery (Beech, 1998) including: VEDS; C&SCQ; sSES; LS; SRI; IRI; LoCS; BIS; PDS	Online-only: compared to contact offenders, fewer cognitive distortions and victim empathy distortions, less externalised locus of control and emotional congruence with children, and less prone to over-assertiveness and cognitive impulsivity All effect sizes small except victim empathy ($r=0.30$)
Henry et al., (2010) U.K.	Self-report offender data collected from probation service files	Online-only offenders (n=633) <i>632 SAI only</i> <i>1 solicitation</i>	Pre-treatment assessment battery (Beech, 1998) including: VEDS; C&SCQ; sSES; LS; SRI; IRI; LoCS; BIS; PDS	Online-only: 'normal', 'inadequate' and 'deviant' groups identified
Howitt and Sheldon (2007) U.K.	Self-report data collected from a volunteer sample of offenders within a prison and probation service	Mixed offenders (n=10) <i>SAI + CC</i> Online-only offenders (n=16) <i>SAI only</i> Contact offenders (n=25) <i>CC only</i>	Children and Sexual Activities Scale (developed by the authors)	Online-only: more likely than contact offenders to endorse items on 'children as sexual objects' scale ($p=0.04$) Overall, few differences found between groups
Jung et al., (2013) Canada	Self-report data collected from outpatient forensic clinic files	Online-only offenders (n=50) <i>SAI only</i> Contact offenders (n=101) <i>CC only</i> Non-contact sexual offenders (n=45) <i>e.g. exhibitionists, voyeurs</i>	Personality Assessment Inventory (Morey, 1991)	Online-only: Scored lower on WRM than contact offenders ($p<0.01$) No differences between groups on other PAI scales

Laulik, Allam and Sheridan (2007) U.K.	Self-report data collected from a volunteer sample within probation services	Online-only offenders (n=30) 24 SAI only 6 SAI + additional child sexual offense (e.g. taking indecent videos)	Personality Assessment Inventory (Morey, 1991)	Online-only: scored higher than normative sample on DEP and STR (p<0.01), SCZ, BOR, ANT and SUI (p<0.05), and significantly lower on DOM, WRM, MAN, AGG and RXR (p<0.01)
Magaletta et al., (2014) U.S.	Secondary use of self-report data collected from offenders in custody	Online-only offenders (n=35) SAI only Contact offenders (n=26) CC only	Personality Assessment Inventory (Morey, 1991)	Online-only: compared to normative sample, scored significantly higher on DEP, STR, BOR (p<0.001), and lower on MAN, RXR. Compared to contact offenders, scored significantly lower on ANT, DRG, PAR (p<0.001) and ALC (p<0.01). Scored significantly lower than contact offenders and normative sample on DOM (p<0.01) and AGG (p<0.001)
Merdian et al., (2014)	Self-report data collected from a volunteer sample of offenders within sexual offender treatment programmes and prison	Mixed offenders (n=17) Included CC and CA Online-only offenders (n=22) SAI only Contact offenders (n=29) Included CC and CA	Abel Becker Cognition Scale (Abel et al., 1984), plus 10 items from Children and Sexual Activities Scale (Howitt & Sheldon, 2007)	Mixed: significantly more likely than online-only group to endorse cognitive distortions Online-only: more likely than mixed and contact groups to disagree with items regarding Justification, Children as Sexual Objects, Power/Entitlement Overall, low endorsement for all offender groups
Reijnen, Bulten and Nijman (2009) Netherlands	Self-report data collected from outpatient forensic clinic files	Online-only offenders (n=22) SAI only Contact offenders (n=47) Included CC and CA Non-sexual offenders (n=65) e.g. fraud, domestic violence	Minnesota Multiphasic Personality Inventory-2 (Butcher et al., 1989)	No differences between online and contact offenders on any scales
Tomak et al., (2009) U.S.	Self-report data collected from outpatient sexual offender treatment programme files	Online-only offenders (n=48) 31 SAI only 6 Solicitation 11 SAI + solicitation Contact offenders (n=104) e.g. rapists, paedophiles	Minnesota Multiphasic Personality Inventory-2 (Butcher et al., 1989)	Online-only: Scored significantly lower than contact offenders on Psychopathic deviate (p=0.000), Schizophrenia (p<0.008), Validity scales L (p<0.005) and F (p<0.001) Overall: Few differences between offender groups. Both scored outside clinical range on most scales.
Wall, Pearce and McGuire (2011) U.K.	Self-report data collected from a volunteer sample within probation services	Online-only offenders (n=15)* 20 SAI downloading or collection 2 SAI trade or production 1 Visit chat room 1 Contact other offender Contact offenders (n=18) CC only Non-sexual offenders (n=25) e.g. theft, driving, drugs offenses Non-offenders (n=25) *Online offenders with +1 offense type included in sample	Emotional Avoidance Questionnaire (Taylor et al., 2004); The Acceptance and Action Questionnaire 2 (Bond et al., 2007)	No differences between groups on any scales
Webb, Craissati and Keen (2007) U.K.	Self-report data collected from outpatient treatment facility files	Online-only offenders (n=45) SAI only Contact offenders (n=58) CC only	Millon Clinical Multiaxial Inventory-III (Millon, Millon, & Davis, 1994)	No differences between online and contact offenders on any scales

Sample abbreviations: SAI (Sexual Abuse Images); CC (Contact child); CA (Contact Adult); Psychometric abbreviations: RSQ (Relationship Styles Questionnaire); FIS (Fear of Intimacy Scale); FNES (Fear of Negative Evaluation Scale); SADS (Social Avoidance and Distress Scale); VEDS (Victim Empathy Distortion Scale); C&SCQ (Children and Sex Cognitions Questionnaire); sSES (Short Self Esteem Scale); LS (UCLA Loneliness Scale); SRI (Social Response Inventory); IRI (Interpersonal Reactivity Index); LoCS (Locus of Control Scale); BIS (Barrett Impulsivity Scale); PDS (Paulhus Deception Scale)

Table 1.3 Quality criteria ratings

Study	Clearly defined aim	Representative sample	Inclusion criteria	Participation rate	Clearly defined outcome	Reliable group status assessment	Valid reliable measures	Social desirability accounted for	Lack treatment effects	Justified sample size	Appropriate analysis	Confidence interval
Armstrong and Mellor (2016)	YES	NO	YES	NO	YES	YES	YES	NO	YES	NO	YES	NO
Bates and Metcalf (2007)	YES	NO	YES	NO	YES	YES	YES	YES	YES	NO	CANNOT SAY	NO
Elliott et al., (2013)	YES	NO	YES	NO	YES	YES	YES	YES	YES	NO	YES	NO
Elliott et al., (2009)	YES	NO	YES	NO	YES	YES	YES	YES	YES	NO	YES	NO
Henry et al., (2010)	YES	NO	YES	NO	YES	YES	YES	YES	YES	NO	YES	NO
Howitt and Sheldon (2007)	YES	NO	YES	NO	YES	YES	CANNOT SAY	NO	CANNOT SAY	NO	CANNOT SAY	NO
Jung et al., (2013)	YES	NO	YES	NO	YES	YES	YES	NO	YES	NO	YES	NO
Laulik et al., (2007)	YES	NO	YES	NO	YES	YES	YES	YES	CANNOT SAY	NO	YES	NO
Magaletta et al., (2014)	YES	NO	YES	NO	YES	YES	YES	YES	YES	NO	CANNOT SAY	NO
Merdian et al., (2014)	YES	NO	YES	NO	YES	NO	CANNOT SAY	NO	CANNOT SAY	NO	YES	NO
Reijnen et al., (2009)	YES	NO	YES	NO	YES	YES	YES	NO	CANNOT SAY	NO	CANNOT SAY	NO
Tomak et al., (2009)	YES	NO	YES	NO	YES	YES	YES	CANNOT SAY	CANNOT SAY	NO	YES	NO
Wall et al., (2011)	YES	NO	YES	NO	YES	YES	YES	YES	YES	YES	CANNOT SAY	NO
Webb et al., (2007)	YES	NO	YES	YES	YES	YES	YES	NO	YES	NO	CANNOT SAY	NO

Online-only offender studies

Summary of study demographics

The countries of origin for these studies were U.K. (n=6), United States (n=2), Netherlands (n=1), and Canada (n=1), and publication dates ranged from 2007 to 2013. The mean sample size of online-only offender groups was 142 (range 15 to 633). This figure was skewed by two studies that included samples >500 (Elliott et al., 2009; Henry et al., 2010). Six studies gathered psychometric data retrospectively, from probation or outpatient assessment and treatment files (Elliott et al., 2009; Henry et al., 2010; Jung, Ennis, Stein, Choy, & Hook, 2013; Reijnen, Bulten, & Nijman, 2009; Tomak et al., 2009; Webb et al., 2011), two used volunteer sampling (Laulik et al., 2007; Wall et al., 2011) and one used secondary data collected from offenders in custody during previous research (Magaletta et al., 2014).

Summary of study results

Personality Traits

Three studies utilised the Personality Assessment Inventory (PAI; Morey, 1991) in comparing online-only child sexual offenders to other groups (Jung et al., 2013; Laulik et al., 2007; Magaletta et al., 2014), with substantial overlap in findings from two. Both Laulik et al. and Magaletta et al. found that, compared to a normative sample, online offenders scored significantly higher on depression, stress and borderline features, and lower on dominance, aggression, treatment rejection and mania. For dominance and aggression, Magaletta et al., found that online offenders scored significantly lower than both the normative and contact offender groups. Whilst online offenders in the Laulik et al., study scored significantly higher on schizophrenia, antisociality, and suicidality than the normative group, these findings were not replicated by the other studies. However, it is important to note that comparison groups differed for each of these studies, with Jung et al., comparing three offender sample compositions and no normative group. Regarding warmth, online offenders scored significantly lower than contact offenders in two studies (Jung et al., and Laulik et al., respectively). Other than warmth, Jung et al., found no other significant differences between offender groups on any of the PAI scales. In the Magaletta et al., study there were significant differences in scores between online and contact offenders on antisociality, drugs, alcohol and paranoia, with contact offenders scoring higher on all. In comparing contact offenders to the normative sample, this study showed more pronounced differences, with contact offenders scoring higher on depression, anxiety, paranoia, borderline features, anxiety related disorders, antisociality, alcohol and drugs. All concluded that where differences did exist

between online offenders and comparison groups, these were suggestive of online offenders experiencing difficulties with interpersonal functioning.

Alternative personality measures were utilised in three studies (Reijnen et al., 2009; Tomak et al., 2009; Webb, Craissati, & Keen, 2007): Millon Clinical Multiaxial Inventory III (MCMI-III; Millon, Millon & Davis, 1994) and Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Butcher et al., 1989). Both Webb et al., and Reijnen et al., found no significant differences between online and contact sexual offender groups on any of the personality scales. In partial support of findings described above (Laulik et al., 2007; Magaletta et al., 2014), the only difference highlighted was between online and non-sexual offender groups (Reijnen et al.), with online offenders scoring significantly lower on mania ($p \leq 0.01$). Webb et al., caution that although online and contact offenders displayed a similar personality profile, it is important not to assume online offenders are at high risk of reoffending, as follow up data showed they were more compliant with treatment and had lower recidivism rates. Consistent with the Reijnen et al. and Webb et al. studies, Tomak et al. (2009) found few differences between online and other sexual offenders. Online offenders scored lower on psychopathic deviate ($p=0.000$), schizophrenia ($p<0.008$), and validity scales L ($p<0.005$), and F ($p<0.001$) scales, suggesting they are less physically aggressive and less impulsive. Tomak et al., noted that only 3/48 online offenders shared a code type on the MMPI-2, attributing this to the heterogeneity of this offender group. Despite few differences on the MCMI-III and MMPI-2, there was some evidence of greater psychopathic deviation and psychopathology for all offender groups in two studies (Reijnen et al., 2009; Webb et al., 2007), suggestive perhaps of the forensic population as a whole rather than online child sexual offenders specifically.

