

Stability of Self-reported Arousal to Sexual Fantasies involving Children in a  
Clinical Sample of Pedophiles and Hebephiles

Authors' copy of the accepted article. The final publication is available in the  
Archives of Sexual Behavior under: <http://link.springer.com/article/10.1007/s10508-016-0729-z>

## ABSTRACT

In forensic research, there is a controversial discussion concerning the changeability or stability of pedophilia. Seto (2012) conceptualized pedophilia as a sexual age orientation characterized by an early onset, correlations with sexual and romantic behavior, and stability over time. However, empirical data are sparse and are mostly based on samples of detected offenders. The present study examined self-reported arousal to sexual fantasies involving children in a clinical sample of pedo-/hebephiles. In Study 1, retrospective self-reports on the age of onset and duration of sexual interest in minors were examined. In Study 2, the stability and variability of self-reported arousal to sexual fantasies involving children were evaluated prospectively. Non-prosecuted self-identifying pedo-/hebephilic men seeking professional help were recruited within the Berlin *Prevention Project Dunkelfeld* (PPD). Between 2005 and 2013, 494 participants completed the intake assessment. Self-reported data were collected via questionnaire focusing on sexual arousal to fantasies during masturbation involving prepubescent and/or early pubescent minors. Subsequent assessments of sexual arousal were obtained for 121 of the participants. The average time between the first and last assessment was approximately 29 months. Spearman's correlation coefficients examined the between-group rank-order and Wilcoxon-Tests examined the within-individual mean-level stability. The majority of subjects reported an early onset of their pedo-/hebephilic sexual arousal. The rank-order stability was medium to high. Over the investigated period, the majority of subjects showed no or only minimal decrease or increase of self-reported sexual arousal. These results suggested that sexual arousal to fantasies involving prepubescent and/or early pubescent children is

stable. Furthermore, the results support the conceptualization of pedo-/hebephilia as a sexual age orientation in men.

**KEY WORDS:** Pedophilia; Hebephilia; Sexual orientation; Stability; Prevention

## INTRODUCTION

Most clinicians consider the sexual preference of an individual to be a (relatively) stable trait. When it comes to paraphilic preferences, e.g. pedophilia, the issue of stability or variability is discussed controversially. Meta-analysis of studies in forensic samples found a sexual interest in children to be among the strongest predictors of long-term recidivism among sexual offenders (Mann, Hanson, and Thornton, 2010). Although a pedophilic interest is most likely associated with a higher risk for child sexual abuse (CSA), not all individuals with a pedophilic interest offend against a child (Beier et al., 2009). To date, empirical data on the characteristics of development, progress or remission of pedophilia or hebephilia are sparse.

### **Pedophilia and Hebephilia**

#### *Definition, Prevalence, and Assessment*

In DSM-5, the current manual for the classification of mental disorders by the American Psychiatric Association (APA), pedophilia is referred to as a sexual interest in prepubescent children. A *pedophilic disorder* can be diagnosed when “recurrent, intense sexually arousing fantasies, sexual urges, or behaviors involving sexual activity with a prepubescent child or children” (age 13 or younger) exist over a period of at least 6 months (APA, 2013, p. 697), and when the individual acted accordingly or is markedly distressed or has interpersonal difficulties caused by these sexual fantasies and urges. The DSM criteria allow for a differentiation between an underlying sexual interest and the associated sexual behaviors. However, besides a subjective description of recurrent fantasies or impulses over a period of at least 6 months, no further temporal criterion (e.g., onset) is specified.

Sex researchers have proposed a classification of sexual interest according to physical development in children as given by the Tanner scale (Blanchard et al.,

2009; Marshall & Tanner, 1969, 1970). Drawing on Tanner's classification system, a distinction can be made between a sexual interest in prepubescent children (Tanner stage 1, pedophilia), a sexual interest in early pubescent children (Tanner stages 2 and 3, hebephilia), and a sexual interest in postpubescent adults (Tanner stages 4 and 5, teleiophilia). In empirical studies, an exclusive sexual interest in prepubescent or early pubescent children seems rare, and mixed forms are frequent (Beier, Amelung et al., 2015; Blanchard et al., 2012).

The prevalence of pedophilia in the general population is unknown (Cohen & Galynker, 2002; Seto, 2008). In an online survey investigating sexual interests in 8,718 German males, 4.1% reported sexual fantasies involving prepubescent children and 0.1% reported an exclusive type (0.6% a non-exclusive) of pedophilic interest (Dombert et al., 2015).

In order to assess sexual interest in prepubescent and early pubescent children, a variety of methods is applied. In contexts where the pledge of confidentiality applies to those working in a treatment setting (as it is the case in Germany) and where patients do not have to fear legal or social threats when disclosing committed violations in the past, self-report measures, such as clinical interviews or questionnaire assessments, are assumed to be the most favorable option (Babchishin, Nunes, & Kessous, 2014). Psychophysiological methods have found use in judicial and clinical settings (e.g., phallometric assessments or indirect attention based measures; see Schmidt, 2013 for an overview), or are in early developmental stages (e.g., fMRI; Ponseti et al., 2012).

#### *Hypotheses on the Stability or Variability of Pedophilia*

Depending on the etiological tradition, two viewpoints on pedophilia have emerged in sexology. From a sexual medicine perspective, pedophilia is seen as a manifestation on the age axis of the sexual preference structure of an individual (Beier, Bosinski, &

Loewit, 2005). As a part of the sexual preference structure, pedophilia is expected to manifest around puberty and to remain relatively stable over lifetime, comparable to personality traits. Accordingly, Seto (2012) proposed a conceptualization of pedophilia as a sexual orientation with regard to age – a sexual age orientation – that is comparable to sexual gender orientation. Reviewing findings from both detected and undetected pedophilic offenders, Seto concluded that pedophilia “can be viewed as a sexual age orientation based on the more limited evidence available regarding its age of onset, associations with sexual and romantic behavior, and stability over time” (p. 233).

From another viewpoint, pedophilia is regarded as changeable. Some researchers and clinicians working with sex offenders consider a sexual interest in children to be a learned phenomenon that can change into a normative sexual interest within a clinical setting. A high stability would only apply to sexual *gender* orientation. From this perspective, pedophilia is assumed to be an acquired sexual interest, which opens up the possibility to unlearn it (Laws & Marshall, 1990; Marshall, 2008; Marshall, O'Brien, & Marshall 2009; Müller et al., 2014).

#### *Empirical Findings on the Stability or Variability of Pedophilia*

Sound empirical data that support the stability of pedophilia are missing. Findings from clinical practice suggest that pedophilic men become aware of their sexual interest in children around the time of puberty (APA, 2013). Based on findings from retrospective interviews, Freund and Kuban (1993) presumed sexual gender orientation and sexual age orientation to manifest in temporal succession during puberty, with gender orientation manifesting first.

