

Taxometric Analysis based on Direct and Indirect Measures. *Psychological Assessment*

Is Pedophilic Sexual Preference Continuous?

A Taxometric Analysis based on Direct and Indirect Measures

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Abstract

The present study addressed the question whether deviant sexual preferences for children can be considered a taxon utilizing data from a multi-method assessment battery. The test battery comprised direct self-report as well as indirect latency-based measures (Implicit Association Tests, viewing time) of deviant sexual preferences for children. In a mixed sample of adult men ($N = 304$, including sexual offenders against children, as well as sex offenders against adults, non-sex offender and non-offender controls), 27% of the offenders convicted for child sexual abuse or child pornography charges were identified as a homogeneous and distinct latent class. Additional taxometric analyses corroborated the notion of a pedophilic subgroup. Individuals in this pedophilic group showed elevated scores on measures of deviant sexual preference for children over adults. The offense histories of the individuals from the pedophilic cluster indicated an increased likelihood of pedophilic preference as assessed by a file-based summary index. We interpret the results as evidence for pedophilic sexual preference as a distinct and taxonic clinical construct.

Key words: pedophilia, self-report, viewing time, Implicit Association Test,
taxometrics

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Pedophilia is a sexual-preference disorder that is characterized by sexual interest in prepubescent children. Although pedophilia is neither a necessary nor a sufficient condition for committing child sexual abuse (Seto, 2008a), it seems to greatly increase the risk of committing such offenses. The estimated lifetime-prevalence of pedophilia among men in the general population is likely below 1% (Ahlers et al., 2011). Seto (2008a) gives an overview of three more recent studies that assessed pedophilia within samples of adult male sexual abusers of children through measuring physiological arousal in response to child stimuli. The proportion of individuals regarded as pedophilic was about 40% (Blanchard, Klassen, Dickey, Kuban, & Blak, 2001, $N = 242$, 41%; Maletzky & Steinhauser, 2002, $N = 5,223$, 43%; Seto & Lalumière, 2001, $N = 1,113$, 40%).

Sexual maturity preferences can be either conceived of as continuous or as categorical taxa (Seto, 2008b). On the one hand, the notion of taxonicity is supported by recent research on sexual maturity preferences for youths identifying a small, yet statistically significant genetic component (Alanko, Salo, Mokros, & Santtila, 2013). On the other hand, Mackaronis, Strassberg, and Marcus (2011) reported that sexual interest in children as measured with the self-report Multiphasic Sex Inventory (MSI; Nichols & Molinder, 1996) was found to be a dimensional, not a taxonic construct. Based on a sample of 371 male sexual abusers of children, Mackaronis and colleagues (2011) found evidence for a *continuum* of pedophilic interest using three scales of the MSI: child molestation, sexual obsessions, and cognitive distortions/immaturity. We challenge the interpretation of Mackaronis and colleagues (2011) that pedophilic interest is a dimensional construct. Apart from using self-report measures exclusively

they included into their assessment two scales that are rather unspecific to pedophilic interest: sexual obsessions and cognitive distortions/immaturity. In contrast to their study, we relied on both indirect latency-based measures (Implicit Association Tests, viewing time) and direct self-report measures in male samples of sexual abusers of children, other offenders, and community controls, thereby following the recommendation that a combination of conceptually different measures highly specific of pedophilic sexual preferences would be diagnostically more accurate than reliance on a single method (Laws, Hanson, Osborn, & Greenbaum, 2000; Schmidt, Banse, & Imhoff, in press). Utilizing such a multimethod approach is especially important if inferences of sexual preference would otherwise be based solely on self-report data that always bear the possibility of denial in cases where acknowledging deviant sexual interests has legally relevant ramifications for the reporting individual.

We hypothesized: (1) Within a mixed sample of men including child sexual abusers, two latent classes will emerge based on indices of deviant sexual preferences (DSP) for children over adults derived from three conceptually different measurement approaches used in the *Explicit and Implicit Sexual Interest Profile* (EISIP; Banse, Schmidt, & Clabour, 2010): Viewing times, Implicit Association Tests, and self-report. (The term *deviant sexual preference* [DSP] is used throughout the text to denote a relative sexual preference for children over adults irrespective of the absolute sexual interest levels in either adults or children, i.e., higher DSP levels indicate relatively increased pedophilic preferences) (2) One of these two latent classes (comprising the individuals with increased pedophilic preference) will be smaller in size and have higher mean values on the three DSP indices. (3) The latent class of pedophilic individuals will have higher levels of multiple, male, and unrelated victims below 12

years of age than non-pedophilic child molesters as assessed with a file-based summary index of pedophilic sexual interest derived from offending behavior.

