Sexual Behaviours in Indecent Images of Children: A Content Analysis

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Abstract

Whilst research on indecent image of children (IIOC) offenders is increasing, little is known about IIOC content. This paper presents a content analysis on the sexual actions depicted in a sample of 729 IIOC from 26 offenders. Victims were most often White females aged around 9.5 years, with most offenders in the 18-24 age range, male and White. Most images show erotic posing with no sexual activity, with 13.4% presenting sexual activity by an adult on a child and 12.8% presenting sexual activity by a child on an adult. Explicit portrayals of physical aggression, humiliation or overt physical suffering were conspicuously rare. Few images depicted attempts to display pseudo affection towards the victim. Interactions were found in several variables between victims' age and gender and offenders' age and gender. The need to more fully understand the nature and content of IIOC and their psychological significance are discussed.

Keywords: Indecent Images of Children, Child Sexual Abuse, Child Sexual Exploitation, Content.

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Introduction

Although the exact figures are far from being known, all analyses suggest that the production, dissemination and possession of indecent images of children (IIOC) has increased dramatically over the past two decades and today such images can be counted by the millions, with tens of thousands of offenders involved (McManus & Almond, 2014). This escalation has been mirrored by increasing effort to establish the characteristics of these 'internet offenders'. In the past few years, reports have focused on their socio-demographic characteristics (Wolak, Finkelhor, & Mitchell, 2011), criminal records (Faust, Bickart, Renaud, & Camp, 2014; Long, Alison, Tejeiro, Hendricks, & Giles, 2016), personality, motivation and cognitions (Elliott, Beech, & Mandeville-Norden, 2013), life experiences (Sheenan & Sullivan, 2010), access to children (Long, Alison, & McManus, 2013) and use of technology (Wolak, Liberatore, & Levine, 2014).

Notwithstanding this, the specific *content* of IIOC has been largely neglected, probably due to the legal and ethical challenge posed by the access to the images outside of law enforcement. As such, the precise nature of what offenders have in their possession is relatively unknown. Some authors have utilized archival information from sex offender treatments (McCarthy, 2010), surveys to law enforcement agencies (Wolak et al., 2011) or more commonly transcripts of interviews or legal and operational documents found in police files (Baartz, 2008; Long et al., 2013; Niveau, 2010) to record and analyze aspects such as the number of images possessed, severity of the images, gender and age of victims, and types of image (still vs. movie). Exceptionally, Quayle and Jones (2011) analyzed a sample of actual images gathered from police seizures – executed throughout the United Kingdom between 2005 and 2009–, but they coded characteristics of the victim such as gender, age and ethnicity and not the behaviours in the images. To the best of our knowledge, the sexual behaviour depicted in the child sexual abuse material has never been analyzed nor reported.

Knowing the content of IIOC has several implications for forensic theory and practise. First, it has direct implications for helping to establish the mechanisms underlying these offences. For instance, it has been suggested that individuals seek out material that is most arousing to them and reflects their sexual fantasies (Glasgow, 2010), which in turn may be associated with the later commission of contact sexual offences (Dandescu & Wolfe, 2003; Quayle & Taylor, 2002). That is, there is homogeneity between what offenders seek out and the type of offence they commit. Long et al. (2013) estimated a 75% overlap in terms of gender between the IIOC victim and contact child abuse victim; similarly, they found that the higher the average age of the children in IIOC, the higher the average age of the contact victim (and vice versa). Wilson and Jones (2008), report the case of 'James' a high risk 'hands on' child sexual offender who claimed that, whilst IIOC did not cause him to contact offend more, it did cause him to fantasize more and led him to seek out more IIOC online. He acknowledged that what he had seen online did make him 'do different things [to victims] in the offences' (p. 117). Knowing the content of IIOC may also facilitate recent efforts to risk assess offenders based on features of IIOC collections. For example, findings are beginning to emerge that indicates more boys than girl content in offenders who go on to sexually recidivate (Eke & Seto, 2012; Seko & Eke, 2015) and that younger victims and more extreme content might indicate increased risk for direct victimization (Smid, Schepers, Kamphuis, van Linden & Bartling, 2014). This work is still in its infancy due to the legal and ethical restrictions on researchers' access to indecent images.

Further, there are practical implications for therapeutic work with both offenders and victims. Interviews with offenders, such as those reported by Winder and Gough (2010) demonstrate that offenders minimize offences (only pictures, looking is not touching, they do not create child victims) and experience cognitive distortions (children appear happy in IIOC) that further serve to downplay the seriousness of offences. Set against this, many victims report the additional distress that is caused by knowing that images of their abuse are circulated and viewed for sexual purposes (Beech, Elliot, Birgden & Findlater, 2008; von Weiler, Haardt-Becker & Schulte, 2010). Knowing the content of IIOC could help provide therapeutic insight for treatment providers' and assist in the development of therapeutic scripts with both offenders and victim client groups. Finally, as Quayle and Jones (2011) argue with regard to the children in these images, without the systematic collection of information about them, it is not possible to know whether the change in the demographics of Internet use is mirrored by changes in illegal Internet content. Our aim is to overcome this limitation in the available knowledge by selecting and analyzing a sample of IIOC found in possession of convicted offenders.