Concerning the stability of sexual arousal to children in samples of detected pedophilic offenders, some evidence can be drawn from forensic studies. Meta-analytic data show that diagnoses of pedophilia in sex offenders against children

predict future problematic sexual behaviors involving children up to 40 years later (Hanson, Steffy, & Gauthier, 1993). Beier (1998) showed that within an observation period of 25 years, those sex offenders against children identified as pedophiles had a higher risk to recidivate with a respective sexual offense (exclusive type pedophiles: 80%, and non-exclusive type: 50%) compared to so-called non-preference offenders, i.e., sex offenders without a sexual interest in children (10-30%). Additionally, as shown in Lussier's (2015) summary of the literature on juvenile sexual offending, most adult sex offenders against children had already committed (detected) sex offenses during adolescence.

Schaefer et al. (2010) investigated potential and undetected pedophilic offenders and found that 64.6% of the overall sample were aware of their sexual interest in minors by the age of 20, and an additional 22.8% by the age of 30. Furthermore, in an anonymous internet survey conducted in pedohebephilic men, Bailey, Hsu, and Bernhard (2013) found that these men were approximately 35 years old and dated back the onset of their respective sexual interests in children by approximately 18 years. In a recent online survey, Tozdan and Briken (2015) found the median age of onset in men with a sexual interest in children to be 15 years (mean 17 years, range 6 - 44). The age of onset was associated with variability over lifetime, indicating that the earlier men recognized their respective sexual interests, the less change they experienced.

On the other hand, some empirical data in the sex offender literature have been interpreted as a change of a sexual interest in children into a sexual interest in adults, for example by means of conversion therapy (behavioral reconditioning such as masturbatory saturation or aversion techniques) (e.g., Foote & Laws, 1981; Marshall, 2008). In this regard, Marshall (1997; 2008) described significant changes in arousal in a sample ( $n = 12$ ) of highly deviant pedophilic child molesters. He

argued that social and relationship skills training and reduction of self-esteem deficits could lead to “normalized” (Marshall 2008, p. 42) post-treatment phallometric assessments (i.e., reduced pedophilic arousal, increased arousal to adults).

Müller et al. (2014) investigated test-retest data of 43 men with sexual behavior problems diagnosed with pedophilia and reported changes in sexual arousal as measured by phallometry. At the second phallometry assessment, half of their sample demonstrated less arousal to child stimuli and increased arousal to adult stimuli. The test-retest-correlation was reported to be relatively small (0.24,  $p = 0.13$ ). Because Müller’s study was shown to be statistically flawed (Bailey, 2014; Cantor, 2015; Lalumière, 2015, Mokros & Habermeyer, 2015), the evidence of permanent change of pedophilic arousal in clinical or laboratory conditions is still lacking (Beckstead, 2012; Seto, 2012).

Taken together, the literature on detected sex offenders and samples of self-referred pedophiles suggests that (1) a certain degree of stability of pedophilic arousal can be assumed, which is (2) generally based on retrospective (self-reported) data on an early age of onset of pedo-/hebephilia around adolescence and early adulthood, or (3) deduced from observations of persistent behavioral failures within samples of sex offenders. Therefore, prospective empirical data on the stability or variability of pedophilia and hebephilia are needed to enhance our understanding of these clinical and forensic phenomena.

### **The Present Research**

The present analysis examines the concept of pedophilia as a sexual age orientation as suggested by Seto (2012) in a sample of pedo-/hebephiles from the community seeking help at the *Prevention Project Dunkelfeld*. Drawing on Seto’s conceptualization, it was hypothesized that pedo-/hebephiles would report an early



age of onset of their sexual interest in children around puberty. Furthermore, it was hypothesized that self-reported sexual arousal to fantasies involving prepubescent and early pubescent children is a relatively stable trait over the lifespan and does not significantly change over time.

We conducted two studies to investigate the stability and variability of sexual arousal to fantasies during masturbation involving prepubescent and early pubescent children. Stability and variability of sexual arousal were assessed via questionnaire. In Study 1, we retrospectively investigated (1) the onset of sexual arousal to prepubescent and early pubescent children, and (2) the duration of self-reported pedo-/hebephilic interest over the lifespan. In Study 2, we prospectively tested the stability and variability of pedo-/hebephilic arousal in a longitudinal sample. The rank-order stability and mean-level changes in self-reported sexual arousal scores were investigated over two subsequent assessments. Second, self-reported arousal during masturbation was examined in the course of treatment over three assessments.

## **STUDY 1**

### **METHOD**

#### **Participants**

Data were collected as part of the Berlin *Prevention Project Dunkelfeld* (PPD) (see, e.g., Beier, Grundmann et al., 2015). The inclusion criteria of the present study were as follows: a diagnosis of pedophilia or “paraphilia not otherwise specified” in cases of hebephilia according to the DSM-IV-TR criteria; no current involvement with the legal authorities for CSA and/or child pornography offenses; no untreated DSM-IV axis-I diagnoses; and complete data on measures. Of 1,907 men contacting the PPD between May 2005 and December 2013, 494 were included.

The mean age of the sample was 37.8 years ( $SD = 11.3$ ), approximately half of the participants reported higher educational achievements (more than ten school years), and the majority were employed at the time of assessment. More than one third reported to be in a relationship at the time of assessment, and about one third had children (see Table 1). Only approximately 7% of this sample ( $n = 35$ ) were classified as non-offending. The majority ( $n = 219, 44.3\%$ ) were classified as mixed offenders (i.e., both CSA and use of child abuse images (CAI)). About one third ( $n = 152, 30.8\%$ ) reported the use of CAI without additional CSA offenses. Finally, 88 participants (17.8%) reported past CSA offenses without the additional use of CAI. About one third of the participants (31.8%) reported previous detection for CSA offenses and/or use of CAI.

## **Measures**

Descriptive data from the intake assessment ( $T_0$ ) were utilized. The socio-demographic data were based on clinical interviews, the criminal offense history data were based on both clinical interviews and questionnaires (for further details see Neutze, Seto, Schaefer, Mundt, & Beier, 2011), and the data on sexual experience and behavior were based on a questionnaire.

*Questionnaire on Sexual Experience and Behavior* (QSEB; Ahlers, Schaefer, & Beier, 2004). The QSEB is a paper-pencil tool designed to provide a comprehensive assessment of sexual functioning, sexual interests, onset and duration of sexual interests, as well as sexual and gender identity in compliance with ICD-10 and, in part, the DSM-IV-TR diagnostic criteria. At present, the questionnaire is only available in its German version. For the present study, the section on sexual interests was of relevance. Using a single item, sexual interests in different body ages and gender categories were assessed for prepubescent females and males,

early pubescent females and males, and adult females and males<sup>1</sup>. For each category, sexual arousal was assessed in two different realms of sexual experience: sexual fantasies during masturbation and real-life sexual behaviors. The intensity of sexual arousal within the past 12 months was assessed using a five-point Likert type scale (1 = not at all arousing, 2 = slightly arousing, 3 = moderately arousing, 4 = quite arousing, and 5 = very arousing). A higher score indicated a greater intensity of sexual arousal. The presence of a sexual interest for an age and gender category was assumed if participants indicated scores of 2 or higher.