Interpersonal functioning and emotional/behavioural regulation

A battery of psychometric tools designed to measure interpersonal functioning, regulation of emotions and behaviours, and offense-related cognitive distortions was administered in three studies to explore the psychological characteristics of online offenders (Bates & Metcalf, 2007; Elliot et al., 2009; Henry et al., 2010). In the Henry et al. study, cluster analysis revealed three groups. Offenders in the 'normal' cluster scored near or within normal range on all measures. Offenders in the 'inadequate' cluster scored within normal range on all pro-offending measures; however showed greater emotional loneliness, personal distress, under-assertiveness and external locus of control, and lower self esteem. Offenders in the 'deviant' cluster scored higher than the normal range on all three pro-offending measures, as well as

demonstrating deficits in some socio-affective areas. Test differences between clusters were statistically significant, and results did not alter after the authors controlled for socially desirable responding. Using the same measures, and it is crucial to note, largely the same sample of SAI offenders, Bates and Metcalf (2007) and Elliott et al. (2009) compared scores of online and contact offender groups. Results from both indicated several differences and trends in the same direction, with contact offenders reporting more externalised locus of control and higher levels emotional congruence with children. Online offenders reported greater under-assertiveness and emotional loneliness (Bates & Metcalf, 2007) and could more easily relate to fictional characters (Elliott et al., 2009), whereas contact offenders were more prone to over-assertive reactions and making impulsive cognitive decisions (Elliott et al., 2009).

Specifically investigating emotional avoidance, Wall, Pearce and McGuire (2011) found no significant differences between online offenders, contact child, non-sexual offenders and non-offenders, noting that this is contrary to existing literature suggesting the internet is used by online offenders as an avoidant coping strategy (Middleton et al., 2006; Quayle et al., 2006). Possible author explanations include that effects are small and a larger sample may have revealed higher emotional avoidance in the online group, emotional avoidance is a state rather than trait characteristic, the measures used do not capture the type of avoidance used by online offenders; or emotional avoidance is an issue for some offenders regardless of offense type and differences between sexual offender groups do not exist.

Offense-related cognitive distortions

Both Bates and Metcalf (2007) and Elliott et al. (2009) found that compared to contact offenders, online-only offenders showed lower levels of cognitive distortions and victim empathy distortions. However, Bates and Metcalf (2007) caution that online-offenders scored more highly on socially desirable responding items relating to Impression Management, therefore this group may have more significant difficulties than they report. For Elliott et al. (2009), whilst all reported differences across all measures were significant, only the difference in victim empathy distortions reached threshold for a medium effect size, leading Elliott et al. to conclude that in terms of socio-affective measures, differences between these child sexual offender groups are subtle; however contact offenders are more likely to have primary deficits related to the antisocial cognitions pathway (Ward & Siegert, 2002).

Mixed Offender studies

Summary of study demographics

The countries of origin for these studies were U.K. (n=2), New Zealand (n=1) and Australia (n=1), and studies were published between 2007 and 2016. The mean sample size of online-only offender groups was 132 (range 16 to 459). The mean sample size of mixed offender groups was 47 (range 10 to 142). However, these figures are skewed by the very large sample sizes utilised by Elliott et al. (2013). One study obtained data from a national offender database (Elliott et al.), one recruited from both a privately run prison and a probation service (Howitt & Sheldon, 2007), one used data from offenders recruited via volunteer sampling in prisons and treatment programmes (Meridian et al., 2014), and one obtained offender groups data from a sexual offender database whilst recruiting a sample of non-offenders from the electoral roll (Armstrong & Mellor, 2016).

Summary of study results

Attitudes, interpersonal functioning and emotional/behavioural regulation

Elliott et al. (2013) found that mixed offenders could be distinguished from online-only offenders as reporting greater personal distress and increased perspective taking, and lower levels of over-assertiveness. Additionally, mixed offenders showed significantly higher levels of empathic concern than the contact group. More pronounced differences were observed for contact offenders. This group differed from both online-only and mixed offender groups on six of fifteen measures administered, including showing lower fantasy scores, more external locus of control, and higher levels of over-assertiveness and cognitive impulsivity. However, it is important to note that effect sizes were small. Two functions were revealed that accounted for 80.9% variance in data: offense-supportive attitudes and fantasy, discriminating contact offenders from both other groups, and to a lesser extent, mixed from online-only offenders. Function two related to empathic concern and self management, distinguishing mixed offenders from both online-only and contact offender groups. The correct classification of offenders into contact, internet and mixed groups based on these two functions was better than chance (39.9%); however only one mixed offender was correctly classified. The authors concluded that overall, differences between groups are subtle: mixed offenders present with clinical features more similar to online-only offenders; however occupy a median position between online-only and contact offenders on some variables, and differ from online-only offenders in that they report more emotional self-management difficulties.

Offense-related cognitive distortion

Mixed offenders differed from online-only offenders in two studies, having significantly greater frequency of cognitive distortions (Meridian et al., 2014) and victim empathy distortions (Elliott et al., 2013). However, Elliott et al. found that contact offenders showed greater frequency of cognitive and victim empathy distortions than both online-only and mixed offenders. In contrast, Howitt and Sheldon (2007) found few differences regarding cognitive distortions between offender groups. Online-only offenders scored significantly higher on 'children as sexual objects' scale than mixed and contact offenders. Two factors were identified: children as sexual beings and justifications for offense, which accounted for 24.31% and 16.07% of total variance, respectively. Online-only offenders scored significantly higher than contact offenders on the 'children as sexual beings' scale. However, results should be treated with caution due to very small sample sizes.

Attachment styles

Armstrong and Mellor (2016) compared attachment styles between groups, and found that online-only offenders reported significantly less secure attachment than non-offenders, contact child and contact adult offenders, and a significantly more negative view of themselves than the contact child and contact adult offenders. Although SAI offenders scored higher in social avoidance and distress than non-offenders, they appeared no different to the other offender groups in this respect. The SAI and mixed groups showed significantly more fearful attachment and negative view of themselves than non-offenders, indicating they do not differ from the other sexual offender groups in these domains.

Methodological quality of studies

Collective Strengths

As a collective, studies within this review demonstrated several strengths, with the pattern of quality ratings for online-only offender studies almost identical to those for mixed offender studies. All fourteen addressed an appropriate research question with aims, rationale and outcomes clearly defined. Equally, all studies described some inclusion and exclusion criteria; however detail provided varied across papers. Of particular clarity were the Elliot et al. (2009) and Webb et al. (2007) papers. Finally, method of allocation to group status (e.g. online-only offender sample, mixed offender sample or contact offender sample) was deemed reliable for all studies except Meridian et al. (2014), where allocation was based on self

reported status. The other thirteen allocated according to index offense convictions. Whilst there is always the risk that additional offenses unknown to the criminal justice system have taken place, conviction data is one of the most reliable sources of information available.

Collective Weaknesses

Collective methodological weaknesses were also evident, with replication of ratings for online-only and mixed offender studies. All fourteen were marked 'No' regarding the likelihood that selected participants are representative of the adult male online child sexual offender population. All used samples of convicted offenders, either recruited or their data obtained from criminal justice or treatment facilities that they attended as a result of their conviction. These offenders may differ in psychological characteristics from those committing such offenses whose crimes go undetected. In addition, two employed volunteer sampling during recruitment (Howitt & Sheldon; 2007; Merdian et al., 2014). It is likely that the types of individuals who volunteered to take part are different to those who did not. None of the included studies recruited international samples; the vast majority collecting data from one state or region within the country of origin. In an attempt to improve representativeness, Magaletta et al. (2014) did recruit from several U.S. states, which is a relative strength of the study. However, as all were convicted offenders residing within one country, it remains unlikely that the sample is representative of the adult male online child sexual offender population as a whole. Confidence intervals were not reported for any studies. These can aid interpretation by placing upper and lower bounds on the likely size of any true effect. Apart from the Webb et al. (2007) study, participation rates for each group were not provided. Armstrong and Mellor (2016) referred only to the participation rate of the community sample actively recruited. This may be attributable to two factors: many of the included studies involved retrospective use of previously collected data rather than actual recruitment of participants, and most offender samples completed psychometric measures as part of their sentence or treatment arrangement, with little choice regarding compliance. Thus, performance against this criterion reflects a gap in the internet child sexual offender literature as a whole, with very few studies conducting prospective research that recruits participants on a voluntary basis. Finally, only Wall et al. (2011) cited justification for the sample size used. Whilst this was one of only two online-only offender studies to use a prospective design that actively recruited participants, it would have been possible for the other studies to employ power calculations to determine how many data files would need to be obtained to provide certain effect sizes.

Disparity in quality between studies

Across online-only and mixed offender studies, discrepancies in ratings of methodological robustness were most apparent for criterion regarding social desirability, possible treatment effects and use of appropriate analyses. Although eight online-only offender studies acquired data regarding possible social desirability effects, two of these did not appear to make adjustments for this during analysis or interpret the findings from administered social desirability scales (Tomak et al., Webb et al., 2007). Neither Jung et al. (2013) or Reijnen et al. (2009) identified social desirability as a potential confounding variable or acquired data regarding this. For mixed offender studies, only Elliott et al. (2013) identified and adjusted for social desirability effects in the design and analysis. Whilst seven online-only offender and two mixed offender studies limited the risk of treatment effects by using data collected prior to treatment, for the remaining five it was either unclear when psychometric data was collected or it was explicitly stated that this took place during treatment (Howitt & Sheldon, 2007; Laulik et al., 2007; Merdian et al., 2014; Reijnen et al., 2009; Tomak et al., 2009). It is therefore possible that treatment effects confounded results for these studies. Five online-only (Elliott et al., Henry et al., 2010; Jung et al., 2013; Laulik et al., 2007; Tomak et al., 2009) and three mixed offender studies (Armstrong & Mellor, 2016; Elliott et al., 2013; Merdian et al., 2014) were deemed to have used appropriate methods of statistical analysis; however it was not possible to make conclusions for the others. Four studies conducted parametric tests despite sample sizes <30, with no reference to checks of normal distribution or homogeneity of variance (Howitt & Sheldon, 2007; Megaletta et al., 2012; Reijnen et al., 2009; Wall et al., 2011). It cannot be assumed that samples of this size meet parametric assumptions. For Webb et al. (2007) it was unclear what tests of difference had been administered for the MCMI-III scales. Online-only and mixed offender studies appeared to differ from one another in quality ratings for one criterion only: citing the use of valid and reliable measures. All online-only offender studies reported the use of valid and reliable outcome measures. Quality of reporting varied, with five making explicit reference to reliability and validity features of administered measures (Elliott et al., 2009; Henry et al., 2010; Laulik et al., 2007; Magaletta et al., 2014; Webb et al., 2007). However, for mixed offender studies, two cited use of valid and reliable psychometric measures (Armstrong & Mellor, 2016; Elliott et al., 2013). Howitt and Sheldon (2007) created the 'Children and Sexual Activities' scale (C&SA) for the purpose of the study, and Merdian et al. 2014 used selected items from the C&SA. Whilst measures specifically designed for use with online offenders are crucial going forward, and authors report promising face validity (Howitt & Sheldon, 2007), no other reliability or validity checks were

described. Critically, aside from the C&SA, none of the measures used in any of the studies were actually designed for use with the target population: *online* offenders.

Ratings indicated three online-only studies (Elliott et al., 2009; Henry et al., 2010; Wall et al., 2011) and one mixed offender study (Elliott et al., 2013) to be the most methodologically robust of those included within this review.

Discussion

This study was the first systematic review of the literature regarding psychological characteristics of online child sexual offenders to consider the methodological robustness of included studies. Collectively, findings suggest that psychological differences between child sexual offender groups (online-only, mixed, and contact-only) are few, and where they do exist are subtle. This appears to also be the case when comparing online offenders (online-only and mixed) to non-sexual offenders or non-offenders. Indeed, considering in isolation the studies with the highest quality ratings (Elliott et al., 2009; Elliott et al., 2013; Henry et al., 2010; Wall et al., 2011), differences between child sexual offender groups were characterised by small effect sizes, an absence of differences, and a 'normal' cluster of online-only offenders scoring within or near to normal range on all measures.

This review provides tentative support for theory that online-only offenders experience difficulties with intimacy, interpersonal functioning and mood regulation (Middleton et al., 2006; Quayle & Taylor, 2002; Quayle & Taylor, 2003; Quayle et al., 2006). They differed from contact offenders on socio-affective measures such as assertiveness; showing lower levels (Bates & Metcalf, 2007; Elliott et al., 2009), and compared to both contact child sexual offenders and normative samples demonstrated significantly lower levels of dominance, warmth and aggression (Jung et al., 2013; Laulik et al., 2007; Magaletta et al., 2014). Online-only offenders could be further distinguished from normative samples, displaying a more fearful attachment style and negative view of self (Armstrong & Mellor, 2016) and scoring higher on depression, stress, and borderline features (Laulik et al., 2007; Magaletta et al., 2014). Thus, this review lends some credence to previous suggestions that online forums may serve as a less threatening format to build relationships, with time online also used as a way to avoid negative mood states (Middleton et al., 2006, Quayle & Taylor, 2002; Quayle et al., 2006). Although not a focus of this review, several included studies reported that online-only offenders were more likely to live alone, be single, and have fewer previous relationships and biological children (Jung et al., 2013; Reijnen et al., 2009; Webb et al., 2007). These factors further suggest a group that is characterised by socially isolated living, making the assertion that engagement with indecent images of children fulfils sexual needs without the intimacy of real relationships (Middleton et al., 2006) plausible. Regarding the relationship between lack of warmth and online offending, Laulik et al. (2007) postulate that offenders are able to objectify children being viewed, maintaining the behaviour. Jung et al. (2013) suggest that this group do not lack warmth due to a dislike for interpersonal

relationships; rather their absence of social skills makes close relationships anxiety-provoking, decreasing motivation to maintain them.

