

PARAPHILIAS

Hypersexuality and Impulsivity in Self-Referred Men With Sexual Interest in Minors: Are They Related? Do They Change During Treatment? An Exploratory Pilot Study



Ute Lampalzer, PhD, Safiye Tozdan, PhD, Fritjof von Franqué, Dipl.-Psych., and Peer Briken, MD, FECSM

ABSTRACT

Introduction: Studies on characteristics of self-referred men with sexual interest in minors (SIM) and treatment approaches in this group of patients are still relatively rare.

Aim: The aim of this exploratory pilot study was to investigate hypersexuality and impulsivity as 2 dynamic risk factors that could possibly change during treatment in self-referred men with SIM.

Methods: Data were collected at the “Kein Täter Werden (means: not become an offender)” network site in Hamburg. Using self-report questionnaires, the extent of hypersexuality and impulsivity was analyzed with the samples' pretreatment data via descriptive statistics and compared with nonclinical samples of other studies. The relation between hypersexuality and impulsivity was analyzed via Spearman's correlation coefficient with pretreatment data ($N = 77$). Intragroup analysis compared hypersexuality and impulsivity from pre- and posttreatment ($n = 29$).

Main Outcome Measures: Hypersexual Behavior Inventory and Barratt Impulsiveness Scale Version 11.

Results: The degree of generalized impulsivity in the SIM group was comparable to that in nonclinical samples while the degree of hypersexuality was considerably higher than in nonclinical samples. Sixty-four percent of the participants were in the range of clinically relevant hypersexuality. Impulsivity and hypersexuality were weakly positively correlated with each other. During treatment hypersexuality significantly decreased while impulsivity did not differ significantly between before beginning treatment and after (partial) completion.

Conclusion: Hypersexuality, but not impulsivity, was pronounced in the group of self-referred men with SIM and should be targeted in treatment. In order to improve treatment outcome regarding risk reduction in self-referred men with SIM, a focus on treatment approaches that were developed to treat hypersexuality can be expected to be effective while focusing on generalized impulsivity may be less relevant. **Lampalzer U, Tozdan S, von Franqué F, et al. Hypersexuality and Impulsivity in Self-Referred Men With Sexual Interest in Minors: Are They Related? Do They Change During Treatment? An Exploratory Pilot Study. Sex Med 2021;9:100429.**

Copyright © 2021 The Authors. Published by Elsevier Inc. on behalf of the International Society for Sexual Medicine. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Key Words: Hypersexuality; Impulsivity; Pedophilia; Prevention of Child Sexual Abuse; Psychotherapy

INTRODUCTION

In an online survey of 8,718 German males, 4.1% of the participants reported sexual fantasies with children and 3.2% indicated they had perpetrated offenses against prepubescent

children. However, prevalence estimations of pedophilic disorder in this study only revealed <0.1% for the exclusive type and 0.6% for the nonexclusive type.¹ The German network “Kein Täter werden (means: not become an offender)” targets people who seek therapeutic help because they have a sexual interest in minors (SIM) and suffer from it or are at risk of (re-)offending.²

The reduction of dynamic risk factors is a central therapeutic goal in the treatment of people who have committed sexual offenses.^{3,4} Concerning risk reduction, impulsivity and hypersexuality are risk factors that are particularly challenging in combination with pedophilia.⁵ Reducing impulsivity and hypersexuality is also seen as a therapeutic goal for men with pedophilic tendencies from

Received June 20, 2021. Accepted July 28, 2021.

Institute for Sex Research, Sexual Medicine and Forensic Psychiatry, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Copyright © 2021 The Authors. Published by Elsevier Inc. on behalf of the International Society for Sexual Medicine. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.esxm.2021.100429>

undetected cases in the psychotherapeutic treatment program offered by the Prevention Network “Kein Täter werden (means: not become an offender)”. With few exceptions^{6–11} there are no studies yet that investigate the clinical characteristics of this specific group of clients. Thus, it is not clear if these risk factors actually play such an important role for self-referred men with SIM as they definitely do in the group of men who committed child sexual abuse or sexual offenses in general.^{12,13}

Hypersexuality and Impulsivity in Men With SIM

Current research findings give an inconsistent picture on hypersexuality in men with SIM. In a Finish population-based sample, sexual interest in children was associated with higher levels of general sexual desire, a higher frequency of sexual fantasies, as well as more frequent masturbation.¹⁴ This might indicate that men with SIM are more prone to symptoms of hypersexuality than men without SIM.

Other research shows that men with pedophilia who commit sexual offenses show lower levels of self-efficacy for controlling sexual urges than men with pedophilia who do not commit sexual offenses.¹⁵ Furthermore, minor-attracted persons with a history of sexual activity with children have greater difficulty controlling their pedophilic attraction than minor-attracted persons without a history of sexual activity with children.¹⁶ These findings might indicate that men with pedophilia who do not commit sexual offenses are less prone to symptoms of hypersexuality than men with pedophilia who commit sexual offenses. However, this is contradictive to research showing that men with pedophilia who had not committed “hands-on” offenses, but had consumed material depicting the sexual exploitation of children, or so-called indicative pictures, are more likely to have problems with sexual preoccupation and sexual self-regulation than men with contact sex offenses against children.¹⁷ Findings in a sample representative of the German male population indicate that frequent pornography consumption and a wide-spread interest in all kinds of pornography can be interpreted as indications of sex drive, and that men who frequently consume pornography have an increased risk of encountering child pornography.¹⁸ A study that differentiated between pedophilic men with and without a history of child sexual offending and men with a history of child sexual offending without pedophilia, found a lower sex drive in the 2 groups with sexual offenses. However, this result might be due to a tendency for socially desirable responses by the convicted men who were in prison.¹⁰

Findings on impulsivity in men with SIM are more consistent. They indicate that men who have committed a sexual offense against children show more signs of impulsivity than controls, but that they have no predominating impulsive personality traits and are more prone to cluster A pathology than to cluster B pathology.¹⁹ Moreover, they indicate that men with pedophilia who commit sexual offenses seem to be better characterized by aberrant sexual arousal than by features related to impulsive-aggression.²⁰ Neuropsychological research shows that

impairments of men with pedophilia, who have been convicted of a sexual offense against a child, are rather due to processing difficulties than to cognitive impulsivity, that is, longer response latencies rather than short ones.²¹ In a go/no-go task men with pedophilia without a history of sexual offending against children showed more elaborated self-control abilities and a less impulsive response style compared to men with pedophilia with a history of sexual offending against children.²²

A study that differentiated between men who had been convicted of sexual offending against children and who had not been convicted of sexual offending against children revealed no significant differences between these 2 groups regarding impulsiveness.²³ One study, however, that differentiated between men with pedophilia who had committed sexual offenses and who had not committed sexual offenses, found higher impulsiveness in those men who had committed sexual offenses.¹⁰ Another study found 2 clusters of male individuals who had committed a sexual offense against children: The cluster with higher impulsiveness was more likely to have stronger pedophilic interests.²⁴ In a sample of men who were convicted of child abuse, Carvalho found that neither motor-planning impulsiveness nor cognitive impulsiveness significantly predicted pedophilic sexual interest.²⁵ Hence, impulsivity does not seem to be a typical characteristic of men with SIM, or at least only of a subgroup.

