

How common is males' self-reported sexual interest in prepubescent children?

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Abstract

Consistent evidence exists for sexual interest in children in non-clinical/non-forensic male populations. However, prevalences for community males' self-reported sexual interest in children involving prepubescent children have been based on indiscriminate definitions including postpubescent individuals, age-restricted samples, and/or small convenience samples. The present research assessed males' self-reported sexual interest in children (including child prostitution and child sex tourism) on community level and examined the link between strictly defined sexual fantasies and behaviors involving prepubescent children. In an online survey of 8,718 German males 4.1% reported sexual fantasies involving prepubescent children, 3.2% sexual offending against prepubescent children, and 0.1% a pedophilic sexual preference. Sexual fantasies involving prepubescent children were positively related to sexual offending against prepubescent children. Sexual interest in children was associated with subjectively perceived need for therapeutic help. In contrast to findings from forensic samples, men who exclusively reported child pornography use were identified as a subgroup differing from contact sexual offenders against prepubescent children and men who committed both child pornography and contact sexual offenses against prepubescent children. The empirical link between child-related sexual fantasies and sexual victimization of prepubescent children and high levels of subjective distress from this inclination underscore the importance of evidence-based child sexual abuse prevention approaches in the community. Findings are discussed in terms of their relation to pedophilic disorder.

Keywords: sexual interest in children; pedophilic disorder, child sexual abuse; child pornography, community sample

Non-criminal, heterosexual men from the community show greater physiological sexual arousal to pubescent and prepubescent female stimuli as compared with male control stimuli of any age or neutral sexual stimuli (Freund, McKnight, Langevin, & Cibiri, 1972; Lykins et al., 2010). Accordingly, 9% of males from the general population reported some likelihood of having sex with children or viewing child pornography if they would not be caught or punished (Wurtele, Simons, & Moreno, 2014) and up to 0.9% rated sexual activities with children as sexually arousing (Dawson, Bannerman, & Lalumière, 2014). Moreover, in a large dataset of sexual behavior on the internet (Ogas & Gaddam, 2012) “*preteen*” was the third most frequent search term in males’ age-related online sex searches ($N > 3,000,000$ individual searches; Ogas & Gaddam, 2013) and 20.5% of age-specific sex searches aimed at prepubescent children ≤ 12 years of age (O. Ogas, personal communication, December 5, 2014). This finding dovetails with the roughly 20% of community males who indicated child pornography use in a study on problematic pornography use on the Internet (Ray, Kimonis, & Seto, 2014). In sum, these findings suggest that a considerable amount of sexual interest in children is common in non-forensic male populations.

To date, however, the specific research rests on only a few smaller-scaled studies that have explored self-reported sexual interest in children in community samples in form of sexual fantasies and behaviors. Prevalence estimates for community males’ sexual behaviors involving children ranged from 0.04% to 5% (Ahlers et al., 2011; Brière & Runtz, 1989; Frohmuth, Burkhart, & Jones, 1991; Hall, Hirschman, & Oliver, 1995; Templeman & Stinnett, 1991; Williams, Cooper, Howell, Yuille, & Paulhus, 2009) whereas child-related sexual fantasies fell between 4% and 13% (Ahlers et al., 2011; Brière

& Runtz, 1989; Williams et al., 2009; Wurtele et al., 2014). The largest study so far was based on 1,312 male Finnish twins reporting a prevalence of 3.5% of *sexual fantasies or behaviors involving children under the age of 16 years* (Santtila et al., 2010), which represents a rather non-discriminate and over-inclusive definition as postpubescent individuals (although legally relevant in terms of age) have been incorporated. Hence, there is a lack of robust prevalence estimates distinguishing between community men's self-reported sexual behaviors and fantasies relating to *prepubescent children* ≤ 12 years. As a consequence, outside forensic populations it is unknown (i.e., the dark figure) whether sexual fantasizing about prepubescent children is linked to sexual offending against children (e.g., Leitenberg & Henning, 1995; Williams et al., 2009) and whether sexual interest in children is experienced as distressing by these men.

Child pornography use has recently gained increasing interest as a valid indicator of pedophilic interest (e.g., Schmidt, Gykiere, Vanhoeck, Mann, & Banse, 2014; Seto, 2010). Seto and colleagues (2006) compared child pornography offenders with contact sexual offenders victimizing children utilizing penile plethysmographic assessments and found that child pornography offenders were about three times more likely to show pedophilic sexual arousal than contact sexual offenders. Thus, child pornography use is considered to be a valid diagnostic indicator for pedophilic disorder and a better predictor of this diagnosis than having committed a contact sexual offense against children (Seto, 2010). But still, the association of child pornography consumption and contact sexual offending against children is empirically unclear (Babchishin, Hanson, & VanZuylen, 2015; Seto, 2013). In the yet most convincing study, 4.2% out of 1,978 population-representative Swedish young men aged 17 to 20 years reported child pornography use which was

positively associated with self-reported coercive sexual behavior involving prepubescent children (Seto et al., 2015).

Present Research

As all of the abovementioned prevalence estimates of sexual interest in children rest on either small convenience samples, over-inclusive definitions, or age-restricted samples, the present research aimed to survey (a) a large population-based national sample of community males, (b) utilizing a more discriminate operationalization of sexual interest in children (i.e., distinguishing between sexual fantasies and behaviors involving prepubescent children ≤ 12 years; discriminating sexual contact offending from child pornography use), and (c) examine the link between sexual fantasies involving prepubescent children and the described sexual offenses against children. In addition, potential indicators of sexual interest in children that have not been addressed in prior research in non-forensic samples such as child prostitution (Walker, 2002) and intended child sex tourism (Panko & George, 2012) were included in the study as well as an indicator of males' psychological distress from their sexual interest in children. Because sexual interest in prepubescent boys is a strong indicator of pedophilic sexual preferences in men convicted of sexual offenses against children (Seto & Lalumière, 2001; Schmidt et al., 2014), we expected a positive association between behavioral indicators of pedophilic sexual interest and sexual fantasies involving prepubescent males.