This review provides partial support for previous research that the psychological vulnerabilities of online-only and contact offenders differ. Rather than intimacy deficits, contact offenders showed higher levels of aggression, over-assertiveness, cognitive distortions, and anti-sociality in several studies (Bates, 2007; Elliott et al., 2009; Elliott et al., 2013; Laulik et al., 2007; Magaletta et al., 2014), leading authors to conclude that the clinical needs of contact-offenders are within the domain of anti-sociality. Support for this theory is tempered by the fact that two studies found no differences in levels of anti-sociality between offender groups (Jung et al., 2013; Webb et al., 2007), one found very few differences in levels of cognitive distortions (Howitt & Sheldon, 2007), and one identified that pro-offending attitudes are also a feature of some online-only offenders (Henry et al., 2010). Nevertheless, this review revealed factors consistent with previous research (Babchishin et al., 2011; Seto et al., 2011) that likely reflect online-only offenders greater ability to adhere to social rules; being less likely to re-offend (Elliott et al., 2013), more likely to have completed education (Jung et al., 2013), and extremely compliant with treatment (Webb et al., 2007). Overall, findings parallel those of previous meta-analytic reviews (Babchishin et al., 2011; Babchishin et al., 2014) and comparison studies (Seto et al., 2012); namely that online-only offenders possess a lower level of antisocial traits, victim empathy distortions and capacity for relationship stability than contact offenders. These psychological characteristics may well act as barriers to recidivism.

Regarding the psychological profiles of mixed offenders, it is difficult to draw conclusions given the small number of studies, mainly small sample sizes, and the fact that each used different psychometric measures. Despite large sample sizes in the Elliott et al. (2013) study, other than victim empathy distortions, small effect sizes were found for all identified differences between mixed, online and contact offenders. In two studies, mixed offenders demonstrated greater cognitive and victim empathy distortions than online-only offenders; however contact offenders demonstrated the highest level overall (Elliott et al., 2013; Merdian et al., 2014). In contrast, Howitt and Sheldon (2007) found little to distinguish between on a cognitive distortion scale. Surprisingly, online-only offenders were more likely to endorse the view that children are sexual objects. The authors suggest this may be due to the fact that those committing contact offenses have been exposed to the reality that children are not sexual beings, whereas online offenders engage in fantasy only. Taken together, results from this review provide preliminary support for the conclusions of Elliott et al.

(2013); that mixed offenders appear similar in many psychological characteristics to online-only offenders. If online-only offenders are less prone to victim empathy distortions, perhaps this acts as an inhibitor to contact offending. Indeed, if online-only and mixed offenders have greater ability to empathise with victims than contact offenders, this may partly explain low recidivism rates for both these groups (Babchishin et al., 2014; Seto et al., 2011). However, replication of studies including larger samples, as well as studies administering additional measures, are required to enable both the evidence base can grow, and researchers reach firmer conclusions regarding the psychological characteristics of mixed offenders.

A unique feature of this review was its systematic nature in appraising the methodological quality of included studies. Therefore, several design and analysis features must be considered alongside the results described above. Perhaps most significantly, all except one (Howitt & Sheldon, 2007) applied measures designed for use with contact sexual offenders. Thus to date, research with online offenders is not driven by any theoretical framework, and despite earlier warnings (Elliott & Beech, 2009) may not capture unique characteristics of this type of offender or offense. Thirteen studies allocated to offender groups based on conviction data. Whilst this is the most reliable source of information available, it limits the representativeness of findings. The psychological characteristics of online child sexual offenders whose crimes go undetected may differ. However, it is recognised that recruiting a volunteer sample from this population would likely be challenging, given the moral and legal repercussions of disclosing such crimes to a researcher. It is highly likely that for some offenders included in the studies, additional crimes were undetected, confounding validity of findings. For example, some 'online-only' offenders may have committed unknown contact offenses, resulting in misallocation to group. Whilst the vast majority of offenders in 'online-only' groups were convicted of SAI offenses, some studies included SAI alongside a small number of solicitation offenders (Henry et al., 2010; Tomak et al., 2009). It was therefore necessary for this review to report findings under the broader label of 'online-only' offenders. Given the small number of online-only offenders with solicitation offenses, it is unlikely this design issue limited the reliability of results. However, given emerging evidence that online-only offenders are a heterogeneous population with differing motivations, offense behaviours, and demographic and psychological characteristics, it would be preferable if future studies better distinguished samples according to offense types.

Regarding risk of detection bias, several studies failed to acknowledge or adjust for potential social desirability or treatment effects, or used small sample sizes, which limits

findings from those studies. As the vast majority of included studies were retrospective in design, ability to control for these factors was limited. Despite small sample sizes, some used powerful statistical analyses without clarifying suitability. This could have been a reporting issue rather than one of methodological quality; however it raises some doubt regarding reliability of findings. This review has therefore identified a need for future studies to employ prospective designs that control for social desirability and treatment effects, as well as aiming for larger samples. Despite being conducted in different countries, two studies found remarkably similar results (Laulik et al., 2007; Magaletta et al., 2014). Recruitment of international samples for the purposes of group comparisons, and an effort to further define online-only samples by offense type would also be desirable. Perhaps most importantly, additional research that investigates the psychological characteristics of mixed or online solicitation offenders is imperative, as the evidence base is currently sparse.

There are limitations of this review that must be acknowledged. Firstly, four included studies used data from the same population of online-only offenders (Bates & Metcalf, 2007; Elliott et al., 2009; Elliott et al., 2013; Henry et al., 2010), three of which received the highest quality ratings. This may have inflated findings of this review, raising the question of whether the same differences, and lack of differences between offender groups, would have been found if each study had collected data from a different population of online-only offenders. Secondly, some of the psychological characteristics referred to within this review may be dynamic, rather than stable in nature, which may limit their utility in the prevention of online child sexual offenses. For example, it is possible that fear of negative evaluation or social distress would be more pronounced following conviction, when offenders have been exposed to relatives and surrounding communities. Finally, the scope of this review was restricted to studies published in peer reviewed journals, as these are thought to have been subject to more rigorous review. It was also limited to studies using psychometric measures, both for ease of comparison between results, as well as controlling for the variable assessment type. Widening the criteria to include unpublished research as well as studies using other methods of data collection could further inform the literature regarding the psychological characteristics of online child sexual offenders. Future systematic reviews that both appraise methodological quality and synthesise findings, from studies that collected interview or clinical observation data, could expand knowledge of this population as well as testing the conclusions drawn by the current review. However, this review recommends that the current research priority should and must be to develop psychometric measures underpinned by theory and knowledge regarding online offenders, specifically for use with this population. Until this happens,

validity and reliability of review findings will continue to be weakened by reliance on inappropriate assessment tools.

Notwithstanding the methodological limitations described, findings of this review have implications for the management of online-only offenders, as well as informing potential crime prevention interventions. Characterised by intimacy deficits, the clinical needs of this group appear to differ from those committing contact offenses, whose psychological vulnerabilities seem to lie within the antisocial domain. Generic sexual offender treatment programmes may be focusing on basic inhibition skills that online-only offenders already possess. Due to social inhibition, individual rather than group treatment formats may be more appropriate for online offenders, at least initially. Furthermore, difficulties such as depression may be indicative of mental health needs that, given the apparent lack of criminogenic needs for online-only offenders may be adequately addressed by adult mental health services in the community. For this population, taking into account common interpersonal, social isolation and mood regulation difficulties, the stigma associated with child sexual offending, and ease of internet access for online offenders, this review recommends targeted provision of self help and psychoeducational materials online. It is hypothesised that improved offender wellbeing would lead to a reduction in offending behaviour, and hypothesised that anonymous access to support online would be more attractive to this offender group than the prospect of approaching organisations in person. This would be significantly less resource intensive than the costs associated with legal proceedings and offender management packages after the commission of child sexual offenses. Given the increasing rate at which online sexual offenders are entering the criminal justice system, and resulting pressures to enhance current online sexual crime detection strategies, this review provides a welcome insight into psychological features potentially characteristic of this sexual offender population.

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Chapter Two

The Utility of a Process Model of Online Child Sexual Exploitation

Abstract

Online technologies have provided a new medium for the sexual exploitation of children. O'Connell (2003) proposed stages and grooming strategies used by offenders during the online exploitation process. Given the rate of technological advancement since the model was developed, this study aimed to examine its utility. Content analysis of 63 genuine offender-child victim chat logs (n=63) was undertaken, with a good level of inter-rater agreement established. Results provided partial support for the model, with several sexual stage offender strategies evidenced. However, offenders often entered the sexual stage first. Additional offender strategies not outlined within the model were also identified, indicating heterogeneity of this offender group. Children appeared largely resilient, refusing all sexual advances in the majority of logs (n=34). Limitations, implications and future recommendations are discussed, namely the importance of educational programmes emphasising the speed at which many offenders introduce sexual content, for whom traditional notions of grooming do not apply.

Keywords: online, child sexual exploitation, strategies

Introduction

Online communication technologies including the internet, with its high speed and global span, have provided those with deviant sexual intentions another tool through which to access child victims (Black, Wollis, Woodworth, & Hancock, 2015; Mitchell, Jones, Finkelhor, & Wolak, 2011). Internet crimes against young people regularly dominate the media, causing anxiety for parents, educators and child protection experts (Mitchell et al., 2011). With this comes increasing pressure on government and law enforcement agencies to actively respond, yet the pace of technological evolution continues to present new challenges for policing, legislative systems and programmes of research (Elliott & Beech, 2009; Seto, 2017). Online forums arguably provide comfortable conditions for offenders, due to their perceived anonymity and lack of monitoring (Jung, Ellis, & Malesky, 2012; Rimer, 2017). In addition, offenders can simultaneously communicate with multiple victims within a discrete period of time, social networking sites actively encourage the sharing of personal information, and parents usually vigilant about who comes into real contact with their children are often less involved in their online world. Such factors increase accessibility and opportunity for online offenders, and the vulnerability of children (Briggs, Simon, & Simonsen, 2011; Davidson, Martellozzo, & Lorenz, 2009; O'Connell, 2003; Quayle, Allegro, Hutton, Sheath, & Loof, 2014; Staksrud, Olafsson, & Livingstone, 2013). The costs associated with online child sexual exploitation are varied, including financial ones associated with crime detection and offender management, and potential psychological costs for victims. Negative feelings of shame, guilt, fear, confusion and lack of control are common (Slavtcheva-Petkova, Nash, & Bulger, 2015; Whittle, Hamilton-Giachritis, & Elliott, 2014). Particularly traumatic for children is the knowledge that records of the abuse remain accessible through the internet (Prichard, Watters, & Spiranovic, 2011). Developing an understanding of the processes used by offenders to sexually exploit children online is a crucial foundation upon which to design effective prevention and detection strategies, in turn reducing the burden on victims and law enforcement.

Grooming is defined as a deliberate action aimed at establishing an emotional connection with a child to gain their trust and lower their inhibitions in order to exploit them sexually (NSPCC, 2017; Olsson, Daggs, Ellevold, & Rogers, 2007; Safe & Sound, 2017). There exist several models of online grooming (European Online Grooming Project; Webster et al., 2012; O'Connell, 2003; Staksrud, 2013), the most well-known and widely cited developed by O'Connell (2003). This Typology of Child Cyberexploitation and Online

Grooming Practices proposed six sequential stages: friendship forming, relationship forming, risk assessment, exclusivity, sexual and concluding. Prior to entering these stages the offender employs victim selection methods. These include the use of vetting questions regarding age, sex and location details, or lurking and observing communication between children before choosing to target one, often by sending a private message. O'Connell (2003) describes friendship forming as the offender 'getting to know the child'. During this stage the offender may ask for a non-sexual picture, ensuring they are communicating with a child and whether this child matches their predilections. An extension of the friendship forming stage, during relationship forming the offender engages the child in discussion about home or school life. O'Connell (2003) notes that whilst some offenders do not engage in this stage, those who wish to maintain contact are more likely to, creating the illusion of being the child's closest friend. During risk assessment the offender attempts to gauge the likelihood of being detected, for example by enquiring about the presence of guardians or location of the computer being used. The exclusivity stage usually follows risk assessment, with interactions focusing on trust, understanding and respect between both parties that must remain secret from others. Introduction to the sexual stage is characterised by sexual questions that may seem innocuous given the bond that has developed. Often the offender acts as a 'loving mentor', guiding the child to a greater understanding of their sexuality. The offender typically provides sexually explicit materials (SEM) of children to lower inhibitions, before asking the child to provide sexual images. Gentle pressure is applied, with expressions of remorse whenever the child indicates discomfort or a breach in the relationship. This stage often progresses to the child being encouraged to participate in fantasy either through mutuality, aggression or coercion. The final concluding stage involves damage limitation or hit and run tactics. The former embodies positive reinforcement and reiteration of the secret and loving bond shared, with the intention of reducing risk of the child disclosing details of the activities to anyone else. The latter is more common with aggressive offenders who, after a victim has engaged in sexual acts, are not interested in prolonging contact or 'scheduling either a repeat online or offline encounter' (p.13).

