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DISSERTATION

Investigating clinical characteristics of pedophilia and hebephilia via self-reports in a sample of undetected men from the community

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Inhaltsverzeichnis

Summary

Abstract English.....S. 3

Abstract Deutsch.....S. 4

Introduction.....S. 5

Method.....S. 8

Results.....S. 12

Discussion.....S. 20

References.....S. 23

Index of abbreviations.....S. 27

Eidesstattliche Versicherung und ausführliche Anteilserklärung.....S. 28

Druckexemplare der ausgewählten Publikationen

Beier KM, Amelung T, Kuhle L, Grundmann D, Scherner G, Neutze J. Hebephilia as a Sexual Disorder. *Fortschritte der Neurologie · Psychiatrie.* 2015;83(02): e1-e9.....S. 30

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Lebenslauf.....S. 63

Publikationsliste.....S. 65

Danksagung.....S. 67

Summary

“Investigating clinical characteristics of pedophilia and hebephilia via self-reports in a sample of undetected men from the community” (Dorit Grundmann)

Abstract English

Background: The sexual interest in minors with a prepubescent or early pubescent body age, defined as pedophilia or hebephilia, respectively, constitutes a major risk factor for initial and repeated sexual offenses against children, i.e. for child sexual abuse or the use of child abuse images. A sexual interest in minors is often perceived as synonymous with legally relevant problematic sexual behaviors involving minors. As a result, knowledge on pedophilia usually relies on samples of male detected sexual offenders against children. However, many offenses remain undetected by legal authorities in the *Dunkelfeld* (literally ‘dark field’). The inclusion of this subgroup in the research and the use of self-reports outside the forensic context can considerably broaden our understanding of pedophilia and hebephilia.

Aim: The present study aims to investigate and describe clinical characteristics of pedophilia and hebephilia via self-reports in a sample of judicially unknown men from the *Dunkelfeld*.

Method: The target group of men with a sexual interest in pre- and early pubescent minors was encouraged by a media campaign to take part in a treatment program providing anonymity and confidentiality. Drawing on the sample of participants in the project, three separate studies were conducted to investigate 1) if hebephilia can be considered as a distinct sexual phenomenon, 2) the stability of a pedophilic and hebephilic sexual preference, and 3) the effects of treatment on risk factors for problematic sexual behaviors.

Results: Clinical characteristics of pedophilia and hebephilia can be described comprehensively drawing on self-reports by individuals in the *Dunkelfeld*. In our research, hebephilia fulfilled the relevant criteria of a sexual disorder, the stability of a pedo-/hebephilic sexual interest over time, as well as the reduction of forensically relevant risk factors was shown.

Zusammenfassung

“Eine Untersuchung von klinischen Merkmalen von Pädophilie und Hebephilie anhand von Selbstberichten in einer nicht-forensischen Stichprobe” (Dorit Grundmann)

Abstract Deutsch

Hintergrund: Das sexuelle Interesse für Kinder mit einem vor- oder frühpubertäre Körperschema, definiert als Pädophilie bzw. Hebephilie, stellt einen relevanten Risikofaktor für erstmalige und wiederholte Sexualstraftaten gegen Kinder dar, d.h. für sexuellen Kindesmissbrauch und die Nutzung von Missbrauchsabbildungen. Dabei wird ein pädophiles sexuelles Interesse häufig mit strafrechtlich relevantem Verhalten gleichgesetzt. Entsprechend basiert ein Großteil unseres Wissens über Pädophilie als sexuelle Störung auf klinischen Daten von männlichen, verurteilten Sexualstraftätern. Viele Taten werden jedoch juristisch nicht erfasst und die Täter verbleiben im Dunkelfeld. Die Einbindung dieser Subgruppe und die Verwendung von Selbstberichten im nicht-forensischen Kontext kann das Verständnis von Pädophilie und Hebephilie deutlich erweitern.

Ziel: Die vorliegende Arbeit untersucht und beschreibt klinische Merkmale von Pädophilie und Hebephilie unter der Verwendung von Selbstberichtsverfahren in einer Stichprobe von justizunbekannten Männern im Dunkelfeld.

Methode: Die Zielgruppe von Männern mit einem sexuellen Interesse an vor- und frühpubertären Kindern wurde durch eine Medienkampagne auf ein anonymes und durch die Schweigepflicht geschütztes Therapieangebot aufmerksam gemacht. An dieser Stichprobe wurde in drei separaten Studien 1) ein hebephiles sexuelles Interesses als distinktes sexuelles Phänomen, 2) die Stabilität einer pädophilen bzw. hebephilen sexuellen Ansprechbarkeit und 3) die therapeutische Beeinflussbarkeit von Risikofaktoren für problematisches sexuelles Verhalten untersucht.

Ergebnisse: Klinische Merkmale von Pädophilie und Hebephilie können durch die Nutzung von Selbstberichten im Dunkelfeld umfassend dargestellt werden. Dabei erfüllt die Hebephilie Kriterien einer sexuellen Störung und es lassen sich sowohl ein zeitlich stabiler Verlauf pädo-/hebephiler Ansprechbarkeit, sowie die Reduktion von forensisch relevanten Risikofaktoren durch therapeutische Interventionen nachweisen.

INTRODUCTION

Meta-analyses of studies on pedophilia and/or hebephilia in forensic samples found a sexual interest in children to be among the strongest predictors of long-term recidivism among sexual offenders[1]. 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 children[2]. To date, empirical data on the onset, development, or potential remission of a pedophilic or hebephilic sexual interest as well as on specific treatment outcomes are sparse.

Pedophilia and Hebephilia

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[3], and when the individual has acted on these sexual urges or when the sexual urges or fantasies cause marked distress or interpersonal difficulties. 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. Nevertheless, most clinicians and researchers would consider pedophilia to be a persistent sexual interest[4]. Hebephilia, defined as the sexual interest in early pubescent children, is not recognized as a separate diagnostic category in the DSM classification system and therefore cannot specifically be diagnosed. Despite propositions to include hebephilia among mental disorders (e.g.[5,6]) or regard it as a subtype of pedophilia[7], it was not considered in the latest revisions of the DSM classification systems[8].

Sex researchers have proposed a classification of sexual interest according to physical development in children as given by the Tanner scale[9-11]. 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). Studies that relied on objective measures (e.g., phallometry) found mixed forms of sexual interest to be frequent, i.e. a sexual interest in pre- and/or early pubescent children as well as adults[7].