Method

Our methodological approach utilized an anonymous and confidential online survey sampling men via a German market research panel. Thus, potential self-selection effects that are a typical liability to convenience samples and surveys involving highly stigmatized

groups such as men with pedophilic interest (Jahnke, Imhoff, & Hoyer, 2015; Jahnke, Schmidt, & Hoyer, 2015) have been minimized. The online survey was programmed in Flash to guarantee compatibility with different computer types (e.g., PC or notebook) and operation systems (Windows, Linux, and Mac OS). Participants were invited to be representative of the male German population (≥ 18 years) in terms of age and education levels.

Before engaging in the study, participants were informed in an email about the aims and topic of the study. They were offered a 20€(approximately 25 US \$) compensation exclusively for fully completed surveys by the market research institution. Participants were granted complete anonymity and confidentiality as the actual data were stored on a university server separate from the data that coded participation status (which was needed to ensure participant compensation via the market research institution). Hence, it was impossible to identify specific individuals in case legal authorities intended to prosecute men who admitted criminal behavior. Men who decided to participate started the online survey via a hyperlink and consented to participate by clicking a corresponding survey option. It was possible to withdraw from the study at any point in the survey process by leaving the survey's web page. At the end of the survey, an option was offered that prevented individual data from being incorporated into the analyses. After having completed all items, clicking on a hyperlink led participants back to the market research panel webpage where complete participation status was individually flagged. The ethical review board of the German Psychological Society (DGPs) approved the study protocol including all presented items and stimuli. The median duration for participants to complete the whole survey was roughly 19 minutes.

Participants

A total of 17,917 men who were at least 18 years old were invited to participate. Out of these, 10,538 individuals (58.8%) started to fill in the survey. Data from 1,327 participants (12.6% of the participants who began filling in the survey) were incomplete and, thus, could not be used (1,191 individuals [11.3%] dropped out before filling in the critical questions on sexual interest in children and 136 participants [1.3%] completed the survey but their responses to some of the critical questions had not been recorded due to technical errors). Moreover, 493 participants (4.7%) completed the survey but indicated that they did not want their data to be used for this research. Hence, the effective sample consisted of $N = 8,718$ male participants aged 18 to 89 years ($M = 43.5$, $SD = 13.7$). This represents a response rate of 48.7% of the originally invited sample and 82.7% of the persons who began to fill in the survey.

The present sample differed from the male German population (Statistical Offices of the Laender and the Federal Statistical Office, 2014) in terms of age, $\chi^2[6] = 1,470.4$, $p < .001$, $\omega = 0.41$, and education levels, $\chi^2[3] = 3,710.9$, $p < .001$, $\omega = 0.65$. There was an overrepresentation of higher education and the age range of 30-49 years whereas lower education and men over 65 years were underrepresented. However, age categories, education level, and their interaction were unrelated to self-reported child pornography consumption as well as sexual behavior and fantasies involving prepubescent children (r_p s $< .05$). Nevertheless, we additionally used post-stratification weights to adjust the joint distribution of age and education in the sample to the German population (Little, Lewitzky, Heeringa, Lepkowski, & Kessler, 1997).

Measures and Survey Procedure

Participants were instructed to fill in the survey on a PC or notebook and advised not to use smartphones or tablet computers because parts of the survey required the use of a keyboard. After giving informed consent, participants were asked about their age, education level, and employment status. The survey (constructs described in order of appearance in the survey) consisted of a multi-method approach tapping into sexual fantasies and behaviors involving prepubescent children and adults. For the sake of method transparency a full description of all measures included in the survey is listed here although not all of them – particularly the indirect latency-based and indirect questioning measures – fall into the scope of this report and will be reported elsewhere (e.g., Turner, Hoyer, Schmidt, Klein, & Briken, 2015; Klein, Schmidt, Turner, & Briken, 2015).

After participants entered demographic information, the questionnaire commenced with an indirect questioning procedure (Randomized List Technique; Zimmerman & Langer, 1995) tapping into sexual fantasies and behaviors involving prepubescent children, child pornography use, and sexual orientation. Subsequently, direct questions were asked consisting of items on the amount of peer contact with children during childhood, and on occupational contact (e.g., as a teacher) with or recreational supervision (e.g., as a sports coach) of prepubescent children as an adult. These items were followed by a viewing time task (Imhoff et al., 2010) taken from the *Explicit and Implicit Sexual Interest Profile* (EISIP; Banse, Schmidt, & Clarbour, 2010) utilizing response latencies to indirectly assess sexual interest in children and adults. Next, participants were directly asked about intimate relationships lasting longer than two years, disgust sensitivity, sex drive, personal sexual victimisation during childhood (< 14 years), child pornography use with depictions of

prepubescent children (“Have you ever watched pornographic depictions of children, e.g., the nude genitals of children, to get sexually aroused after you were 18 years of age?”), child prostitution use (“Have you ever paid a child for sexual services?”), and travelling to a foreign country with the intention to have sexual contact with children (“Have you ever travelled to a foreign country in order to have sex with a child?”). Thereafter, participants were asked about sexual fantasies and behaviors involving adults or prepubescent children using the Explicit Sexual Interest Questionnaire (ESIQ; Banse et al., 2010). Dependent on whether any sexual contacts involving children or child pornography use was reported, men were asked whether they had been under the influence of alcohol during each type of sexual behavior. All men who had indicated child pornography use or any sexual fantasy or behavior involving prepubescent children were asked whether they ever had thought about seeking professional help regarding their sexual interest in children. Subsequently, all participants were asked to estimate their likelihood to ever sexually acting out on a child, as well as about their criminal history (prior convictions for property, violent, and sexual offences). All items referring to children were anchored to represent prepubescent children (≤ 12 years). The survey ended with a modified Snake in the Grass paradigm (Öhman, Flykt, & Esteves, 2001) – another indirect latency-based measure for sexual interest in children.