Method

Participants

Participants were 304 adult males of Caucasian ethnic origin. The 266 (87.5%) offenders (sexual abusers of children that were convicted for either contact or child pornography offenses, sexual offenders against adults and non-sexual offenders) in the sample had been evaluated between 2005 and 2012 in the United Kingdom (in prisons; Banse et al., 2010), in Germany (in forensic-psychiatric hospitals and prisons), and in Belgium (in a sexual offender outpatient treatment center; Schmidt, Gykiere, Vanhoeck, Mann, & Banse, in press). The combined groups of offenders convicted of offenses against children involving direct physical contact and of offenders convicted of child pornography offenses are henceforth referred to as sexual abusers of children ($n = 183$; 60.2%). The group of 38 non-offenders (12.5%) consisted of a community sample including prison personnel and men from the community (Table 1). Participants gave their informed consent prior to taking part in the study. The research was approved by the Department of Psychology's Forensic Ethics Committee at the University of York and the involved institutions.

(INSERT TABLE 1 ABOUT HERE)

Measures

Participants were tested individually with the EISIP (Banse et al., 2010), a computerized test battery for deviant sexual interest in children and sexual orientation. The EISIP comprises a 40-item direct self-report questionnaire on the occurrence of five different sexual behaviors (e.g., enjoyment of oral stimulation) and sexual fantasies (e.g., daydreams of having sex) with men and women, as well as prepubescent boys,

and girls (the Explicit Sexual Interest Questionnaire, ESIQ; Banse et al., 2010). Items are responded to in a dichotomous yes/no format. Scores are aggregated frequencies over sexual fantasies or behaviors on the four sexual target scales (for a detailed description and item list, refer to Banse et al., 2010).

Moreover, the EISIP includes two different types of indirect measures. The first is a viewing time task (VT; Schmidt, Banse et al., in press) that unobtrusively registers the time taken to judge the sexual attractiveness of sexual targets of either gender and at different stages of sexual maturity on a five-point rating scale. All pictorial stimuli represent individuals in bathing clothes (Pacific Psychological Assessment Corporation, 2004).

The second group of indirect measures comprises three different Implicit Association Tests (IATs) with the target categories *Men vs. Women*, *Girls vs. Women*, and *Boys vs. Men* (same pictorial stimuli as in the VT task), and the attribute categories *Sexually Exciting vs. Unexciting* (word stimuli, e.g., erotic, exciting, dull, boring). Sexual orientation was measured with the Men-Women IAT and sexual maturity preferences with the Girls-Women and the Boys-Men IATs in order to distinguish gender-specific forms of DSP. Prototypical Children/Adults DSP IATs (Babchishin, Nunes, & Hermann, 2012; Schmidt, Banse et al., in press) consist of two double discrimination tasks, assessing the associative strength between target categories and attribute categories, both arranged on bipolar dimensions. Respondents are asked to classify word and/or picture stimuli that represent these four categories using two response keys, each assigned to a pair of the endpoles of a target and an attribute category (for a detailed description, see Banse et al., 2010). It is assumed that the response latency for correct classifications is accelerated if two closely associated concepts share the same response key compared to trials in which they are assigned to

different response keys (i.e., lesser response interference in case of a sexually deviant person in consistent pairings of *Sexually Exciting* and *Children* vs. *Sexually Unexciting* and *Adults* as compared to inconsistent combinations of *Sexually Exciting* and *Adults* vs. *Sexually Unexciting* and *Children*). IATs are usually scored by calculating the intra-individually standardized difference between the mean response latencies of both consistent and inconsistent blocks (Greenwald, Nosek, & Banaji, 2003).

From the ESIQ, VT, and IAT measures, three aggregated differential DSP indices were derived. In order to statistically control for individual differences in sexual orientation (i.e., sexual gender preferences) we used deviance difference indices based on the highest score for women or men subtracted from the highest score for prepubescent boys or girls – a scoring technique commonly used in phallometric assessments (Harris, Rice, Quinsey, Chaplin, & Earls, 1992) as well as in research applying indirect latency-based measures of pedophilic sexual preference (Mokros, Dombert, Osterheider, Zappalà, & Santtila, 2010; Schmidt, Gykiere et al., in press). The advantage of this scoring algorithm is that the resulting DSP scores are based on the sexually most relevant gender from each adult and child target categories irrespective of sexual orientation. As focal dependent variables the maximum mean sexual interest frequency (ESIQ) for postpubescent male or female categories was subtracted from the maximum mean frequency for prepubescent boys or girls categories (for the VT measure maximum mean latencies were used, respectively). Calculating gender-preference separately for child-related stimuli and for adult-related stimuli, the rate of agreement could be checked. The values, expressed through Cohen's κ , were 0.05 (ESIQ) and 0.32 (viewing time), with 69% of "cross-over" cases for the ESIQ, and 25% cross-overs for viewing time. As IATs are inherently difference scores (Greenwald et al., 2003), the maximum of the Girls-Women or Boys-Men IAT was used as the third

corresponding aggregate DSP score. For all three aggregated deviance difference indices higher values reflected higher DSP, i.e., a relatively stronger sexual preference for children than for adults.