Based on single item analyses, 404 participants indicated sexual arousal to fantasies including prepubescent females or males scoring 2 or higher, 476 reported sexual arousal to fantasies including early pubescent females or males, and 258 reported an additional sexual arousal to adult females or males (see Table 1). Within this sample, 41.8% indicated being attracted to females only (prepubescent, early pubescent, and adult), 18.3% indicated being attracted to males only, and 39.9% indicated being attracted to both females and males.

The onset of sexual arousal to body age and gender categories was assessed via the question “Since when do you experience sexual arousal during masturbation?” regarding a specific content. Individuals chose between two response options: a) “since puberty and first sexual experiences” or b) “since ... months or ... years”. Option a) indicated an early, pubertal onset of a particular sexual arousal. Option b) required the transformation of the indicated duration of arousal into the age of onset of sexual interest.

---

<sup>1</sup> The two items for sexual arousal to adult females and males were only included in the QSEB around 10/2007. Therefore, reported sample sizes for these items are smaller.

**Table 1** Frequencies for socio-demographic variables and variables of sexual interest of the samples of study 1 and 2

	Sample Study 1 ( <i>N</i> = 494)	Subsample Study 2 ( <i>N</i> = 121)
<b>Socio-demographic data</b>		
Age ( <i>SD</i> )	37.8 (11.3)	37.8 (10.6)
Years of education > 10	51%	55.8%
Employed	70.1%	76.0%
Relationship	40.1%	40.5%
Has children	35%	41.3%
<b>Sexual interest in age and gender categories according to QSEB</b>		
Prepubescent children <sup>a</sup>	81.9%	84.3%
Early pubescent children <sup>a</sup>	96.6%	95.0%
Adults <sup>a</sup> ( <i>n</i> = 295 /59 resp.)	87.5%	43.0%
Females only <sup>b</sup>	41.8%	39.7%
Males only <sup>b</sup>	18.3%	16.5%
Females and males <sup>b</sup>	39.9%	43.8%

*Note:* QSEB = Questionnaire of Sexual Experience and Behavior

<sup>a</sup> Sexual interest in age, irrespective of sexual interest in gender

<sup>b</sup> Sexual interest in gender, irrespective of sexual interest in age

## Procedure

Individuals interested in participating in the PPD contacted the project via email or telephone. The PPD offers a free, anonymous, and confidential diagnosis, as well as counseling or therapy to individuals with a sexual interest in children. Participants

were invited to a 90-min semi-structured clinical interview followed by a comprehensive three-hour questionnaire assessment. All the data collected were anonymized and confidential. The procedure was approved by the local clinic's ethics commission. All participants gave written informed consent. Following the clinical interview, pedophilia was diagnosed if, over a period of at least six months, the person reported recurrent and intense sexual thoughts, fantasies, or urges involving prepubescent children, as well as clinically significant distress or impairment as a result of their sexual interest in children. Thus, all pedophiles in this sample met the diagnostic criteria of the DSM-IV-TR. Likewise, hebephilia was diagnosed if the participant reported that early pubescent children were the focus of sexual thoughts, fantasies, or urges. As hebephilia is not specifically recognized in the DSM-IV-TR, the criteria for the diagnosis of "paraphilia not otherwise specified" was used. A history of sexual interactions with children without admission of concomitant sexual thoughts, fantasies, or urges was not considered to be sufficient for the diagnosis of pedophilia. The procedure following the intake assessment is described in study 2 (for more details, see Beier, Grundmann et al., 2015).

### **Statistical Analysis**

Descriptive data on the self-reported sexual arousal to children are reported. If an individual indicated that the duration of his respective sexual arousal within a specific sexual age and gender category is present since "x" years or months, this duration was adjusted downward for the number of years. Then, the number of years was subtracted from the individual's age at the intake assessment. For example, a participant was 33 years when he answered the QSEB at the intake assessment. He indicated that he experienced sexual arousal in his sexual fantasies during masturbation to prepubescent girls not since his puberty, but for "12 years and 8

months". We calculated 33 years minus 12 years, resulting in a retrospectively estimated age of 21 years at the onset of his sexual interest.

## **RESULTS**

### **Age of Onset**

Table 2 presents the self-reported age of onset for the 6 investigated age and gender categories ( $N = 494$ ). For those participants reporting sexual arousal within a specific category, the majority indicated a pubertal onset. Overall, between 59.4% (early prepubescent females) and 86.7% (adult females) reported to have experienced sexual arousal since puberty. Quantitative differences can be seen between the categories for female and male minors. For participants who felt attracted to prepubescent (72.3%) or early pubescent males (70.8%), the percentage was higher compared to those who indicated a respective interest in females (59.4% and 58.2%, respectively). Concerning the late onset of sexual arousal to age and gender categories, the average age of onset was between 26.2 (adult females) and 30.1 years (prepubescent females).

### **Retrospective Stability of Sexual Arousal over Lifetime**

Concerning sexual arousal to prepubescent and early pubescent females and males, between 58% and 72% of the sample were aware of this arousal since their puberty. Between 27% and 41% were aware of this arousal since their late twenties (age 29 or 30 years) (Table 2). Assuming that the age of 16 is a rather conservative marker of puberty, this indicates that, on average, the participants have been aware of their pedophilic and hebephilic sexual arousal for a maximum of 22 years (pubertal onset) and a minimum of 8 years (later onset).

## **DISCUSSION**

Retrospective self-reports provided a first impression on the subjectively experienced stability of sexual arousal to minors. The majority of participants experienced sexual arousal during masturbation to prepubescent/early pubescent children since their own puberty. Because the results provided support for the hypothesis of an early onset and subsequent stability of pedo-/hebephilic sexual arousal over the lifespan, the findings of Study 1 were in favor of a conceptualization of pedophilia (and hebephilia) as a sexual age orientation in men as suggested by Seto (2012).

## **STUDY 2**

### **METHOD**

#### **Participants**

Of the 494 participants described in study 1, 121 men were selected based on time-specific requirements between assessments (as described below). The sample characteristics for the present sample were comparable to those of study 1 (see Table 1).