Evidence from prior studies

Demographic characteristics of the victims (gender, age and ethnicity) are the aspects most commonly analyzed in the content of IIOC. In this regard, all available evidence suggests that the majority of victims in the images are female children (Baartz, 2008; Bunzeluk, 2009; Carr, 2004; Long et al., 2013; Wolak, Finkelhor, & Mitchell, 2005). In Wolak et al. (2011) the images with majority of females represented 70%, with majority of males in 15% and both genders in 15%; in McManus, Long, Alison and Almond (2014), 63.4% included only females, 13.4% only males and 23.3% both genders. Also, in Steel's (2009) study on queries 79% of the offenders were female-oriented. Quayle and Jones (2011) found that the odds of the abuse images being female versus male were about 4 to 1.

Regarding age, previous research (Gallagher, Fraser, Christmann, & Hodgson, 2006; Long et al., 2013; Wolak et al., 2011) suggest that the majority of images in circulation depict pre-pubescent children. Some authors report that pubescent age – between 13 and 17 – represent the second main age group (Lee, cited in Quayle, Loof & Pamer, 2008); in fact, the median age searched for by the offenders in Steel's (2009) study was 13 years. Some also have suggested that the victims depicted in IIOC have become younger (Beech, Elliot, Birgden, & Findlater, 2008; Oosterbaan, 2009); for instance, Wolak et al. (2011) reported that the percentage of children under 3 years depicted in the images increased from 19% in 2000 to 28% in 2006. Finally, we must highlight the interaction effect reported by Quayle and Jones (2011), with male children depicted in the images being more likely to be prepubescent or very young and less likely to be pubescent as compared to females.

Ethnicity of IIOC victims has been reported in very few instances, and although regional differences can reasonably be expected, studies in the United Kingdom (Quayle & Jones, 2011), United States (Lee, cited in Quayle et al., 2008), Australia (Baartz, 2008) and New Zealand (Carr, 2004) coincide in finding a vast majority of White children, distantly followed by other ethnic groups. As a summary, Quayle and Jones (2011) estimated that the odds of the IIOC being of White children versus non-White children are about 10 to 1.

If little has been written about the children in IIOC, even less is known about the adult offenders that appear in the images. Finkelhor and Ormrod (2004) addressed this issue and reported that the majority of images in circulation feature a lone male offender. For lack of a better reference, the characteristics of those who take, download or trade this type of material can provide some insight on this aspect: while this offending population is described as heterogeneous (Taylor & Quayle, 2003), all studies report that the vast majority of IIOC offenders are males (Baartz, 2008; Bates & Metcalf, 2007; Finkelhor & Ormrod, 2004; Sullivan, 2005; Webb, Craissati & Keen, 2007) and White (Carr, 2004; Sullivan, 2005; Wolak et al., 2005), though there is less agreement regarding their age: Wolak et al.'s (2005) analysis indicated that 45% were 40 or older, which is similar to other reports (Baartz, 2008; Middleton, Elliot, Mandeville-Norden, & Beech, 2007; Webb et al., 2007), but the age range in these samples was wide. Different results can be found in other studies; for instance, data gathered in New Zealand revealed that over half were under the age of 30 at the time of the investigation, with an age range of 14–67 years (Sullivan, 2005), and more recently, McManus et al. (2014) reported that the ages of the offenders in their sample ranged from 18 to 75 years with the mean age being 42 years.

Hardly anything is available either about the sexual behaviours depicted in the images. Wolak et al. (2011), from a survey on US law enforcement agencies, found that penetration of the victim (including oral) was present in at least 80% of the images in 2000 and in 82% in 2006, with 71% and 75% respectively depicting sexual activity involving both children and adults. In Switzerland, Niveau (2010) used the offenders' own statements, criminal investigation records, and medical information records and reported that all files depicted explicit sexual acts between adults and children. Niveau employed the classification created in the context of the COPINE (Combating Pedophile Information Networks) project (Taylor, Holland, & Quayle, 2001; Taylor & Quayle, 2003) and found that 78% of the offenders collected material classified as level 10 in the COPINE scale, which implies the depiction of at least one scene of humiliation, sadism, or other deviant act committed on a child.

More commonly used, the Sexual Offences Act 2003: Definitive Guideline (www.sentencingcouncil.org.uk), referred to as SAP (Sentencing Advisory Panel) classification, comprises the following levels: 1 (Images depicting erotic posing with no sexual activity), 2 (Nonpenetrative sexual activity between children, or solo masturbation by a child), 3 (Nonpenetrative sexual activity between adults and children), 4 (Penetrative sexual activity involving a child or children, or both children and adults) and 5 (Sadism or penetration of, or by, an animal). With this reference, some have reported that the most severe levels (4 and 5) can be allocated to more than 50% of the images (Laulik, Allam, & Sheridan, 2007; Internet Watch Foundation, 2010), whilst others have reduced that presence to around 20-25% (Long et al., 2013; McManus et al., 2014) or have even reported the absence of level 5 images (Osborn, Elliott, Middleton, & Beech, 2010).

Focusing on aggressive behaviours in IIOC, Baartz (2008) reported that explicitly harmful acts or actions (e.g. physical violence, torture, bondage etc.) were chosen by 26% of offenders, with an additional 18% who chose dehumanising and degrading activities (e.g. use of urine and excrement, extreme close-ups etc.) and 18% who chose bestiality involving children or in the presence of children. From these results, Quayle et al. (2008) concluded that "what these people are seeking to collect is not simply pictures of children, but images that capture, at least in part, the exploitation, abuse, humiliation and

degradation of children and their sexuality" (p.31). On the other end of the spectrum, Gallagher et al. (2006) found that the "most serious images were the least numerous" (p.63). Finally, it must be noted that some studies have denounced that the severity of IIOC seems to be increasing over time (Internet Watch Foundation, 2008, 2010; Wolak et al., 2011).