The Screening Scale for Pedophilic Interests (SSPI; Seto & Lalumière, 2001) served as a validation criterion. Based on offenders' history of sexual offenses against children (male victim, multiple victims, victim younger than 12 years, unrelated victim) the sum total ranges from 0 to 5 (the item male victim affords a score of 2 points, whereas the remaining items are scored with 1 if present). The SSPI has been shown to correlate with pedophilic phallometric arousal (Seto & Lalumière, 2001).

Data Analysis

All subsequent statistical analyses focused on three dependent variables, namely differential indices of a sexual preference for child over adult stimuli based on self-report (ESIQ), viewing time (VT), and Implicit Association Test (IAT) data. The data were analyzed with latent profile analysis (LPA), a variant of latent class analysis with continuous observed variables. LPA can be thought of as a probabilistic or model-based variant of cluster analysis (Vermunt & Magidson, 2002). For the LPA, we specified 100 random sets of starting values and 10 optimizations of the Expectation Maximization algorithm within Mplus, version 6.11 for Mac (Muthén & Muthén, Los Angeles, CA). The maximum number of iterations within the initial stage was set to 20. Comparison of model fit indices (*AIC*, *BIC*) and a modified likelihood ratio test (Lo, Mendell, & Rubin, 2001) allowed establishing whether a model with k latent classes yielded a better fit than a simpler model with $k - 1$ latent classes. In addition, *relative entropy* served as a measure of relative classification certainty, based on assigning cases to latent classes due to their maximum posterior probability with regard to these latent classes.

In addition, we used two procedures from Paul Meehl's coherent cut kinetics family of taxometric methods: maximum covariance (MAXCOV; Meehl & Yonce, 1996) and mean above minus mean below a cut (MAMBAC; Meehl & Yonce, 1994). In MAXCOV, peaked curves within covariance plots between two indicator variables along the range of a third indicator are considered indicative of transitions between two distinct homogeneous subgroups (i.e., taxa). In MAMBAC, stepwise increases in the mean difference of an indicator variable between complementary subgroups along the range of a second indicator imply an underlying taxonic structure. Finally, the distribution of Bartlett factor scores derived from a factor analysis of the three DSP indices was evaluated for the existence of local modes that could indicate the existence of a taxon (L-Mode; Waller & Meehl, 1998).

For testing the three latter taxometric methods (MAXCOV, MAMBAC, and L-Mode) we relied on parallel analysis using 1,000 simulation samples each. Relative fit with a taxonic solution was gauged through the Curve Comparative Fit Index (CCFI) that ranges from 0 to 1, with 1 indicating perfect agreement with a taxonic structure and values above .60 regarded as strongly indicative of a taxonic structure (Ruscio, Ruscio, & Carney, 2011). MAXCOV, MAMBAC, and L-Mode analyses were conducted using the program TaxProg 2012-01-09 for R written by John Ruscio (2012).

Results

On average, participants in the sample were 41.0 years old ($SD = 11.4$, range 18 - 72 years). Age differed significantly between groups, $F(4, 299) = 5.33, p < .001$. Post-hoc tests showed that non-sexual offenders were significantly younger than the sexual offenders with child or adult victims (Table 1). Contact sexual abusers of children showed mean scores of 3.14 ($SD = 1.66$) on the Screening Scale for Pedophilic Interests (SSPI). Thus, contact sexual offenders against children in this sample had

significantly higher SSPI scores as compared to the original SSPI validation sample ($N = 1,113$; $t[1266] = 2.43$, $p = .015$, $d = 0.21$). Slightly less than half (45.2%) of the contact sexual abusers of children had offended against at least one male victim (see Table 1 for further details on victim characteristics).