Explicit Sexual Interest Questionnaire (ESIQ). Sexual fantasies and behaviors were assessed with a shortened 24-item version of the ESIQ (Banse et al., 2010). The ESIQ has been shown to be a reliable and valid measure of sexual interests (Banse et al., 2010; Schmidt et al., 2014; Schmidt, Mokros, & Banse, 2013). The items of the shortened version referred to four sexual target categories (men, women, prepubescent boys or girls ≤ 12

years) and consisted of each three items describing sexual fantasies (“I find it erotic to see a ...’s body through the clothes”, “I get excited when I imagine that a ... stimulates me”, “I find it erotic to imagine having sex with a ...”) and sexual behaviors (“I have sexually caressed a...”, “I have tongue kissed a ...”, “I have enjoyed getting my private parts touched by a ...”). Participants had to indicate on a dichotomous scale (true/false) whether they had experienced the corresponding sexual fantasies and behaviors as adults (> 18 years). The reliability (internal consistency) of the ESIQ subscales in the present sample was acceptable to good: sexual fantasies involving girls ($\alpha = .81$), boys ($\alpha = .86$), women ($\alpha = .90$), and men ($\alpha = .92$), sexual behavior with girls ($\alpha = .71$), boys ($\alpha = .76$), women ($\alpha = .89$), and men ($\alpha = .94$).

Statistical Analyses

Group allocation was based on possible combinations or absence of any self-reported indicator of sexual interest in prepubescent children. The crucial grouping variables for the current study were computed from the self-report measures of (a) child pornography use and aggregated sexual (b) fantasies and (c) behaviors involving prepubescent children. The item on child sex tourism was not used for group allocation as it referred to mere intentions instead of actual criminal behavior (this formulation was chosen in order to avoid statistically problematic low base rates for this particular indicator of sexual interest in children). Prevalence estimates were calculated for the total sample and within the subgroups that have defined the sampling weights, respectively. Group differences were analysed in terms of frequencies of sexual fantasies involving children, child prostitution and intended child sex tourism (χ^2 -tests, odds ratios [OR]), or aggregated sexual fantasy and behavior levels (ANOVAs with corresponding post-hoc tests corrected

for multiple comparisons). Sexual behavior categories or child sexual fantasy target sex categories did not differ in terms of education levels ($\chi^2[9] = 18.79; p > .05; \omega = 0.03$; and $\chi^2[9] = 14.08; p > .10; \omega = 0.02$, respectively). However, age significantly differed between sexual behavior and fantasy target groups and, thus, was statistically controlled for (ANCOVAs) in the respective analyses.

Results

Prevalence of Sexual Interest in Prepubescent Children

Of all participants, 5.5% ($n = 482$) reported any indication of pedophilic sexual interest (i.e., any report of fantasy, behaviour, child pornography consumption, having paid a child for sexual services, or travelling into another country with the intent to have sexual contact with a child). Specifically, 4.1% ($n = 358$) reported sexual fantasies involving prepubescent children (Table 1). The majority of men who fantasized about children reported fantasies about girls (68.4%; $n = 245$), 13.1% ($n = 47$) about boys, and 18.4% ($n = 66$) about boys and girls. Overall, 3.2% ($n = 280$) of the participants indicated sexual behavior involving prepubescent children with 1.7% ($n = 148$) exclusively indicating child pornography use, 0.8% ($n = 71$) reporting sexual contact with children, and 0.7% ($n = 61$) affirming both offence categories (referred to as *mixed sexual offending* hereafter). The overall frequencies for child pornography consumption and sexual contacts with prepubescent children were 2.4% ($n = 209$) and 1.5% ($n = 132$), respectively. Having paid a child for sexual services (child prostitution, $n = 33$) and intended child sex tourism ($n = 37$) were each indicated by 0.4%.

Weighting the frequencies in order to approximate the German male population in terms of age and education levels led to remarkably similar results (mean absolute difference 0.2%): Behavioral indicators of sexual interest in children showed slightly lower frequency estimates (child pornography consumption 2.2%, sexual contacts involving prepubescent children 1.4%, child prostitution use and intended child sex tourism each 0.3%) whereas child sexual fantasy rates were marginally increased (4.4%).

Group Differences

Categorical indicators. A comparison of different subgroups (Table 2) revealed that all subgroups indicating sexual behaviors involving prepubescent children showed significantly higher odds to indicate sexual fantasies involving prepubescent children than males who did not report any such sexual behavior (odds ratios [*ORs*] \approx 37 to 167). Moreover, men who reported multiple types of sexual behavior involving children as compared with the exclusive child pornography or contact sexual behavior groups indicated higher odds for sexual fantasies involving children (*ORs* \approx 5 and 4, respectively). Contact sexual behavior involving children and child pornography use did not differ in their association strength with sexual fantasies involving children. For the other indicators of sexual interest in children (child prostitution and intended child sex tourism) the pattern remained basically the same – albeit even more pronounced – with the exceptions that the contact sexual behavior group indicated even higher odds for intended child sex tourism than the child pornography users (*OR* \approx 39) and that the odds for child pornography users did not significantly differ from the odds of men indicating no sexual behavior involving children. Child pornography use and contact sexual behavior involving prepubescent children were also associated (*OR* = 48.98; *CI*_{95%} = 33.54 - 71.54).

Aggregated indicators. We used maximum sexual fantasy and behavior indices that were based on the highest mean self-reported sexual interest frequencies for prepubescent children (boys or girls) and adults (men or women), respectively, averaged across the three specific sexual fantasy or contact behavior ESIQ items to further elucidate categorical group differences. This scoring algorithm has the advantage that the sexually most relevant categories were analysed irrespective of participants' sexual orientation. Furthermore, we calculated pedophilic preference scores subtracting the maximum adult sexual fantasy or behavior frequency from the maximum child sexual fantasy or behavior frequency; Schmidt et al., 2013). Notably, 12 men (0.1%) indicated actual pedophilic sexual fantasy preferences > 0 (i.e., more sexual fantasies focusing on children than on adults). This operationalization might be interpreted as a conservative proxy for the A criterion (i.e., recurrent, intense sexually arousing fantasies involving prepubescent children) of the DSM-5 *pedophilic disorder* (American Psychiatric Association, 2013) potentially indicating exclusive pedophilic interests. On the pedophilic behavior preference score eight participants (0.1%) reported more sexual activities with children than with adults. Utilizing a less conservative estimation for the A criterion (i.e., pedophilic sexual fantasy or behavior preferences ≤ 0) led to prevalences of 469 or 473 men (each 5.4% of the full sample), respectively, who indicated any pedophilic interest.