Hypotheses

Although this is an exploratory study on a field not yet trodden, the following working hypotheses can be drawn from the results in the literature above: (1) The majority of children in IIOC will be female; (2) The majority of children in IIOC will be in the 10–12 years range, with decreasing percentages as the age diverges from that range; (3) There will be an interaction effect between age and gender, so that male children depicted in the images will be more likely to be in the lower age range and less likely to be pubescent as compared to females; (4) The vast majority of victims in IIOC will be White; (5) The majority of images will depict a lone, male, White offender, with a Median age of around 40; (6) Around half the images will show sexual activity between children and adults, whilst the majority of the remaining will correspond to images depicting erotic posing with no sexual activity; and (7) A significant number of images will depict physical aggression, humiliation or degradation of the victim.

1. Method

1.1. Sampling and procedure

The sample included IIOC found in possession of individuals who had been convicted in the UK for possessing, making, taking and/or distributing IIOC using the internet for such purposes. Dates of conviction ranged from 2009 to 2014, and data collection and coding occurred between July and September 2014 in the context of the Fighting International Internet Paedophilia (FIIP) project.

An opportunistic sampling method was first used by the Child Exploitation Investigation Team (CEIT) of the Kent Police to select the offenders according to whether their IIOC was available or not; next, the sample was randomly selected from the total files found in possession of each individual so that no less than 5 and no more than 70 images were coded for each offender. The final sample was formed by 729 images (91.1%, $n = 664$ still images and 8.9%, $n = 65$ movies) from 26 offenders (Mean = 28.03, $SD = 19.20$, $Mdn = 21$, min = 5, max = 64). Due to the small number of movies, type of image was not considered for analyses. The fifth author – a Detective Sergeant with 10-year experience in the area – uploaded the IIOC onto specialized digital image processing software and viewed and coded them individually into a number of predetermined categories. No other member of the research group accessed the images and therefore no inter-rater reliability could be calculated, but all efforts were made to focus on categories that were non-subjective and which the coder regularly must submit for the Court. All data were handled confidentially and all ethical and security protocols were followed so that each individual offender's data and that of their victims' could be converted into data matrices for analysis, thus making the identifying features anonymous.

1.2. Measurement

Content analysis ("any technique for making inferences by objectively and systematically identifying specified characteristics of messages"; Holsti, 1969) with emergent coding (categories are established following some preliminary examination of the data) was selected as the most suitable technique. A coding dictionary was developed that contained 110 variables grouped in the following areas: participants in the images, sexual actions (general), sexual actions against the victim, and sexual actions on the offender. Variables were obtained from an unpublished classified study conducted in June 2013 within the FIIP project as well as from studies where sexual actions in adult pornography were coded (Bridges, Wosnitzer, Scharrer, Sun, & Liberman, 2010; McKee, 2005).

1.3. Analysis

The SPSS version 21.0 statistical package was utilized for data analyses. To address primary aims, we provide frequencies and percent of variables. Chi-square analyses are used for the comparison of nominal variables and effect size is measured with φ or odds ratio for binary variables, and with Cramér's V or φ_c for categorical variables. Normality and homoscedasticity tests are conducted on continuous variables and parametric (Student's t) or nonparametric (Mann-Whitney's U) tests are used to compare groups, with Cohen's d or r as a measure of effect size. Logistic regression was used to compare gender groups in a dichotomous variable controlling for the effect of age, and vice versa.

2. Results

2.1. Participants in the images

The number of victims that were portrayed in the images ranged from 1 to 8, with an average of 1.22 ($SD = 0.55$), Mdn = 1; 125 images (19.3%) presented more than 1 victim. When all the victims in the image were considered, in the majority of instances all participants were female (72.9%; $n = 470$), followed by all males (21.9%; $n = 141$) and both females and males (5.3%; $n = 34$). Most frequently, the main victim was also female (76.1%; $n = 491$); the odds of the IIOC being of female children versus male children are 3.19 to 1. The age of almost half of the victims was within the 4-9 years range (45.2%, $n = 292$), but pre-pubescent or 10-12 years old victims were also frequent (35.9%; $n = 232$), followed by pubescent or 13-17 years old (13.8%; $n = 89$), toddler or 2-3 years old (4%; $n = 26$) and infants (1.1%; $n = 7$); Mdn = 9.5 years. In the toddlers group there were significantly more males than females, $\chi^2_{(1, 645)} = 7.40$, $p = .007$, $\varphi = .11$, whereas females were more frequent in the 4-9 years group, $\chi^2_{(1, 645)} = 4.54$, $p = .033$, $\varphi = .08$, without significant differences in infants, pre-pubescent and pubescent. When offenders were considered individually, all but one had images with children in more than one age group, with 5 (19.2%) having images in all age groups; the vast majority ($n = 23$; 88.5%) had images of both pre and post-pubescent children. Most children were White (95.5%; $n = 616$), 3.1% ($n = 20$) were Asian and 0.5% ($n = 3$) were in each of the Black, Mixed and other ethnic categories; the odds of the abuse images being of White children versus non-White children are 21.24 to 1. When the victims' clothes were identifiable, only one image presented infantilising elements (a school tie).