Studies with samples of males with hypersexual / sexually compulsive males indicate elevated rates of impulsivity in these individuals compared to healthy controls according to self-report measures.^{26–29} Moreover, research with highly sexually active gay and bisexual men, as well as a community sample, indicates a weak or moderate association between impulsivity and hypersexuality.^{30,31} Hence, for the subgroup of men with both SIM and hypersexual / compulsive sexual behavior, it might hold true that rates of impulsivity are elevated.

The Relationship Between Impulsivity and Hypersexuality

With regard to hypersexuality there is a controversy around how best to classify hypersexual behavior. One proposal is the classification as impulsive sexual behavior. However, the classification as sexual addiction or compulsive sexual behavior is also discussed.^{32,33}

The impulsivity model proposes that hypersexual behavior may represent a failure to resist a sexual activity impulse due to the failure to resist sexual drive and the incapability to delay gratification. This model is criticized because many hypersexual individuals thoroughly plan their sexual activities and because impulsivity and compulsivity both at the same time, and not separately, characterize hypersexuality.^{34,35} The compulsivity model highlights that both hypersexuality and obsessive-compulsive disorder are characterized by repetitive and intrusive thoughts as well as repetition of experiences.^{34,36} The addiction model highlights that clinical features of hypersexuality correspond to the

diagnostic criteria for an addictive disorder, for example, an increase of sexual activity over time, and difficulties to terminate or decrease the sexual activities.³⁵

In the ICD-11, compulsive sexual behavior disorder (as a clinically relevant form of hypersexuality) is included in the group of impulse control disorders on the grounds that there is no definitive information yet on whether there is an equivalence to processes involved in substance use disorders, gambling and gaming.^{36,37} Hypersexuality was discussed, but then rejected by the American Psychiatric Association as a diagnosis for DSM-5.³⁸

A current empirical study shows that a diagnosis of compulsive sexual behavior disorder more likely had a comorbidity with other mood, obsessive-compulsive, and impulse-control disorders, but not with substance use or addictive behavior disorders.³⁹ Another study indicates that impulsivity has a stronger relationship with hypersexuality than compulsivity does.⁴⁰ More research with convincing empirical support is needed in order to determine the most suitable classification of hypersexuality.^{37,41}

Psychotherapeutic Treatment of Hypersexuality and Impulsivity

Unlike hypersexuality that allows for an independent diagnosis per se, impulsivity is a symptom that is common in many mental disorders. Hence, treatment programs that address impulsivity are most often developed for specific mental disorders that are not only characterized by elevated impulsiveness, but also other characteristics, that is, they do not address impulsivity alone. However, some treatment approaches explicitly target impulsivity. For example, there is empirical evidence that cognitive-behavioral treatment for impulsivity,^{42,43} components of acceptance and commitment therapy,^{44,45} and Dialectical Behavior Therapy—Corrections Modified skills treatment groups⁴⁶ reduce impulsivity. More generally, insight-oriented psychotherapy, cognitive-behavioral therapy, dialectic behavior therapy, contingency management, and emotion regulation are described as psychotherapeutic treatment approaches of impulsivity.^{47,48} Transference-focused psychotherapy has also proven to reduce impulsivity.^{49,50}

Central mental disorders characterized by impulsivity are attention-deficit/hyperactivity disorder, antisocial personality and borderline personality disorder, substance abuse/dependence, bipolar disorder, and impulse control disorders.⁴⁸ Several treatment approaches have proven to be successful for single or several of these disorders, for example, mindfulness training,⁴⁹ cognitive-behavioral group therapy^{51–53} dialectic behavior therapy, and mentalization-based therapy.⁵⁴ Preliminary findings indicate a decrease of recidivism in forensic patients with antisocial, borderline, narcissistic, or paranoid personality disorders treated with schema therapy.⁵⁵

For individuals with hypersexuality, several treatment approaches have been outlined.⁵⁶ Blycker and Potenza,⁵⁷ for example, propose a Mindful Model of Sexual Health with an emphasis on awareness of interoceptive processes through mind-

body connection. Braun-Havey and Vigorito's⁵⁸ treatment approach incorporates findings from research on motivational interviewing and readiness-for-change, and advocates sexual health principles. In a summary of treatment approaches, many different ways of treatment are enumerated that are derived from addiction treatment, for example, "dialectical behavioral techniques to manage cravings, relapse prevention strategies, (. . .) referral to appropriate 12-step based recovery groups"⁵⁹ (p. 85). In addition to psychotherapy, pharmacological treatment is widely described as helpful in the context of hypersexuality.^{36,59}

However, empirical studies on the effectiveness of specific treatment programs for hypersexuality are rare or contain significant methodological limitations, such as a lack of rigorous research designs, lack of consistency, and accurate descriptions of the treatments, respectively.^{60,61} However, Hallberg et al^{62,63} conducted 2 studies, one of them a randomized controlled study, with men with hypersexual disorder who took part in a cognitive-behavioral therapy group program. They found that hypersexual disorder symptoms significantly decreased during the course of therapy and that these effects were maintained at 3- and 6-month follow-ups.^{62,63} Using a pretest-posttest group design, Kjellgren⁶⁴ found that in a sample of 27 males and one female seeking help with hypersexual behavior, mental health was significantly improved and hypersexual behavior reportedly reduced after treatment, that is, on average at 10-month follow-up. Treatment was provided by social workers who were trained in therapy and sexology and was mainly based on psychodynamic, cognitive-behavioral, and system-based therapeutic approaches. Further research is needed in order to provide miscellaneous evidence-based treatment approaches for hypersexuality.