#### **Procedure**

After the intake assessment, individuals who fulfilled the inclusion criteria of the program were contacted and offered group therapy. Treatment was provided in rolling groups with weekly sessions. The duration of treatment was determined individually depending on the participants' needs and averaged approximately 12 - 15 months. The treatment program was based on a guided manual, the *Berlin Dissexuality Therapy Program* (BEDIT; Berlin Institute of Sexology & Sexual Medicine, 2013), and combines cognitive-behavioral, sexological, and medical treatment options. The treatment aimed at establishing behavioral control by

enhancing self-regulation skills and strength-based approaches (for example the *Good Lives Model*). The interventions did not aim at a direct change of pedo-/hebephilic sexual arousal.

Treatment participation required the participants to pass further follow-up assessments. Sexual arousal to prepubescent and early pubescent females and males was measured with the help of QSEB at the following time points:  $T_0$  – intake assessment;  $T_{pre}$  – before treatment;  $T_{int}$  – during treatment (approximately 6 months after  $T_{pre}$ );  $T_{post}$  – directly after finishing treatment; and  $T_{fol}$  – follow-up assessment (at least one year after treatment completion). A data set of  $n = 121$  participants was selected based on the following criteria: 1) a minimum time difference of 12 months between  $T_0$  and a second subsequent assessment; and 2) the last possible subsequent assessment of the individual. This last assessment was named  $T^*$  and consisted of 52  $T_{fol}$ , 35  $T_{post}$ , 12  $T_{int}$ , and 22  $T_{pre}$  assessments. Furthermore, to examine self-reported sexual arousal in a time period with and without treatment, a data set of 31 individuals with complete data from three subsequent assessments ( $T_0$ ,  $T_{pre}$ , and  $T_{post}$ ) was examined.



**Table 2** Estimated age of onset of self-reported sexual arousal to respective sexual age and gender categories ( $N = 494$ )

<i>Sexual arousal during masturbation to...</i>	<b>Puberty onset</b>		<b>Later onset</b>
	<i>n (%)</i>	<i>n (%)</i>	Mean age of onset in years ( <i>SD</i> )
Prepubescent females ( $n = 180$ )	107 (59.4%)	73 (40.6%)	29.2 (9.5)
Prepubescent males ( $n = 129$ )	86 (72.3%)	33 (27.7%)	29.1 (11.2)
Early pubescent females ( $n = 213$ )	124 (58.2%)	89 (41.8%)	30.1 (9.5)
Early pubescent males ( $n = 120$ )	85 (70.8%)	35 (29.2%)	29.3 (10.5)
Adult females ( $n = 225$ )	195 (86.7%)	30 (13.3%)	26.2 (10.7)
Adult males ( $n = 80$ )	53 (66.2%)	27 (33.8%)	27.4 (6.9)

Note: Onset of sexual arousal to body age and gender categories was assessed via the QSEB question “Since when do you experience sexual arousal during masturbation to...” For the response category a) “since puberty” absolute responses are provided. For the second response category, individuals indicated for how many years (or months) the respective arousal is experienced, which was classified as “later onset”. Absolute cases for the “later onset” response category are provided, as well as the estimated mean age of onset. Therefore, the indicated duration of reported arousal was subtracted from the individual’s age at intake assessment.

### Statistical Analysis

The time period in months between two assessments was calculated by subtracting the date of the first assessment from the date of the second assessment and rounding conservatively. The average time differences were as follows: 28.8 months between  $T_0$  and  $T^*$  ( $SD = 13.3$ , range 12 - 83 months), 10.9 months between  $T_0$  and  $T_{pre}$  ( $SD = 7.0$ , range 2 - 22 months), and 13.8 months between  $T_{pre}$  and  $T_{post}$

( $SD = 2.8$ , range 11 - 24 months). Due to the ordinal scale data of the QSEB for the assessment of sexual arousal, nonparametric tests were applied. Spearman's rank correlation coefficient (Spearman's rho) was utilized to measure the relationship between two assessments. The self-reported sexual arousal over time in terms of the within-individual mean-level change was compared using the Wilcoxon-Tests for dependent variables. Additionally, changes in sexual arousal scores between  $T^*$  and  $T_0$  were described and analyzed for the 6 age and gender categories. The distribution of change of self-reported arousal was described by common measures of location and spread. The symmetry of change across all item values was ascertained using the McNemar-Bowker test. A 5% level of significance was chosen for all tests (two-sided) (see Field, 2013). All statistical analyses were determined using IBM SPSS Statistics 22 (<http://www-01.ibm.com/software/de/stats22/>).

## RESULTS

### Comparing Stability over a Maximum Observation Period

Table 3 depicts median scores and inter quartile ranges (IQR) of sexual arousal during masturbation to prepubescent, early pubescent, and adult females and males at two points of assessment ( $T_0$  to  $T^*$ ), as well as z-scores for Wilcoxon tests for dependent samples and Spearman's rho. Rank-order correlations were overall medium to highly positive, ranging from  $\rho = 0.53$  ( $p < .001$ ) for prepubescent females to  $\rho = 0.78$  ( $p < .001$ ) for adult males. Overall, no significant mean-level changes in scores of sexual arousal were observed in the Wilcoxon-Test for related samples.

### Changes between $T_0$ and $T^*$

To depict changes in absolute scores of sexual arousal for each age-gender-category, individuals' levels of arousal at the first point of assessment  $T_0$  (ranging