The prevalence of pedophilia in the general population is unknown[12,13], but can be estimated to be approximately 1% in the male population[14]. In an online survey investigating sexual interests among 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 sexual preference[15].

In order to assess the 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 and 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[16]. Psychophysiological methods have found use in judicial and clinical settings (e.g., phallometric assessments or indirect attention based measures; see[17] for an overview), or are in early developmental stages (e.g., fMRI[18]).

Concerning etiological aspects of pedophilia and hebephilia, empirical findings are sparse and controversial. Non-biological approaches mostly rely on early adverse psychosocial experiences[19,20], but rather describe the development of problematic sexual behaviors (instead of an underlying sexual preference). Biological approaches are still heterogeneous and aim to identify single causal factors. The development of a (non-normative) sexual preference is most likely a complex process, including multiple bio-psycho-social factors. Understanding the etiology of a phenomenon has important implications for developing adequate treatment approaches. Briken et al.[21] argued that the DSM lacks a criterion for a potential remission of a pedophilic disorder. Reviewing findings from studies on pedophilic offenders, Seto[22] proposed a conceptualization of pedophilia as a sexual orientation with regard to age comparable to sexual gender orientation and characterized by an early age of onset, associations with sexual and romantic behaviors, and stability over time.

Benefits of the *Dunkelfeld* for Clinical Sexology

Knowledge on pedophilia as a sexual disorder and a risk factor for problematic sexual behaviors towards children has so far been based on samples of detected sexual offenders against children. To draw clinical data on sexual experiences and behaviors from samples of detected offenders is expected to result in inaccurate estimates of the prevalence and etiology of pedo-/hebephilia, thereby complicating the development of treatment programs. First, it must be assumed that the amount of undetected offenses (i.e., CSA and the use of child abuse images (CAI)) outnumbers the official statistics by far[2,23,24], leading to wrong estimates of the prevalence of pedo-/hebephilia. Second, not all sex offenders against children feel sexually attracted to minors and can be classified as pedophiles[13]. To include data from non-preference offenders, for whom the sexual abuse of a child serves as a surrogate for a sexual contact with a partner of similar age[14], might thus distort etiological models of pedo-/hebephilia as clinical phenomena. Overall, these factors impede the exploration of characteristics of pedo-/hebephilia, thereby complicating the development of adequate treatment programs

Therefore, research outside the forensic context is needed. Due to mandatory reporting laws in

most countries, it is difficult to access the group of self-identified, judicially unknown individuals with a sexual interest in children, because self-referred pedophiles are unlikely to seek help on a voluntary basis given the threat of ensuing legal consequences. However, with the existence of the requirement of confidentiality, the legal situation in Germany is favorable, because it enables a protective framework for self-motivated individuals to seek help in a professional environment.

In 2005, the *Prevention Project Dunkelfeld* (PPD) was launched as an approach for the therapeutic prevention of sexual offenses against children. Self-identified, judicially unknown pedophiles and hebephiles were encouraged to seek professional help to avoid committing CSA and using CAI[2]. Providing confidentiality and anonymity and offering professional help, the PPD has generated data from self-reports that may prove more reliable compared to forensic settings and could be of high additive value. Previous studies relying on self-reports usually produced more accurate and even larger numbers of problematic sexual interests and non-reported behaviors[25-27]. Therefore, investigating undetected offenders in the *Dunkelfeld* as well as at-risk individuals with a sexual interest in minors seems to be very promising to better understand pedophilia and hebephilia.

The Present Research

In the present research, we aimed to investigate sexological characteristics of pedo-/hebephilia in a clinical sample of pedophiles and hebephiles. The sample consisted of men from the community voluntarily seeking help for their sexual interest in minors and who were undetected by the legal system at the time of assessment at the project. Three separate research questions were investigated:

(1) Can hebephilia be considered as a distinct sexual phenomenon, i.e. do men with a sexual interest in early pubescent children demonstrate both past problematic sexual behaviors towards children and psychosocial distress and impairment, thereby fulfilling relevant criteria of a sexual disorder?

(2) Can pedophilia and hebephilia be considered as sexual orientations towards age, defined by an early onset of the sexual preference and its stability over lifetime?

(3) Is a specialized preventive community-based treatment offer, adapted from sex offender treatment programs, suitable to help pedophiles and hebephiles reduce their risk for future problematic sexual behaviors?

The three questions were investigated in three separate studies, each with their own sample, procedure, and measure, and each drawing on self-reports.

METHODS

Participants

Each sample was recruited from participants in the Berlin PPD. Study participants were included if they were diagnosed with pedophilia or „paraphilia not otherwise specified“ in cases of hebephilia according to the DSM-IV-TR criteria and if they did not fulfill any of the exclusion criteria (see Procedure). All presented data were approved by the ethics commission of the Charité – Universitätsmedizin Berlin (Charité EK-Vorg. Nr.: 1754/Si. 251).

Study 1: For the investigation of hebephilia as a distinct sexual disorder, *N* = 222 male individuals were selected from a sample of *N* = 629 individuals participating in the PPD between 2005 and 2011. The sample was selected retrospectively and consisted of participants with complete data on the relevant measures[28].

Study 2: To investigate the onset and stability of pedo-/hebephilia, *N* = 494 participants were selected from a sample of 1,907 men who contacted the PPD between 2005 and 2013. Participants were included retrospectively and consisted of those with complete data on a measure of sexual arousal to prepubescent and early pubescent minors. Furthermore, self-reported arousal was investigated prospectively in a sample of *N* = 121 participants with subsequent assessments [29].

Study 3: To evaluate the treatment within the PPD, data of *N* = 53 men who completed the treatment program between 2005 and 2011 were compared to data of *N* = 22 men who were waiting for treatment to begin in a similar time span as treatment duration[30].

Procedure

All three studies used the same procedure to recruit participants. Pedophilic and/or hebephilic men from the community were recruited via an extensive media campaign addressing the problematic sexual interest in minors. Interested individuals contacted the project via email or telephone and were invited to a 90-minute semi-structured clinical interview with a psychologist or medical doctor trained in sexual medicine. During the interview, participants were informed on the nature, content and procedure of the study and gave their written informed consent. A comprehensive sexual history was taken in the clinical interview to assess the individual’s sexual preference based on sexual fantasies during masturbation. The motivation for treatment, the offense history and psychopathology were assessed during the clinical interview. Subsequently, a comprehensive 3-hour questionnaire assessment was used to measure sexual experiences, sexual behaviors and psychological risk factors. All the data collected were anonymized and confidential.