The Present Study

As described above, the difficulties of how to define impulsivity and the controversy on how to classify hypersexuality are still ongoing.³³ There is research on both hypersexuality and impulsivity in men with SIM, but mainly only those who have committed offenses.^{16,18} Psychotherapy research investigates hypersexuality mainly in the context of cognitive-behavioral therapy.^{61–63} Psychotherapy of impulsivity is mainly investigated in the context of disorders such as attention deficit hyperactivity disorder (ADHD), substance abuse, impulse control disorders as included in DSM-IV, borderline personality disorder, and antisocial personality disorder, or in the context of mixed diagnoses.^{46,47} To our knowledge, there is no empirical research on how hypersexuality and impulsivity are interlinked in self-referred men with SIM and only one study⁹ analyzes how they are influenced by psychotherapy in this group of patients. Therefore, this exploratory pilot study aims to investigate three research questions:

- (1) Are impulsivity and hypersexuality characteristics that are particularly pronounced in men with SIM?

- (2) Is there a relationship between impulsivity and hypersexuality in men with SIM?
- (3) To what extent do impulsivity and hypersexuality change in men with SIM before and after the (partial) completion of psychotherapeutic treatment? Does hypersexuality change to a different extent in men with SIM who solely receive psychotherapeutic treatment in comparison to men with SIM who receive medication in addition to psychotherapy?

METHODS

Participants

This exploratory pilot study included 79 adult men with SIM who underwent initial diagnostic procedures between autumn 2011 and summer 2019 and then started treatment at the Institute for Sex Research, Sexual Medicine and Forensic Psychiatry. All of them had given their informed consent. Twelve men who had not given their informed consent were not included in the sample. The study was approved by the Ethics Committee of the Chamber of Psychotherapists Hamburg (09/2019-PTK-HH, 02/2015-PTK-HH). Data were prepared and analyzed by 2 researchers (U.L. and S.T.) who work in the research unit of the institute, and were not involved in the processes of treatment indication or psychotherapeutic care.

Table 1 shows the demographic characteristics of the participants. All men fulfilled the following criteria required for participation in the psychotherapeutic treatment program offered by the Prevention Network “Kein Täter werden (means: not become an offender)”:

- not (yet) having offended and/or never having consumed child sexual abuse images, though fearing doing so, or
- already having offended and/or having consumed child sexual abuse images, but not being known to the legal system, or
- previously having been charged with and/or found guilty of relevant offenses and having fully served any sentence received as a result, and fearing committing further offenses.²

Men with mental retardation and/or other severe disorders, that is, psychotic symptoms, obsessive-compulsive symptoms, self-harming behavior, and suicidal thoughts, were not included in the treatment program.

Before beginning the treatment program, every participant underwent an initial diagnostic procedure, that is, diagnostic interviews, a risk assessment, and a comprehensive battery of self-report questionnaires. Subsequently, referral for group vs individual treatment was discussed and decided within the whole therapeutic team (medical doctors and psychologists), based on the information given by the therapist who was responsible for the initial diagnostic procedure.

The treatment program at the Institute for Sex Research, Sexual Medicine and Forensic Psychiatry offers 90 minutes of group

Table 1. Sample characteristics for the total sample ($N = 77$) when undergoing initial diagnostic procedure

Variables	Total ($N = 77$, 100%)	
	N^*	% [†]
Education level		
Less than 10 years	14	18.2
More than 10 years	63	81.8
Employed		
Yes	61	79.2
No	16	20.8
Relationship status		
In a relationship	38	49.4
Currently single	39	50.6
Living alone		
Yes	37	48.1
No	40	51.9
Own children		
Yes	18	23.4
No	59	76.6
Self-reported exclusiveness (Interest is . . .)		
. . . exclusively in children	11	14.3
. . . not exclusively in children	65	84.4
. . . not specified	1	1.3
Self-reported age group attracted to		
Prepubertal (pedophile)	1	1.3
Pubertal (hebephile)	3	3.9
Prepubertal and pubertal (pedophile and hebephile)	9	11.7
Prepubertal and adult (pedophile and teleiophile)	4	5.2
Pubertal and adult (hebephile and teleiophile)	25	32.5
Prepubertal, pubertal and adult (pedophile, hebephile, and teleiophile)	34	44.2
Not specified	1	1.3
Diagnosis of pedophilia according to ICD-10 (F65.4)		
Yes	72	93.5
No	5	6.5
Self-reported sexual orientation		
Attracted to males	13	16.9
Attracted to females	47	61.0
Attracted to both sexes	16	20.8
Not specified	1	1.3
Self-reported prior lifetime sexual offenses [‡]		
Non-offending	5	6.5
Child sexual abuse only	7	9.1
Child pornography use only	42	54.5
Mixed offenses	23	29.9
Previously known to justice [‡]		
Child pornography offenses	10	13.0
Child sexual abuse offenses	5	6.5
Child pornography and child sexual abuse offenses	1	1.3
Not previously known to justice	61	79.2

*Absolute share in the sample.

[†]Percentage share in the sample.

[‡]Status when entering the treatment program.

treatment led by 2 group therapists weekly, or individual treatment sessions every 1 or 2 weeks. The treatment approach is based on the risk-need-responsivity model: (i) Treatment intensity is adapted to risk of (re-)offending. (ii) Treatment is focused on the main needs, that is, the 3 main dynamic risk factors that cause the individual's modifiable risk of (re-)offending, for example, in the realm of relationship problems, or criminogenic cognitions. (iii) Referral to group vs individual treatment, choice of

therapeutic technique, and indication of psychiatric treatment or medication besides psychotherapy are adjusted to the individual's responsivity factors, for example, social anxiety and social skills, antisocial personality disorder and psychopathy, self-esteem, and intelligence. In the initial phase of therapy treatment motivation, treatment goals, and biography work are focused. The intermediate phase is characterized by working on risk factors and behavioral change, especially abuse related attitudes, sexual self-regulation, awareness and handling of risk situations, emotional congruence with children, hypersexuality and sexual urges, enhancement of coping strategies, increase in interpersonal skills, and empathy. Relapse prevention, possible support groups, and development of future plans are subject of the final phase.⁴

Participants underwent a final voluntary diagnostic procedure after having completed the treatment program. This final diagnostic procedure contained the same questionnaires as the initial diagnostic procedure, except for some updates.