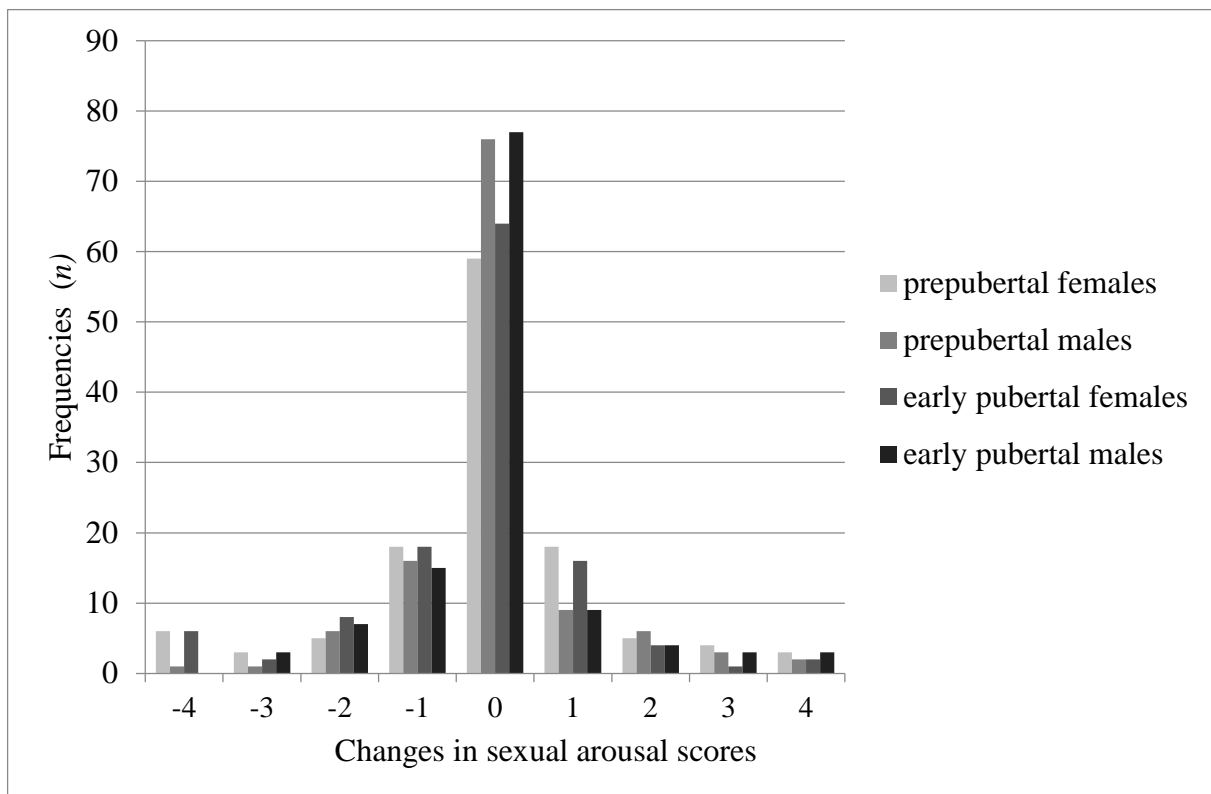
from 1 = not at all arousing to 5 = very arousing) were subtracted from the respective responses at the final point of assessment  $T^*$ . As a result, one variable per age-gender-category containing change scores for each individual was obtained. Scores ranged from -4 (change from maximum arousal at  $T_0$  to no arousal at  $T^*$ ) to +4 (change from no arousal at  $T_0$  to maximum arousal at  $T^*$ ), with 0 representing no change in response. Figure 1 shows the distribution of these mean-level changes for prepubescent and early pubescent females and males. Table 4 reflects the distribution of change between the assessments. Mode and median scores within each age-gender category were zero. Between 78.5% (prepubescent females) and 91.6% (adult males) of the sample showed no change or a minimum change of +/- 1 within the response categories. McNemar-Bowker tests for symmetry of change for  $T_0$ - $T^*$  pairs of age-gender-categories, respectively were not significant, indicating equal distribution of change between all item response categories. None of the  $X^2$ -values reached significance.

**Table 3** Median scores of pedophilic and hebephilic sexual arousal during masturbation at intake assessment ( $T_0$ ) and at the latest subsequent assessment ( $T^*$ ). The  $z$ -values of Wilcoxon-Tests represent within-individual mean-level change, while Spearman's Rho ( $\rho$ ) and corresponding 95%-confidence intervals (CI) quantify between-group correlation of self-reported arousal ( $N = 121$ )

<i>Sexual arousal during masturbation to</i>	$T_0$	$T^*$	$z$	$\rho$	$T_0 - T^*$
	<i>Mdn (IQR)</i>	<i>Mdn (IQR)</i>			<i>CI</i>
Prepubescent females	2 (3)	2 (3)	-0.45	.53***	[.36, .69]
Prepubescent males	2 (3.5)	2 (3)	-0.19	.77***	[.67, .86]
Early pubescent females	3 (4)	3 (4)	-1.88	.64***	[.48, .77]
Early pubescent males	2 (3)	1 (3)	-0.22	.70***	[.57, .81]
Adult females <sup>a</sup>	3 (2)	3 (3)	-0.78	.76***	[.61, .88]
Adult males <sup>a</sup>	1 (1)	1 (1)	-0.46	.78***	[.57, .92]

*Note:* Median (*Mdn*) scores and inter quartile ranges (*IQR*) for dispersion of absolute sexual arousal scores. All  $z$ -scores of Wilcoxon-Tests (two-sided):  $p = n. s.$  Spearman's Rho ( $\rho$ ). Significance (two-sided): \*\*\* $p < .001$ . *CI = Bias-corrected and accelerated (BCa) Bootstrap Confidence Interval (95 % CI-level)*.  $T_0$  = Intake assessment;  $T^*$  = latest subsequent assessment (average time between assessments 28.8 months,  $SD = 13.3$ , range 12-83 months). QSEB scale assessing intensity of sexual arousal: 1 = not at all arousing, 2 = slightly arousing, 3 = moderately arousing, 4 = quite arousing, 5 = very arousing

<sup>a</sup> Sample sizes for adult-categories are reduced with  $n = 59$  cases included



**Fig 1** Distribution of mean-level changes in sexual arousal scores to prepubertal and early pubertal females and males during masturbation within the past 12 months (X-axis) between  $T_0$  and  $T^*$  ( $N = 121$ ) (see Tab. 3 for Wilcoxon statistic). Frequencies of absolute cases on Y-axis. Changes refer to the QSEB scale assessing intensity of sexual arousal at  $T_0$  and  $T^*$ : 1 = not at all arousing, 2 = slightly arousing, 3 = moderately arousing, 4 = quite arousing, 5 = very arousing. A change of '0' refers to no change in self-reported arousal between  $T_0$  and  $T^*$ . Positive scores refer to an increase of reported sexual arousal; negative scores refer to a decrease, respectively.

### Stability over Three Subsequent Assessments

Table 5 depicts median scores and IQR of sexual arousal within two observation periods with and without treatment, as well as z-scores for Wilcoxon tests for dependent samples and Spearman's rho. Rank-order stability in terms of between-group correlations were overall medium to highly positive for both time periods. Correlations ranged from  $\rho = 0.45$  ( $p < .05$ ) to  $\rho = 0.89$  ( $p < .001$ ) for the observation

period without treatment ( $T_0$  to  $T_{pre}$ ), and from  $\rho = 0.64$  ( $p < .001$ ) to  $\rho = 0.95$  ( $p < .001$ ) for the period with treatment ( $T_{pre}$  to  $T_{post}$ ). In addition to one significant reduction of arousal between  $T_0$  and  $T_{pre}$  for arousal to prepubescent males ( $z = -2.41$ ,  $p < .05$ ), no significant mean-level changes in sexual arousal were detected by the Wilcoxon-test.

(See Table 4 and Table 5 below in the annex, p.32-33)

## **DISCUSSION**

Overall, the findings of study 2 imply medium to high rank-order stability in the absence of significant mean-level change for self-reported sexual arousal to fantasies involving prepubescent and early pubescent females and males, as assessed by the QSEB. For a specific period, the only significant change was observed in the category of sexual arousal to prepubescent males, indicating that the sample reported less arousal at the second assessment. Hence, the results provided support for the hypothesis that self-reported pedo-/hebephilic sexual arousal is stable over time.