O'Connell's (2003) model was based on participant observation methodology, with more than 50 hours spent in teen chat rooms posing as a socially isolated child. To what extent this altered the communication process between offender and 'child' is unknown; however this presents a major limitation of the model and reduces the ecological validity of O'Connell's findings. In addition, the model was based on communication technologies that fourteen years on, with the pace of technological advancement could be considered outdated.

Since the model was developed, portable smart phones have replaced fixed location computers that were once within eyeshot of guardians. Apps, online gaming and social networking sites (SNS) introduced to the market have afforded additional opportunities for both children and offenders (Quayle, 2016). The ability to create sexual media via certain apps enables adolescents to engage in the developmental task of exploring sexuality, whilst offenders reportedly use SNS to access personal information about potential victims and disseminate images (Mitchell, Finkelhor, Jones & Wolak, 2010). This poses an important question around whether new technologies have changed the way that online child sexual offenders (OCSO) operate.

A number of researchers have conducted studies that test O'Connell's (2003) model of exploitation, with findings providing limited and contradictory support (Black et al., 2015; Gupta, Kumaraguru, & Sureka, 2012; Williams, Elliott, & Beech, 2013). Two studies created psycholinguistic profiles for each of the stages, and using transcripts from the Perverted Justice website (www.perverted-justice.com); a non-profit organisation where decoys are trained to pose as adolescents in chat rooms in a bid to trap offenders, employed a word counting programme to analyse the data (Black et al., 2015; Gupta et al., 2012). Williams et al. conducted thematic analysis using chat logs obtained from the same website. Whilst all found that elements of O'Connell's stages were present, they did not occur in the proposed linear order, and were enacted cyclically. All concluded that relationship forming was a significant feature of the process; however, findings regarding risk assessment and sexual stages were ambiguous. Two found evidence that risk assessment was a continual process taking place alongside other stages (Black et al., 2015; Williams et al., 2013), although it was significantly more likely to occur within the first 40% of dialogue in the Black et al. study. In contrast, Gupta et al. reported that risk assessment took up only 4% of offender communication overall. Certainly, there is a growing body of evidence to suggest that this group are heterogeneous in their approach to risk assessment (Balfe et al., 2015). For some, despite the social and legal consequences if caught, risk assessment is not a priority. Many do not take technological steps to protect their identity (Wolak et al., 2011) and some freely give personal information away (Briggs et al., 2011). In support of O'Connell's model, Williams et al. found evidence of force and repetition during the sexual stage; however, Black et al. found no evidence of force. Interestingly, Black et al. established that the majority of offenders broached the subject of sex within the first 20% of correspondence. Prompt introduction of sexual content is something that has been previously reported (Briggs et al., 2011; Winters, Kaylor, & Jeglic, 2017). Despite ambiguity, these results contest O'Connell's assertion that

the offender initiates dialogue pertaining to risk assessment and sexual content only after a relationship has been formed. Results also challenged the reliability of the exclusivity stage, with only 13/44 offenders from the Black et al. study using this technique at all, and it accounting for only 8% of dialogue in the Gupta et al. study.

Notwithstanding inconsistent findings, these studies challenge the utility of O'Connell's (2003) model of online solicitation. However, limitations of these studies also warrant consideration. All three were based on data obtained by decoys masquerading as children, questioning how well conversations reflect genuine interactions between offenders and children. In the Black et al. study alone, 13/44 offenders enquired about the possibility they were communicating with a sting, meaning suspicion may have accounted for speedy assessment of risk. In setting up linguistic analysis programmes, Black et al. and Gupta et al. subjectively selected words to represent each of O'Connell's stages, with word identifiers differing in both studies. Not only does this limit reliability of the findings, it highlights a potentially significant flaw in O'Connell's (2003) model, which is lack of specificity regarding each of the stages and the behaviours used within each. This criticism was also highlighted in a recent review by Elliott (2017): "...the explanation of relationship forming lacks detail on the psychological processes by which these relationships are formed and maintained. Also, despite arguably being elements of the same process, relationship forming is separated into constituent parts (friendship, exclusivity)" (p.85).

The absence of consideration of psychological factors within certain stages links to a broader question about the ability of process models to account for the psychological heterogeneity of this offender group. Briggs et al. (2011) distinguished OCSO based on motivation, including fantasy-driven offenders who fuel a sexual interest in children without intent to meet in person, and contact-driven offenders who use the internet to as part of a wider repertoire of sexual offending behaviour. A growing body of research indicates that online-only offenders differ in psychological characteristics from those committing both online and contact offenses, with the latter reporting more antisocial traits and offense-related cognitive distortions (Babchishin, Hanson, & VanZuylen, 2014; Bale, Newman, Quayle, & Tansey, 2017). Furthermore, whilst Elliott (2017) found some evidence of all stages within O'Connell's (2003) model, offenders appeared to self-regulate and use the mechanisms only to the extent necessary to achieve their individual goals. It is suggested that where the main goal is quick sexual gratification, the offender may focus on sexual content rather than spend time or effort building a relationship (Lorenzo-Dus & Izura, 2017). This may relate to recent trends identified by Child Exploitation and Online Protection Centre (CEOP, 2013),

including the investment by offenders of small amounts of time in multiple victims, and the period of time between initial engagement and offending often being very short. Thus, traditional notions of grooming may not accurately capture contemporary exploitation practices.

As a whole, criticisms of the research base concerning online sexual exploitation of children include the aforementioned use of 'stings', and a lack of consideration regarding child responses and the dynamic nature of interactions. It is accepted that there is urgent need for research based upon 'real' offender-victim communication (Black et al., 2015; Whittle, Hamilton-Giachritsis, Beech, & Collings, 2013; Lorenzo-Dus & Izura, 2017; Williams et al., 2013; Winters et al., 2017). In this context, adults masquerading as children have a vested interest in prolonging communication as long as is necessary to 'trap' the offender: there is little reason to assume these interactions reflect the naturalistic responses of children. Indeed, there is some research to suggest that most children are resilient online and many terminate interactions with individuals attempting to engage them in inappropriate conversations by blocking or ignoring them (Webster et al., 2012; Rosen, Cheever, & Carrier, 2008). Specifically investigating online requests for sexual images, Quayle and Newman (2016) identified child themes including resistance and self-generated sexual content. However, as far as the current authors are aware, there is no existing research based on genuine offender-child victim communication that reports on the full range of responses and strategies used by children throughout the process on online sexual exploitation.

This aim of this rare study, based on genuine online sexual solicitation interactions between offenders and child victims, was to assess the utility of O'Connell's (2003) prominent model of online exploitation. A secondary aim was to record the responses of children throughout the communication; something that has not been fully explored to date. Given the rate of technological advances since O'Connell's model was published, and additional criticisms of the model previously described, assessing its utility is crucial. In an attempt to recognise that grooming is a dynamic process occurring between offender and victim, considering child responses to solicitation techniques used by offenders will provide much-needed insight. It is anticipated that findings will have far-reaching implications, not least for potential victims. A sound understanding of the grooming strategies offenders use via modern online technologies will facilitate the development of credible education programmes targeted at children, guardians and schools. It will also inform child welfare organisations and charities, many of whom are the first point of contact for victims of abuse.

Finally, as government and law enforcement agencies work hard to combat this type of online crime, findings will inform detection and prevention programmes.

Methodology

Study Design/Materials

This study involved secondary analysis of logs extracted from a larger dataset owned by Cybertip.ca, which informed a previous report (Quayle & Newman, 2016). Cybertip.ca is a website operated by the Canadian Centre for Child Protection (www.protectchildren.ca), a charity dedicated to the personal safety of children. The website was set up in 2002, in response to growing numbers of online child sexual exploitation cases and a lack of reporting mechanisms. It is designed to receive notifications from the public regarding suspected online solicitation of minors. Relevant leads are referred to appropriate law enforcement and child welfare agencies.

Reported chat log transcripts verified by Cybertip.ca as authentic (i.e. communication between an adult and minor, whereby the adult attempted to solicit the minor for sexual purposes) were made available. In total, 114 chat logs taking place between 2009 and 2011 were authenticated. Logs were excluded if they were spoiled (chat data missing; n=5), duplicated (n=3), or it was difficult to differentiate between adult and minor (n=19). Due to translation limitations, French language logs (n=24) were also excluded. In total, 63 logs were included for analysis. The majority took place within online gaming sites, where multiple gamers can choose to converse publicly, or two can exchange dialogue privately. The remainder took place within instant messaging forums. Some logs captured the communication between adult and minor from beginning to end, whereas some provided only a snapshot of the dialogue. To protect confidentiality, any identifiable information within logs was redacted by Cybertip.ca prior to transfer.

Analysis

Data were analysed using content analysis. This flexible approach can be quantitative or qualitative in nature, adopting an inductive or deductive stance (Elo et al., 2014; Hsieh & Shannon, 2005; Robson, 2011). The aim of this study was to examine the utility of a pre-existing process model of exploitation (O'Connell, 2003) that describes themed stages such as 'Relationship forming', and common grooming strategies used during each stage (See Table 1.1). Therefore, qualitative content analysis was considered appropriate, as it extends beyond word counting to classifying large amounts of text into categories representing similar meaning. Given that theory already exists about the phenomenon of the process of online grooming, and the research aim is to validate or extend conceptually the theoretical framework, a deductive stance was adopted (Hsieh & Shannon, 2005). Whilst selection of the

most appropriate sample size enhances credibility, "there is no commonly accepted sample size for qualitative studies because the optimal sample depends on the purpose of the study, research questions and richness of the data" (Elo et al., 2014, p.4). Previous sexual offending studies using content analysis have included samples ranging from 44 to 100 (Black et al., 2015; Lamb et al., 1997; Mann & Hollin, 2007). The current sample of 63 logs, varying in length from 1-78 pages, fits within this range and enabled rich data collection from a range of offenders and victims.

Procedure

Ethical approval for the current study was granted by the School of Health in Social Science, The University of Edinburgh (see Appendix C). The primary researcher (HB) reviewed the content of each log line by line, coding for correspondence to, or exemplification of stages and strategies identified by O'Connell (2003). Themed text that did not correspond to these stages, or did correspond however represented a strategy not defined by O'Connell, was assigned a new code (Hsieh & Shannon, 2005; Polit & Beck, 2012). Themed text that represented child responses to the attempted exploitation was also assigned a code (See Table 1.1 and Appendix D). To enhance credibility, a portion of logs (n=10) were analysed by a second author (EN). A good Kappa level of inter-rater reliability ($r=0.71$) was established (Randolf, 2008). During analysis saturation of the data occurred; a further indicator that results can be deemed trustworthy (Elo et al., 2014). A database was designed and used for the input and storage of coding data, enabling tabulation, electronic calculations of frequencies and creation of graphs. Finally, results were examined to determine how closely the data 'fit' pre-existing theory.