Only those men who had filled in both questionnaires, 19-item Hypersexual Behavior Inventory (HBI-19) and Barratt Impulsiveness Scale Version 11 (BIS-11), in the initial diagnostic procedure were included in the analysis. For this reason, 2 participants were excluded. The final sample consisted of 77 participants. Their age ranged from 19 to 61 years ($M = 36.42$, standard deviation [SD] = 11.09). One participant did not indicate his age. In addition to psychotherapy, 28 (36%) of these 77 participants received medication (18 received selective serotonin reuptake inhibitors, 9 received antipsychotics, 4 received tricyclic antidepressants, 2 received selective serotonin noradrenalin reuptake inhibitors, 2 received mood stabilizers, 1 received a GnRH agonist, and 1 received a monoamine oxidase (MAO) inhibitor). Twenty-nine (38%) participants were still in treatment, and 48 (62%) had partly or fully completed the treatment program. 29 (60%) of these participants, who had partly or fully completed the treatment program, had completed the final diagnostic procedure. These 29 men were included into pre-post comparison analysis. Their treatment duration ranged from 7 to 67 months ($M = 31.55$, $SD = 15.36$). Seven (24%) of these 29 men who were included into pre-post comparison analysis were treated with medical drugs in addition to psychotherapeutic treatment (6 received selective serotonin reuptake inhibitors, 1 received an antipsychotic, 1 received a tricyclic antidepressant, and 1 received a mood stabilizer). In the final diagnostic procedure, the HBI-19 was completed by 26 participants and the BIS-11 by 28 participants.

Measures

BIS-11. The BIS-11⁶⁵ is a self-report questionnaire which assesses impulsiveness. It contains 30 items that are answered on a 4-point scale. Its factor structure consists of 3 second-order factors and 6 first-order factors: *Attentional Impulsiveness* (8 items: *Attention* [5 items, eg, "I concentrate easily"] and *Cognitive Instability* [3 items, eg, "I often have extraneous thoughts when

thinking"]), *Motor Impulsiveness* (11 items: *Motor* [7 items, eg, "I act on the spur of the moment"] and *Perseverance* [4 items, eg, "I change jobs"]), and *Nonplanning Impulsiveness* (11 items: *Self-Control* [6 items, eg, "I am a careful thinker"] and *Cognitive Complexity* [5 items, eg, "I get easily bored when solving thought problems"]). Total scores range from 30 to 120. Cronbach's alpha of the English version is 0.82 for the total score.⁶⁵ Cronbach's alpha of the German version is 0.69 for the total score.⁶⁶

HBI-19. The HBI-19⁶⁷ is a self-report questionnaire designed to measure hypersexuality via 3 factors: *Control* (8 items, eg, "I engage in sexual activities that I know I will later regret"), *Coping* (7 items, eg, "Sex provides a way for me to deal with emotional pain I feel"), and *Consequences* (4 items, eg, "I sacrifice things I really want in life in order to be sexual"). Each item is rated on a 5-point Likert-type scale. Total scores range from 19 to 95. Its English version has a Cronbach's alpha for the total score of 0.96.⁶⁷ Its German version has a Cronbach's alpha for the total score of 0.95–0.96.⁶⁸

Statistical Analysis

In the initial diagnostic procedure, the HBI-19 was completed by 76 participants and the BIS-11 by 73 participants. First, sociodemographic data were analyzed via descriptive statistics (mean values, median, standard deviation, and range). Second, the relation between hypersexuality and impulsivity before treatment, that is, between HBI-19 total score and BIS-11 total score of the initial diagnostic procedure, was analyzed using the Spearman's correlation coefficient as variables were ordinally scaled.⁶⁹ Third, a paired-samples *t*-test was performed, as the data were normally distributed, to compare hypersexuality, that is, HBI-19 total score, and impulsivity, that is, BIS-11 total score, between initial and final diagnostic procedure.⁷⁰ Taking the small sample size into consideration, Wilcoxon signed-rank tests were carried out to run an exploratory analysis in order to compare scores between initial and final diagnostic procedure.⁷¹ Fourth, an independent samples *t*-test was performed to compare the difference between HBI-19 total score of the initial diagnostic procedure and HBI-19 total score of the final diagnostic procedure of patients with an indication for psychotherapy only and patients with an indication for medication in addition to psychotherapy, as data were normally distributed.⁷⁰ Significance was set at a value less than 0.05. All statistical analyses were conducted using SPSS (Version 27.0. IBM Corp. Released 2020. IBM SPSS Statistics for Macintosh, Armonk, NY).

RESULTS

Scores of BIS-11 and HBI-19 in the Participants

The mean of BIS-11 total score was $M = 61.92$ ($SD = 10.30$; $Mdn = 62$; range 40–110). Only 11.1% participants can be classified as highly impulsive, with a BIS-11 total score greater or equal to 72.⁷² The mean of the HBI-19 total score was $M = 55.97$ ($SD = 14.96$; $Mdn = 59$; range 25–84) (Table 2).

Table 2. Descriptive statistics BIS-11 and HBI-19 ($n = 77$)

	M	SD	Mdn	Range	n	\geq Cut-off* (n (%))	M (SD) of nonclinical samples
BIS-11							
Total score	61.92	10.30	62	40–110	72	8 (11.1%)	62.8 (9.2) [†] 63.64 (10.08) [‡] 64.2 (10.7) [§] 64.94 (10.19)
Attentional Impulsiveness	16.49	3.57	16	10–31	74	-	16.8 (3.9) [†] 17.2 (3.9) [§]
Motor Impulsiveness	21.13	4.20	21	14–40	76	-	22.4 (3.4) [†] 22.1 (4.4) [§]
Nonplanning Impulsiveness	24.07	4.81	24	14–39	74	-	23.6 (4.5) [†]
HBI-19							
Total score	55.97	14.96	59	25–84	75	48 (64.0%)	24.9 (5.1) [§] 34.2 (14.5) [¶] 33.9 (10.46) [‡]
Coping	19.57	6.37	20	7–31	77	-	-
Control	26.19	8.12	28	10–39	75	-	-
Consequences	10.27	3.95	10	4–19	77	-	-

*There is no definite cut-off score for BIS-11. Individuals with a total score of 72 or above can be classified as highly impulsive.⁷³ The cut-off for HBI-19 is 53.⁷⁴

[†]For a subsample of male college students and male participants from the community.⁷³

[‡]For a subsample of male undergraduates.⁷⁵

[§]For a male and female convenience sample.⁷⁶

^{||}For a subsample of male undergraduates.⁷⁷

[¶]For combined samples of male and female healthy controls.⁷⁴

[‡]For a sample of male and female online participants.⁷⁸

Sixty-four percent of the participants scored at or above the cut-off score of 53⁶⁷ for clinical hypersexuality.

Relationship Between BIS-11 and HBI-19

A Spearman's correlation was run to determine the relationship between BIS-11 total score and HBI-19 total score. There was a weak, positive monotonic correlation between BIS-11 total score and HBI-19 total score ($r_s = 0.25$, $n = 71$, $P = .035$).

In a further exploratory analysis, a Spearman's correlation was run to determine the relationship between BIS-11 total score and HBI-19 total score in the sample of participants who scored at or above the cut-off point for clinical hypersexuality ($n = 47$). There was no significant correlation between BIS-11 total score and HBI-19 total score.