Continuous pedophilic fantasy and behavior preference scores were associated ($r_p = .47, p < .001$). Pedophilic fantasy preference scores correlated with child pornography use ($r_p = .23, p < .001$), contact sexual offending against prepubescent children ($r_p = .24, p < .001$), and sexual fantasizing about boys ($r_p = .31, p < .001$). The respective coefficients for

pedophilic behavior preferences were $r_p = .14, p < .001$, $r_p = .32, p < .001$, and $r_p = .17, p < .001$.

Men reporting sexual contact behavior involving prepubescent children indicated lower frequencies of sexual fantasies about adults than participants who reported no sexual behavior involving prepubescent children and child pornography users, whereas males with mixed sexual behavior involving prepubescent children did not differ from any other subgroup (Table 3). This resulted in the following descending order of pedophilic fantasy preferences across subgroups: Mixed > contact > child pornography > no sexual behavior involving prepubescent children.

For sexual behavior involving adults, the pattern differed in so far as men indicating only adult sexual behavior showed higher frequencies of sexual behavior with adults than the sexual contact with prepubescent children and child pornography subgroups. Men with mixed sexual behavior involving prepubescent children, again, did not differ from any other subgroup in terms of their sexual behavior frequencies with adults. This resulted in a different order across subgroups for pedophilic behavior preferences: Mixed = contact > child pornography > no sexual behavior involving prepubescent children.

Finally, we inspected sexual interest frequencies as a function of child sexual fantasy target categories (Table 4). A trend of increasing associations with pedophilic fantasy preferences emerged: Males reporting no sexual fantasies involving prepubescent children < girl fantasies < boy fantasies < mixed fantasies including both girls and boys. This corroborates the finding from forensic populations that sexual offenders against children who exhibit sexual interest in male children on average show higher pedophilic sexual interest or arousal levels than sexual offenders who exclusively victimize girls

(Schmidt et al., 2014; Seto & Lalumière, 2001). Consequently, men fantasizing exclusively about girls showed higher frequencies of adult sexual fantasies whereas all other groups did not differ in terms of adult sexual fantasy frequencies. On the behavioral adult sexual interest indicators, only men reporting mixed child sexual fantasies differed from men reporting no sexual fantasies involving children. Pedophilic behavior preferences followed the same trend as pedophilic fantasy preferences (Table 4).

Perceived Need for Help

All participants reporting child pornography use or indicating any sexual fantasy or behavior involving prepubescent children ($n = 481$) had been subsequently asked whether they ever had thought about seeking professional help regarding their sexual interest in children. Among men with sexual interest in children who answered this question ($n = 473$), 58 (12.3%) confirmed having perceived such need for help. Their pedophilic preference scores were associated with an increased need for help, $r_p = .24$, $p < .001$ (fantasies), $r_p = .22$, $p < .001$ (behavior). Table 5 gives an overview of the frequencies of participants' perceived need for help as a function of sexual behavior and fantasies among males with sexual interest in prepubescent children. Men who reported contact and non-contact offences against children reported the highest levels of need for help (41.1%) whereas participants indicating no sexual behavior with children perceived the lowest need (2.7%; $\chi^2[3] = 68.62$; $p < .001$, $\omega = .38$). Similarly, men who fantasized about girls *and* boys indicated the highest need for help (38.5%) as opposed to individuals with their fantasies focused on girls exclusively (7.1%; $\chi^2[3] = 50.38$; $p < .001$; $\omega = .33$). Finally, pedophilic preference scores > 0 (i.e., greater sexual interest in children than in adults) were also associated with higher levels of perceived need for help (fantasies: $\chi^2[1] = 16.30$; $p <$

.001, $\phi = .19$; behavior: $\chi^2[1] = 6.18$; $p < .05$, $\phi = .11$) although the effect sizes were less pronounced than for the raw pedophilic preference scores.

The prevalence of the B criterion of *pedophilic disorder* (subjective distress or interpersonal difficulty) concerning sexual interest in prepubescent children can be estimated from the frequencies of subjective needs for professional help. According to DSM-5 both the A and B criteria are necessary to verify the diagnosis of this disorder. Hence, this resulted in prevalence estimations of each $< 0.1\%$ (6 or 3 out of 8,718 participants; Table 5) as based on actual pedophilic fantasy or behavior preferences > 0 , respectively. Combining a less conservative estimation for the A criterion (i.e., pedophilic sexual fantasy or behavior preferences ≤ 0) with the B criterion resulted in prevalence estimates of each 0.6% (52 or 55 out of 8,718 men; Table 5).

Discussion

Prevalence of Sexual Offending Against Prepubescent Children

Utilizing an anonymous online questionnaire we assessed an extensive sample of German community males in terms of their reported sexual interests in prepubescent children ≤ 12 years of age. Overall, 5.5% of all participating men indicated any form of pedophilic interest with 3.2% of all participants reporting sexual behavior involving prepubescent children. Specifically, 1.7% of all men had used child pornography but did not indicate sexual contact with children, 0.8% had exclusively committed sexual contact offences against prepubescent children, and 0.7% committed both contact and child pornography offenses. Hence, child pornography use was the most frequently reported sexual offense against prepubescent children. The most informative study so far (Seto et al., 2015) reported 4.2% of child pornography use referring to a representative sample of

Swedish men ageing 17 to 20 years. Compared with our German sample (aged from 18 to 89 years), the much younger Swedish sample was supposedly more sexually active, had easier internet access, and, thus, was more experienced with this media. These factors might explain the lower frequencies reported in this study. As our sample was over-representative of males between 30 and 50 years of age and more educated men we statistically weighted frequencies to correct for potential sampling biases. This resulted in slightly lowered frequency estimations for behavioral indicators of sexual interest in children (e.g., weighted 2.2% child pornography consumption vs. 2.4% in the unweighted raw data) corroborating the suggested risk factors of young age and internet experience. Our estimate for sexual contacts with prepubescent children (1.4% weighted vs. 1.5% unweighted) corresponded with the lower range reported in the literature to span from 0.04% to 5% (Ahlers et al., 2011, Brière & Runtz, 1989; Williams et al., 2009; Wurtele et al., 2014).