Table 1.1 Codes assigned to online exploitation stages and grooming strategies

Main Stage	Codes assigned to offender strategies (O’Connell, 2003)	Additional codes assigned to offender and child strategies
Friendship Forming (FF)	Getting to know the child – may request non-sexual picture	
Relationship Forming (RF)	Discussion of school/home life or hobbies; Discussing future plans involving both parties (FUT)	
Risk Assessment (RA)	Information gathering to gauge likelihood of detection eg. ‘Are you home alone?’	<i>Child:</i> Warn offender re: detection risk (WAR)
Exclusivity (EX)	Characterised by mutual respect, trust and unique bond to be kept secret	<i>Offender:</i> Feelings of love/happiness/emotional synchronicity disclosed (FEE)
Sexual (S)	Questions(Q), Sexual Talk (ST); Sexual Requests (RQS); Sexual Commands (SC); Loving Mentor(LM), Image Request Offender-Victim (IROV); Image Provided Offender-Victim (IPOV); Webcam Request Offender-Victim (WROV); Webcam provided Offender-Victim (WPOV); Child Images Provided (SEM); Fantasy Enactment Mutuality (FEM); Fantasy Enactment Coercion and Intimacy (FECl); Fantasy Enactment Control and Aggression (FECA); Gentle Pressure (GTL); Remorse (RMS)	<i>Offender:</i> Deliberate misspelling of sexual language to avoid detection (EVD); Providing adult pornography (POR); Request children to carry out sexual acts with each other (RSO); Sexual Proposition (PRO) <i>Child:</i> Comply (CPY); Image Requested Victim-Offender (IRVO); Image Provided Victim-Offender (IPVO); Webcam Requested Victim-Offender (WRVO); Webcam provided Victim-Offender (WPVO); Initiate sexual talk/questions (STQ)
Concluding (C)	Damage Limitation (DL); Hit and Run (HR)	<i>Offender:</i> Retreat (RTR) <i>Child:</i> Block (BLO); Terminate communication by rejecting advances (REJ); Report (REP); Ignore (IGN) <i>Offender and child:</i> Mutually Agreed (AGR) <i>Other:</i> Unclear (UNC)
Strategies not specific to one stage		<i>Offender:</i> Repetition (RPN); Mutual Benefit (MUT); Offender portrayed as Attractive Prospect (ATT); Minimising intentions/impact (MIN); Flattery of child (FLY); Pleading (PLD); Emotional Blackmail (EBLK); Cause Threat/Alarm (ALM); Blackmail (BLK); Bargaining (BAR); Time Pressure (TPR); Offender Challenging child (CHLo); Dominance (DOM); Dismissive (DIS) <i>Child:</i> Reject (REJ); Challenge (CHL); Report (REP); Ignore (IGN); Insult (INS); Threaten offender (THR); Blackmail (BLKc); Bargaining (BARc); Flatter Offender (FLYc); Appease (APP); Self-critical (CRI); Unsure (UNS); Make jokes (JOK); Change subject (CSU); Distress (DSR)

Results

The dataset of 63 logs appeared to originate from 44 different offenders and 52 child victims, i.e. most offenders and victims featured only once within one discrete log. Regarding repeat offenders, five ongoing relationships between an offender and child were identified and generated sixteen separate logs, whereas five offenders targeted multiple children (see Table 1.2). Age data was available for 32 child victims, and ranged from 10 to 16 years with a mean of 13.72 years. Requests for contact in person occurred within nine logs (14.3%) generated by five offenders, most often those involved in an ongoing relationship with the child (n=7 logs); however not exclusive to this group. Some logs provided only a snapshot of dialogue (i.e. the portion a member of the public was concerned about and reported to Cybertip.ca) with primary offender-child interactions absent. Primary interaction refers to opening dialogue between the offender and child victim in what appears to be their first encounter. Primary logs (n=24) were isolated and subjected to the same calculations.

Table 1.2 Logs generated by offense type

	Single episode offender and child victim	Repeat offender and single episode child victim	Repeat offender and child victim	TOTAL
Number offenders	34	5	5	44
Number child victims	34	13	5	52
Logs generated	34	13	16	63
Request for contact	1	1	7	9

O'Connell's (2003) process model of grooming

Presence of stages

Of the 63 logs analysed, none contained all six stages of the model as described by O'Connell (see Figure 1.1). Contrary to O'Connell's model, most logs contained only two stages (n=33), usually being sexual followed by concluding (n=24), with 23 of these conclusions initiated by child victims rather than offenders. Five contained none of the stages outlined within the model at all; however, in these cases the child victim promptly rejected or ignored the offender's advances, blocking the opportunity for the offender to enter any stage. The greatest number of stages present was five (n=5); relationship forming, exclusivity, risk assessment, sexual and concluding. However, these were generated by the same two repeat offenders

involved in an ongoing relationship with the child victim. Similarly, of the six logs consisting of four stages, four were generated by repeat offenders. These results indicate that additional stages were usually only present where contact between offender and child was ongoing.

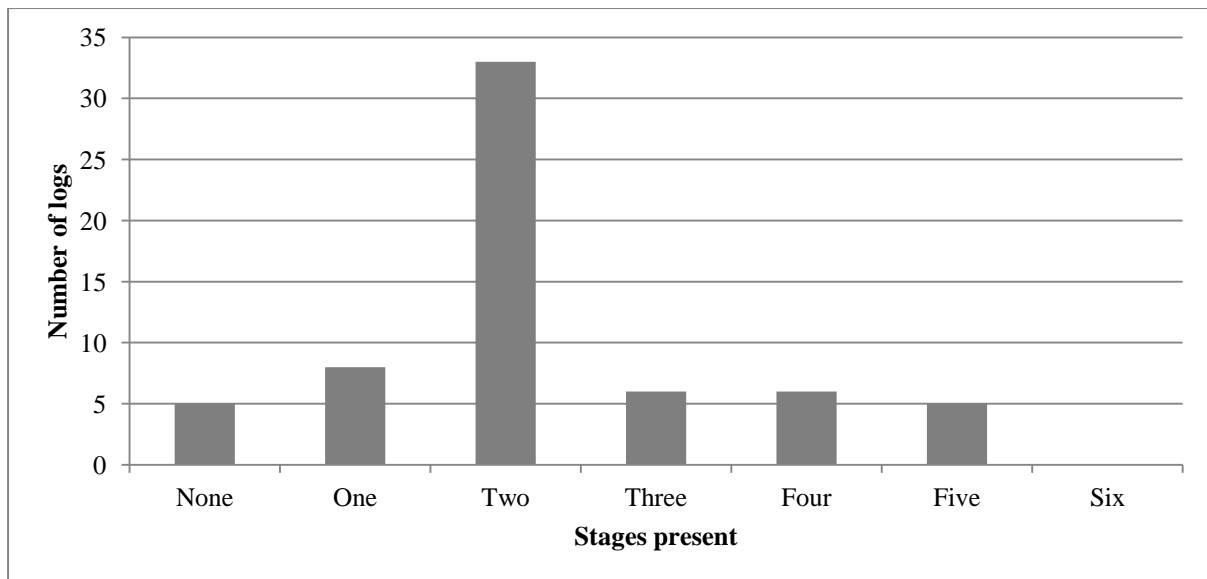


Figure 1.1 Number of stages present within logs

Sequence of stages

Although sexual was the first stage in 41 logs, this figure may have been skewed by the fact that some reports only contained the portion of dialogue most concerning to the reporter i.e. not initial communication. Only primary logs (n=24) could provide reliable data regarding initial sequencing of stages. Three primary logs contained no stages at all. According to O'Connell's model friendship forming is initiated by offenders at the onset of contact. However, of the remaining 21 primary contact logs sexual remained the most common first stage (n=17), with friendship forming taking place first on only two occasions (see Figure 1.2). In fact, it was equally common for risk assessment to be initiated as the first stage by offenders (n=2). Neither relationship forming nor exclusivity were the first stage within any primary logs. These results provide only partial support for O'Connell's model. The model stipulates that these two stages take place later in the process, as shown by the current data. However, in contrast, the current finding suggest that offenders are often prepared to enter the sexual stage before any relationship has been established.

Where there was more than one stage present, these stages often occurred multiple times per log. For example, sexual stage occurred 90 times across 52 logs, and risk

assessment occurred 28 times across 15 logs (see Table 1.3). This indicates that some offenders enact stages in cyclical fashion, moving to and fro as they deem necessary, and supports the findings of Black et al. (2015) and Gupta et al. (2012).

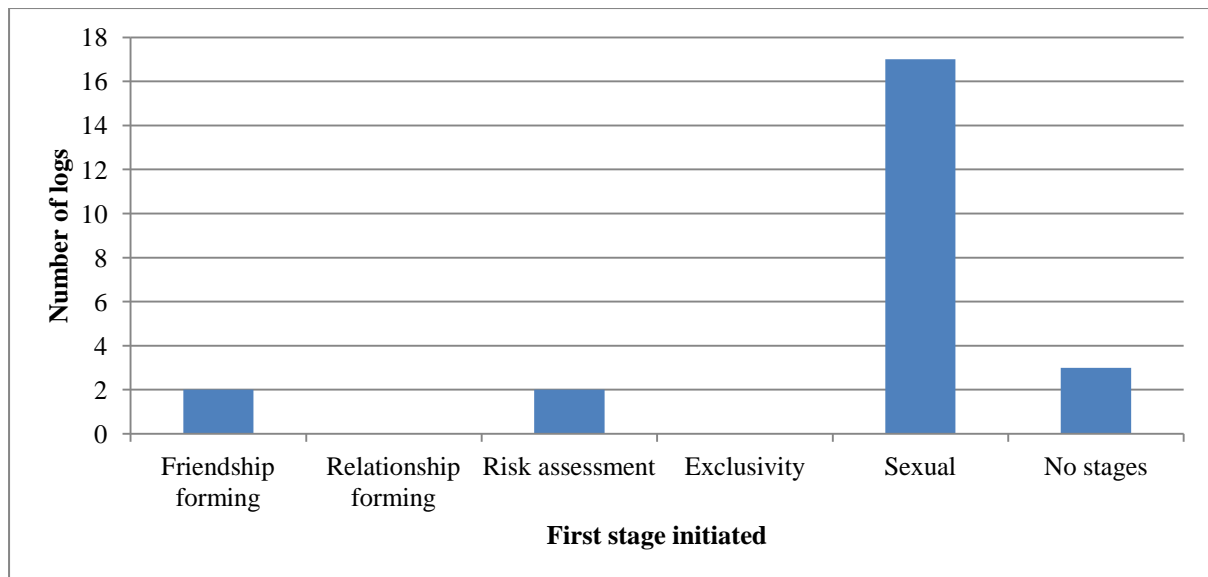


Figure 1.2 First stage of online exploitation within primary logs

Table 1.3 Presence of stages of online exploitation

	All logs (n=63)		Primary logs (n=24)	
	No. of logs with stage present	Total occurrences of stage	No. of logs with stage present	Total occurrences of stage
Friendship forming	4	6	3	5
Relationship forming	14	23	2	3
Risk assessment	15	28	4	10
Exclusivity	12	21	0	0
Sexual	52	90	20	27
Concluding	49	49	22	22

Table 1.4 details the presence of specific grooming strategies outlined within O'Connell's (2003) model.

Friendship forming

Friendship forming was only present within four logs. The following excerpt was coded as friendship forming and shows the offender and child discussing the online game they are playing whilst providing physical descriptions of each other:

Victim 2Mb:*where are you right now? on runescape?*

Offender 2Mb: *by ge lol....im 6 feet tall i have mood eyes....*

Victim 2Mb: *well I'm blond...shorter than you, I have blueish eyes..*

Had O'Connell classified questions about age, sex and location of the victim as 'getting to know the child' and therefore part of friendship forming, eight logs would have been coded as containing this stage instead of four.

Relationship forming

The relationship forming stage was present within only fourteen logs:

Offender 4F: *so what kind of movies u like*

Although not the first stage of any primary logs, relationship forming was the first stage of nine logs, usually generated by repeat offenders already involved in ongoing contact with the victim (n=7):

Offender 6Q: *how was your day?.....you're not going to school tomorrow?....what are you gonna dow ith your cuz tomorrow?*

Only four offenders spoke of future plans with the child (n=4 logs), two of which were generated by repeat offenders involved in n ongoing relationship with the child victim. The first example refers to short term future, regarding the child's upcoming birthday:

Offender 7I: *ill have to buy you something nice*

In the second example, the offender speaks about long term plans with the child:

Offender 6Hb: *we need a lot of time for talking and play, maybe we should go for a week on honeymoon honeymoon????...:D*

According to O'Connell's (2003) process model of exploitation, a core feature of grooming for offenders wishing to maintain contact with a child is discussion of future plans. However, the remaining three repeat offenders involved in ongoing relationships neither discussed future plans nor requested contact in person. This suggests that OCSO are a heterogeneous group, with some driven by fantasy only and without desire to commit contact offenses.