## **GENERAL DISCUSSION**

The present study was the first to empirically examine the retrospective and prospective stability of self-reported sexual arousal to prepubescent and early pubescent children within a clinical sample of pedophiles and hebephiles voluntarily seeking help. Retrospective self-reports suggested a perceived stability of sexual arousal. The majority of project participants claimed to feel sexually aroused to pre- and early pubescent children in their sexual fantasies during masturbation since their own puberty. In cases of a later onset of pedo-/hebephilic arousal, the remembered point of onset was reported to be between the age of 29 and 30 on average. Overall,

sexual arousal had persisted over multiple years, or, as in most cases, over the entire sexually active period in life. For the prospective investigation of self-reported sexual arousal over time, medium to highly positive rank correlation coefficients were found for all age and gender categories. Within this sample, the correlation coefficients for teleiophilic sexual arousal were similar to the correlation coefficients for pedo-/hebephilic sexual arousal. Somewhat weaker correlations were found for sexual arousal to prepubescent and early pubescent females. Shorter and longer test-retest-intervals seemed to have no influence on the results. Furthermore, the rank-order stability was comparable between the observation periods with and without treatment. With one exception, no significant changes occurred on the individual mean-level of sexual arousal scores between time periods. Overall, these findings suggest that pedophilia and hebephilia are comparable to teleiophilia in that they are highly stable phenomena.

The present findings are in line with clinical findings on the biographically early age of onset of pedophilic sexual arousal (APA, 2013; Bailey et al., 2013; Tozdan & Briken, 2015). While many sexologists estimated the stability of pedo-/hebephilia to be very high based on clinical experience (Beier et al., 2005; Seto, 2012), to date, this has hardly been examined empirically. Müller et al. (2014) provided the only longitudinal empirical investigation of phallometric profiles in pedophilic men. Perhaps their results can also be understood as a relative indicator of stability in pedophilic phallometric profiles, as the psychophysiological assessment did not change above the statistically expected level (Mokros & Habermeyer, 2015).

To adequately evaluate the levels of correlation, one must take into account that the test-retest reliability as well as the correlative stability of traits are heavily context-dependent. Mummendey and Grau (2008) reported values of .80 (or .70 for short questionnaires) to be sufficient for stable, self-reported, non-

performance-based traits. In a comprehensive meta-analysis, Roberts and DelVecchio (2000) reported the rank correlation coefficients of personality traits (the Big Five Traits) to be between .50 and .54 in adults. Hampson and Goldberg (2006) reported correlations between .70 and .79 for a test-retest-interval of 2.8 years regarding the Big Five Traits in adults. The rank-order stability of the level of sexual arousal to body age and gender categories was equally strong within comparable time periods between  $T_0 - T_{pre}$  and  $T_{pre} - T_{post}$ , respectively. Consequently, the stability of pedo-/hebephilic arousal was assumed to be high and therefore comparable with the relative stability of teleiophilic arousal as well as other personality traits. Because a high stability can also be found in samples with great intra-individual absolute changes (Asendorpf, 1992), it is necessary to evaluate possible variations in the mean values to estimate the absolute stability in a given sample (Durbin & Klein, 2006). When applied to our sample, we were not able to detect any differences in the mean-levels of pedophilic and hebephilic sexual arousal within the investigated observation intervals. Neither a significant decrease nor increase in the measured pedo-/hebephilic arousal over time was found.

### **Limitations**

The present study is based on data obtained from retrospective self-reports. Accordingly, the validity of the data is heavily susceptible to intended or unintended distortion by participants. Although we aimed to contain these factors in the selection of the sample as well as in the parameters of data collection, we could not exclude systematic measurement errors. These may have been caused by a lack of awareness of the assessed constructs, socially desirable responding, or other uncontrollable influences. It might also be possible that participants aggravated their pedo-/hebephilic tendencies in the questionnaire to ensure treatment participation. A



sampling bias might lead to an overestimation of stability, as only those individuals who experienced persistent pedo-/hebephilic arousal sought help.

All results are based on a single item per age and gender category of sexual interest. Therefore, we would assume the reliability (e.g., internal consistency) to be comparably low. Face validity suggests differences between sexual age and gender categories concerning age of onset and stability. For example, the correlation coefficients for prepubescent and pubescent females appeared lower compared to those of men. Testing these differences for significance (e.g., by comparing confidence intervals) and discussing their potential clinical relevance was beyond the scope of this study and should be addressed in future publications.

With respect to the longitudinal assessment of self-reported sexual arousal to prepubescent and early pubescent children, the examination was based on a self-identified sample of participants voluntarily undergoing treatment at different points in time during the assessment process. Consequently, a possible – and perhaps indirect – influence of therapeutic interventions on the self-reported arousal could not be excluded, even though therapeutic methods did not aim to affect changes on the level of sexual arousal.

Importantly, the exact constitution of the examined sample requires further consideration. The sample sizes of the different age and gender categories varied widely. To give an example, sexual arousal to female adults was reported far more frequently than arousal to male adults. Furthermore, participants frequently gave multiple responses regarding their sexual arousal to age and gender groups, thereby complicating exact comparisons between groups. In phallometric studies, individuals are mostly allocated to a group based on their maximum sexual arousal. The present approach characterized stability and variability over time within age and gender categories according to sexual arousal in a set sample of diagnosed pedo-

/hebephiles. An investigation of the potential changes in the dominant self-reported sexual arousal category (highest scoring) is planned.

## **Conclusion**

In a clinical sample of pedophilic and hebephilic men from the community who voluntarily sought help, the self-reported sexual arousal to fantasies involving prepubescent and early pubescent children did not change, or only marginally changed, over the observed period. Our findings support a nosological perspective on pedophilia, according to which pedophilic arousal can be understood as a highly stable personality trait comparable to sexual gender orientation. It remains a question of the future as to how far the perception of pedophilia as a sexual age orientation might actually reduce social stigmatization and facilitate access to preventive treatment options. In terms of future research, it would be interesting to also address the onset and stability of corresponding sexual behaviors and to further improve data assessments by combining both prospective psychophysiological data and self-reports.