Latent Profile Analysis

In the LPA, a solution with two latent classes fit the data better than a homogeneous solution. The adjusted BIC index was smaller for the two-class (5654.05) than for the single-class solution (5832.40). More to the point, a likelihood ratio test (Lo et al., 2001) indicated that the null hypothesis of equal fit could be rejected ($p < .001$). Hence, the model comprising two latent classes fit the data significantly better than the unitary solution. Bayesian posterior probabilities for assigning individuals to the latent classes were comparatively high: On average, the allocation probabilities were .98 for the first latent class and .96 for the second latent class. The two latent classes differed in relative size, with the first one comprising the majority of individuals ($n = 253$; 83.2%), compared to 51 individuals (16.8%) in the second latent class – a difference that was significant in a one-sided binomial test ($p < .001$) assuming a null hypothesis of equal proportions.

A Hotelling T^2 test (MANCOVA with participants' age as covariate) yielded a significant difference between the two latent classes across all three DSP indices ($F[3, 297] = 259.79$, $p < .001$, $\eta_p^2 = .72$). Age was a significant covariate ($F[3, 297] = 2.78$, $p < .05$, $\eta_p^2 = .03$). Furthermore, all single group differences were significant at $p < .01$ for each DSP index (ESIQ, IAT, and VT) in post-hoc tests (Bonferroni adjusted). Because the mean DSP difference indices (ESIQ, IAT, and VT DSP; Figure 1) were significantly higher in the second latent class we refer to this subgroup as the pedophilic group subsequently. The differences between the group means represented medium to

large effects. Expressed in terms of standard deviation units (Cohen's d) of the raw data, the mean differences were 0.59 (IAT), 0.98 (VT), and 4.38 (ESIQ).

(INSERT FIGURE 1 ABOUT HERE)

Individuals comprising the pedophilic subgroup were predominantly sexual abusers of children (49 out of 51 persons; corresponding to 26.8% of the sexual abusers of children subgroup), with 45 contact and 4 child pornography offenders. The remaining two individuals assigned to the pedophilic latent class were non-sexual offenders (Table 1). The relative allocation rate to the pedophilic cluster was about twice as high for contact (29.0%) than for non-contact sexual abusers of children (14.3%) but the difference was not statistically significant in a Fisher's exact test ($p = .16$, two-sided). About half (45.7%, $n = 32$) of the contact sexual abusers of children who had had at least one boy victim were allocated to the pedophilic subgroup compared with 15.3% ($n = 13$) of the contact sexual abusers of children who had victimized exclusively girls ($p < .001$ in a two-sided Fisher's exact test). Neither sexual offenders with adult victims nor non-offender controls were allocated to the pedophilic cluster (Table 1). Clearly, the match between the five participant groups and the allocation to the two latent classes was non-random ($p < .001$ in a Fisher's exact test).

Upon increasing the number of latent classes to three, the second latent class was subdivided into two (with a split of 31 versus 20 individuals). The first latent class remained intact, even though 23 of its cases were allocated to the new second latent class, thus leading to total numbers of 230, 54, and 20 cases within the three latent classes. None of the individuals from the original cluster 1 was assigned to the new third cluster. Further inspection (based on the EISIP raw data) revealed that the individuals assigned to the second latent class were again on average more deviant and more homosexual than the individuals assigned to the first latent class. The two- and

three-cluster solutions showed considerable overlap: The adjusted Rand Index for the agreement between the solutions with two or three latent classes was high (.68, $p < .001$). The individuals in cluster 3 had higher mean values on all three DSP indices than the persons in cluster 2, however, at large ($d = 3.30$), medium ($d = 0.52$) and small effect sizes ($d = 0.17$) for the ESIQ, VT, and IAT variables, respectively. Only looking at the sexual abusers against children with contact offenses in classes two and three, the mean SSPI score of the 16 individuals in class 3 ($M = 4.31$, $SD = 1.14$) was slightly higher ($d = 0.34$) than the mean of the 47 individuals in class 2 ($M = 3.85$, $SD = 1.47$), but not statistically significant, $t(61) = 1.14$, $p = .26$, two-sided. For none of the individual SSPI items (any male victim, multiple child victims, any victim aged 12 years or below, and unrelated victim) did the relative frequencies differ between the individuals in clusters 2 and 3 (all $p > .20$ in two-sided Fisher's exact tests). This indicated that cluster 2 contained a higher proportion of individuals exhibiting more undifferentiated patterns of sexual interest in adults and children as well that resulted in similar offense behavior indicative of pedophilic sexual interest but mathematically led to somewhat lower DSP difference indices due to relatively increased sexual interest in adults as compared to children. Relative entropy was equally high for both the model with two (0.93) and the model with three latent classes (0.93). This indicates that the allocation probabilities were clearly distinct for the two (three) latent classes. Yet increasing the number of latent classes from two to three did not lead to a significant improvement in model fit even though the adjusted BIC of the three-class solution was smaller (5586.28): The likelihood ratio test yielded a non-significant result ($p = .25$). Hence, the more parsimonious solution with two latent classes was chosen as the reference model for subsequent analyses.