Risk assessment

Of note, risk assessment stage was only evident within fifteen logs, and surprisingly only four of these were primary logs, where one might expect an offender to be particularly cautious

given the lack of knowledge regarding a child's circumstances or potential monitoring levels by guardians. In line with O'Connell's (2003) model, where offenders did assess risk, questions centred around the whereabouts of guardians:

Offender 7Q: *Is ur grandma still around ?*

Victim 7Q: *yaa*

Offender 7Q: *dam*

These findings are replicated by recent research suggesting that many online child sexual offenders do not view risk assessment as a priority, and often take no technological precautions to minimise risk of detection (Balfe et al., 2015; Wolak et al., 2011). Only one offender appeared concerned about leaving a data trail:

Offender 5G: *yo delete the convo history....yoooooooo delete it*

Exclusivity

Exclusivity, characterised by a sense of understanding, trust, mutual respect, and a bond that should be kept secret, was only present within twelve logs. This stage was most often entered by repeat offenders already involved in ongoing contact with a child, with ten logs originating from four offenders:

Victim 6Qf: *well the boyfriend i had....now i'm in love with him, but he doesn't have those same feelings....*

Offender 6Qf: *trust me same thing happened with me i dated this girl for like a year, and then she said no*

Whilst arranging contact, the following offender reinforces a message of reassurance and trust in response to the child's anxiety:

Victim 6H: *im excited but im also kinda scared o.o*

Offender 6H: *that is natural, but believe me and you can trust me, there be no harm coming to you...*

The next excerpt refers to a discussion about the child being under the legal age of sexual consent:

Victim 7Ib: *is that bad?*

Offender 7Ib: *well, not if you dont think so and if its just between u and me.....no pressure, well just relax and drink wine and kiss and just get comfortable with each other ok?*

The latter excerpt highlights how interlaced stages can be, with references to sexual contact and potentially risk assessment also present. This conflicts with O'Connell's linear description of the exploitation process, where the offender moves from one distinct stage to another.

Sexual

The sexual stage was present within the vast majority of logs (82.5%). Where absent, the child had either promptly terminated dialogue or only engaged until sexual content was introduced (n=7), or discussion focused on the child's personal difficulties or practicalities such as planning the next online or offline contact (n=4). Several offender strategies proposed by O'Connell to take place during this stage were evident throughout the dataset, to varying degrees. Most common were sexual questions (n=28), sexual talk (n=23) and the offender requesting webcam communication (n=21).

Sexual questions tended to revolve around prior sexual experience and stage of development:

1. Offender 7Z: *have u attained puberty?*
2. Offender 9J: *u ever orgasmed?*

The following provides an example of sexual talk:

Offender 2B: *my ding is sweaty for you....im wackin off right now to u baby*

In requesting webcam contact, some offenders did not outline any sexual intentions until later in the conversation, whereas others made it clear that this was for sexual purposes:

Offender 6P: *any girls here have a webcam and wanna give a show??*

The above excerpt indicates that not only are some offenders prepared to begin the process of sexual exploitation in a public forum, some are also willing to enter the sexual stage publicly, challenging O'Connell's (2003) assertion that offenders 'quickly move' to a private space beforehand.

Less common, but still evident within 15.9% of logs was acting as a 'loving mentor'. The child in the first excerpt is responding to the question of whether she has had sex before, and

the child in the second quote is concerned she will not know how to perform the act of oral sex:

1. Victim 1T: *no im scared*

Offender 1T: *mmmm dont be it only hurts first time after that u [will] luv it*

2. Offender 7I: *you suck on it like a lollo-pop*

Victim 7I: *what if im not good at that? can i practice?*

Strategies including fantasy enactment of intimacy counterbalanced with coercion, fantasy enactment characterised by control and aggression, and providing the victim with other sexualised child images did not occur within any logs. Any fantasy enactment was mutual in nature, although this only occurred within five logs:

Offender 9S: *so wutch a wanna do ;) -kiss neck-*

Victim 9S: *....-lays on bed and takes top off-*

Offender 9S: *....-licks nipple-*

Concluding

The concluding stage as described by O'Connell was only present within one log, where the offender employed the 'hit and run' tactic:

Offender 5O: *taked your pics in vf want to send your pics at porn sites.....*

Victim 5O: *I'll call the police on YOUH DO YOU UNDERSTAND? POLICE?*

Offender 5O: *fuck off im a police already*

Victim 5O: *what?*

The offender disengages from contact at this point.

It is important to note that the absence of this stage within fourteen logs is partly explained by the fact that the portion reported by the public did not always include the ending of dialogue (UNC). For the remaining 49 endings did form part of the log; however, details of 48 of these conclusions differed from O'Connell's model. This will be discussed in the following section.

Table 1.4 Frequencies of offender strategies within logs (O'Connell, 2003)

Strategy code	All logs	Primary logs
FUT	4	0
Q	28	10
ST	23	4
RQS	12	5
SC	9	2
LM	12	1
IROV	11	6
IPOV	6	3
WROV	21	11
WPOV	8	4
SEM	0	0
FEM	5	1
FECI	0	0
FECA	0	0
GTL	7	3
RMS	6	5
DL	0	0
HR	1	0

Additional offender strategies

Offender strategies not described by O'Connell's (2003) process model of cyber exploitation were evident within the dataset, therefore additional codes were assigned (see Table 1.5). Some were specific to one particular stage of grooming, whereas others occurred across various stages. Specific to exclusivity, several offenders disclosed feelings of love, happiness and emotional synchronicity in relation to the victim (n=7 logs). Unsurprisingly, this strategy tended to be used in the context of an ongoing relationship between repeat offenders and victims:

1. Offender 7H: *love u lots*

Victim 7H: *love u more*

2. Offender 6Qb: *don't make sad faces that makes me sad*

Specific to sexual stage, there was evidence of deliberate misspelling of sexualised language in what can only be assumed to be for the purposes of evading detection (n=11). Again, this shows the interconnected nature of stages, as these offenders are considering risk whilst discussing sexual themes:

Offender 2Mb: *how big are ur brests? comparison to fruit?*

Victim 2Mb: *think a grapefruit*

Offender 2Mb: *have u had cx before?*

Rather than the risk assessment methods described by O'Connell, this appeared to be a popular strategy for offenders' keen to minimise the likelihood of being caught. Ten of these logs originated from offenders who did not use any of the methods from the process model of grooming, and therefore were coded as not including risk assessment stage. Potential implications of this will be discussed.

Whilst there was no evidence of sexualised images of other children being sent to child victims in order to lower inhibitions, two suggested the victim watch sexual acts between adults, and on two occasions the offender was conversing with more than one child victim, requesting that they perform sexual acts with each other:

Offender 8S: *use her hands as a bra and remove her top? :P*

Several offenders were observed to 'proposition' the victim (n=11), giving the impression of placing choice with the victim:

Offender 4W: *you up for getting a blowjob some time today?*

Numerous 'persuasion' tactics were identified during data analysis. Although predominantly used during sexual stage, these strategies, employed to encourage the victim to respond to initial dialogue and ultimately comply with offender requests were evident during a range of stages and broadly fell into two categories: positively-framed versus aggressive tactics. Most common was the use of flattery, which took place within almost half of the dataset (45.3%), often used to entice the victim into conversation:

Offender 5X: *hi hottie....my u look sweet....add me sweetie*

The following quote depicts an offender who, in believing the victim has sent images sourced on the internet rather than images of herself, relies solely on aggressive strategies including dominance, challenging the victim, putting her under time pressure, being verbally abusive and causing alarm:

Offender 3E: *i give u 10minute again not more....send the pics....mail me them....ok its not you....a cell cant take photo like that....u are so stupid....cuz u are a fucking liar....i will mail ever friend u have so np for that bitch*

Three logs showed the offender skipping multiple stages of O'Connell's (2003) model and immediately employing aggressive tactics to solicit sex:

Offender 8J: *Hey im the hacker, so hello wanna keep your password?*

Victim 8J: *wtf get off my msn*

Offender 8J: *....one condition....one deal....so the deal, I just want to [see] your boobs*

The previous excerpt also shows the application of 'offender bargaining', something present within fifteen logs.

A small number of offenders used emotional blackmail (n=3) to coerce victims into engaging in sexual activity:

Offender 7Q: *y u being mean?....i showed u 4 pics of my cock and u dont wanna show me any pics of ur breast....dats mean and fucked up*

In contrast, the following two offenders utilise only positive persuasion tactics, namely minimising their behaviour or intentions, and suggesting they are an attractive prospect for the victim:

1. Offender 4O: *i thought u were gonna send me your pic*

Victim 4O: *i still don't have it*

Offender 4O: *its okay i just wanted to know who im talking to*

Victim 4O: *i was going to take one with mom's camera byt its in her purse*

Offender: *will she get angry....its not like its naked pic its a pic of your face*

Victim 4O: *....i heard of girls sending naked pictures*

Offender 4O: *....at your age it is ok to be curious*

2. Victim 2Mb: *why don't you just explain a bit about yourself?*

Offender 2Mb:*slim body flat stomach working on 6 pack....oh and i own my own business and i make about 3 million a year*

Victim 2Mb: *wow, very impressive*

Some offenders began with positive tactics including flattery, before moving to aggressive strategies when the child resisted or introduced limits:

Offender 5P: *u look nice*

Victim 5P: *thx*

Offender 5P:*can u slide ur top to up pls....mmm so good hun....yummmm so nice lay on bed hun....ass babe doggy mmm*

Victim 5P: *no more*

Offender 5P:*i cant c u....take bra off....rub them for me*

Victim 5P:*i dont have to*

Offender 5P:*ok fine u know u want to c ur video on porn webs?*

Victim 5P: *fine i do wat u say god*

Offender 5P: *if u be shit ill do it....ok put cam on legs....if u besmart i dont do it....when i have cum ill finish it ok....stand up mmmm ur body nice baby....want me fuck u*

Victim 5P:*if it gets you to stop blackmailing me*

Of the sixteen logs generated from five ongoing relationships between offender and victim, twelve contained only positively-framed persuasion tactics.

Child victim responses

In response to offenders' sexual exploitation attempts, a wide range of child responses were identified (n=22), the most common being to verbally reject the offender's advances (n=35), followed by challenging the offender (n=26) regarding his behaviour, and complying by engaging in sexual acts (n=23). See Table 1.5. Three children complied with sexual acts during primary contact. However, data was not as simplistic as children being wholly compliant with, or entirely refusing to engage in sexual acts. Refusal took many forms, including verbal rejection, reporting the offender, ignoring or blocking them. As shown in

Figure 1.3, ten logs showed evidence of both compliance and refusal. For example, the following excerpt demonstrates that although the child briefly responds to and asks sexual questions, she soon challenges why the offender is communicating with her in this way:

Offender 2Mc: *have you done stuff with your friend?*

Victim 2Mc: *....were just friends y should i do that to her*

Offender 2Mc: *it feels good*

Victim 2Mc: *wat does it feel like*

Offender 2Mc: *wet and soft you should really try it*

Victim 2Mc: *no thx....y would i like it ur weird y did ur even add me*

At this point the child reports the offender to the gaming site administrators.

For other children, as shown in excerpt 5P above, they complied with some sexual requests and refused others.

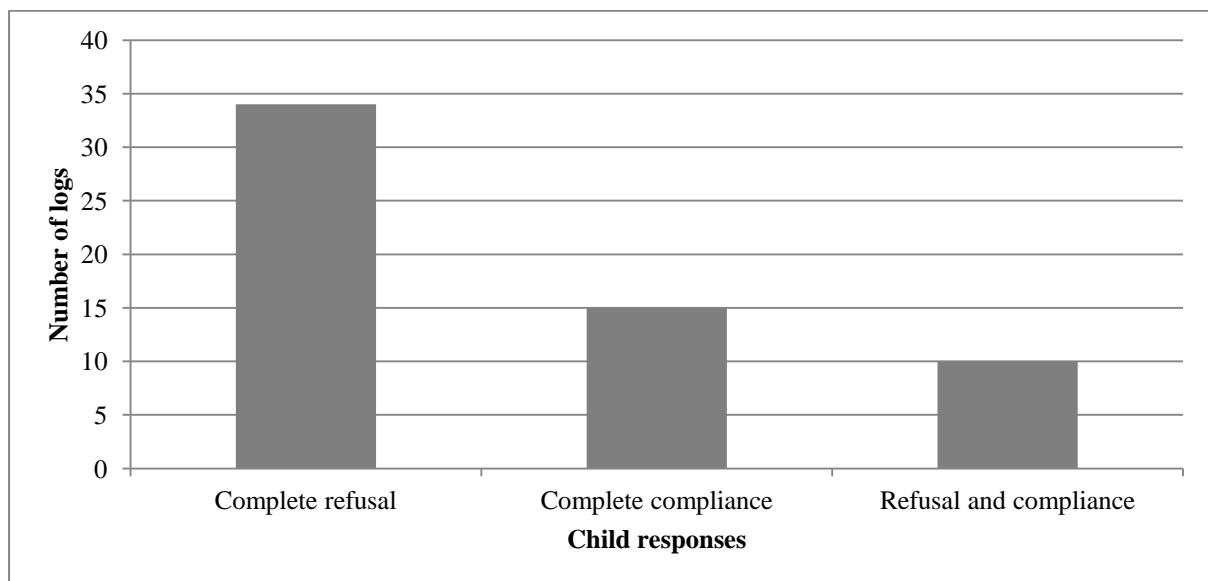


Figure 1.3 Categories of child responses to sexual exploitation attempts

Figure 1.3 shows that where sexual stage was present, most common was for child victims to refuse all sexual advances (n=34), indicating that most children within the dataset were robust, and aware of the moral, legal and safety implications of engaging sexually with the offender. Some immediately challenged and rejected the offender:

Victim 3N: *who r u*

Offender 3N: *my name is X I'm doing great today I'm 21 yrs old how old are you?*

Victim 3N: *i don't know u*

Offender 3N: *listen hun, I am just about to start my webcam show with X, come chat me there in my chat room? We can cyber, I will get naked if u do..lol!*

Victim 3N: *get away freak!*

Whilst O'Connell only refers to offenders requesting sexual images, and seventeen child victims did provide either still or webcam images, there was also evidence of child victims requesting sexualised still or webcam images of the offender (n=8). At points during interaction, nineteen logs showed evidence of child victims initiating sexual talk or questions. These findings may be reflective of the sexual curiosity associated with adolescents.