Following the clinical interview, diagnostic data were evaluated in a case conference of at least

two independent raters, rating the presence of inclusion and exclusion criteria for treatment participation. Regarding the inclusion criteria, a pedophilia was diagnosed if, over a period of at least 6 months, the person reported recurrent and intense sexual thoughts, fantasies, or urges involving prepubescent children (Tanner stage 1), 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 (Tanner stages 2 & 3) 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. Criteria leading to the exclusion from the project were ongoing legal proceedings for CSA or use of CAI, an exclusive sexual preference for adults, mental disorders with a need for acute treatment (e.g. acute psychosis or severe depression, suicidality or substance addiction), mental disability, an age below 18 and insufficient German language skills.

Individuals who fulfilled the inclusion criteria of the program were contacted and offered group therapy few weeks after the intake assessment. Applicants who were not included in the treatment program were provided appropriate treatment options outside the context of the PPD. Treatment was provided in closed (between 2005-2011) and rolling groups (2011-present) with weekly sessions of 2 or 3 hours. Treatment lasted for 12 months on average for closed groups or was determined individually depending on the participants' needs and averaged 12 to 18 months. The treatment program was based on a guided manual, the *Berlin Dissexuality Therapy Program* (BEDIT[31]), 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. Treatment participation required the participants to pass further assessments at pre-, post- and follow-up therapy.

Study 1: The prevalence of a hebephilic sexual preference, problematic sexual behaviors and factors associated with distress and risk for CSA were analyzed and compared within the sample of *N* = 222 participants.

Study 2: Among the sample of *N* = 494 individuals, the onset and stability of pedo-/hebephilic arousal over lifetime were investigated. In a subsample of *N* = 121 treatment participants, the stability and variability of sexual arousal to prepubescent and early pubescent minors was investigated over a maximum follow-up period. In another subsample of *N* = 31 participants, the stability and variability of sexual arousal to prepubescent and early pubescent minors was investigated during the treatment process.

Study 3: Utilizing a non-randomized waiting-list control design, a treatment group (TG) of *N* = 53 men was compared to a control group (CG) of *N* = 22 PPD participants on measures of dynamic risk factors (emotional deficits, offense-supportive cognitions, sexual self-regulation deficits) and child abusive behaviors to evaluate change. Within-group comparisons investigated changes in the waiting period or during treatment. Between-group analyses pre- and post-treatment investigated the relevance of changes.

Measures

Various self-report measures were used to assess psychological risk factors for CSA and use of CAI, distress as well as sexual experiences and behaviors.

Study 1: Psychosocial strain and risk factors were assessed using the following tools: The *Brief Symptom Inventory*[32,33] measures subjective impairment in physical and psychological symptoms using 53 items with statements on symptom severity. The items include 9 subscales (somatization, compulsivity, insecurity in social contacts, depression, anxiety, aggressivity/hostility, phobic fear, paranoid thinking, psychoticism) and a global sum score. The *NEO Five Factor Inventory* (NEO-FFI[34]) measures 5 basic factors of personality (neuroticism, extraversion, openness to experiences, agreeableness and conscientiousness) via 60 items. The German Version of the revised *UCLA Loneliness Scale* (UCLA-LS-R[35]) assesses problems ascribed to intimacy deficits and loneliness via 20 items. The *Coping Inventory for Stressful Situations* (CISS[36,37]) assesses emotional-, avoidance-, and task oriented coping styles in response to stress via 24 items. The 38-item *Bumby Molest Scale* (BMS[38]) is a measure of maladaptive cognitions and offense-supportive beliefs about children and sex with children.

Study 2: The *Questionnaire on Sexual Experience and Behavior* (QSEB[39]) is a paper-pencil tool that assesses (among other aspects of sexuality) sexual interests in compliance with ICD-10 and, in part, the DSM-IV-TR diagnostic criteria. Using a single item, sexual interests (i.e., intensity of sexual arousal) in different body ages and gender categories were assessed for prepubescent females and males, early pubescent females and males, and adult females and males for sexual fantasies during masturbation and real-life sexual behaviors. The onset of sexual arousal was assessed via 1 item.

Study 3: For the assessment of dynamic risk factors, self-report instruments were used that cover different risk dimensions. Regarding offense-supportive cognitions: For the BMS, see study 1. The *Empathy Deficits for Children Scale* (EDCS[40]) is a modified German version of the *Child Molester Empathy Measure*[41] that assesses emotional and cognitive empathy deficits for children via 20 and 30 items, respectively. Regarding emotional deficits: The German version of the *Rosenberg Self-Esteem Scale* (RSE[42]) assesses an individual's feelings of worthiness on 10 items. For the UCLA-LS-R, see study 1. The *Hostility Toward Women Scale* (HTW[43]) measures

hostile attitudes towards females via 30 yes/no-items. To assess emotion-oriented coping, the respective 8-item subscale of the CISS was used, (see study 1). The revised *Child Identification Scale* (CIS-R[44]) assesses emotional identification and congruence with minors via 40 statements. Regarding sexual self-regulation deficits: The *Self-Efficacy Scale related to Minors – Coping* (SESM-C[45]) assesses an individual's perceived control over his or her own sexual urges toward children via 20 items, with higher scores indicating greater deficits in coping self-efficacy. The *Coping Using Sex Inventory* (CUSI[46]) measures the extent of sexualized coping via 16 items. For the assessment of sexual preoccupation with pedophilic sexual fantasies, the 4-item inventory *Sexual Behavior Involving Minors Scale – Masturbation Frequency* (SBIMS-MF[45]) was used. Without an association to a risk dimension, the Impression Management subscale of the *Balanced Inventory of Desirable Responding* (BIDR[47]) assesses indicators of socially desirable responding via 10 items.

For the assessment of recent child abusive behaviors: The Child Sexual Abuse subscale of the *Sexual Behavior Involving Minors Scale* (SBIMS-CSA[45]) assesses the occurrence and frequency of CSA-related behaviors within the last 6 months on 3 single items. The *Questionnaire for Sexually Explicit and Non-Explicit Images of Children and Adults* (QSENICA), an unpublished inventory, was applied to assess the frequency of use of sexually explicit and non-explicit images of minors within the last 6 months on 24 items.