Link Between Sexual Fantasies and Sexual Offending Against Children

In our sample, 4.1% (4.4% if weighted) of all participants indicated sexual fantasies involving prepubescent children. As hypothesized, men indicating sexual interest in boys (or boys and girls) revealed the highest pedophilic behavior and fantasy preference scores in the sample. Moreover, community males' sexual fantasizing about children was substantially associated with all forms of sexual offending against children. Men who indicated both child pornography use *and* contact offending against children showed the highest relative amount of child vs. adult sexual fantasies (i.e., pedophilic preference score). Notably, in contrast to the literature that reports stronger pedophilic preferences for child pornography offenders than for contact child sexual abusers (Babchishin et al., 2015)

exclusive child pornography users indicated lower pedophilic fantasy preferences than contact sexual offenders. These preference differences (i.e., child minus adult sexual fantasies) were driven by a particularly strong sexual interest in adults (Table 3)—a characteristic specific to exclusive child pornography users in the community suggesting that exclusive online child sexual abusers might be different from contact and mixed sexual offenders against children. Exclusive child pornography offenders are reported to be less antisocial (e.g., Schmidt et al., 2014) and psychosocially better adjusted than contact child sexual abusers. Thus, they should not be regarded as similar to offenders who commit both types of offences against children (Babchishin et al., 2015). This is concomitant with our finding that exclusive child pornography users were less inclined to child sex tourism than contact offenders. In sum, this underscores that exclusive child pornography users might be a specific group in need of differential prevention, treatment, and risk management approaches. Nevertheless, child pornography use and contact sexual offending against prepubescent children was clearly associated ($OR \approx 49$) but due to the correlational study design the causal order could not be determined.

Pedophilic Preferences, Distress, and Pedophilic Disorder

A considerable proportion of community men reported sexual interest in prepubescent children. An interesting question is whether these findings are informative about the community prevalence of *pedophilic disorder* as a diagnostic construct focusing on sexual *preferences* for children (suggesting a substantial relative interest in children as compared with interest in adults). Seto (2009) argued that not all of the persons admitting sexual interest in children would meet the necessary diagnostic criteria in terms of symptom intensity and persistence and concluded that the upper limit for the prevalence of

pedophilia is probably at around 5%. More recently, based on their data from community men, Ahlers and colleagues (2011) arrived at a more conservative population estimate of < 1%. In our sample, each 0.1% reported higher levels of child vs. adult sexual fantasies/behaviors. Supposedly, this represents the lower boundary for the prevalence of the A criterion of DSM-5 *pedophilic disorder*. This estimation is rather conservative as it requires *relative sexual fantasy preferences for children over adults* (i.e., a pedophilic preference score > 0) instead of utilizing absolute indicators (i.e., any indication of sexual interest in children). Thus, it might be regarded as a mathematical approximation of the exclusive type of *pedophilic disorder*. Utilizing a less conservative approximation of the A criterion (any indication of sexual interest and similar or lesser sexual interest in prepubescent children than in adults) the upper limit of sexual interest in prepubescent children can be estimated to be 5.4% in this sample (corresponding to the non-exclusive type of pedophilic disorder). This dovetails with the 5% estimation from Seto (2009).

The prevalence of the B criterion of *pedophilic disorder* (distress or interpersonal difficulty) concerning sexual interest in prepubescent children has been estimated from the frequencies of subjective needs for professional help. Combining both the A and B criteria that are necessary according to DSM-5 resulted in prevalence estimations of < 0.1% for the exclusive type as opposed to 0.6% for the non-exclusive type. This renders the exclusive subtype of *pedophilic disorder* a very rare but highly distressing condition in community males if based on actual relative sexual preferences of children over adults and subjectively perceived distress. This is corroborated by data from a large study on convicted sexual offenders against children (Seto & Lalumière, 2001). Although the base rate of pedophilic men in convicted offender samples is much higher than in the community (Schmidt et al.,

2013; Seto, 2009), in Seto and Lalumière's study even among offenders with offense behavior most prototypical of pedophilic sexual interest (prepubescent male victims, repeated sexual offences against unrelated children), 28% still showed greater sexual arousal to adult vs. child stimuli as assessed by penile plethysmography.

Because in our sample there were much more men reporting sexual offenses against prepubescent children than the few individuals with actual relative sexual preferences for prepubescent children (even without including the distress criterion), it is evident that the greater number of sexual offences against children were *not* committed by pedophilic men in a narrow sense (Schmidt et al., 2013; Seto, 2009). Nonetheless, the more men sexually preferred prepubescent children over adults, the more likely they were to report sexual offences against children. However, at the same time they were more likely to feel distressed from their inclination and thinking about seeking professional help. In sum, the fact that 12.3% of all men indicating any pedophilic interest have thought about seeking help due to their sexual interest in children and that this markedly increases (up to 50%) for men who report to be interested in both male and female children or have a genuine relative preference of children over adults points to a substantial amount of experienced distress in these males from the community (Jahnke, Schmidt, & Hoyer, 2015).