Some strategies were used by child victims as well as offenders. For example, 'child bargaining' and 'flattering the offender' each took place within ten logs. Bargaining either took place in the context of the child requesting online gaming help to progress to the next level in exchange for their participation in a sexual act, the child trading sexual acts with the offender, or the child striking deals to comply with a sexual request in return for the offender terminating contact with them. Flattery was usually only present within logs where the victim complied with sexual acts (n=9), most being logs originating from those in an ongoing relationship (n=7).

In total, eight children deflected the offender's sexual advances by making jokes or changing the subject, suggestive of some discomfort, whereas in cases where the offender used more aggressive strategies, three made it clear they felt distressed:

Victim 1L: *omggg whyy me tho....dntt do this*

Another strategy used by a small number of victims (n=3) was to try to appease aggressive offenders:

Victim 3E: *okay 20 mins il be back....i have them but its bad quality but its the best i can do*

In other cases, child victims responded with uncertainty and appeared unsure (n=5):

Offender 7Z: *when can i see you in cam?*

Victim 7Z: *idk if i buy 1 mom mite b suspicious....dont wanna get in trbl*

The above quote indicates that the child is considering risk and consequences. In fact, within three logs the child warned the offender of significant risk they would be caught:

1. Victim 5G: *uumm, yoohh dont talk dirrty cause X's dad can read this whole convo*
2. Victim 7Z: *my mums in the other room dont wnat her to c*

In two of these logs the offender had not conducted any risk assessment prior to the child's warning. The third provided only a snapshot of correspondence, therefore the offender may have entered risk assessment stage out with the section reported. Regardless, any previous risk assessment had not prevented him from acting in a way that caused the victim to warn him detection was likely. This offender was initially dismissive of the warning, before later demanding the child delete the conversation:

Victim 5G: *uumm, yoohh dont talk dirrty cause X's dad can read this whole convo*

Offender 5G: *yo fuck him*

These examples reinforce earlier findings that risk assessment appears not to be a consideration for some offenders, and may support the theory that online offenders have a perceived sense of anonymity (Jung et al., 2012; Rimer, 2017).

As discussed, some logs did not contain the end section of dialogue. However, of the 49 conclusions available, almost half were child-led (46%). Child led conclusions included verbal rejection of the offender, blocking, reporting and ignoring the offender. This is in stark contrast to O'Connell's description of the concluding stage, where the offender is in control, choosing either to employ 'hit and run' or 'damage limitation' tactics. Only once was one of these strategies employed within the current dataset. Of the remaining 25 conclusions, on nine occasions the offender retreated when it became clear the child was not going to comply:

Offender 1C: *ever meet guys from here to fuck*

Victim 1C: *Should I?*

Offender 1C: *iam asking if u do*

Victim 1C: *And I am asking you if I should be?*

Offender 1C: *....can I give u my number to call me....*

Victim 1C: *....My mother [will] call you when she gets home from work*

Offender 1C:whats yr problem....i thought u wanted to talk

Victim 1C: You wanted to talk. You wanted to give me your phone number.

Offender 1C: k I have ti go bye

In the other sixteen logs, endings were mutually agreed (see Figure 1.4). This highlights child victims as active agents in the sexual solicitation process.

Table 1.5 Frequencies of additional offender strategies and child responses

Additional offender strategies			Child responses		
Strategy code	All logs	Primary logs	Strategy code	All logs	Primary logs
FEE	6	9	WAR	3	1
EVD	11	6	CPY	23	3
POR	2	0	IRVO	2	2
RSO	2	1	IPVO	5	1
PRO	11	4	WRVO	6	3
RPN	10	9	WPVO	9	5
MUT	4	1	STQ	19	3
ATT	11	3	REJ	35	18
MIN	9	5	CHL	26	17
FLY	28	11	REP	12	5
PLD	11	6	IGN	13	10
EBLK	3	1	INS	13	7
ALM	9	2	THR	1	0
BLK	8	2	BLKc	1	0
BAR	15	7	BARc	10	3
TPR	6	1	FLYc	10	2
CHLo	3	1	APP	3	1
DOM	6	2	CRI	10	2
DIS	5	1	UNS	5	4
			JOK	6	3
			CSU	2	1
			DSR	3	2

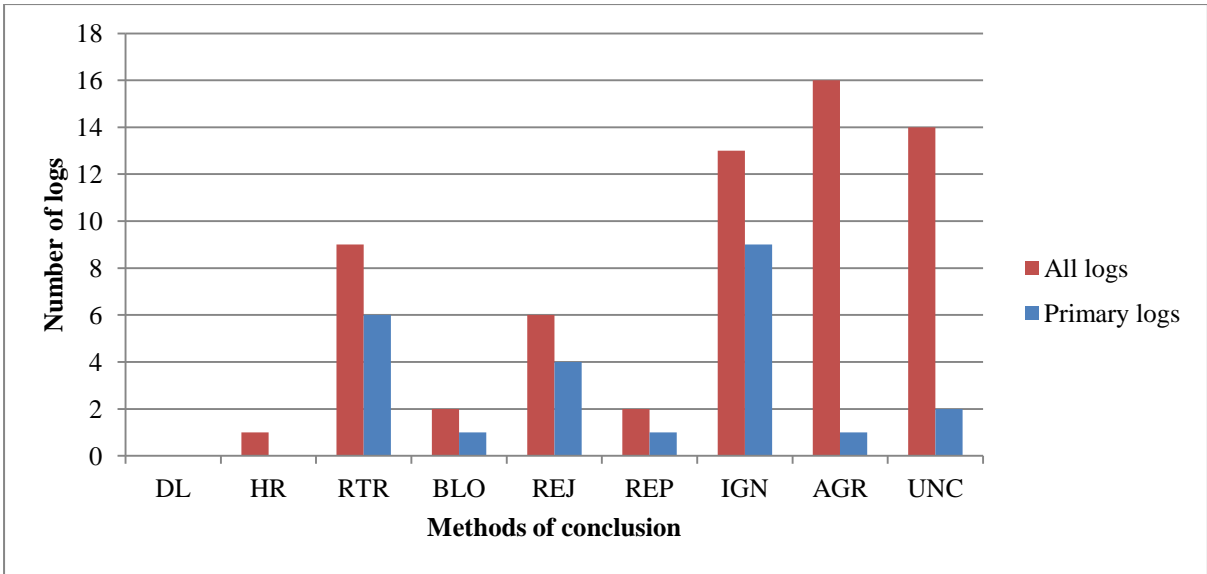


Figure 1.4 Strategies used during concluding stage

Discussion

This study was the first of its kind to use real life authentic dialogue between adult male OCSO and victims to assess the utility of a currently prominent model of grooming strategies used to sexually exploit children (O'Connell, 2003). Results showed limited evidence to support model. No logs contained all six stages described by O'Connell, all stages other than sexual and concluding appeared within less than a quarter of the dataset, sexual was the first stage entered in the vast majority of primary contact logs, and stages were often returned to and repeated during individual logs. In stark contrast to the process model of exploitation, these findings indicate that many online offenders are prepared to attempt to exploit children without building any kind of relationship, exclusive bond, or assessing risk. In support of previous studies, stages do not appear linear, with some offenders skipping stages and others re-entering some in cyclical fashion (Black et al., 2015; Gupta et al., 2012). Whilst some of the specific offender strategies outlined by the model were employed, there was also a complete absence of others, and several additional offender strategies were identified. Moreover, those involved in ongoing relationships with child victims appeared to differ in motivations, with some requesting contact and others apparently driven by fantasy only (Briggs et al., 2011). Taken together, the findings of the current study point to the heterogeneity of this offender group, and cast doubt over the utility of O'Connell's process model of online child sexual exploitation.

As noted by Elliott (2017), friendship and relationship forming are poorly defined by the model. The former is described as 'getting to know' the child, and lacks further specificity. Yet questions around age, sex or location are classed as victim selection strategies that occur prior to any stages of exploitation, and questions about home life, school or hobbies are classed as relationship forming. By coding in accordance with O'Connell's model, friendship forming was largely absent from the dataset. Alternatively, the current authors would argue that once an offender has opened dialogue and is asking questions about age, sex or location, a process of exploitation has already started. Furthermore, the child victim will perceive this as friendship forming, even if the offender's questions are driven by a desire to select an appropriate target. In line with Elliott's (2017) recommendation, current findings suggest that conceptualising selection questions, getting to know the child and discussion of hobbies, home and school life as part of one and the same stage would be more helpful. However, regardless of reclassification, it is important to note that many offenders entirely skip these strategies and immediately enter the sexual stage.

Relationship forming and exclusivity were most often used by repeat offenders involved in an ongoing relationship with the child. This finding raises the possibility that these stages, most characteristic of grooming, are only enacted by a distinct group of online child sexual offenders who wish to maintain contact with the victim, something O'Connell (2003) alluded to. Interestingly, there was no indication that these stages were used more by contact driven offenders. Fantasy driven repeat offenders were equally likely to enter these stages. However, it was only possible to infer the motivations of a very small number of offenders (five contact-driven, three fantasy-driven). Where children terminated correspondence or log endings were not reported, offense motivations were unclear. To more thoroughly explore this finding in future, a larger sample of logs generated by repeat offenders and victims is recommended. The current finding that relationship forming was not a feature of most logs differs from all previous studies investigating the applicability of O'Connell's (2003) model, where this stage was prominent (Black et al., 2015; Gupta et al., 2012; Williams et al., 2013). Each of those studies used adults masquerading as children, who therefore had a vested interest in prolonging dialogue in order to generate rich data. This likely explains the prominence of relationship forming in those studies. However, the current findings indicate that when looking at genuine, ecologically valid interactions between offenders and child victims, this stage is often bypassed entirely.

This study uncovered novel evidence of offenders deliberating misspelling sexualised language, hypothesised to be part of a risk reduction strategy. This may be a relatively new technique developed in response to technological advances in computerised linguistic programmes designed to detect sexual offenses, and indicates that O'Connell's (2003) definition of risk assessment is lacking in key features. This reiterates the importance of this study: technological change is rapid, and old models must be tested as they may not accurately capture the range of strategies utilised by contemporary offenders. In addition, in line with other recent studies it was clear that many OCSOs simply do not conduct risk assessment at all (Balfe et al., 2015; Gupta et al., 2012; Wolak, 2011), perhaps due to perceived anonymity (Jung et al., 2012; Rimer, 2017). Again, this reinforces doubt regarding the utility of the process model of exploitation, and it is plausible to assume that for those studies where risk assessment was an integral stage of grooming (Black et al., 2015; O'Connell, 2003), offenders were suspicious of the child decoys operating, which enhanced their use of risk assessment. Misspelling sexualised language also demonstrates how inextricably linked stages of exploitation are, with risk reduction strategies simultaneously taking place alongside sexual strategies. Thus, O'Connell's linear model whereby offenders

move from discrete stage to another could be considered somewhat misleading.

Whilst 82.5% of logs evidenced offenders entering the sexual stage, their method often did not follow the process model of grooming. A substantial proportion entered this stage first, which may be attributable to several factors. Firstly, as suggested by Lorenzo-Dus and Izura (2017) offenders may be driven by different goals, with those primarily looking for quick sexual gratification promptly introducing sexual content. Secondly, some offenders may self-regulate, using minimal strategies necessary to achieve their individual goals (Elliott, 2017). Both possibilities highlight the diversity in psychological characteristics of OCSO (Babchishin et al., 2014; Bale et al., 2017), and the challenge for models to account for such heterogeneity. Thirdly, some offenders may simply optimise opportunities afforded by the internet, contacting multiple victims simultaneously, immediately introducing sexual content and disengaging from those non-compliant. All three explanations illustrate that a significant proportion of OCSO sexually exploit children without grooming them. Similar to other recent studies, the current sample of offenders most often asked two or three questions regarding age, sex and location, before rapidly broaching sexual content (Briggs et al., 2011; CEOP, 2013). Only 17.5% of offenders could be classed as 'grooming' child victims in the current sample, building a trusting relationship by entering four or five of the grooming stages identified by O'Connell (2003).