Pre-Post Comparison of BIS-11 and HBI-19

A paired-samples t -test indicated that HBI-19 total score was significantly lower after (partial) completion of treatment

($M = 46.52$, $SD = 15.30$) than before beginning treatment ($M = 56.76$, $SD = 16.49$), $t(24) = 2.91$, $P = .008$, $d = -0.64$. But no statistical difference exists between BIS-11 total score before beginning treatment ($M = 60.41$, $SD = 8.08$) and BIS-11 total score after (partial) completion of treatment ($M = 59.30$, $SD = 9.51$), $t(26) = 0.63$, $P = .532$, $d = -0.13$ (Table 3).

An independent samples t -test revealed that the difference between HBI-19 total score in pretest and HBI-19 total score in post-test was not significantly different for participants with an indication of medication in addition to psychotherapy ($M = 11.33$, $SD = 11.22$) than for participants with an indication of psychotherapy only ($M = 9.89$, $SD = 19.43$), $t(23) = -0.17$, $P = .487$, $d = 0.07$ (Table 4).

In a further exploratory analysis, a paired-samples t -test showed that there was no statistical difference between the scores on BIS-11 subscales and HBI-19 Coping subscale before beginning treatment and after (partial) completion of treatment. The

Table 3. Results of paired-samples t -test and descriptive statistics for total score BIS-11 and HBI-19 ($n = 29$)

Outcome	Pre-test		Post-test		n	95% CI for mean difference	t	P	df	Effect size d	95% CI for effect size
	M	SD	M	SD							
BIS-11	60.41	8.08	59.30	9.51	27	-2.49, 4.72	0.63	.532	26	-0.13	-0.66, 0.41
HBI-19	56.76	16.49	46.52	15.30	25	2.98, 17.50	2.91*	.008*	24	-0.64*	-1.21, -0.08

BIS-11 = Barratt Impulsiveness Scale Version 11; HBI-19 = Hypersexual Behavior Inventory.

* $P < .05$.

Table 4. Results of independent samples *t*-test for HBI-19 by indication of medication in addition to psychotherapy (*n* = 29)

Outcome	Group						95% CI for mean difference	<i>t</i>	<i>P</i>	<i>df</i>	Effect size <i>d</i>	95% CI for effect size
	Psychotherapy only			Psychotherapy + medication								
	ΔM	SD	<i>n</i>	ΔM	SD	<i>n</i>						
HBI-19	9.89	19.43	19	11.33	11.22	6	-18.84, 15.96	-0.17	.487	23	0.07	-0.84, 1.00

HBI-19 = Hypersexual Behavior Inventory; ΔM = Difference between HBI-19 total score in pre-test and HBI-19 total score in post-test.

score on HBI-19 Consequences subscale was considerably lower after (partial) completion of treatment ($M = 8.46$, $SD = 3.45$) than before beginning treatment ($M = 10.29$, $SD = 4.08$), $t(27) = 2.61$, $P = .015$, $d = -0.48$, but was not significant after Bonferroni-correction. With Bonferroni-corrected P value, the score on HBI-19 Control subscale was significantly lower after (partial) completion of treatment ($M = 19.26$, $SD = 8.02$) than before beginning treatment ($M = 26.52$, $SD = 8.96$), $t(26) = 4.29$, $P < .001$, $d = -0.85$ (Table 5).

Moreover, a further exploratory analysis with the sample of the participants who scored at or above the cut-off point for clinical hypersexuality before beginning treatment ($n = 18$) was carried out. A Wilcoxon signed-rank test indicated that HBI-19 total score was significantly lower after

(partial) completion of treatment ($Mdn = 46.5$) than before beginning treatment ($Mdn = 64.5$), $T = 1$, $z = -3.47$, $P = .001$, $r = -0.60$, that HBI-19 Coping subscale was significantly lower after (partial) completion of treatment ($Mdn = 17.5$) than before beginning treatment ($Mdn = 23$), $T = 3$, $z = -2.51$, $P = .012$, $r = -0.43$, that HBI-19 Control subscale was significantly lower after (partial) completion of treatment ($Mdn = 22$) than before beginning treatment ($Mdn = 31$), $T = 0$, $z = -3.62$, $P < .001$, $r = -0.61$, and that HBI-19 Consequences subscale was significantly lower after (partial) completion of treatment ($Mdn = 8$) than before beginning treatment ($Mdn = 13$), $T = 1$, $z = -3.16$, $P = .002$, $r = -0.53$ (Table 6). No further exploratory analysis with a sample of participants with high impulsivity was

Table 5. Results of paired-samples *t*-tests and descriptive statistics for subscales BIS-11 and HBI-19 (*n* = 29)

Outcome	Pre-test		Post-test		<i>n</i>	95% CI for mean difference	<i>t</i>	<i>P</i>	<i>df</i>	Effect size <i>d</i>	95% CI for effect size	
	M	SD	M	SD								
BIS-11												
Attentional Impulsiveness	16.00	3.23	15.42	3.15	26	-0.63, 1.78	0.99	.333	25	-0.18	-0.73, 0.36	
Motor Impulsiveness	20.86	2.72	20.89	3.87	28	-1.36, 1.29	-0.06	.956	27	0.01	-0.52, 0.53	
Nonplanning Impulsiveness	22.96	4.50	23.28	4.33	25	-2.00, 1.36	-0.39	.697	24	0.07	-0.48, 0.63	
HBI-19												
Coping	19.73	6.47	19.12	7.02	26	-1.96, 3.19	0.49	.627	25	-0.09	-0.63, 0.45	
Control	26.52	8.96	19.26	8.02	27	3.78, 10.74	4.29*	<.001*	26	-0.85*	-1.41, -0.30	
Consequences	10.29	4.08	8.46	3.45	28	0.39, 3.25	2.61	.015	27	-0.48	-1.02, 0.05	

BIS-11 = Barratt Impulsiveness Scale Version 11; HBI-19 = Hypersexual Behavior Inventory.

*The level of significance ($P < .05$) was obtained after Bonferroni adjustment ($0.05/4 = 0.0125$).

Table 6. Results of Wilcoxon signed-rank tests for HBI-19 of participants with clinical hypersexuality (*n* = 18)

Outcome	Pre-test				Post-test				<i>Z</i>	<i>P</i>	Effect size <i>r</i>	
	M	SD	Mdn	<i>n</i>	M	SD	Mdn	<i>n</i>				
HBI-19												
Total score	66.72	8.32	64.5	18	47.81	14.67	46.5	16	-3.47*	.001*	-0.60*	
Coping	22.00	5.88	23	18	18.19	5.83	17.5	16	-2.51*	.012*	-0.43*	
Control	32.00	4.03	31	18	20.88	7.55	22	17	-3.62*	<.001*	-0.61*	
Consequences	12.72	2.65	13	18	8.88	3.74	8	17	-3.16*	.002*	-0.53*	

HBI-19 = Hypersexual Behavior Inventory.