Offenders appeared in almost one third of images (29.4%; $n = 214$). The number of offenders in the IIOC ranged from 0 to 2, with a mean of 0.31 ($SD = 0.49$), Mdn = 0.

Only 10 images (1.4%) presented more than one offender. In 175 images (81.8%) all offenders were male whereas in 34 (15.9%) all offenders were female, with 5 (2.3%) containing males and females. When only the main offender is considered, there is a wide majority of males (94.9%; n = 692).

There was an interaction between gender of offender and gender of victim: the majority of male offenders (77.8%; n = 473) appeared with female victims whereas the majority of female offenders (51.4%; n = 19) were depicted with male victims; $\chi^2_{(1, 645)}$ = 16.30, p < .001, φ = .16. Images where the victim was a female were 3.7 times more likely to portray a male offender than a female offender, controlling for individual differences in victim's age; OR = 3.73, 95% CI [1.88-7.39].

When victim's gender was controlled for, male offenders (32.7%, n = 226) were 1.7 times more likely than female offenders (16.2%, n = 6) to appear with prepubescent children ($\chi^2_{(1, 729)}$ = 4.38, p = .036, OR = 1.73, 95% CI [.31-5.28]), whereas female offenders (16.2%, n = 6) were 7.1 times more likely than male offenders (3.3%, n = 20) to appear with toddler victims ($\chi^2_{(1, 646)}$ = 15.30, p < .001, OR = 7.14, 95% CI [1.60-31.91]) and 2.5 times more likely to appear with children aged 4-9 years (39.2%, n = 271 for male offenders, 56.8%, n = 21 for female offenders; $\chi^2_{(1, 729)}$ = 4.53, p = .033, OR = 2.55, 95% CI [.73-8.87]).

More than half the offenders were young adults between 18 and 24 years of age (58.9%; n = 93), with percentages decreasing as age increased (22.2%, n = 35, for 24–35 years; 14.6%, n = 23, for 34-44 years; 4.4%, n = 7, for 45-54 years; no offender older than 54 was portrayed in any image). Once more, there was a significant difference between males and females: whilst most male offenders (70.9%; n = 90) were aged 18-24 years, most female offenders were aged 25-34 years; $\chi^2_{(3, 158)}$ = 57.53, p < .001, φ_c = .60 for the general gender x age contingency table. As with the victims, the vast majority of offenders were White (98.6%, n = 719), with marginal presence of Black (0.7%; n = 5), Asian (0.5%; n = 4) and other (0.1%; n = 1) ethnicities.

2.2. Sexual actions (general)

In the vast majority of instances, it was not possible to determine who initiated the sexual activity represented; adults initiated the activity in 13 images (1.8%) and children carried out an initiating action in only 4 of the images (0.5%). Needless to say, all children both legally and psychologically are recognized as either non-consenting or not in a position to give consent or otherwise; when we refer to 'initiating actions' we recognize that this refers to a specific action without inferring issues of consent around that action. Offenders were the only participants portrayed having orgasm, climax or ejaculation, but this occurred in only 12 images (0.6%). No image portrayed grooming, and only one presented sexual activity between a person (child) and an animal (dog). Exhibitionism-related behaviours were more frequent by victims (5.6%; n = 41) than by the offender (1.6%; n = 13) or by both (0.4%; n = 3), and sadomasochistic performances were present in 13 images (1.8%). Due to the small size of these figures, no comparisons across gender or age groups were made.

2.3. Sexual actions against the victim

Less than one quarter of the images (24.1%; n = 176) portrayed some sort of overt sexual action committed against a child (the child receives the action). Male children (44.2%; n = 68) were 1.9 times more likely than female children (21.8%; n = 107) to have

these acts committed on them; $\chi^2_{(1, 645)} = 29.66$, $p < .001$, OR = 1.89, 95% CI [1.31-2.73]. Also, the younger the child, the higher the likelihood of having these sexual actions committed upon them (57.1%, $n = 4$ in infants; 50%, $n = 13$ in toddlers; 32.5%, $n = 95$ in 4-9 year-old; 19.8%, $n = 46$ in prepubescent; and 20.2%, $n = 18$ in pubescent); $\chi^2_{(4, 646)} = 22.72$, $p < .001$, $\varphi_c = .19$.

In 93 images (12.8%) a child was made to perform some sort of sexual act on an adult. No significant gender differences were found in this variable; there was a victims' age effect such that younger children were more likely made to perform a sexual act on an adult as compared to older children, but this trend was not as clear as with the passive reception of sexual actions (14.3%, $n = 1$ in infants; 15.4%, $n = 4$ in toddlers; 20.5%, $n = 60$ in 4-9 year-old; 9.1%, $n = 21$ in prepubescent; and 7.9%, $n = 7$ in pubescent); $\chi^2_{(4, 646)} = 17.45$, $p = .002$, $\varphi_c = .16$.

Regarding who commits the action on the child victim, it was an adult in 13.4% of the images ($n = 98$), another child in 8.2% ($n = 60$) and themselves in 3.6% ($n = 26$). No gender differences were found regarding sexual actions by adults of by self, whereas males (21.4%; $n = 33$) were 4.7 times more likely than females (5.5%; $n = 27$) to appear in images depicting sexual activity between two children; $\chi^2_{(1, 645)} = 35.26$, $p < .001$, OR = 4.67, 95% CI [2.71-8.10].