SSPI scores can only be calculated for sexual abusers with a history of contact sexual offenses against children (Seto & Lalumière, 2001). The mean SSPI score was higher (ANCOVA with age as covariate; $F[1] = 24.05, p < .001, \eta_p^2 = .14$) for the pedophilic latent class ($M = 4.09, SD = 1.33, \text{range: } 0-5, \text{median} = 5$) than for the non-pedophilic latent class ($M = 2.75, SD = 1.62, \text{range: } 0-5, \text{median} = 3$) supporting our hypothesis of increased pedophilic offense behavior patterns. The correlation between the SSPI total score and the posterior probability of belonging to the pedophilic latent class was $r = .40 (p < .001, \text{one-sided})$.

The emergence of two latent classes was consistent with our expectation (Hypothesis 1). The fact that the presumably pedophilic subgroup (i.e., latent class 2) was smaller in number than the complement group was in accordance with Hypothesis 2. Finally, the positive correlation between the allocation probability toward the pedophilic subgroup and the SSPI supported Hypothesis 3 (as well as the fact that predominantly child sexual abusers were allocated to that group).

Taxometric Analyses

In order to test whether the underlying structure of pedophilic sexual preference in the sample was concomitant with a categorical (taxonic) interpretation across a range of conceptually different taxometric methods we also ran MAXCOV, MAMBAC, and L-Mode analyses. (Note that MAXCOV, MAMBAC, and L-Mode analyses were limited to 302 cases due to a missing value on one of the indicator variables for two cases which necessitated a listwise deletion of these two cases.) In all three of these analyses the outcome clearly pointed toward a taxonic structure: The CCFI summary indices (each based on the triplet of ESIQ, VT, and IAT data) were .71 (MAXCOV), .80 (MAMBAC), and .66 (L-Mode). Thus, the three taxometric analyses consistently yielded evidence for a taxometric structure, with an average CCFI of .72 and each

individual CCFI above the critical threshold of .60. Furthermore, the agreement between the taxa identified by the three latter methods and the LPA solution was high, with Cohen's κ coefficients of .68 (95% CI: [.55, .80]) for MAXCOV, .62 (95% CI: [.50, .74]) for MAMBAC, and .66 (95% CI: [.55, .78]) for L-Mode, respectively (all $p < .001$). The sizes of the taxa were $n = 29$ (MAXCOV), $n = 54$ (MAMBAC), and $n = 46$ (L-Mode), thus yielding an average base rate of 14.2% which accorded well with the relative size of the pedophilic subgroup as identified through LPA (16.8%).

In terms of indicator validity of the three additional taxometric methods applied (MAXCOV, MAMBAC, and L-Mode), all validity coefficients (expressed through Cohen's d) were above the lower margin of 1.25 suggested by Meehl (1995, p. 274), with the exception of the IAT scores in the MAXCOV analysis ($d = 1.11$). Likewise, all within-group nuisance correlations were within acceptable margins ($r < .30$; Beauchaine, 2007, p. 676; Meehl, 1995, p. 273) except for two out of all 18 instances: The within-taxon correlation of the ESIQ and VT in the MAMBAC analysis (.32) and the within-taxon correlations of ESIQ and VT (.36) in the L-Mode analysis were slightly above the suggested limit. The correlation coefficients in the mixed sample were .36 (ESIQ/VT), .25 (ESIQ/IAT), and .19 (VT/IAT). The correlations in the mixed sample were generally higher than the corresponding nuisance correlations within the taxon or complement classes (with a sole equality for ESIQ/VT in the L-Mode taxon class). A full list of indicator correlations in the taxon and complement classes is available from the authors upon request. The skewness of the three indicator variables was within acceptable limits (≤ 2.00 ; Beauchaine, 2007, p. 668): 1.66 (ESIQ), -0.43 (VT), and 0.01 (IAT).

In order to test whether the result of a presumably taxonic structure given the data was possibly driven by the single most valid indicator (i.e., self-report) – an

indicator that is prone to deliberation on behalf of the participant – we repeated the taxometric analysis excluding the self-report (ESIQ DSP) indicator, thus limiting the indicators to VT and IAT DSP. This was only possible with MAMBAC since both MAXCOV and L-Mode necessitate at least three indicator variables. At a CCFI of .65, the outcome of the supplementary MAMBAC analysis without self-report data was in accordance with the previous results. The estimated taxon base rate was 3.6% ($n = 23$) with indicator validities of $d = 1.42$ for VT and $d = 1.77$ for IAT DSP.