*The level of significance ($P < .05$) was obtained after Bonferroni adjustment ($0.05/4 = 0.0125$).

done because only one participant had a BIS-11 total score before beginning treatment that was greater or equal to 72.

DISCUSSION

Impulsivity and Hypersexuality in Self-Referred Men With SIM

Impulsivity, as measured by BIS-11 total score, was not specifically pronounced in this sample of self-referred men with SIM. The mean of BIS-11 total score and the means of BIS-11 subscale scores were comparable to those of participants in studies with non-clinical samples, mainly with students^{10,65,72,77,79} (Table 2). This result is also comparable to that of the study of Engel et al⁹ with a sample of male patients who participated in the psychotherapeutic treatment program offered by the Prevention Network “Kein Täter werden (means: not become an offender)” in 2 other network sites. 82.8% of the patients in the treatment group had BIS-11 total scores which were within the normal limits of impulsivity.⁹ In the current exploratory pilot study only 11.1% of the participants could be classified as highly impulsive, that is, even less participants were outside the upper normal limit than in the study of Engel et al.⁹

Hypersexuality, as measured by HBI-19 total score, was considerably higher in the current exploratory pilot study with self-referred men with SIM than in other studies with nonclinical samples^{67,68} (Table 2). The mean score in the current sample ($M = 56.17$, $SD = 14.96$) was only slightly lower than the mean score of a sample with hypersexual disordered individuals⁶⁷ who yielded total HBI-19 scores of $M = 66.3$ ($SD = 15.6$). However, nonclinical samples only yielded HBI-19 scores of $M = 34.2$ ($SD = 14.5$) or $M = 33.9$ ($SD = 10.46$), respectively.^{67,68}

The majority of the participants of the present exploratory pilot study (64.0%) could be categorized as patients with a clinically relevant hypersexuality, that is, the majority scored at or above the cut-off point of 53. Estimated prevalence in the general population differs between studies. It ranges from 3% to 16.8%.⁷⁴ In a Swedish sample of 2,450 subjects from the general population, 12% of males indicated hypersexuality.⁷⁸ In the effective sample of 8,718 individuals of a large population-based online study, 12.1% of men were classified as hypersexual on the basis of a total sexual outlets/week of ≥ 7 .¹⁸ In a nationally representative study of the United States the prevalence of distress associated with difficulty controlling sexual urges, feelings and behaviors—measured by the Compulsive Sexual Behavior Inventory—was 10.3% among men.⁸⁰ Hence, hypersexuality is strongly overrepresented in the current sample of self-referred men with SIM. This result is comparable to, but even more pronounced than in the study of Engel et al,⁹ whose sample consisted of male patients who participated in the psychotherapeutic treatment program of “Kein Täter werden (means: not become an offender)”. Engel et al⁹ reported that 52.6% of the patients in the treatment group scored higher in HBI-19 than the cut-off point of greater or equal to 53. The mean score of the treatment

group yielded $M = 54.05$ ($SD = 17.28$), compared to $M = 56.17$ ($SD = 14.96$) in the current sample.

The overrepresentation of clinical hypersexuality in this exploratory pilot study's sample of men with SIM may support the hypothesis that individuals with hypersexual behavior tend to find deviant sexual stimuli more and more interesting over the course of time, and are therefore prone to consume paraphilic material sooner or later.⁸¹ However, nonparaphilic hypersexual disorder is not uncommon,⁸¹ ie, not all individuals with hypersexual behavior develop paraphilic interests. Vice versa, as the present exploratory pilot study shows, not all individuals with paraphilic interests, such as SIM, are also characterized by hypersexual behavior. Further research is needed in order to investigate what moderates the relationship between hypersexuality and SIM.

With regard to the present findings, therapeutic interventions with a focus on the treatment of hypersexuality seem to be indicated for this group of patients because, in itself and even more critical in combination with pedophilia, it is a major risk factor for (re-)offending.⁵ Techniques in psychotherapeutic interventions for hypersexual behavior, among others, focus on impairment in social and occupational functioning, negative mood states, and lack of control.⁶⁰ However, research on the efficacy of the existing treatment approaches is still in its very beginning.^{36,61}

Moreover, in every treatment it has to be considered that hypersexuality is a complex phenomenon that can be traced back to diverse predispositions and be associated with various risk factors, for example, dysregulated sexual inhibition / sexual exhibition or maladaptive coping mechanism, that differ individually.³¹ Last but not least, individuals with SIM are a heterogeneous group, which also has to be taken into account when planning treatment goals. For instance, men with mixed offenses showed to be a particularly high-risk group,¹⁷ minor-attracted persons with a history of sexual activity with children indicated more antisocial traits than those without sexual activity with children,¹⁶ and men with contact sexual offenses reported a higher ratio of child pornography to adult pornography than men with noncontact sexual offenses.⁸²

The Relationship Between Impulsivity and Hypersexuality

In the current sample of self-referred men with SIM, there was only a weak positive correlation between BIS-11 total score, that is, impulsivity, and HBI-19 total score, that is, hypersexuality, before the start of treatment. Apart from this, an exploratory analysis with the sample of patients with clinically relevant hypersexuality, that is, with a HBI-19 total score equal to or above 53, indicated no significant correlation between impulsivity (BIS-11 total score) and hypersexuality (HBI-19 total score) at all. As described above, the current state of research on the relationship between impulsivity and hypersexuality is still insufficient. The current exploratory pilot study

contributed to these findings by analyzing a sample of self-referred men with SIM that is, as described above, also characterized by a high ratio of hypersexuality.