When victims' age was considered, the likelihood of sexual aggression by the offender increased as age decreased (57.1%, $n = 4$ in infants; 42.3%, $n = 11$ in toddlers; 19.5%, $n = 57$ in 4-9 year-old; 8.6%, $n = 20$ in prepubescent; and 6.7%, $n = 6$ in pubescent); $\chi^2_{(4, 646)} = 41.40$, $p < .001$, $\varphi_c = .25$; contrariwise, sexual activity of the victim with themselves increased with age, though not significantly (0% in infants; 3.8%, $n = 1$ in toddlers; 3.4%, $n = 10$ in 4-9 year-old; 4.3%, $n = 10$ in prepubescent; and 5.6%, $n = 5$ in pubescent); finally, no significant differences or trends were found when the sexual action was performed by another victim (0% in infants; 3.8%, $n = 1$ in toddlers; 11%, $n = 32$ in 4-9 year-old; 8.2%, $n = 19$ in prepubescent; and 9%, $n = 8$ in pubescent).

No single action was present in at least 10% of images, with masturbation being the most common behaviour (7%) followed by intercourse (5.3%) and oral sex on the victim (4.8%); see Table 1. In the following actions there were significant differences between males – with higher relative presence of all actions – and females: masturbation (14.3%, $n = 22$ males; 5.9%, $n = 29$ females; $\chi^2_{(1, 645)} = 11.30$, $p = .001$, $\varphi = .13$); oral sex on the victim (12.3%, $n = 19$ males; 3.1%, $n = 15$ females; $\chi^2_{(1, 645)} = 20.23$, $p < .001$, $\varphi = .18$); and anal penetration with penis (5.8%, $n = 9$ males; 0.6%, $n = 3$ females; $\chi^2_{(1, 645)} = 17.58$, $p < .001$, $\varphi = .17$). Age differences were found in just a few behaviours: the victim being licked was more relevant for the toddler category (15.4%; $n = 4$), with less presence in 4-9 years (3.4%; $n = 10$) and pubescent children (2.2%; $n = 2$) and none in infants and prepubescent children, $\chi^2_{(4, 646)} = 25.11$, $p < .001$, $\varphi_c = .20$; intercourse was more likely in infants than in the other age groups, but results are difficult to interpret (28.6%, $n = 2$ in infants; 3.8%, $n = 1$ in toddlers; 7.9%, $n = 23$ in 4-9 years; 4.7%, $n = 11$ in prepubescent; 2.2%, $n = 2$ in pubescent), $\chi^2_{(4, 646)} = 11.17$, $p = .025$, $\varphi_c = .13$.

Table 1. Sexual actions against the victim

Variable	None N (%)	By O N (%)	By self N (%)	By another V N (%)
V is masturbated	678(93.0)	16(2.2)	16(2.5)	17(2.3)
Intercourse	690(94.7)	34(4.7)	N/A	5(0.7)
Oral sex on V	694(95.3)	13(1.8)	N/A	21(2.9)
Vaginal penetration (penis)	705(96.7)	21(2.9)	N/A	3(0.4)
V is rubbed	707(97.0)	10(1.4)	7(1.0)	5(0.7)
V body is kissed or licked	713(97.8)	10(1.4)	0	6(0.8)
Anal penetration (penis)	717(98.4)	9(1.2)	N/A	3(0.4)
Vaginal penetration (digital)	719(98.6)	4(0.5)	1(0.1)	5(0.7)
V is penetrated by dildo	720(98.8)	3(0.4)	5(0.7)	1(0.1)
Stimulation of nipple	723(99.2)	1(0.1)	0	5(0.7)
Anal penetration (digital)	724(99.3)	4(0.5)	0	1(0.1)
Simultaneous oral sex	727(99.7)	0	N/A	2(0.3)