Statistical Analyses

All statistical analyses were determined using IBM SPSS Statistics 22 (http://www-01.ibm.com/software/de/stats22/). A 5% level of significance was chosen for all tests (2-sided) (see Field[48]) and was not adapted for multiple testing due to the explorative character of the analyses.

Study 1: Group comparisons were performed using non-parametric tests, i.e., Chi-Square tests and the Kruskal-Wallis-Test. To compare PPD participants with standard or comparative samples on relevant variables, Student's T-tests were calculated.

Study 2: To investigate changes over time in arousal between two assessments, Wilcoxon signed-rank tests for dependent samples were used. The distribution of change was described by measures of location and spread (i.e., median, inter-quartile range). Spearman's rank correlation coefficient (Spearman's Rho) was utilized to measure the relationship of arousal scores between two assessments.

Study 3: Within- and between-group comparisons on dynamic risk factors and sexual behaviors were performed using non-parametric tests: Wilcoxon signed-rank tests for dependent samples and the Mann-Whitney U-Test for independent samples.

RESULTS

Study 1[28]

Investigating the prevalence of a hebephilic sexual interest in *N* = 222 participants in the PPD, 10.8% reported an exclusive and 58.1% reported a non-exclusive (i.e., mixed forms such as hebe-teleiophilia) sexual preference for early pubescent minors (see Table 1). Of these *n* = 153 men with a hebephilic sexual interest, the majority (64%) felt attracted to females, one quarter (25.5%) to males, and 10.5% to both genders. Regarding self-reported lifetime offense history, only 4.6% of the hebephilic sample had not committed any sexual offenses. One third (35.3%) of the sample had used CAI exclusively, 14.4% had committed sexual assaults and a majority (45.8%) reported having used or to be currently using CAI as well as having committed sexual assault. Approximately one fifth of all offenders had been prosecuted for the use of child abuse images (17.7%) and/or the sexual abuse of minors (22.8%) in the past, indicating that the vast majority were therefore not known to the authorities. Furthermore, psychosocial distress was reported by this sample as it is shown by the comparison of preference subtypes to a sample of teleiophilic men. Men with a hebephilic sexual preference showed more emotional loneliness, more offense-supportive attitudes and a higher level of symptom distress compared to teleiophilic men. No differences were found between pedophilic and hebephilic subtypes (see Table 2). Compared to normative or non-clinical samples, men with a sexual preference for early pubescent minors reported more acute symptom severity on all BSI subscales and the *Global Severity Index*. Regarding personality characteristics, hebephiles showed more neuroticism, less extraversion and less openness to experiences compared to normative samples. Concerning risk factors for child abusive behaviors, hebephilic men indicated more emotional loneliness, more use of dysfunctional emotional coping strategies in stressful situations and more problematic attitudes regarding CSA in comparison to non-clinical male samples (see Table 3).

Table 1 Frequency of sexual preference to prepubescent and early pubescent minors in PPD participants (*N* = 222)

	frequency (*n*)	percent (%)
pedophilia	46	20.7
pedo-hebephilia	14	6.3
pedo-teleiophilia	23	10.5
pedo-hebe-teleiophilia	46	20.7
hebephilia	24	10.8
hebe-teleiophilia	69	31.1
total	222	100

Table 2 Kruskal-Wallis -Tests for group comparisons on relevant risk factors following sexual preference diagnostic (*N* = 245)

	Pedophilic (*n* = 46)	Pedo-Hebephilic (*n* = 14)	Pedo-Teleiophilic (*n* = 23)	Pedo-Hebe-Teleiophilic (*n* = 46)	Hebephilic (*n* = 24)	Hebe-Teleiophilic (*n* = 69)	Teleiophilic (*n* = 23)		
Risk factors	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	$\chi^2(6)$	*p*
UCLA – LS	52.11 (12.83)	51.21 (13.29)	49.34 (13.97)	48.33 (10.44)	50.46 (12.80)	45.59 (10.77)	39.65 (12.46)	19.84	0.003
CISS – Emo	25.43 (5.37)	27.79 (5.12)	27.09 (5.30)	26.48 (6.39)	25.79 (5.44)	25.64 (5.76)	24.00 (5.49)	5.87	0.438
BMS	75.24 (20.83)	78.50 (20.59)	69.78 (14.94)	67.28 (18.13)	69.25 (20.01)	65.61 (17.09)	53.00 (16.53)	24.62	0.000
BSI – Global	0.96 (0.56)	1.05 (0.53)	0.95 (0.53)	0.96 (0.55)	1.06 (0.79)	0.80 (0.58)	0.42 (0.28)	22.68	0.001

Please find all abbreviations in the index of abbreviations.

Study 2[29]

In retrospective self-reports concerning characteristics of sexual arousal to minors in 494 participants in the PPD, the majority indicated an early onset of their sexual interest in an age-gender-category. Between 59.4% (early prepubescent females) and 86.7% (adult females) reported to have experienced sexual arousal since puberty. Concerning the late onset of sexual arousal to age-gender-categories, the average age of onset was between 26.2 (adult females) and 30.1 years (prepubescent females) (see Table 4). Considering the average age of this sample of 37.8 years, it can be assumed that participants have been aware of their pedo-/hebephilic arousal for a minimum of 8 years (i.e., late onset) and a maximum of 22 years (i.e., pubertal onset).

In the prospective investigation of the stability of pedo-/hebephilic arousal in N = 121 participants over an observation period of more than 2 years, 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 (see Table 5). Figure 1 depicts changes in absolute scores of sexual arousal between T_0 and T*. 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.

In the prospective investigation of stability in n = 31 participants with data on 3 subsequent assessments, rank-order stability was overall medium to highly positive for both time periods, ranging from $\rho = 0.45$ ($p < .05$) to $\rho = 0.89$ ($p < .001$) for the observation period without treatment (T_0 to T_{pre}, average time 10.9 months, SD = 7.0, range 2-22 months), and from $\rho = 0.64$ ($p < .001$) to $\rho = 0.95$ ($p < .001$) for the period with treatment (T_{pre} to T_{post}; average time 13.8 months, SD = 2.8, range 11-24 months). Besides one significant reduction of arousal between T_0 and T_{pre} for prepubescent males ($z = -2.41$, $p < .05$), no significant mean-level changes in sexual arousal were detected by the Wilcoxon-test.