Limitations and Strengths

Results from this study are limited to the German population. Also, due to the methodological approach of an online survey we were restricted to self-reported sexual interest in children instead of expert-rated *pedophilic disorder* diagnoses as criterion. However, this clinical diagnosis is based on ascertaining persistent and intense sexual urges, fantasies, and/or behaviors targeted at prepubescent children. Without being able to

directly assess these constructs nor having a necessary cut-off for them we deem this diagnosis as a rather problematic validation criterion. More specifically, we believe that valid information about the prevalence of an extremely stigmatized group such as individuals with pedophilic interest (Jahnke, Imhoff, & Hoyer, 2015; Jahnke, Schmidt, & Hoyer, 2015) can most effectively be derived through a completely anonymous and confidential research strategy based on self-report as implemented here. The consistent and theoretically meaningful pattern of results emerging from these data supports the validity of this methodological approach.

In summary, due to the extensive community sample and the more discriminate operationalization of sexual interest in prepubescent children ≤ 12 years we are convinced that the reported frequencies are the most accurate prevalence estimates of pedophilic interest in a Western population to date. Moreover, in contrast to Williams and colleagues' (2009) findings based on a much smaller sample, community males' sexual fantasies involving prepubescent children were clearly linked to all types of self-reported sexual offenses against children. Most importantly, for the subgroup of community males with sexual interest in prepubescent children, pedophilic interest was related to the subjectively perceived need to seek professional help. As child sexual abuse—especially child pornography use—is a relatively prevalent phenomenon (Finkelhor, Ormrod, Turner, & Hamby, 2005; Ogas & Gaddam, 2013; Ray et al., 2014) the reported link between sexual fantasies and behavior as well as the perceived distress in the non-forensic male population underscore, on the one hand, the importance of developing evidence-based prevention approaches targeting sexual interest in children already at community level. On the other hand, our findings show that a certain amount of pedophilic interest can be found among

community males and is not perceived as distressing by the majority of men, especially if they had not committed sexual crimes against children (Joyal, 2014).

References

- Ahlers, C. J., Schaefer, G. A., Mundt, I. A., Roll, S., Englert, H., Willich, S. N., & Beier, K. M. (2011). How unusual are the contents of paraphilias? Paraphilia-associated sexual arousal patterns in a community-based sample of men. *The Journal of Sexual Medicine*, 8, 1362–1370. doi:10.1111/j.1743-6109.2009.01597.x
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders, DSM-5* (5th ed.). Washington D.C.: American Psychiatric Association.
- Babchishin, K. M., Hanson, R. K., & VanZuylen, H. (2015). Online child pornography offenders are different: A meta-analysis of the characteristics of online and offline sex offenders against children. *Archives of Sexual Behavior*, 44, 45-66. doi:10.1007/s10508-014-0270-x
- Banse, R., Schmidt, A. F., & Clarbour, J. (2010). Indirect measures of sexual interest in child sex offenders: A multimethod approach. *Criminal Justice and Behavior*, 37, 319–335. doi:10.1177/0093854809357598
- Brière, J., & Runtz, M. (1989). University males' sexual interest in children: Predicting potential indices of "pedophilia" in a nonforensic sample. *Child Abuse & Neglect*, 13, 65–75. doi:10.1016/0145-2134(89)90030-6
- Dawson, S. J., Bannerman, B. A., & Lalumière, M. L. (2014). Paraphilic interests: An examination of sex differences in a nonclinical sample. *Sexual Abuse: A Journal of Research and Treatment*. Advance online publication. doi:10.1177/1079063214525645

- Finkelhor, D., Ormrod, R., Turner, H., & Hamby, S. L. (2005). The victimization of children and youth: A comprehensive, national survey. *Child Maltreatment, 10*, 5–25. doi:10.1177/1077559504271287
- Freund, K., McKnight, C. K., Langevin, R., & Cibiri, S. (1972). The female child as a surrogate object. *Archives of Sexual Behavior, 2*, 119–133. doi:10.1007/BF01541862
- Frohmoth, M. E., Burkhart, B. R., & Jones, C. W. (1991). Hidden child molestation: An investigation of adolescent perpetrators in a nonclinical sample. *Journal of Interpersonal Violence, 6*, 376–384. doi:10.1177/088626091006003009
- Hall, G. C. N., Hirschman, R., & Oliver, L. L. (1995). Sexual arousal and arousability to pedophilic stimuli in a community sample of normal men. *Behavior Therapy, 26*, 681–694. doi:10.1016/S0005-7894(05)80039-5
- Imhoff, R., Schmidt, A. F., Nordsiek, U., Luzar, C., Young, A. W., & Banse, R. (2010). Viewing time effects revisited: Prolonged response latencies for sexually attractive targets under restricted task conditions. *Archives of Sexual Behavior, 39*, 1275–1288. doi:10.1007/s10508-009-9595-2
- Jahnke, S., Imhoff, R., & Hoyer, J. (2015). Stigmatization of people with pedophilia: Two comparative surveys. *Archives of Sexual Behavior, 44*, 21-34. doi:10.1007/s10508-014-0312-4
- Jahnke, S., Schmidt, A. F., & Hoyer, J. (2015). Stigma-related stress and its correlates among men with pedophilic sexual interests. *Archives of Sexual Behavior*.
- Joyal, C. C. (2014). How anomalous are paraphilic interests? *Archives of Sexual Behavior, 43*, 1241-1243. doi: 10.1007/s10508-014-0325-z.