Denial of Pedophilic Sexual Interest

As the LPA resulted in strong cluster effects on self-reported DSP we wanted to examine the impact of denying pedophilic sexual interest on LPA group allocation (Table 1). Therefore, denial of pedophilic sexual interest was operationalized as denial of any sexual fantasy or behavior involving children as assessed with the ESIQ Boys and Girls scales. According to this criterion 192 participants (63.2% of the total sample) were classified as deniers. Among the sexual abusers of children (either contact or non-contact), most of the individuals assigned to the pedophilic cluster ($n = 45$, 91.8%) acknowledged some pedophilic sexual interest, whereas most of the sexual abusers of children allocated to the non-pedophilic cluster denied any pedophilic sexual interests ($n = 84$, 62.7%, $p < .001$ in a two-sided Fisher's exact test). Still, admitting sexual interest did not suffice to assign an individual from the sexual abuser of children group to the pedophilic cluster as half of the individuals from that group who admitted at least some pedophilic sexual interest ($n = 50$, 52.6%) ended up in the non-pedophilic cluster. This is concomitant with the results from the supplementary taxometric analysis without the ESIQ self-report data. In the control groups (i.e., the combined groups of individuals without any history of sexual offenses against children; Table 1), 17 persons (14.0%) admitted to some form of pedophilic sexual interest. The majority of these individuals

was assigned to the non-pedophilic class nonetheless ($n = 15$) compared with two individuals who were assigned to the pedophilic cluster; none of the 104 controls who denied any pedophilic sexual interests belonged to the pedophilic cluster. The corresponding 2×2 table of class membership and admitter/denier status in the control group was also statistically significant ($p = .019$ in a two-sided Fisher's exact test).

Discussion

Previous research relying solely on self-report data indicated that self-reported deviant sexual interest in children among sexual offenders against children was dimensional, not taxonic (Mackaronis et al., 2011). Using a mixed sample of men (comprising sexual offenders against children and adults, child pornography offenders, non-sexual offenders, and non-offender controls) and a multi-method assessment, we identified a subgroup with increased pedophilic preference through LPA. The present study followed the recommendation that the indicators used within taxometric analyses should be conceptually diverse (Meehl, 2004) by using indicator measures of DSP for children comprised of direct self-report (ESIQ) and indirect latency-based measures (IAT, VT).

The vast majority of individuals assigned to the pedophilic latent class (49 out of 51 individuals) were sexual abusers of children. Contact child sexual abusers and child pornography offenders were equally distributed across the latent classes. The pedophilic latent class only represented a minority (26.8%) among all child sexual abusers in the sample – a proportion that was somewhat lower than the estimate of about 40% for the prevalence of pedophilia within samples of convicted sexual abusers of children (cf. Seto, 2008a). Based on the current findings it should be noted that the taxon of individuals with a sexual preference for children likely represents a comparatively small group among the convicted sexual abusers of children as a whole.

Furthermore, the number of individuals from the control groups who were assigned to the pedophilic class ($n = 2$, representing 1.7% of the remaining participants) falls into the margins of prevalence estimates for pedophilia in the general male population (Ahlers et al., 2011). The low number of non-sexual offenders within the pedophilic cluster ($n = 2$) and the absence of any sexual offenders with adult victims makes it highly unlikely that this latent class would represent a pseudo-taxon of (sexual) offenders based on similarity of criminal behavior rather than a group defined by a sexual preference for children. This is corroborated by the finding that the mean scores on the three DSP indices were significantly higher in the pedophilic latent class with medium to large effects. Moreover, contact sexual abusers of children assigned to the pedophilic latent class through LPA exhibited a significantly higher likelihood of pedophilic sexual interest as assessed by the SSPI (Seto & Lalumière, 2001) – a summary index of past pedosexual offense behavior – than contact sexual abusers of children in the non-deviant class.

Latent class analysis has been criticized for running the risk of overidentifying taxa (Beauchaine, 2007; Ruscio, Haslam, & Ruscio, 2006). Hence, we applied three other taxometric procedures that represent two different conceptual approaches: Coherent cut kinetics (MAXCOV, MAMBAC) and latent trait analysis (L-Mode). The outcome of these analyses corroborated the findings from the LPA. There was consistent support for a taxonic interpretation indicating that pedophilic sexual preference is indeed a categorical construct, not merely the extreme on a continuous dimension of sexual maturity preferences.