Table 3 Comparative standard clinical variables and dynamic risk factors for the subsample of men with a hebephilic sexual preference (*N* = 153)

	PPD participants with hebephilic preference	Standard or comparative sample		
	M (*SD*)	*N* (Source)	*M* (*SD*)	*t* (*df*)
Brief Symptom Inventory		300 ([32])		
BSI – General Severity Index	0.91 (0.61)		0.28 (0.23)	15.80*** (448)
NEO – FFI		193 ([48])		
Neuroticism	2.10 (0.76)		1.66 (0.67)	3.58*** (228)
Extraversion	2.00 (0.65)		2.34 (0.56)	3.29** (228)
Openness to Experiences	2.39 (0.52)		2.65 (0.53)	2.74** (228)
Agreeableness	2.44 (0.52)		2.35 (0.52)	0.96 (228)
Conscientiousness	2.43 (0.59)		2.56 (0.62)	1.18 (228)
Dynamic Risk Factors				
UCLA – LS		102 ([35])		
	47.69 (11.34)		37.06 (10.91)	7.44*** (253)
CISS – Emo		505 ([37])		
	26.13 (5.83)		23.12 (5.44)	5.82*** (656)
BMS		30 ([49])		
	67.86 (18.38)		51.80 (10.39)	4.64*** (181)

Note **p < .05; **p < 0.01; ***p<0.001.* Please find all abbreviations in the index of abbreviations.

Figure 1 Distribution of mean-level changes in sexual arousal scores to prepubescent and early pubescent females and males during masturbation within the past 12 months (X-axis) between T_0 and T* (*N* = 121). Frequencies of absolute cases on Y-axis. 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.

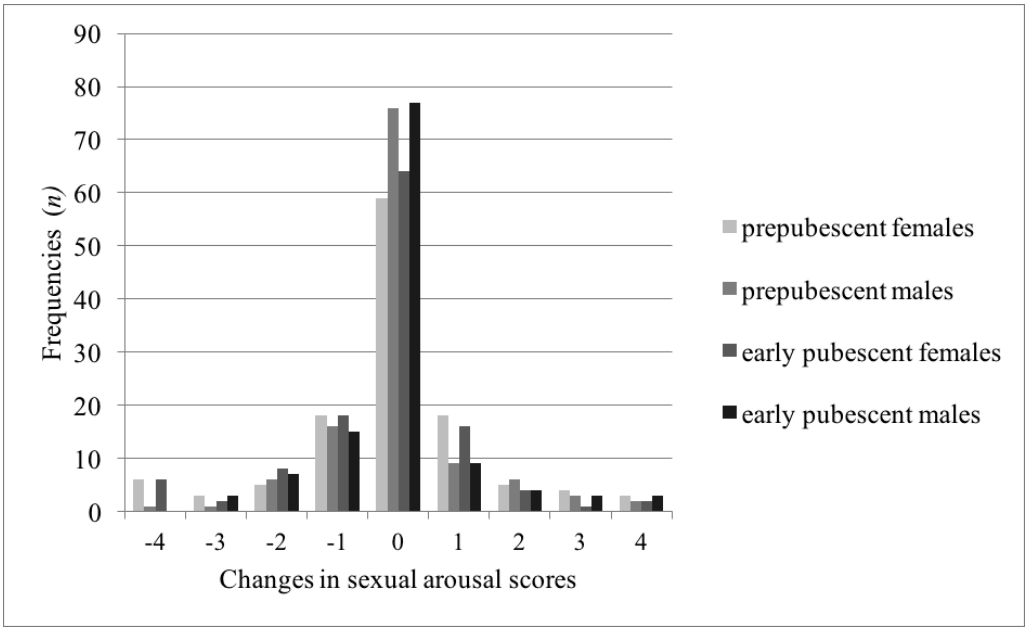

Table 4 Estimated age of onset of self-reported sexual arousal to respective sexual age and gender categories (*N* = 494)

Sexual arousal during	**Puberty onset**	**Later onset**	
masturbation to…	*n* (%)	*n* (%)	Mean age of onset in years (*SD*)
Prepubescent females (*n* = 180)	107 (59.4%)	73 (40.6%)	29.2 (9.5)
Prepubescent males (*n* = 119)	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)

Table 5 Median scores of pedo-/hebephilic sexual arousal during masturbation at intake assessment (T_0) and the latest assessment (T*) (*N* = 121)

Sexual arousal during	**T_0**	**T***		**T_0 – T***	
masturbation to…	*Mdn* (*IQR*)	*Mdn* (*IQR*)	*z*	*ρ*	*CI*
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[a]	3 (2)	3 (3)	-0.78	.76***	[.61, .88]
Adult males[a]	1 (1)	1 (1)	-0.46	.78***	[.57, .92]

Note: Wilcoxon-tests: Z-scores n. s. Spearmans Rho (ρ). Significance (2-sided): ****p* < .001.
Average time between assessments 28.8 months, *SD* = 13.3, range 12-83 months.
[a] Sample sizes for adult-categories are reduced with *n* = 59 cases included.
Please find all abbreviations in the index of abbreviations.

Study 3[30]

The evaluation of a specialized treatment program for pedo-/hebephiles from the community aiming at a reduction of the risk to sexually offend against a child and the reduction of problematic behaviors showed effects in the desired directions. For the comparison of pre- and post-treatment assessments in relevant risk dimensions, significant reductions after treatment were reported in emotional loneliness, emotion-oriented coping, emotional victim empathy deficits, offense-supportive attitudes, coping self-efficacy deficits, and sexual preoccupation (see Table 6). As an unexpected result, treated individuals reported a higher deficit in their self-esteem after treatment. In comparison, no changes were reported for untreated individuals in the control group during the waiting period. At post-assessment, treated and untreated participants differed regarding cognitive victim empathy deficits, with CG individuals showing greater deficits. The investigated treatment change was unequally distributed among the lifetime offender groups (see Table 7). Whereas mixed offenders, i.e. men who reported previous CSA and CAI offenses, demonstrated most benefits and therefore reductions regarding the dynamic risk factors, non-offenders without any lifetime offense history did not change between pre- and post-treatment assessment. However, CSA only offenders showed more changes on relevant risk factors compared to past CAI offenders.