- Klein, V., Schmidt, A. F., Turner, D., & Briken, P. (2015). *Are sex drive and hypersexuality associated with pedophilic interest and child sexual abuse in a male community sample?*. Manuscript submitted for publication.
- Leitenberg, H., & Henning, K. (1995). Sexual fantasy. *Psychological Bulletin*, *117*, 469–496. doi:10.1037/0033-2909.117.3.469
- Little, R. J. A., Lewitzky, S., Heeringa, S., Lepkowski, J., & Kessler, R. C. (1997). Assessment of weighting methodology for the National Comorbidity Survey. *American Journal of Epidemiology*, *146*, 439–449. doi:10.1093/oxfordjournals.aje.a009297
- Lykins, A. D., Cantor, J. M., Kuban, M. E., Blak, T., Dickey, R., Klassen, P. E., & Blanchard, R. (2010). Sexual arousal to female children in gynephilic men. *Sexual Abuse: A Journal of Research and Treatment*, *22*, 279–289. doi:10.1177/1079063210372141
- Ogas, O., & Gaddam, S. (2012). *A billion wicked thoughts: What the internet tells us about sexual relationships*. New York, NY: Plume.
- Ogas, O., & Gaddam, S. (2013, November). *A billion wicked thoughts: What the internet reveals about sexual desire*. Key note lecture presented at the 32nd annual research and treatment conference of the Association for the Treatment of Sexual Abusers (ATSA), Chicago, IL.
- Öhman, A., Flykt, A., & Esteves, F. (2001). Emotion drives attention: Detecting the snake in the grass. *Journal of Experimental Psychology: General*, *130*, 466–478. doi:10.1037/0096-3445.130.3.466

- Osterheider, M., Banse, R., Briken, P., Goldbeck, L., Hoyer, J., Santtila, P., . . . Eisenbarth, H. (2012). Frequency, etiological models and consequences of child and adolescent sexual abuse: Aims and goals of the German multi-site MiKADO project. *Sexual Offender Treatment, 7*, 1–7.
- Panko, T. R., & George, B. P. (2012). Child sex tourism: Exploring the issues. *Criminal Justice Studies: A Critical Journal of Crime, Law & Society, 25*, 67–81.
doi:10.1080/1478601X.2012.657904
- Ray, J. V., Kimonis, E. R., & Seto, M. C. (2014). Correlates and moderators of child pornography consumption in a community sample. *Sexual Abuse: A Journal of Research and Treatment, 26*, 523–545. doi:10.1177/1079063213502678
- Santtila, P., Mokros, A., Hartwig, M., Varjonen, M., Jern, P., Witting, K., . . . Sandnabba, N. K. (2010). Childhood sexual interactions with other children are associated with lower preferred age of sexual partners including sexual interest in children in adulthood. *Psychiatry Research, 175*, 154–159. doi:10.1016/j.psychres.2008.10.021
- Schmidt, A. F., Gykiere, K., Vanhoeck, K., Mann, R. E., & Banse, R. (2014). Direct and indirect measures of sexual maturity preferences differentiate subtypes of child sexual abusers. *Sexual Abuse: A Journal of Research and Treatment, 26*, 107–128.
doi:10.1177/1079063213480817
- Schmidt, A. F., Mokros, A., & Banse, R. (2013). Is pedophilic sexual preference continuous? A taxometric analysis based on direct and indirect measures. *Psychological Assessment, 25*, 1146–1153. doi:10.1037/a0033326

- Seto, M. C. (2009). Pedophilia. *Annual Review of Clinical Psychology*, *5*, 391–407.
doi:10.1146/annurev.clinpsy.032408.153618
- Seto, M. C. (2010). Child pornography use and Internet solicitation in the diagnosis of pedophilia. *Archives of Sexual Behavior*, *39*, 591–593. doi:10.1007/s10508-010-9603-6
- Seto, M. C. (2013). *Internet sex offenders*. Washington, D.C.: American Psychological Association.
- Seto, M. C., Cantor, J. M., & Blanchard, R. (2006). Child pornography offenses are a valid diagnostic indicator of pedophilia. *Journal of Abnormal Psychology*, *115*, 610–615.
doi:10.1037/0021-843X.115.3.610
- Seto, M. C., Hermann, C. A., Kjellgren, C., Priebe, G., Svedin, C. G., & Långström, N. (2015). Viewing child pornography: Prevalence and correlates in a representative community sample of young Swedish men. *Archives of Sexual Behavior*, *44*, 67-79.
doi:10.1007/s10508-013-0244-4
- Seto, M. C., & Lalumière, M. L. (2001). A brief screening scale to identify pedophilic interests among child molesters. *Sexual Abuse: A Journal of Research and Treatment*, *13*, 15–25. doi:10.1177/107906320101300103
- Statistical Offices of the Laender and the Federal Statistical Office. (2014). *Zensus Kompakt: Ergebnisse des Zensus 2011 [Census compact: Results of the Census 2011]*. Retrieved from
https://www.zensus2011.de/SharedDocs/Downloads/DE/Publikationen/Aufsaeetze/2014_01_Zensus_Kompakt.pdf?__blob=publicationFile&v=2

- Templeman, T. L., & Stinnett, R. D. (1991). Patterns of sexual arousal and history in a "normal" sample of young men. *Archives of Sexual Behavior, 20*, 137–150.
doi:10.1007/BF01541940
- Turner, D., Hoyer, J., Schmidt, A. F., Klein, V., & Briken, P. (2015). *Risk factors for sexual offending in men working with children - A community based survey*. Manuscript submitted for publication.
- Walker, K. E. (2002). Exploitation of children and young people through prostitution. *Journal of Child Health Care, 6*, 182–188. doi:10.1177/136749350200600304
- Williams, K. M., Cooper, B. S., Howell, T. M., Yuille, J. C., & Paulhus, D. L. (2009). Inferring sexually deviant behavior from corresponding fantasies: The role of personality and pornography consumption. *Criminal Justice and Behavior, 36*, 198–222. doi:10.1177/0093854808327277
- Wurtele, S. K., Simons, D., & Moreno, T. (2014). Sexual interest in children among an online sample of men and women: Prevalence and correlates. *Sexual Abuse: A Journal of Research and Treatment, 26*, 546-568. doi:10.1177/1079063213503688
- Zimmerman, R. S., & Langer, L. M. (1995). Improving estimates of prevalence rates of sensitive behaviors: The randomized lists technique and consideration of self-reported honesty. *Journal of Sex Research, 32*, 107–117. doi:10.1080/00224499509551781

Table 1

Frequencies of indicators of sexual interest in prepubescent children as a function of sexual behavior.