Due to the strong effects of self-reported DSP and the overrepresentation of admitters in the pedophilic cluster it is a possible alternative explanation that the LPA was confounded with willingness to openly admit DSP. However, the fact that we found

a similar taxon utilizing only indirect DSP measures corroborates that it is a true taxon of pedophilic preferences and not only based on the admission of deviant sexual interest. As it could further be argued that sexual abusers of children who denied DSP in this sample might have been successfully dissimulating their deviant sexual inclinations on the indirect measures, we inspected the distribution of admitters in the non-pedophilic cluster. Strikingly, the substantial amount of admitters that were classified as non-pedophilic (12.7% of the control participants, 37.3% of the sexual abusers of children; Table 1) did not support this post-hoc alternative hypothesis. The resulting pattern might be explained with the relatively compliant character of the sample. In fact, all sexual offenders against children from the Banse et al. (2010) subsample (24.5% of the contact sexual abusers of children in the present sample) were treated in the Sex Offender Treatment Programme of the national British Prison Service (SOTP; Friendship, Mann, & Beech, 2003) for which admittance of the sexual abuse offense is a necessary inclusion criterion.

It is conceivable that the use of measures of deviant sexual preference through differential indices highlights an underlying taxonic structure more clearly than measures of sexual interest would. Post-hoc comparisons revealed that using absolute measures of sexual interest instead of relative measures yielded substantial effect sizes. For the absolute viewing times toward child and adult stimuli as well as for sexual interest in children as espoused in the ESIQ, we observed medium-to-large effect sizes between the taxon and the complement according to the MAXCOV analysis ($d = 0.56$ to 2.51), for example. If the group allocation based on the LCA was used as a frame of reference, the effect sizes for child-related viewing time ($d = 0.91$) and for self-reported sexual interest in children ($d = 3.13$) were even more pronounced, with the exception of the average viewing time for adult stimuli ($d = 0.03$). Compared with the effect size

estimates obtained based on the differential indicators (see Results section), however, the absolute indices yielded slightly lower effect sizes. Hence, the prior finding of a dimensional structure by Mackaronis and colleagues (2011) may be reconcilable with the current results since sexual preference may provide greater indicator validity (and hence be more likely to identify an underlying taxonic structure). However, the differences between our taxonic classification and Mackaronis et al.'s (2011) dimensional findings do not necessarily have to be explained by the mathematical properties of the indices employed. Instead, the difference could be driven by conceptual differences due to the less specific operationalization of pedophilic sexual interest in the study by Mackaronis and colleagues including sexual obsessions and cognitive distortions/immaturity.

It is a limitation that the present data did not include clinical diagnoses of pedophilia or physiological measures of (pedophilic) sexual arousal. However, due to the consistency of the results across various taxometric procedures and the clear-cut profile differences between taxon and complement group (even if exclusively based on indirect measures) it seems highly likely that pedophilic sexual preference is a valid, distinct, and dichotomous clinical construct as assessed with direct and latency-based indirect measures.

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Table 1

Descriptive Overview of Participant Subgroups and Contact Sexual Offenders' Against Children Offense Characteristics (Top) as well as Cluster Membership per Participant Subgroup according to the Latent Profile Analysis (Bottom, N = 304).

	Sexual Abusers of Children				Controls				
	Contact		Non-Contact		Sexual Offenders Adult Victims		Non-Sexual Offenders		Non- Offenders
	(n = 155)		(n = 28)		(n = 26)		(n = 57)		(n = 38)
Age <i>M</i> (<i>SD</i>)	42.9 _A (11.8)		38.4 _{AB} (11.7)		42.7 _A (11.9)		35.5 _B (9.4)		41.8 _{AB} (8.8)
≥ 1 Male Victim(s) (%) ^a	70 (45.2)		n/a		n/a		n/a		n/a
Victims <12 years old (%) ^a	110 (71.0)		n/a		n/a		n/a		n/a
Extrafamilial victims (%) ^a	123 (79.4)		n/a		n/a		n/a		n/a
Multiple victims (%) ^a	113 (72.9)		n/a		n/a		n/a		n/a
SSPI <i>M</i> (<i>SD</i>)	3.14 (1.66)		n/a		n/a		n/a		n/a
Cluster Membership	Pedophilic	Non- Pedophilic	Pedophilic	Non- Pedophilic	Non- Pedophilic	Pedophilic	Non- Pedophilic	Non- Pedophilic	
<i>N</i> (%) ^a	45 (29.0)	110 (71.0)	4 (14.3)	24 (85.7)	26 (100)	2 (3.5)	55 (96.5)	38 (100)	
Deniers (%) ^a	3 (1.9)	66 (42.6)	1 (3.6)	18 (64.3)	22 (84.6)	0 (0)	50 (87.7)	32 (84.2)	
≥ 1 Male Victim(s) (%) ^a	0 (0)	15 (9.7)	n/a	n/a	n/a	n/a	n/a	n/a	
Admitters (%) ^a	42 (27.1)	44 (28.4)	3 (10.7)	6 (21.4)	4 (3.3)	2 (3.5)	5 (8.8)	6 (15.8)	
≥ 1 Male Victim(s) (%) ^a	32 (20.6)	23 (14.8)	n/a	n/a	n/a	n/a	n/a	n/a	