Regarding treatment effects on problematic sexual behaviors towards children, self-reported relapse occurred in terms of child abusive behaviors and the use of CAI during both, treatment period and waiting period (see Table 8). Differences regarding the distribution of relapse and resistance between TG and CG were not significant, nor were the changes in frequencies during the observation periods. Single-item analysis using the SBIMS-CSA revealed a greater frequency and severity of CSA offenses in the CG. However, official recidivism rates, i.e. CSA or CAI cases detected by authorities were 0%. Regarding persistent CSA behaviors, self-reports in questionnaires (SBIMS-CSA) and post-hoc interviews revealed that 5 men were responsible for 2 acts of voyeuristic activities, several occasions of sexualized talking to children and showing pornography, as well as 1 act of intimate body contact and genital fondling. Of these 5 male treatment participants, 4 were lifetime mixed offenders and 2 had previously been detected by the authorities. Regarding the use of CAI, 5 men admitted to the first-time use of CAI, 2 of which had previously been non-offenders and 3 CSA only offenders. Altogether 29 individuals self-reported persistent use of child abusive materials throughout the treatment period, 15 of which were lifetime mixed offenders and 6 previously detected by the authorities.

Table 6 Within- and between-group comparison on dynamic risk factors and sexual behaviors involving minors in TG and CG at pre- and post-assessments

Dynamic risk factors	Treatment group (TG *n* = 53)			Control group (CG *n* = 22)			Pre	Post
	Pre	Post		Pre	Post			
	M (*SD*)	*M* (*SD*)	Z^a	*M* (*SD*)	*M* (*SD*)	Z^a	Z^b	Z^b
Emotional deficits								
RSE	26.02 (6.26)	28.81 (6.19)	**-2.72****	30.13 (6.46)	31.42 (6.39)	-1.21	**-2.14***	-1.43
UCLA-LS-R	50.87 (11.27)	47.00 (12.79)	**-2.62****	45.36 (11.79)	46.09 (11.40)	-0.66	-1.93	-0.21
HTW	41.17 (5.25)	40.21 (4.55)	-1.92	40.27 (5.97)	40.27 (6.03)	0.00	-0.69	-0.18
CISS-emo	27.58 (5.50)	26.15 (5.75)	**-2.27***	23.00 (5.36)	23.68 (4.66)	-0.64	**-3.22****	-1.79
CIS-R	17.98 (6.48)	17.92 (6.90)	-0.61	18.46 (5.58)	18.33 (8.68)	-0.65	-0.28	-0.29
Offense-supportive cognitions								
EDCS-emo	48.16 (18.36)	42.64 (16.99)	**-2.16***	52.45 (18.97)	50.48 (22.17)	-0.77	-0.96	-1.30
EDCS-cog	68.80 (29.07)	63.34 (25.37)	-1.32	77.91 (28.52)	84.70 (33.76)	-1.43	-1.37	**-2.62****
BMS	70.88 (17.11)	63.30 (16.68)	**-4.47****	74.73 (19.33)	72.50 (19.50)	-0.10	-0.46	-1.80
Sexual self-regulation deficits								
SESM-C	40.89 (13.26)	37.28 (13.89)	**-2.49***	38.36 (9.58)	40.41 (16.76)	-0.28	-0.69	-0.71
CUSI	27.33 (8.54)	26.26 (7.71)	-0.80	26.45 (8.66)	25.55 (8.29)	-1.01	-0.33	-0.41
SBIMS-MF	10.74 (4.26)	9.36 (4.08)	**-2.44***	9.82 (4.17)	9.95 (3.79)	-0.18	-0.72	-0.77
BIDR	33.10 (10.76)	32.23 (8.76)	-0.28	33.10 (10.76)	37.33 (7.12)	-0.14	-1.22	-1.57
Recent CSA behaviors	1.14 (0.45)	1.02 (0.10)	-1.84	1.11 (0.27)	1.11 (0.30)	0.00	-0.33	-1.63
Recent CAI use	1.32 (0.55)	1.43 (0.63)	-1.61	1.48 (0.67)	1.60 (0.63)	-0.92	-0.89	-1.27

a. Within-group comparison: Wilcoxon-test, Z-values based on negative or positive ranks, asymptotic significances (2-tailed) are significant at *$p < .05$ and **$p < .01$ for each Z-value.

b. Between-group comparison between TG vs. CG at pre- and post-assessment, respectively: Mann-Whitney U-Tests; Z-values are significant at *$p < .05$ and **$p < .01$ (asymptotic significances; 2-tailed).

Please find all abbreviations in the index of abbreviations.

Table 7 Changes in treatment group on dynamic risk factors by groups based on prior lifetime offending behaviors

	Non-offender (*n*=12)			CAI offender (*n*=16)			CSA offender (*n*=9)			Mixed offender (*n*=16)		
	pre	post	Z	pre	post	Z	pre	post	Z	pre	post	Z
Emotional deficits												
RSE	26.50 (6.90)	28.90 (6.62)	-1.10	25.18 (7.14)	28.78 (7.31)	-1.06	30.22 (4.58)	31.33 (4.24)	-1.02	27.63 (6.97)	29.75 (6.29)	-1.93
UCLA-LS-R	50.43 (10.76)	48.13 (11.17)	-1.56	48.78 (12.94)	48.04 (12.75)	-0.70	46.56 (9.11)	46.40 (9.50)	-0.56	50.00 (11.10)	47.08 (11.45)	**-2.16***
HTW	39.64 (4.89)	40.63 (4.21)	-0.05	39.61 (5.16)	38.52 (4.55)	-0.99	42.11 (6.35)	42.80 (5.87)	-0.24	42.35 (5.65)	40.33 (5.33)	**-2.37***
CISS-emo	25.43 (6.69)	25.75 (5.93)	-1.07	25.48 (5.72)	25.75 (5.77)	-0.21	26.78 (6.98)	24.30 (6.17)	-1.54	27.40 (5.78)	25.29 (5.17)	-1.87
CIS-R	58.14 (6.72)	59.10 (4.63)	-0.98	58.47 (4.81)	58.67 (6.50)	-1.22	56.78 (8.07)	55.56 (6.91)	-0.28	59.12 (6.50)	58.00 (8.96)	-0.56
Offense-supportive												
EDCS-emo	47.79 (19.09)	41.44 (16.99)	-0.53	49.73 (17.12)	45.71 (18.97)	-0.04	37.44 (10.30)	44.80 (12.77)	**-1.96***	52.40 (22.28)	45.00 (21.81)	**-3.68*****
EDCS-cog	60.93 (26.65)	59.56 (27.66)	-0.89	66.36 (27.71)	65.52 (31.08)	-0.43	71.78 (30.15)	63.40 (19.33)	-0.98	84.20 (31.01)	79.35 (27.98)	-1.27
BMS	66.79 (12.94)	64.38 (19.92)	-1.89	70.96 (15.54)	64.96 (14.75)	**-2.55***	73.56 (23.32)	61.30 (20.77)	**-2.38***	77.15 (20.65)	68.58 (17.67)	**-2.12***
Sexual self-regulation deficits												
SESM-C	41.69 (13.52)	36.06 (15.65)	-1.68	39.70 (9.42)	35.58 (11.48)	-1.26	38.00 (15.85)	43.20 (17.48)	-0.70	40.45 (12.57)	37.09 (10.42)	**-2.51***
CUSI	27.21 (11.41)	27.38 (7.92)	-0.83	28.48 (7.37)	26.33 (7.11)	-1.33	23.67 (6.30)	23.50 (6.84)	-0.77	25.40 (8.77)	25.75 (9.09)	-0.13
SBIMS-MF	2.36 (1.20)	2.25 (0.91)	-1.53	2.72 (0.87)	2.49 (0.98)	-0.49	2.47 (1.11)	2.25 (1.20)	-0.10	2.74 (1.33)	2.43 (1.06)	**-2.11***