N/A = not applicable; V = victim; O = offender

2.4. Seriousness of the images (SAP levels)

Figure 1. Distribution of SAP levels by victim gender
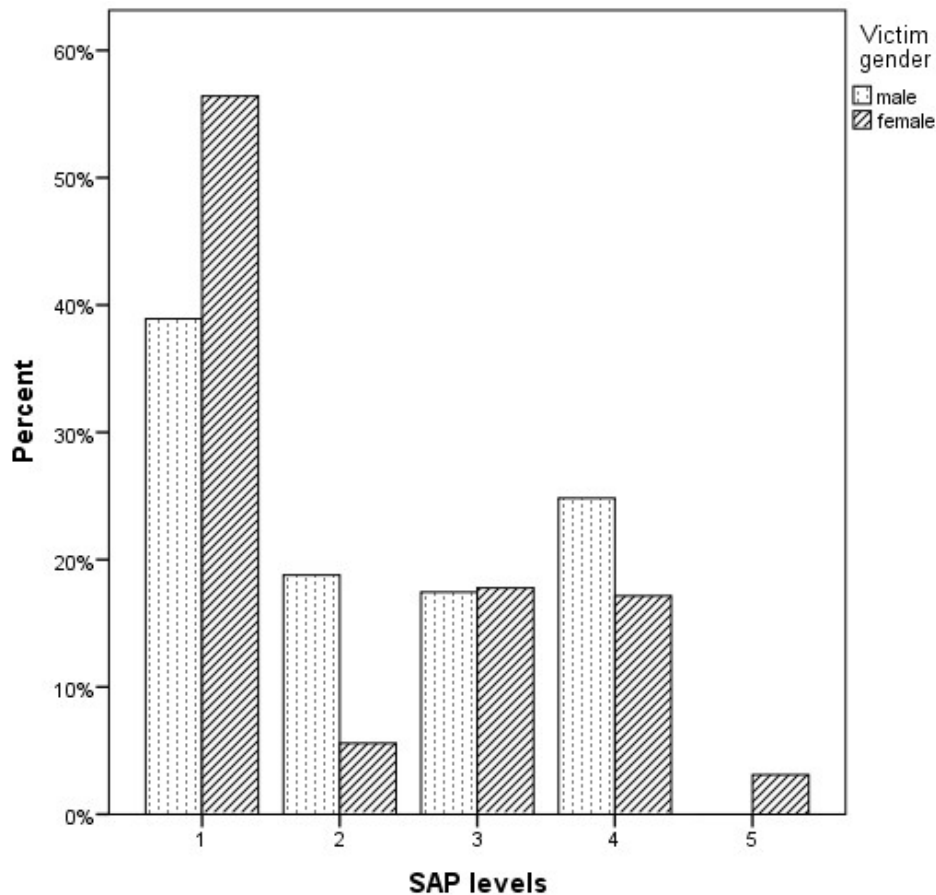
Images were classified according to the five levels of IIOC defined by the Sexual Offences Act 2003: Definitive Guideline; the new classification into three categories introduced in April 2014 was not utilized because the coder was far more familiar with the previous one. More than half the images were classified as level 1 (52.2%; $n = 331$), with high presence of levels 4 (18.9%; $n = 120$) and 3 (17.8%; $n = 113$) and lower presence of levels 2 (8.7%; $n = 55$) and 5 (2.4%; $n = 15$). When the gender of the victim is considered, males were more distributed across SAP levels whereas females concentrated mainly in level 1; $\chi^2_{(1, 633)} = 37.72$, $p < .001$, $\varphi = .24$; see Figure 1.

Significant differences also appeared when the age of the child in the images was considered, with a clear shift towards the more serious levels as the age of the victims decreases; $\chi^2_{(16, 634)} = 70.83$, $p < .001$, $\varphi_c = .17$; see Table 2.

Table 2. SAP levels across age groups

	SAP level				
	1	2	3	4	5
Victim's age	*N*(%)	*N*(%)	*N*(%)	*N*(%)	*N*(%)
0–1 years	2(28.6)	0	2(28.6)	**3(42.9)**	0
2–3 years	6(23.1)	2(7.7)	**14(53.8)**	4(15.4)	0
4–9 years	**119(41.3)**	26(9.0)	67(23.3)	69(24.0)	7(2.4)
10–12 years	**146(64.5)**	18(7.8)	25(10.8)	33(14.3)	6(2.6)
13–17 years	**55(67.1)**	9(11.0)	5(6.1)	11(13.4)	2(2.4)

2.5. Suffering

Although it is obvious that the children in the IIOC were victims of abuse, various forms of coercion, manipulation and diverse forms of control (from preying on pseudo intimacy through to more overt dominant control), only 20 images (2.7%) depicted the victim as overtly suffering some sort of physical aggression: tying/bounding/shackling (1.1%; $n = 8$), pulling their hair (0.3%; $n = 2$), closing their mouth with tape (0.1%; $n = 1$) and gagging (0.1%; $n = 1$). All acts of aggression were committed by the offender: no act of overt aggression of one victim on another was portrayed in any of the images. Finally, in 3 images (0.4%) the victim was urinated on, in one they were screaming and in another they tried to resist physically. Thus, these highly deviant, overtly sadistic paraphilic images were relatively rare. No gender differences were found with regard to any of the variables above, but when all of them were combined into a single variable, females (4.1%; $n = 20$) were more likely to suffer overtly as compared to males (0%); $\chi^2_{(1, 645)} = 6.47$, $p = .011$, $\varphi = .10$. No differences of any sort were found across victims' age groups.

2.6. Pseudo positive behaviours

In one fifth of the images (21.4%; $n = 156$) the victim was portrayed smiling, whilst in other 156 (21.4%) they appeared to comply with the actions and the taking of images. In almost half the images the victim seemed to be aware that they were being photographed or recorded (49%; $n = 357$). No gender effect was found in the likelihood of appearing to smile, but females (37.3%, $n = 183$) were more likely to show this behaviour than males (25.3%; $n = 39$); $\chi^2_{(1, 645)} = 7.41$, $p = .006$, $\varphi = .11$. Similarly, females (59.7%; $n = 293$) were more likely than males (40.9%; $n = 63$) to be aware of the situation; $\chi^2_{(1, 645)} = 16.69$,

p < .001, φ = .16. Victims' age was a relevant factor, with a general tendency to higher percentages as age increases in: awareness (0% in infants; 23.1%, n = 6 in toddlers; 47.9%, n = 140 in 4-9 years; 66.4%, n = 154 in prepubescent; 64.0%, n = 57 in pubescent; $\chi^2_{(4, 646)}$ = 40.24, p < .001, φ_c = .25), victim smiles (0% in infants; 16.0%, n = 4 in toddlers; 19.9%, n = 58 in 4-9 years; 30.2%, n = 70 in prepubescent; 27.0%, n = 24 in pubescent; $\chi^2_{(4, 645)}$ = 11.03, p = .026, φ_c = .13), and victim appears to comply (0% in infants; 19.2%, n = 5 in toddlers; 36.6%, n = 107 in 4-9 years; 40.1%, n = 93 in prepubescent; 20.2%, n = 18 in pubescent; $\chi^2_{(4, 646)}$ = 18.19, p = .001, φ_c = .17).