Note. Group means with different subscripts in one row are statistically different from each other (Tukey-*HSD* post-hoc comparisons, $p < .05$). SSPI = Screening Scale for Pedophilic Interests (Seto & Lalumière, 2001). ^a Relative frequencies (%) refer to the subgroup of the respective column; n/a = not applicable.

Figure 1

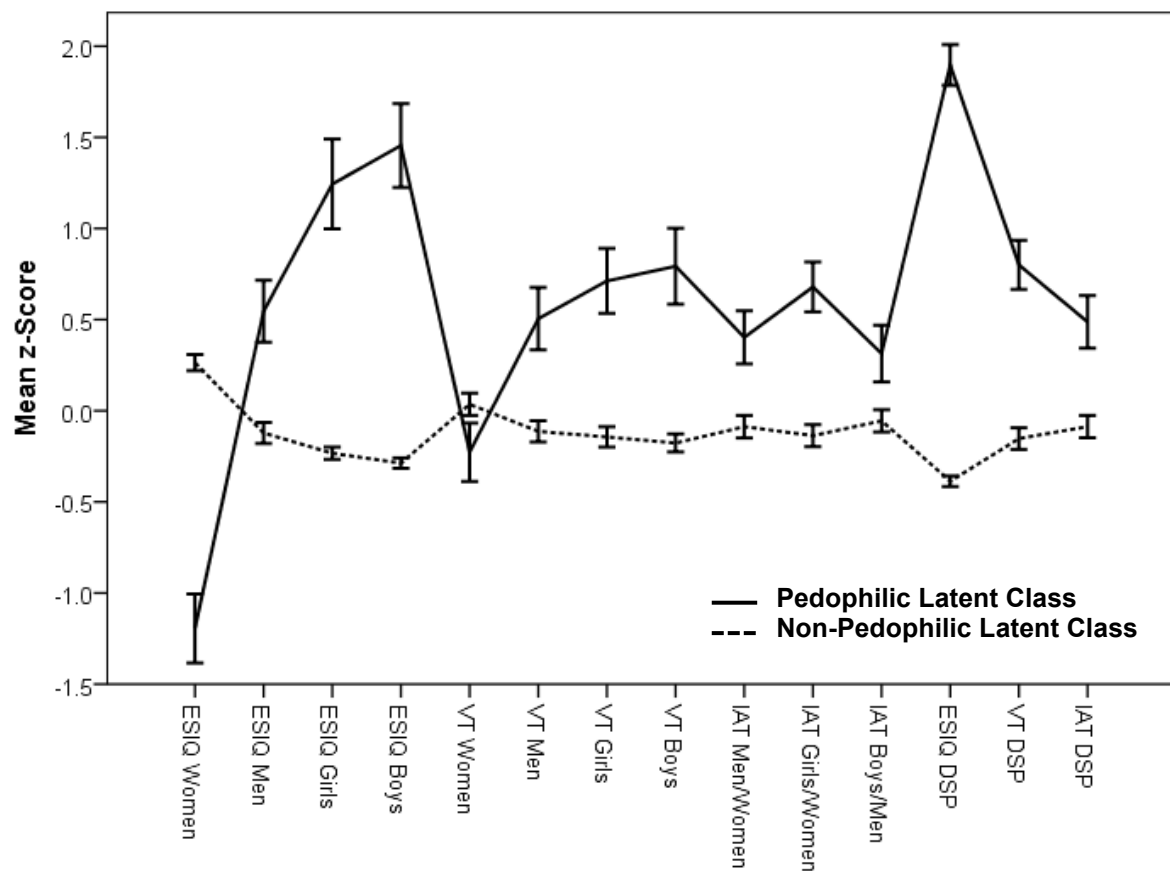


Figure 1. Mean scores ($\pm SE$) of two latent classes on the Explicit and Implicit Sexual Interest Profile (EISIP; Bpanse et al. 2010) as well as three differential indices of pedophilic sexual preferences for children as compared to adults, based on standard normal deviate (z) scores ($N = 304$). ESIQ = Explicit Sexual Interest Questionnaire, IAT = Implicit Association Test, VT = viewing time, DSP = deviant sexual preferences for children over adults.