The results of the current exploratory pilot study run counter to studies indicating elevated rates of impulsivity in males with hypersexual / sexually compulsive behavior.^{26–29,67} They correspond to the findings of Mulhauser et al,⁷³ who only found a trend toward significance when comparing hypersexual and nonhypersexual males according to their level of impulsivity. The results also correspond to the findings of Reid et al who showed that only around 50% of treatment-seeking hypersexual individuals presented elevated impulsivity in self-report measures.^{29,75}

The present exploratory pilot study queries the impulsivity model of hypersexuality and supports the argument that “other taxa [than generalized impulsivity] may also explain hypersexuality”⁷⁶ (p. 2237); or that, as Reid et al⁸³ suggest, not generalized impulsivity, but more a context-specific form of impulsivity that is related to the behavior domain of sexuality, might be predominant in hypersexual disorder. The dual control model gives an explanation that implies such a context specificity regarding the behavior domain of sexuality.³⁶ It posits that sexual arousal and related behaviors are determined by an interaction between sexual excitation and sexual inhibition, and that individuals vary in their propensity for both of these processes. Research indicates, for example, that individuals with sexual addiction have significantly higher sexual excitation scores than an age-matched control-group, but do not differ in their sexual inhibition scores. However, when divided into “compulsive masturbators” and those having sex with other people, those having sex with other people had significantly lower scores on the Inhibition Due to Threat of Performance Consequences scale (SIS2) than the control group and the “compulsive masturbators,” but not on the Inhibition Due to Threat of Performance Failure scale (SIS1).⁸⁴ Against this background, hypersexuality may be regarded as a sex-specific lack of sexual self-control.³⁶

Change in Impulsivity and Hypersexuality Between Before Start of Treatment and After (Partial) Completion of Treatment

Hypersexuality, as measured by HBI-19 total score, was significantly reduced after (partial) completion of treatment, compared to the time before start of treatment. However, there was no significant change of impulsivity, as measured by BIS-11 total score, between before start of treatment and after (partial) completion of psychotherapeutic treatment. This is in accordance with the result that Engel et al⁹ report in their study with a sample of men treated in the program offered by the Prevention Network “Kein Täter werden (means: not become an offender)” in Hannover and Regensburg. In their comparison of treatment group before and after therapy, they found no statistically

significant difference in BIS-11 total score, but a significant reduction of HBI-19 total score.⁹

Considering the fact that treatment approaches in the Prevention Network “Kein Täter werden (means: not become an offender)” are based on sexual therapy [cf. 2,4,85], these results can be explained by the focus of treatment on sexuality-related issues. It is very likely that therapists and patients discuss problems concerning (hyper-)sexuality much more often than difficulties associated with generalized impulsivity. And on the assumption that more treatment intensity regarding a certain issue leads to greater treatment effects, it seems plausible that HBI-19 total score was significantly reduced, whereas BIS-11 total score was not.

Treatment approaches in the Prevention Network have a particular focus on risk factors, as they are also based on the treatment of men having committed offenses [cf. 2,4,85]. As general impulsivity was not particularly pronounced in the current sample of self-referred men with SIM, it seems plausible that it was not regarded as a specifically relevant risk factor, thus was not specifically focused on in treatment and therefore not reduced after (partial) completion of treatment.

The HBI-19 total score did not differ significantly between men who received medication in addition to psychotherapy and men who solely received psychotherapeutic treatment. Maybe men who receive medication have certain individual characteristics, for example, more complex psychiatric disorders, less treatment motivation, or broader symptoms of hypersexuality, that offset the hypersexuality-decreasing effect of their pharmacological treatment when compared to men with an indication for psychotherapy only.

With regard to the subscales, an exploratory analysis revealed that compared to before start of treatment, the HBI-19 Control subscale score was significantly reduced, the HBI-19 Consequences subscale score was considerably—however not significantly—reduced, and the HBI-19 Coping subscale score was not statistically different after (partial) completion of treatment. Like BIS-11 total score, BIS-11 subscale scores indicated no significant change between before start of treatment and after (partial) completion of psychotherapeutic treatment. An exploratory analysis with the sample of patients with clinical hypersexuality, that is, with a HBI-19 total score equal to or above 53, indicated that compared to before start of treatment, the HBI-19 Coping, Control and Consequences subscale scores were significantly reduced after (partial) completion of psychotherapeutic treatment.

It seems reasonable to focus most strongly on the aspect of control concerning hypersexuality, that is, deficits to control sexual fantasies and behavior,⁶⁸ because little control may imply a high risk of (re-)offending.⁸⁶ This might explain why the HBI-19 Control subscale score was significantly reduced after (partial) completion of treatment in the whole sample. From a general

perspective of psychotherapy, it seems reasonable to put a focus on undesired consequences of hypersexuality, because they are probably strongly associated with psychological strain for the patients. Moreover, hypersexuality can be a risk factor if undesired consequences are related to (re-)offending. This might explain why the HBI-19 Consequences subscale was at least considerably reduced in the whole sample, and was significantly reduced in the subsample of patients with clinical hypersexuality. The aspect of coping with regard to hypersexuality, that is, the use of sexual behaviors as a coping mechanism for stress management or reducing unpleasant affective states,⁶⁸ seemed to be least targeted in treatment—maybe because sex as a coping mechanism was regarded as a less relevant risk factor than sex as a problem of control, and because sex as a coping strategy was not so strongly associated with psychological strain. It was not statistically altered in the whole sample.

LIMITATIONS

The generalizability of the present findings is limited because of the sample size of only 77 participants in the whole sample and only 29 participants in the sample for pre-post comparison. Furthermore, it is restricted because of the inherent characteristics and institutional context of the “Kein Täter Werden (means: not become an offender)” network site in Hamburg (Institute for Sex Research, Sexual Medicine and Forensic Psychiatry). Besides that, the data and maybe specific characteristics of the 12 patients who had not provided their informed consent are not represented in the findings of this exploratory pilot study. Last but not least, the sample of the present study was a selective sample; there surely was a selection bias of highly motivated patients. The results are not generalizable to all men with pedophilia, not to all men with pedophilia not known to the legal system, not to all men with pedophilia not involved in ongoing legal proceedings, and not to men with pedophilia treated in nonforensic outpatient settings. However, the sample in this exploratory pilot study is a rare sample collected over 8 years, which demands attention from a clinical perspective.

Regarding validity, our results are limited due to the exclusive use of self-report measurements with forced-choice categories. The latter may simplify answers and/or distort information because of the specific choice sets given. The clients' self-report was not validated by objective measures. Thus, our data might be influenced by social desirability and the measures are tied to the participants' insights and self-perceptions.²⁴ They might also be influenced by the desire of clients, especially those with long duration in treatment, to prove to themselves an adequate effect of their treatment. In addition, data of the participants who received medication might be affected by the (individually) specific influence of their medication on (hyper-)sexuality and/or impulsivity.

Their self-reported degree of hypersexuality and/or impulsivity might be reduced because of the actual effects of their medication on these dynamic risk factors, or via placebo effects.