Notes: Wilcoxon-test, Z-values based on negative or positive ranks, asymptotic significances (2-tailed) are significant at *$p < .05$, **$p < .01$, ***p < .001 for each Z-value. Please find all abbreviations in the index of abbreviations.

Table 8 Relapse and beginning of CSA and CAI offending by lifetime CSA and CAI offenses in the course of treatment (TG *n*=53) and over the waiting period (CG *n*=22)

	Lifetime CSA		No CSA		Lifetime CAI		No CAI	
	TG (*n*=25)	CG (*n*=10)	TG (*n*=28)	CG (*n*=12)	TG (*n*=32)	CG (*n*=17)	TG (*n*=21)	CG (*n*=5)
Relapse	5 (20%)	3 (30%)	-	-	29 (91%)	13 (76%)	-	-
No lapse	20 (80%)	7 (70%)	28 (100%)	12 (100%)	3 (9%)	4 (24%)	16 (76%)	4 (80%)
Beginning	-	-	0 (0%)	0 (0%)	-	-	5 (24%)	1 (20%)
Legally detected offenses	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0 %)	0 (0%)	0 (0 %)	0 (0%)

Notes: χ^2-statistics yielded no significant differences in numbers of relapse and beginning between TG and CG. Please find all abbreviations in the index of abbreviations.

DISCUSSION

In the present research, sexological characteristics of pedophilia and hebephilia were investigated in a clinical sample of men from the *Dunkelfeld* seeking help for their sexual interest in minors. Thereby, hebephilia as a separate sexual disorder, as well as the onset and stability of pedophilia and hebephilia were investigated based on self-reports. Furthermore, the effects of a specialized treatment program for pedophiles and hebephiles were evaluated. It was shown that pedophilia (i.e., the sexual interest in the prepubescent body) and hebephilia (i.e., the sexual interest in the early pubescent body) were two distinct sexual phenomena. Using self-reports in clinical interviews that assessed fantasies accompanying masturbation, about two thirds of males indicated a hebephilic sexual responsiveness, whereas mixed forms (i.e., an additional sexual interest in a prepubescent or adult body) were frequent. Within the subgroup of men with a hebephilic sexual interest, both psychosocial distress or impairment and the risk to harm others were present. The evaluation of respective questionnaires revealed no differences in the characteristics of distress or risk factors between pedophilic and hebephilic subtypes, but differences to the teleiophilic subgroup and to samples of functional male control groups. The investigation of retrospective and prospective self-reports suggested both pedophilia and hebephilia to be relatively stable clinical phenomena. The majority of participants experienced sexual arousal during masturbation to prepubescent and/or early pubescent children since their own puberty. Prospective analyses of self-reported arousal to fantasies involving prepubescent and early pubescent males and females showed medium to high rank-order stability in the absence of significant mean-level changes, implying both an early onset and stability over time of a pedophilic and hebephilic sexual interest. Overall, a specialized treatment offer for men with a sexual interest in minors was shown to reduce psychological risk

factors associated with problematic sexual behaviors towards children. After treatment, men reported less emotional deficits, less CSA-associated cognitions and more sexual self-regulation skills compared to their pre-treatment scores. Treatment-related changes were unequally distributed among lifetime offender groups. High-risk offender subgroups (i.e., lifetime mixed offenders) appeared to have benefited the most. However, overall no statistically significant changes in CSA or CAI behaviors were evident and relapses occurred for both groups. For individuals of the CG, single-item analysis revealed a slightly higher frequency of CSA offenses. Rates of self-reported and undetected problematic sexual behaviors involving minors (20%) and the persistent use of CAI (91%) outnumber the official sexual recidivism data in detected offender samples[51].

Implications from Self-Reports for the Diagnosis and Treatment of Pedo-/Hebephilia

Findings from phallometry research suggested that pedophilia and hebephilia as sexual preferences could be differentiated statistically in samples of males[9]. The present findings extend this clinical differentiation of pedo- and hebephilic sexual preferences described in self-reports in a sample of help-seeking men. Furthermore, empirical evidence was given that the sexual arousal to early pubescent minors is associated with distress, a higher severity of clinical symptoms and legally relevant sexual behaviors. For both self-reported pedo- and hebephilic sexual arousal, a biographically early onset as well as stability over time were evident in the majority of participants. This is in line with other findings from self-reports (e.g.[52,53]). Comparable data on pedophilic arousal in phallometric assessments is sparse[54] and so far does not challenge the assumption of stability in pedophilic patterns[55]. Results from self-reports suggest that pedophilia and hebephilia can be understood as highly stable traits and a classification as sexual orientations toward age as suggested by Seto[22] seems very reasonable. Furthermore, it appears insufficient to include hebephilia under the diagnostic category of pedophilia[56], as empirical findings suggest that hebephilic arousal is a distinct clinical phenomenon. Therefore, it is a shortcoming that suggested modifications of the DSM-5 were ignored, with the result that clinicians still cannot differentiate between the two preferences[3,8]. The present study also implies that undetected men from the community with a pedo-/hebephilic sexual interest are reachable and willing to participate in a specialized and confidential treatment program. Although treatment showed significant improvements on psychological risk factors, indicating a positive impact on the quality of life, results did not allow to interpret a direct association between reduced risk factors and a reduction in actual sexual behaviors. However, analyses suggested that participants in the PPD benefited from treatment depending on their lifetime offense history. Thereby, offenders with the highest recidivism risk and treatment need[57], i.e., mixed offenders and CSA offenders, showed more changes in the desired direction. The lacking effects of the treatment in non- and CAI offenders and apparently iatrogenic treatment effects

such as the first-time use of CAI offending in treatment participants indicate the need to adapt treatment offers to the specific needs of these subgroups.