## REFERENCES

- Ahlers, C. J., Schaefer, G. A., & Beier, K. M. (2004). Erhebungsinstrumente in der klinischen Sexualforschung und der sexualmedizinischen Praxis - Ein Überblick über die Fragebogenentwicklung in Sexualwissenschaft und Sexualmedizin. [Assessment instruments in clinical sexology and sexological research – An overview of questionnaires in sexology and sexual medicine]. *Sexuologie*, 11(3/4), 74–97.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders, DSM-5* (5th ed.). Washington D.C.: American Psychiatric Association.
- Asendorpf, J. B. (1992). Beyond stability: Predicting inter-individual differences in intra-individual change. *European Journal of Personality*, 6(2), 103-117.
- Babchishin, K. M., Nunes, K. L., & Kessous, N. (2014). A multimodal examination of sexual interest in children: A comparison of sex offenders and non-sex offenders. *Sexual abuse: a journal of research and treatment*, 26(4), 343-374.
- Bailey, J. M. (2014). A failure to demonstrate changes in sexual interest in pedophilic men: Comment on Müller et al. (2014). *Archives of Sexual Behavior*, 1-4.
- Bailey, J. M., Hsu, K. J., & Bernhard, P. (2013). *Survey of pedohebephilic men*. Unpublished raw data.
- Beckstead, A. L. (2012). Can we change sexual orientation? *Archives of Sexual Behavior*, 41, 121-134.
- Beier, K. M. (1998). Differential typology and prognosis for dissexual behaviour – A follow-up study of previously expert-appraised child molesters. *International Journal of Legal Medicine*, 111, 133–141.
- Beier, K. M., Ahlers, C. J., Goecker, D., Neutze, J., Mundt, I. A., Hupp, E., & Schaefer, G. A. (2009). Can pedophiles be reached for primary prevention of

- child sexual abuse? First results of the Berlin Prevention Project Dunkelfeld (PPD). *The Journal of Forensic Psychiatry & Psychology*, 20(6), 851-867.
- Beier, K. M., Amelung, T., Kuhle, L., Grundmann, D., Scherner, G., & Neutze, J. (2015). Hebephilia as a sexual disorder. *Fortschritte der Neurologie-Psychiatrie*, 81(3), 128-137.
- Beier, K. M., Bosinski, H. A., & Loewit, K. (2005). *Sexualmedizin*. [Sexual Medicine]. München: Elsevier Urban & Fischer.
- Beier, K. M., Grundmann, D., Kuhle, L. F., Scherner, G., Konrad, A., & Amelung, T. (2015). The German Dunkelfeld project: a pilot study to prevent child sexual abuse and the use of child abusive images. *The Journal of Sexual Medicine*, 12, 529-542.
- Berlin Institute of Sexology and Sexual Medicine (2013). *The Berlin Dissexuality Therapy Program*. Weimar: Gutenberg Druckerei GmbH.
- Blanchard, R. (2010). The DSM Diagnostic Criteria for Pedophilia. *Archives of Sexual Behavior*, 39(2), 304-316.
- Blanchard, R., Kuban, M. E., Blak, T., Klassen, P. E., Dickey, R., & Cantor, J. M. (2012). Sexual attraction to others: A comparison of two models of alloerotic responding in men. *Archives of sexual behavior*, 41(1), 13-29.
- Blanchard, R., Lykins, A. D., Wherrett, D., Kuban, M. E., Cantor, J. M., Blak, T., ... Klassen, P. E. (2009). Pedophilia, hebephilia, and the DSM-V. *Archives of Sexual Behavior*, 38(3), 335-350.
- Cantor, J. M. (2015). Purported changes in pedophilia as statistical artefacts: Comment on Müller et al. (2014). *Archives of Sexual Behavior*, 44(1), 253-254.
- Cohen, L. J., & Galynker, I. I. (2002). Clinical features of pedophilia and implications for treatment. *Journal of Psychiatric Practice*, 8(5), 276-289.

- Dombert, B., Schmidt, A. F., Banse, R., Briken, P., Hoyer, J., Neutze, J., & Osterheider, M. (2015). How common is males' self-reported sexual interest in prepubescent children? *The Journal of Sex Research*, DOI: 10.1080/00224499.2015.1020108.
- Durbin, C. E., & Klein, D. N. (2006). Ten-year stability of personality disorders among outpatients with mood disorders. *Journal of Abnormal Psychology*, 115(1), 75.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage.
- Foote, W. E., & Laws, D. R. (1981). A daily alternation procedure for orgasmic reconditioning with a pedophile. *Journal of behavior therapy and experimental psychiatry*, 12(3), 267-273.
- Freund, K., & Kuban, M. (1993). Toward a testable developmental model of pedophilia: the development of erotic age preference. *Child abuse & neglect*, 17(2), 315-324.
- Hampson, S. E., & Goldberg, L. R. (2006). A first large cohort study of personality trait stability over the 40 years between elementary school and midlife. *Journal of personality and social psychology*, 91(4), 763.
- Hanson, R. K., Steffy, R. A., & Gauthier, R. (1993). Long-term recidivism of child molesters. *Journal of consulting and clinical psychology*, 61(4), 646-652.
- Lalumière, M. L. (2015). The lability of pedophilic interests as measured by phallometry. *Archives of Sexual Behavior*, 44(1), 255-258.
- Laws, D. R., & Marshall, W. L. (1990). A conditioning theory of the etiology and maintenance of deviant sexual preference and behavior. In *Handbook of sexual assault* (pp. 209-229). Springer US.
- Lussier, P. (2015). Juvenile sex offending through a developmental life course criminology perspective: An agenda for policy and research. *Sexual abuse: A Journal of Research and Treatment*. DOI:10.1177/1079063215580966.

- Mann, R. E., Hanson, R. K., & Thornton, D. (2010). Assessing risk for sexual recidivism: Some proposals on the nature of psychologically meaningful risk factors. *Sexual Abuse: A Journal of Research and Treatment*, 22(2), 191-217.
- Marshall, W. A., & Tanner, J. M. (1969). Variations in pattern of pubertal changes in girls. *Archives of disease in childhood*, 44(235), 291.
- Marshall, W. A., & Tanner, J. M. (1970). Variations in the pattern of pubertal changes in boys. *Archives of disease in childhood*, 45(239), 13-23.
- Marshall, W. L. (1997). The relationship between self-esteem and deviant sexual arousal in nonfamilial child molesters. *Behavior Modification*, 21(1), 86-96.
- Marshall, W. L. (2008). Are pedophiles treatable? Evidence from North American studies. *Seksuologia Polska*, 6(1), 39-43.
- Marshall, W. L., O'Brien, M.D., Marshall, L. E. (2009). Modifying Sexual Preferences. *Assessment and Treatment of Sex Offenders: A Handbook. Chapter 17*. In A. Beech, L. Craig, & K. Browne (Eds.). John Wiley & Sons Ltd, 2009.
- Mokros, A., & Habermeyer, E. (2015). Regression to the Mean Mimicking Changes in Sexual Arousal to Child Stimuli in Pedophiles. *Archives of Sexual Behavior*, DOI 10.1007/s10508-015-0652-8.
- Müller, K., Curry, S., Ranger, R., Briken, P., Bradford, J., & Fedoroff, J. P. (2014). Changes in sexual arousal as measured by penile plethysmography in men with pedophilic sexual interest. *The Journal of Sexual Medicine*, 11(5), 1221-1229.
- Mummendey, H. D., & Grau, I. (2008). *Die Fragebogen-Methode. [The Questionnaire-Method]*. Hogrefe Verlag.
- Neutze, J., Seto, M. C., Schaefer, G. A., Mundt, I. A., & Beier, K. M. (2011). Predictors of child pornography offenses and child sexual abuse in a community sample of pedophiles and hebephiles. *Sexual Abuse: A Journal of Research and Treatment*, 23, 212–242. doi: 10.1177/1079063210382043