	Sexual behavior involving children (n = 280)			No sexual behavior involving children (n = 8,438)	Total sample (N = 8,718)	χ^2 (r _φ)
	Child pornography (n = 148)	Sexual contact with children (n = 71)	Mixed (n = 61)			
Child sexual fantasies (% ^a)	70 (47.3)	38 (53.5)	49 (80.3)	201 (2.4)	358 (4.1)	2,105.07*** (.49)
Child prostitution (% ^a)	0 (0)	7 (9.9)	26 (42.6)	0 (0)	33 (0.4)	3,088.67*** (.60)
Child sex tourism (% ^a)	0 (0)	8 (11.3)	28 (45.9)	1 (0)	37 (0.4)	3,217.39*** (.61)

Note. ^a percentages refer to the respective column head.

*** $p < .001$

Table 2.

Odds ratios (95% confidence intervals) from pairwise sexual behavior comparisons.

	Mixed vs. Child pornography	Mixed vs. Contact	Mixed vs. No sexual behavior involving children	Contact vs. Child pornography	Contact vs. No sexual behavior involving children	Child pornography vs. No sexual behavior involving children
Child sexual fantasies	4.55* (2.24-9.25)	3.55* (1.62- 7.77)	167.34* (87.65- 319.45)	1.28 (0.73-2.26)	47.19* (29.00- 76.79)	36.78* (25.87- 52.28)
Child prostitution	n/a	6.79* (2.68- 17.22)	n/a	n/a	n/a	n/a
Intended child sex tourism	252.67* (15.04- 4,243.65)	6.68* (2.74- 16.30)	7,158.67* (946.09- 54,166.47)	39.14* (2.23- 688.34)	1,054.63* (130.01- 8,555.18)	18.94 (0.77- 466.86)

Note. Odds ratios indicate that in the first comparison group there are x times more males showing sexual interest in children as compared to the second comparison group; n/a not applicable because the child prostitution item was used for group allocation.

* $p < .05$

Table 3.*Group differences as a function of sexual behavior.*

	Sexual behavior involving prepubescent children (<i>n</i> = 274)						No sexual behavior involving children		<i>F</i>
	Child Pornography (<i>n</i> = 145)		Sexual contact with children (<i>n</i> = 69)		Mixed (<i>n</i> = 60)		(n = 8,382)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age ^a	39.7 _B	13.8	42.5 _{AB}	14.5	39.0 _B	10.7	43.6 _A	13.7	7.15 ^{***}
Max. adult sexual fantasies ^b	.97 _A	.14	.83 _B	.28	.91 _{AB}	.20	.95 _A	.18	11.78 ^{***}
Pedophilic sexual preference score (fantasies) ^b	-.61 _B	.44	-.51 _C	.45	-.24 _D	.42	-.94 _A	.19	436.08 ^{***}
Max. adult sexual behaviors ^b	.89 _B	.26	.84 _B	.28	.88 _{AB}	.27	.94 _A	.20	10.73 ^{***}
Pedophilic sexual preference score (behaviors) ^b	-.89 _B	.26	-.44 _C	.31	-.36 _C	.46	-.94 _A	.20	293.13 ^{***}

Note. *N* = 8,656; different subscripts in rows indicate statistically significant post-hoc differences (Sidak, *p* < .05) between subgroups; ^a Welch-Test (Dunnett *C* post-hoc tests); ^b ANCOVA with age as covariate.

^{***} *p* < .001

Table 4.*Group differences as a function of child sexual fantasy target categories.*

	Sexual fantasies involving prepubescent children (<i>n</i> = 355)						No sexual fantasies involving children		<i>F</i>
	Girls (<i>n</i> = 244)		Boys (<i>n</i> = 46)		Mixed (<i>n</i> = 65)		(<i>n</i> = 8,301)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age ^a	42.8 _A	15.5	38.9 _{AB}	15.8	37.4 _B	10.8	43.6 _A	13.6	8.27 ^{***}
Max. adult sexual fantasies ^b	.98 _B	.09	.89 _A	.22	.90 _A	.21	.95 _A	.18	6.11 ^{***}
Pedophilic sexual preference score (fantasies) ^b	-.44 _B	.29	-.32 _C	.41	-.12 _D	.29	-.95 _A	.18	1,167.01 ^{***}
Max. adult sexual behaviors ^b	.92 _{AB}	.23	.86 _{AB}	.29	.85 _B	.30	.94 _A	.20	6.97 ^{***}
Pedophilic sexual preference score (behaviors) ^b	-.86 _B	.28	-.70 _C	.46	-.46 _D	.47	-.94 _A	.20	135.92 ^{***}

Note. *N* = 8,656; different subscripts in rows indicate statistically significant post-hoc differences (Sidak, *p* < .05) between subgroups; ^a Welch-Test (Dunnett *C* post-hoc tests); ^b ANCOVA with age as covariate.

*** *p* < .001

Table 5.

Frequencies of participants indicating perceived need for professional help as a function of categories of sexual interest in prepubescent children.

	Thought about seeking professional help due to sexual interest in prepubescent children?	
	No	Yes
Sexual behavior involving children (%^a)		
None	213 (97.3)	6 (2.7)
Child pornography	110 (81.5)	25 (18.5)
Sexual contact	59 (93.7)	4 (6.3)
Mixed	33 (58.9)	23 (41.1)
Sexual fantasies involving children (%^a)		
None	111 (92.5)	9 (7.5)
Girls	224 (92.9)	17 (7.1)
Boys	40 (85.1)	7 (14.9)
Mixed	40 (61.5)	25 (38.5)
Pedophilic sexual preference score (%^a)		
Behavior > 0	4 (57.1)	3 (42.9)
≤ 0	411 (88.2)	55 (11.8)
Fantasies > 0	6 (50.0)	6 (50.0)
≤ 0	409 (88.7)	52 (11.3)

Note. $N = 473$ males who indicated sexual interest in prepubescent children (sexual fantasy and/or behavior). ^a percentages refer to the total number of participants of the respective subcategory (row).