Limitations

In the present research, the sexual preference structure was only gathered descriptively and no objective measure of sexual preference was included. Furthermore, self-reports on sexual arousal to pedophilic and hebephilic contents were not weighted (e.g., by frequency of occurrence or intensity of arousal). The investigation of prospective stability of sexual arousal did not include any detailed analysis of those individuals who produced changes between assessments. Correlation coefficients have to be interpreted cautiously, because they do not allow for conclusions on stability in an individual participant. The small sample sizes in the evaluation of the specialized treatment offer, the post-hoc assembly of the waiting-list control group and the relatively high rate of treatment dropouts mark the preliminary character of this study. Analyses of persistent CSA behaviors need to be interpreted with particular care. Further, ethical aspects make the recruitment of an actual control group difficult. The lack of adequate comparison groups of teleiophilic men in a non-clinical sample and detected samples of CSA or CAI offenders compound aspects such as comparability and generalizability of results.

Future Directions

The present study tried to adopt a clinical sexology perspective on the sexual preference for minors, usually considered to be a forensic construct. Thereby, questions regarding the diagnosis and treatment of sexual preference disorders were investigated using self-reports in a clinical sample of pedophilic and hebephilic men from the community who voluntarily sought help. From a diagnostic perspective, the additive value of self-reports in understanding pedophilia and hebephilia as well as related offending behavior is remarkable. In future studies, self-report assessments should be combined with objective or indirect measures of sexual interest. Furthermore, the sexual development, as well as the onset and persistence or desistance of sexual offending in pedophiles and hebephiles (see [58]) should be addressed. Rates of reoffending during an observation period with treatment illustrate that persistent, undetected CAI offending is a serious public health issue that needs more public attention and specialized treatment offers (e.g.[31]). Regarding persistent, undetected CSA offending, longer follow-up periods and differentiated analyses regarding the quantity and quality of relapses are needed.

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Index of abbreviations

BMS	The 38-item Bumby Molest Scale
BEDIT	Berlin Dissexuality Therapy Program
BIDR	Balanced Inventory of Desirable Responding
CG	Control Group
CIA	Child Abuse Images
CISS	The Coping Inventory for Stressful Situations
CIS-R	Child Identification Scale – Revised
CSA	Child Sexual Abuse
CUSI	Coping Using Sex Inventory
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders
EDCS	The Empathy Deficits for Children Scale
HTW	Hostility Toward Women Scale
ICD-10	10^{th} Revision of the International Statistical Classification of Diseases and Related Health Problems
NEO-FFI	The NEO Five Factor Inventory
PPD	Prevention Project Dunkelfeld
QSEB	Questionnaire on Sexual Experience and Behavior
Q-SENICA	Questionnaire for Sexually Explicit and Non-Explicit Images of Children and Adults
RSE	German version of the Rosenberg Self-Esteem Scale
SESM-C	Self-Efficacy Scale related to Minors – Coping
SBIMS	Sexual Behavior Involving Minors Scale
SBIMS-MF	Sexual Behavior Involving Minors Scale – Masturbation Frequency
SBIMS-CSA	Sexual Behavior Involving Minors Scale – Child Sexual Abuse subscale
T_0	First Baseline-Measure
TG	Treatment group
T_{pre}	Assessment before the beginning of the treatment program
T_{post}	Assessment after the treatment program
T*	Latest subsequent assessment after T_0
UCLA-LS	German version of the University of California, Los Angeles, Loneliness Scale Revised

Eidesstattliche Versicherung

„Ich, Dorit Grundmann, versichere an Eides statt durch meine eigenhändige Unterschrift, dass ich die vorgelegte Dissertation mit dem Thema: „Investigating clinical characteristics of pedophilia and hebephilia via self-reports in a sample of undetected men from the community“ selbstständig und ohne nicht offengelegte Hilfe Dritter verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel genutzt habe.
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Meine Anteile an den ausgewählten Publikationen entsprechen denen, die in der untenstehenden gemeinsamen Erklärung mit dem Betreuer, angegeben sind. Sämtliche Publikationen, die aus dieser Dissertation hervorgegangen sind und bei denen ich Autor bin, entsprechen den URM (s.o) und werden von mir verantwortet.
Die Bedeutung dieser eidesstattlichen Versicherung und die strafrechtlichen Folgen einer unwahren eidesstattlichen Versicherung (§156,161 des Strafgesetzbuches) sind mir bekannt und bewusst.“

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Datum Unterschrift

Anteilserklärung an den erfolgten Publikationen

Grundmann, Dorit hatte folgenden Anteil an den folgenden Publikationen:

- Beier KM, Amelung T, Kuhle L, **Grundmann D**, Scherner G, Neutze J. Hebephilia as a Sexual Disorder. *Fortschritte der Neurologie · Psychiatrie.* 2015;83(02): e1-e9.

Beitrag im Einzelnen: D. Grundmann war primär für die Datenerhebung und Durchführung sämtlicher Analysen, sowie die Interpretation der Ergebnisse verantwortlich. Sie war neben den Co-Autoren gleichermaßen an der inhaltlichen Ausgestaltung, dem Verfassen und der Revision der Publikation beteiligt.

- Grundmann D, Krupp J, Scherner G, Amelung T, Beier KM. Stability of Self-Reported Arousal to Sexual Fantasies Involving Children in a Clinical Sample of Pedophiles and Hebephiles. Archives of Sexual Behavior. 2016;45(5):1153-1162.

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- Beier KM, Grundmann D, Kuhle LF, Scherner G, Konrad A, Amelung T. The German Dunkelfeld Project: A pilot study to prevent child sexual abuse and the use of child abusive images. *The journal of sexual medicine.* 2015;12(2):529-542.

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Unterschrift, Datum und Stempel des betreuenden Hochschullehrers

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Publikationsliste (chronologisch)

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