- Ponseti, J., Granert, O., Jansen, O., Wolff, S., Beier, K., Neutze, J., ... & Bosinski, H. (2012). Assessment of pedophilia using hemodynamic brain response to sexual stimuli. *Archives of general psychiatry*, 69(2), 187-194.
- Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: a quantitative review of longitudinal studies. *Psychological bulletin*, 126(1), 3.
- Schaefer, G. A., Mundt, I. A., Feelgood, S., Hupp, E., Neutze, J., Ahlers, C. J., ... Beier, K. M. (2010). Potential and Dunkelfeld offenders: Two neglected target groups for prevention of child sexual abuse. *International Journal of Law and Psychiatry*, 33(3), 154-163.
- Schmidt, A. F. (2013). Indirekte Messverfahren pädophiler sexueller Interessen – Ein Überblick über empirische Ergebnisse und methodische Implikationen. [Indirect measurement methods of pedophilic sexual interests – An overview of empirical results and methodic implications]. *EFPPP Jahrbuch 2013–Empirische Forschung in der forensischen Psychiatrie, Psychologie und Psychotherapie*, 65-75.
- Seto, M. C. (2008). *Pedophilia and sexual offending against children: Theory, assessment, and intervention*. Washington, DC: American Psychological Association.
- Seto, M. C. (2012). Is pedophilia a sexual orientation? *Archives of Sexual Behavior*, 41(1), 231-236.
- Seto, M. C., Cantor, J. M., & Blanchard, R. (2006). Child pornography offenses are a valid diagnostic indicator of pedophilia. *Journal of Abnormal Psychology*, 115(3), 610-615.
- Tozdan, S., & Briken, P. (2015). The Earlier, the Worse? Age of Onset of Sexual Interest in Children. *The Journal of Sexual Medicine*, 12(7), 1602-1608.

**ACKNOWLEDGEMENTS**

The authors would like to thank Corinne Kaszner for the language revision and the helpful comments on early versions of this manuscript and Robert Röhle for the statistical advice.



**Table 4** Measures for the distribution of change between T<sub>0</sub> and T\* for the reported sexual arousal to fantasies involving respective age-gender-categories (*N* = 121)

<i>Sexual arousal during masturbation to</i>	Changes in sexual arousal scores								<i>X</i> <sup>2</sup> ( <i>df</i> )	<i>p</i>
	mode	median	<i>IQR</i>	0, +/-1	+/-2	+/-3	+/-4			
				<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)			
Prepubescent females	0	0	1.5	95 (78.6%)	10 (8.2%)	7 (5.8%)	9 (7.5%)	11.82 (10)	0.297	
Prepubescent males	0	0	0	101 (84.1%)	12 (10.0%)	4 (3.3%)	3 (2.5%)	7.48 (10)	0.680	
Early pubescent females	0	0	1	98 (81%)	12 (9.9%)	3 (2.5%)	8 (6.7%)	14.36 (10)	0.157	
Early pubescent males	0	0	0	101 (83.4%)	11 (9.1%)	6 (5.0%)	3 (2.5%)	12.20 (10)	0.272	
Adult females <sup>a</sup>	0	0	0	50 (84.8%)	6 (10.2%)	3 (5.1%)	0	9.33 (9)	0.407	
Adult males <sup>a</sup>	0	0	0	54 (91.6%)	4 (6.8%)	0	1 (1.7%)	7.47 (7)	0.382	

*Note:* McNemar-Bowker repeated measures Chi-Square Test for change. All *X*<sup>2</sup>-values of the McNemar-Bowker test are n.s.

QSEB scale assessing the intensity of sexual arousal: 1 = not at all arousing, 2 = slightly arousing, 3 = moderately arousing, 4 = quite arousing, 5 = very arousing. Changes in sexual arousal scores reflect absolute changes in self-reported sexual arousal scores between T<sub>0</sub> and T\*.

<sup>a</sup> Sample sizes for adult-categories are reduced with *n* = 59 cases included.

**Table 5** Median scores of sexual arousal during masturbation to fantasies involving prepubescent and early pubescent children at three subsequent assessments: intake ( $T_0$ ), before treatment ( $T_{pre}$ ) and after treatment ( $T_{post}$ ). The  $z$ -values of Wilcoxon-Tests represent within-individual mean-level change, while Spearman's Rho ( $\rho$ ) quantifies between-group correlation of self-reported arousal ( $n = 31$ )

<i>Sexual arousal during masturbation to</i>	$T_0$	$T_{pre}$	$T_{post}$	$T_0-T_{pre}$		$T_{pre}-T_{post}$	
	<i>Mdn (IQR)</i>	<i>Mdn (IQR)</i>	<i>Mdn (IQR)</i>	<i>z</i>	<i><math>\rho</math></i>	<i>z</i>	<i><math>\rho</math></i>
Prepubescent females	2 (2)	2 (3)	1 (3)	-1.25	.45*	-1.08	.52**
Prepubescent males	3 (4)	1 (3)	2 (4)	-2.41*	.89***	-0.85	.85***
Early pubescent female	2 (3)	3 (3)	2 (4)	-0.52	.64***	-0.53	.62***
Early pubescent males	1 (2)	1 (2)	1 (3)	-1.00	.80***	-0.71	.65***

*Notes:* Median (*Mdn*) scores and inter quartile ranges (*IQR*) for dispersion of sexual arousal scores. *Z*-scores of Wilcoxon-Tests (two-sided):

\* $p < .05$ . Spearman's Rho ( $\rho$ ). Significance (two-sided): \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .  $T_0$  = Intake Assessment;  $T_{pre}$  = Assessment before treatment;

$T_{post}$  = Assessment after treatment. Average time between  $T_0$  and  $T_{pre}$  10.9 months ( $SD = 7.0$ , range 2-22 months); Average time between  $T_{pre}$  and

$T_{post}$  13.8 months ( $SD = 2.8$ , range 11-24 months); QSEB scale assessing the intensity of sexual arousal: 1 = not at all arousing,

2 = slightly arousing, 3 = moderately arousing, 4 = quite arousing, 5 = very arousing