Some offenders immediately employed aggressive tactics, including causing fear and alarm and trying to blackmail the child, often by threatening to post sexual images of the victim to their social media accounts or websites that their peer groups frequent. The latter strategy is similar to adult 'revenge porn', which is a subtype of cyber harassment that has received much media attention in recent years (Kamal & Newman, 2016). Increased ability to widely distribute a victim's personal data online is reflective of the pace of technological advancement since O'Connell's (2003) process model was published. Widespread use of mobile phones was relatively new, and many children used fixed computers within the home. Indeed, the model refers to offenders lurking in chat rooms, whereas most offenders within the current dataset accessed victims via online gaming sites, with some referring to use of apps for sexual purposes. That parts of the model appear outdated in terms of technology used may partly explain the absence of risk assessment by many offenders, many of whom will be confident that child victims are now accessing online services via private accounts and using mobile phones carried on their person.

The current study identified many offender strategies not included within the process model of grooming (O'Connell, 2003). Most were exclusive to the sexual stage; however

some were evident throughout. Flattery, bargaining, portraying themselves as an attractive prospect, pleading and minimising their intentions were particularly popular strategies. This emphasises that the model lacks important key features of the exploitation process. In fact, flattery was evidenced in two recent studies as an integral technique used by offenders during the grooming process (Black et al., 2015; Lorenzo-Dus & Izura, 2017).

As with most research on this topic to date, O'Connell's (2003) process model of online child sexual exploitation ignores the dynamic nature of interaction between offender and child. Vital to our understanding of this crime, the current study analysed child dialogue as well as the offenders'. Like offenders, children were heterogeneous in response to sexual solicitation. The majority appeared robust, aware of the dangers, aware of the law, and refused to comply either by verbally rejecting, challenging, ignoring or reporting the offender. This is in line with findings from a paucity of previous research (Quayle & Newman, 2016; Rosen et al., 2008; Webster et al., 2012). A smaller number complied with the offender, believing they were in a mutually beneficial, respectful relationship, and another group both complied and refused to some degree. Sometimes children employed the same strategies as offenders; bargaining, flattery, sexualised talk and questions and requesting sexual images. This potentially reflects teenagers increasing awareness of, and interest in, their sexuality. Whilst some may find the idea of voluntary participation of child victims objectionable, acknowledging that not all sexual behaviours are initiated by offenders will lead to more effective interventions (Hines & Finkelhor, 2007). Children in the current study were often responsible for ending interactions, again showing them as resilient as well as active in the process of exploitation. By considering only offender behaviours, models including O'Connell's give the false sense of OCSO being in complete control of passive child victims unaware of the dangers they are exposed to.

There are limitations of the current study that must be considered alongside the findings. The sample consists only of reported incidents, therefore results cannot be generalised to unreported incidents. The authentic nature of the data resulted in many incomplete logs. The approach used by members of the public to report communication that concerned them was inconsistent, with the beginning, end, or both beginning and end of offender-victim dialogue missing from some logs. This made it impossible in some cases to ascertain the first stage of exploitation or investigate with accuracy details of the concluding phase. Lack of control over reporting methods also resulted in many logs being eliminated from the dataset, due to missing or unclear data. An additional number of French language logs were not analysed due to limited translation resources, and these factors significantly

reduced the sample size included for analysis. It is possible that these logs contained rich data that would have further informed knowledge of this offense process. As with all qualitative analysis methods, there is a risk that the primary author's subjective understanding of content analysis codes influenced interpretation of the data. However, to enhance trustworthiness, a second rater analysed several logs with a good level of agreement established.

Despite limitations described, the current study provides fundamental new insight into the process of online exploitation of children. O'Connell's (2003) prominent model is to some extent outdated in terms of technology, and was based entirely on a data collection method that compromised ecological validity, namely by the use of 'child' stings. Perhaps unsurprisingly, in analysing authentic offender-child interactions the findings of this study provide only partial support for O'Connell's model. To expand on the current study, future research should continue in the direction of data collection from genuine real-life sources, as well as acknowledging children as active agents within a dynamic process, and considering their responses to exploitation attempts. Implications are far-reaching and include children, guardians, educators, policing, and criminal agencies. Psychoeducation programmes for children and those involved in their care must move away from messages that offenders can be identified by their tendency to build friendly, exclusive relationships with potential victims. Rather than promoting a linear stage model, emphasising that offenders are heterogeneous in their approach, and outlining the vast array of strategies they may employ would be more helpful. In addition, to challenge the widespread myth that all offenders spend much time 'grooming' children in private chat rooms, highlighting the immediacy with which children can be exposed to sexual content via contemporary technologies such as apps is crucial. The important discovery that many offenders deliberately misspell sexual language also has implications for the design of effective computerised linguistic programmes. Setting up these systems with only correctly spelled word identifiers may enable offenders to go undetected.

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**Appendix A:
Table of excluded studies**

Study	Primary reason for exclusion
Briggs et al., (2011)	No results presented regarding psychometric MMPI-2 data. Unable to make contact with authors
De Long, Durkin and Hundersmarck (2010)	Qualitative design
Middleton et al., (2006)	Primary aim to test applicability of Pathways Model (Ward & Siegert, 2002)
Navarro and Jasinski (2015)	Investigated demographic characteristics, not psychological characteristics
Niveau (2010)	Used tools designed to measure internet addiction/sexual compulsivity, not psychological characteristics
Prat and Jonas (2012)	Data gathered via clinical interview
Seto et al., (2012)	Used data collection tools designed to measure risk, not psychological characteristics

Appendix B: Methodology Checklist

Study Identification

Reviewer:

Author:

Title:

Year:

Guideline topic: Psychological Characteristics of Online Child Sexual Offenders: A Systematic Review

Rating scale: YES=1; NO/CANNOT SAY=0

- 1) The study addresses an appropriate question with aims clearly defined
Yes No Cannot say
- 2) The groups of individuals selected to participate in the study are likely to be representative of the adult male online child pornography offender population
Yes No Cannot say
- 3) Participant inclusion and exclusion criteria (for each group) is reported
Yes No Cannot say
- 4) The study indicates (for each group) how many people who were asked to take part did so
Yes No Cannot say
- 5) The outcomes are clearly defined
Yes No Cannot say
- 6) The method of assessment of independent variable (group status) is reliable
Yes No Cannot say
- 7) Evidence is cited to demonstrate use of valid and reliable outcome measures
Yes No Cannot say
- 8) Potential social desirability effects are identified and adjusted for in the design and analysis
Yes No Cannot say
- 9) It is unlikely that results are confounded by treatment effects
Yes No Cannot say
- 10) Justification for sample size was provided
Yes No Cannot say
- 11) Methods of statistical analysis are clearly reported and appropriate for the design
Yes No Cannot say
- 12) Confidence intervals are provided
Yes No Cannot say

Overall score:

Comments:

Guidance

1. Without a clear and well defined question, it will be difficult to assess how relevant it is to the question you are trying to answer, or how well the study has met its aims.
2. This relates to selection bias. Are participants representative of the target population? Participants randomly selected from a comprehensive list of individuals in the target population are more likely to be representative. Participants may not be representative if they are referred from a source (e.g. clinic) or where volunteer sampling is used.
3. Inclusion and exclusion criteria provide information regarding the appropriateness of included participants, and participant variables that were controlled.
4. This relates to selection bias. Participation rate is defined as the number of study participants divided by the number of eligible subjects. A large difference in participation rate between the groups of the study indicates that a significant degree of selection bias may be present. Study results should be treated with caution if greater than 20%.
5. This relates to the risk of detection bias. If outcomes and the criteria used for measuring them are not clearly defined, the study should be rejected.
6. A well conducted study should indicate the method used to assess which group participants were allocated to. Allocation methods must be sufficient to establish clearly that participants do or do not belong in a particular group.
7. Clearly described, reliable and valid measures should increase the confidence in the quality of the study.
- 8/9. This relates to detection bias. The possible presence of confounding variables is a primary reason why observational studies are not more highly rated as sources of evidence. The report of the study should indicate potential confounders (socially desirable responding, treatment effects) have been considered, assessed and adjusted for in the analysis. If not considered, or adjustment measures are considered inadequate, the study should be downgraded.
10. Was the sample size adequate? Power analysis determines the minimum sample size required to be reasonably likely to detect an effect of a given size. If no power calculation is reported, the study should be downgraded.
11. Analytical methods should be appropriate for the design and type of data gathered. Results should be reported clearly, with justification for chosen tests and details of how analyses were performed provided. A correction for multiple testing is performed where appropriate (for example. 'Bonferroni correction').
12. Confidence limits indicate the precision of statistical results. They can be used to differentiate between an inconclusive study and one that shows no effect.

Appendix C: Letter of Ethical Approval



SCHOOL of HEALTH IN SOCIAL SCIENCE
CLINICAL AND HEALTH PSYCHOLOGY

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Telephone 0131 651 3969
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Hazell Bale
Trainee Clinical Psychologist

05 June 2015

Dear Hazell Bale,

Application for Level 1 Ethical Approval

Project Title: The utility of a process model in the online solicitation of minors
Academic Supervisor: Ethel Quayle

Thank you for submitting the above research project for review by the Department of Clinical and Health Psychology Ethics Research Panel. I can confirm that the submission has been independently reviewed and was approved on the 31st May 2015.

Should there be any change to the research protocol it is important that you alert us to this as this may necessitate further review.

Yours sincerely,

Kirsty Gardner
Administrator
Clinical Psychology

Appendix D: Example Content Analysis Log

Report 8J

Offender:Hey

(ALM) Offender:im the hacker, so hello

Offender: wanna keep ur password?

Victim:wtf

(REJ) Victim: get off my msn

Offender:because i changed it for the moment

Victim:NOW

(CHL) Victim:who are you

(ALM) Offender:yopu have an important virus so wait before worried

(REJ) Victim:no get off my msn NOW

Victim: i dont know you get the fuck off my msn

Victim:now

(BAR) Offender:one condition

(CHL) Victim: and tell me who you are

(BAR) Offender: one deal

(REJ) Victim:no

Victim: no condition

Victim: no deal

Victim:GET OFF

(BLK) Offender: if u dont want, i [will] delete every data you have

Offender:and i [will] kick you from ur msn

(S) (IROV) Offender: so the deal, i just want to [see] ur boobs

(REJ) Victim:FUCK YOU

Offender:u dont want?

(BLK) Offender: i [will] fuck ur computer?

(REJ) Victim: no i dont want

(RTR) Offender:ok fine

Appendix E:

Author Guidelines for Sexual Abuse: A Journal of Research and Treatment

The following guidelines can be accessed via <https://uk.sagepub.com/en-gb/eur/sexual-abuse/journal201888#submission-guidelines>

Instructions to Authors

Submission Guidelines

SAJRT uses an online submission and review platform. Manuscripts should be submitted electronically to <http://mc.manuscriptcentral.com/sajrt>. Authors will be required to set up an online account on the SAGE Track system powered by ScholarOne. From their account, a new submission can be initiated. Authors will be asked to provide the required information (author names and contact information, abstract, keywords, etc.), complete submission checklist, and to upload the "title page" and "main document" separately to ensure that the manuscript is ready for blind review. [Supplemental materials](#) (e.g., additional tables, figures) can also be uploaded, when applicable, and will need to be prepared for blind review. The site contains links to an online user's guide for help navigating the site.

Manuscripts are subjected to blind peer review and require the author's name(s) and affiliation listed on a separate page. Any other identifiable information, including any references in the manuscript, the notes, the title, supplemental materials, and reference sections, should be removed from the paper and listed on separate pages.

Manuscripts should be prepared according to the guidelines set forth in the Publication Manual of the American Psychological Association (6th ed., 2010). This includes stipulations regarding page layout, manuscript sections and headings, and formatting of references, tables, and figures. DOI numbers when available for listed references are to be included. Effect sizes and confidence intervals are reported, where appropriate.

Each submission should also include an abstract between 100 and 150 words and 4-5 keywords.

Submission of a manuscript implies a commitment by the author to publish in the journal. If the manuscript is accepted, the editors assume that any manuscript submitted to *SAJRT* is not currently under consideration by any other journal.

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