Very few images (0.7%; n = 5) depicted any sort of positive pseudo affection towards the victim. In only 4 images (0.5%) the victim was kissed (in 3 of the 4 images by another victim, and in the remaining by the offender), and in 2 images (0.3%) the victim was hugged (in one image by the offender and in the other by another victim).

2.7. Sexual actions on the offender

One seventh of the images (14.7%; n = 107) portrayed some sort of sexual action on the offender by the victim/s, by the own individual or by another offender. As shown in Table 3, the most common behaviour was oral sex, followed by masturbation. When only the sexual actions by the victim were counted, the figure decreased to one eighth (12.8%, n = 93). No differences were found when the gender of the victim was considered (11.0%, n = 17 when the victim was a male; 15.5%, n = 76 when the victim was a female). Statistically significant differences were found across victims' age groups, with the 4-9 years being more likely to perform sexual actions on the offender (20.5%; n = 60) and lower percentages as age diverges from this group (14.3%, n = 1 for infants; 15.4%, n = 4 for toddlers; 9.1%, n = 21 for prepubescent; 7.9%, n = 7 for pubescent); $\chi^2_{(4, 646)}$ = 17.45, p = .002, φ_c = .16.

Table 3. Sexual actions on the offender

Variable	None N (%)	By V N (%)	By self N (%)	By another O N (%)
Oral sex on O	676(92.7)	53(7.3)	N/A	0
O is masturbated	689(94.5)	27(3.7)	12(1.6)	1(0.1)
O is rubbed	716(98.2)	10(1.4)	3(0.4)	0
O body is kissed or licked	720(98.8)	7(1.0)	2(0.3)	0
Stimulation of nipple	725(99.5)	4(0.5)	0	0
Vaginal penetration (digital)	726(99.6)	3(0.4)	0	0

N/A = not applicable; V = victim; O = offender

Discussion and Conclusion

This is the first publication of the content analysis of the sexual contents in a random sample of IIOC distributed through the Internet and found in the possession of convicted offenders. With regard to our work hypotheses, results can be summarized as follows:

1. *The majority of children in IIOC will be female.* Our results confirm this hypothesis, as around 75% of the total of victims was female, which represents a ratio to males of 3.2 to 1 (not far from the 4 to 1 ratio reported by Quayle and Jones, 2011).

2. The majority of children in IIOC will be in the 10-12 years range, with decreasing percentages as the age diverges from that range. Although the most frequent age group in our study was 4-9 years, the median was 9.5 years which is lower but near the average 10 years found in the literature. Infants and toddlers only represented 5% of the total, but the likelihood of sexual contact aggression in these groups was significantly higher than in older ages.

3. There will be an interaction effect between age and gender, so that male children depicted in the images will be more likely to be in the lower age range and less likely to be pubescent as compared to females. This hypothesis was not supported: in the toddlers group there were significantly more males than females, but the presence of the latter was higher in the 4-9 years' group, and no gender differences were found in infants, prepubescent and pubescent groups.

4. The vast majority of victims in IIOC will be White. Above 95% of children were White; the odds of the image being of White children versus non–White children were higher than 21 to 1 (more than double the ratio in Quayle and Jones, 2011).

5. The majority of images will depict a lone, male, White offender, with a Median age of around 40. Offenders tended to be alone (95.3% of all images with an offender), male (94.9%) and White (98.6%). Offenders in our sample were younger than expected: the majority of males were 18-24 years old and the majority of females were 25-34. Interactions appeared between the characteristics of the offenders and those of their victims: individuals in each gender appeared more often abusing children of the opposite gender; also, male offenders were more likely than female offenders to appear with prepubescent children whereas female offenders were more likely to appear with children aged 2-3 and 4-9 years.

6. Around half the images will show sexual activity between children and adults, whilst the majority of the remaining will correspond to images depicting erotic posing with no sexual activity. The second part of the hypothesis was supported by our results: just above half the images corresponded to Level 1 in the SAP scale. Overt sexual activity between children and adults was less frequent than hypothesized, as only 13.4% of children received overt sexual actions from an adult with an additional 12.8% who were made to perform sexual actions on an adult. Also, there were relevant interaction effects: male victims were more likely to be distributed across SAP levels and to receive sexual actions, whereas females concentrated mainly in level 1 and received less sexual actions.

7. A significant number of images will depict physical aggression, humiliation or degradation of the victim. This hypothesis was not supported: although all IIOC involve various forms of coercion and exploitation against the children depicted, only in 2.7% of images the victim was clearly seen as suffering or being victim of physical attack (a specific and paraphilic form of sexual sadism), and in other 0.4% the victim was urinated on. It must be noted though that in samples of children who have been sexually abused, overt use of physical violence is relatively rare (see Bennell, Alison, Stein, Alison, & Canter, 2001). In general, females were more likely to be depicted as overtly physically suffering as compared to males – thus sexual sadism (in this sample) was more prominent against female victims.

The moderating effect of the victims' age and gender and sometimes also of the offenders' age and gender – different from those reported by Quayle and Jones (2011) in the only other study on actual imagery –, together with the results of exploratory variables not included in the hypotheses, present a picture of noteworthy complexity and highlight

the insufficiency of simplistic explanations for the mechanisms underlying IIOC. Also, they reveal the paramount importance of obtaining data from the actual images, rather than relying on second hand accounts. Offenders may lie or provide biased descriptions of their behaviour, as biased may also be the information on the images available in police files; e.g., perhaps only the most violent or somewhat horrible images are included in the reports in order to favour that the offender is finally convicted.

The findings of this paper contribute new knowledge about the nature and content of IIOC that can be drawn upon by investigative interviewers and those engaged in therapeutic work with IIOC offenders. For example, despite offender justifications that victims are smiling in images (e.g. Winder & Gough, 2010) this study found that one fifth of victims were 'portrayed' as smiling. There is a vast literature on the way in which offenders exploit children and recognise a child's inability to neither give proper consent to such activity nor recognise the negative consequences of inappropriate early sexualisation. Investigators and treatment providers can additionally draw on the findings of this study to help challenge offenders' cognitive distortions. Treatment providers can also draw on the findings of this study to inform their therapeutic work with children. Many children may feel responsible for their abuse (Ney, Moore, McPhee, & Trought, 1986) and the insidious nature of the relationship between the perpetrator and the child victim is such that the latter may perceive themselves as willing participants (Berliner & Conte, 1990; Kaufman, Hilliker, & Daleiden, 1996) and co-conspirators in maintaining the secret (Furniss, 1991; Summit, 1983). Many victims report additional distress is caused by knowing that images of their abuse are circulated and viewed for sexual purposes (Beech, Elliot, Birgden & Findlater, 2008; von Weiler, Haardt-Becker & Schulte, 2010). The findings of this study could help treatment providers understand the typical kinds of sexual offences committed during IIOC offences. This can help improve their understanding of offences and help them develop therapeutic work with victims.

Our results have also implications for the proposed existence of subtypes of IIOC offenders and the diversity of human sexuality and paedophilic interest – although the relationship between child molesting, paedophilia and IIOC offending is still controversial (Babchishin, Hanson, & VanZuylen, 2015; Seto, Cantor, & Blanchard, 2006). For instance, the Paraphilias Subgroup for DSM-5 proposed the existence of three subtypes according to their age preference: paedophilic (sexually attracted to children younger than 11), hebephilic (sexually attracted to children aged 11-14) and paedohebephilic (sexually attracted to both) (Blanchard et al., 2009; Blanchard, 2013). With our threshold for puberty set at 12 years, only three offenders would be classified as purely paedophilic or purely hebephilic, with the remaining in the more general third category. But even when the distinction in subgroups above is not accepted, sex, age and explicitness of depiction of children are still seen as relevant to considering the diagnosis of paedophilia (Seto & Ahmed, 2014).

The presence of female offenders in 18.2% of all images where the gender of the offender was identifiable contrasts strongly with the assumptions that paedophilia (Blanchard et al., 2007) and female sexual offending (Ursel & Gorkoff, 2001) are rare, although under–recognition and under–reporting may account at least partly for those results (Gannon & Rose, 2008). Notwithstanding this, there is consensus in that at least female IIOC offending is rare (Wolak et al., 2011), which introduces an interesting differentiation between those who possess IIOC and those who appear in them; the same can be said regarding the fact that almost two thirds of male offenders in the images were

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aged 18-24 whilst recent studies in the UK coincide in situating IIOC offenders' age around 40 years (Elliott et al., 2013; McManus et al., 2014).

Differences between our study and others, when existing, may be due to differences in methodology or in the demographics of the population of offenders from whom the data are obtained, but also may be associated with the specificities of some of the variables – for instance, the acknowledged difficulties in consistently applying the SAP scale or in allocating an age to some of the individuals in the images (Mayer et al., 2014). Nevertheless, the vast experience of the coder in our study may minimize these limitations. Further studies with bigger samples and from different national or regional origins are urgently needed.

Concomitantly, there should be further discussion about the appropriateness of developing theoretical and investigative inferences from IIOC content (such as determining paraphilia, predicting recidivism or concurrent contact offending). For example, Wolak et al (2011) warn against the use of IIOC images to determine offender paraphilia as researchers may falsely conclude that offenders have more extreme interests than they actually do. It is likely that the police proceed against those who download or distribute more extreme images. Our analysis demonstrates wider paraphilic interests rather than discrete paedophilic sub-types from an analysis of IIOC content. Steel (2009) further adds that there is a difference between search words used by offenders (indicates *demand* for IIOC) and titles that are returned (indicates *supply* for IIOC). There is some suggestion that offenders download batches of IIOC images (e.g. Steel, 2009; Wolak et al, 2011) and may not actively search for all types of material within their IIOC collection (e.g. violent or extreme images). This raises concerns about the extent to which appropriate inferences can be drawn from IIOC content alone and that further research is needed combining search behaviour and IIOC content. This study, one of the first of its kind, contributes far more detailed knowledge about the typical nature and content of IIOC that will help form the basis for further investigation and discussion in the area.

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