Furthermore, impulsivity is not a precise construct in the literature.^{42,47,83} It can be conceptualized and measured in different ways.⁸³ There is consensus that it is a multidimensional construct. Among other things, authors differentiate between extraverted and psychotic impulsivity, functional and dysfunctional impulsivity, or reward-discounting/cognitive impulsiveness, motor-impulsiveness of rapid-response and nonplanning impulsiveness.⁴⁷ Measures of impulsivity either are self-report measures (eg, Barratt Impulsiveness Scale) or behavioral measures (eg, lab-based approaches that compute errors of commission in a go/no-go task).^{26,83} The different measures are only modestly correlated.⁸³ In the present study impulsivity was measured by the BIS-11 which only assesses the personality/behavioral construct of impulsiveness.⁷² Thus, impulsiveness was not considered in its multidimensionality, for example, a lab-based approach was not part of this exploratory pilot study.

The comparison with nonclinical samples for investigating the question if impulsivity and hypersexuality are particularly pronounced in men with SIM is not matched for the participants of this exploratory pilot study. Standard values of norm samples are not available, neither for BIS-11 nor for HBI-19. However, the comparisons with nonclinical samples indicate clearly enough that hypersexuality, but not impulsivity, seems to be elevated in our sample. In the first case the mean values are very different from each other (with a difference of the mean values of more than 20 and a possible total score between 19 and 95), in the second case the mean values are very similar to each other (with a difference of the mean values of not more than 3 and a possible total score between 30 and 120).

In the statistical analyses, no control variables were included in order to keep the analyses simple. In future studies, one could, for example, control for age, stability of social environment, stability of mental state, treatment duration, and treatment frequency because these variables might influence the self-report measures of hypersexuality and/or impulsivity. In further studies with larger samples, mediation and moderation analyses could be conducted, for example, concerning the influence of age or treatment duration. Moreover, the research design for analyzing treatment did not include a control condition and randomized assignment. Hence, “selection bias, expectancy, regression to the mean, maturation, or spontaneous recovery”⁶¹ (p. 303), as well as social desirability or self-affirmation of treatment success might have caused lower HBI-19 total scores in the final diagnostic procedure. Thus, the findings can only be seen as preliminary results. Further research, especially “a co-ordinated multisite study with an adequate control group and sample size”⁸⁷ (p. 611), is needed.

CONCLUSION

The psychotherapeutic treatment approach in Hamburg of the Prevention Network “Kein Täter werden (means: not become an offender)” seems to target hypersexuality. Hypersexuality is known as a core risk factor for (re-)offending. It was considerably above average in the current sample of men with SIM and only weakly associated with generalized impulsivity which, besides that, was not elevated above average in this sample. In order to target a relevant risk factor in self-referred men with SIM, a focus on treatment approaches that were developed to treat hypersexuality can be expected to be more effective than a focus on approaches that target generalized impulsivity. In the end, every treatment has to be adapted to suit the individual patient, as the scattering of the HBI-19 and BIS-11 total scores shows that impulsivity and hypersexuality is relevant for some, but not for all patients. The present findings have to be replicated in a larger sample and with several measures of impulsivity in order to do justice to the multidimensionality of impulsiveness. Further research on the role of the context-specific form of sexual impulsivity is also needed.

ACKNOWLEDGMENTS

We would like to thank all participants for giving their informed consent to analyze and publish their data. We would like to thank the therapists of the Institute for Sex Research, Sexual Medicine and Forensic Psychiatry for collecting the data in their outpatient treatment center. Moreover, we would like to thank Samantha-Insine Schroeder, M.Sc., for English proofreading.

Corresponding Author: Ute Lampalzer, PhD, Institute for Sex Research, Sexual Medicine and Forensic Psychiatry, University Medical Center Hamburg-Eppendorf, Martinistraße 52, Hamburg D-20246, Germany.; E-mail: u.lampalzer@uke.de

Conflict of Interest: The authors declare that they have no conflict of interests.

Funding: None.

STATEMENT OF AUTHORSHIP

Ute Lampalzer: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing - original draft, Writing - review and editing; Safiye Tozdan: Data curation, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing - review and editing; Fritjof von Franqué: Data curation, Investigation, Project administration, Resources, Validation, Writing - review and editing; Peer Briken: Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing - review and editing.

REFERENCES

1. Dombert B, Schmidt AF, Banse R, et al. How common is men's self-reported sexual interest in prepubescent children? *J Sex Res* 2016;53:214–223.
2. Netzwerk “Kein Täter werden”. lieben sie kinder mehr, als ihnen lieb ist? 2018. Available at: <https://www.kein-taeter-werden.de/betroffene>. Accessed October 1, 2020.
3. Briken P. Von den Möglichkeiten des Unmöglichen – Indikatoren für eine erfolgreiche Therapie von Kindesmissbrauchstätern [The possibilities of the impossible – Indicators of a successful therapy of child sexual offenders]. In: Stompe T, Schanda H, editors. Sexueller Kindesmissbrauch und Pädophilie. Grundlagen, Begutachtung, Prävention und Intervention – Täter und Opfer [Child Sexual Abuse and Pedophilia. Basics, Prevention and Intervention – Perpetrators and Victims]. 2nd ed Berlin: Medizinisch Wissenschaftliche Verlagsgesellschaft; 2017. p. 179–184.
4. Briken P, Berner W, Flöter A, et al. Prävention sexuellen Kindesmissbrauchs im Dunkelfeld – das Hamburger Modell [Prevention of child sexual abuse out of the criminal law context – The Hamburg Model]. *Psychother Psychosom Med Psychol* 2018;68:142–161.
5. Briken P, Hill A, Berner W. Syndrome sexueller Sucht [Syndromes of sexual addiction]. In: Batthyány D, Pritz A, editors. Rausch ohne Drogen. Substanzungebundene Süchte [Intoxication Without Drugs. Non-Substance Addictions]. Wien: Springer; 2009. p. 219–238.
6. Beier KM, Neutze J, Mundt IA, et al. Encouraging self-identified pedophiles and hebephiles to seek professional help: First results of the Prevention Project Dunkelfeld (PPD). *Child Abuse Negl* 2009;33:545–549.
7. Beier KM, Ahlers CJ, Goecker D, et al. Can pedophiles be reached for primary prevention of child sexual abuse? First results of the Berlin Prevention Project Dunkelfeld (PPD). *J Forens Psychiatry Psychol* 2009;20:851–867.
8. Beier KM, Grundmann D, Kuhle LF, et al. The German Dunkelfeld Projekt: A pilot study to prevent child sexual abuse and the use of child abusive images. *J Sex Med* 2015;12:529–542.
9. Engel J, Körner M, Schuhmann P, et al. Reduction of risk factors for pedophilic sexual offending. *J Sex Med* 2018;15:1629–1637.
10. Gerwin H, Weiß S, Tenbergen G, et al. Clinical characteristics associated with paedophilia and child sex offending—Differentiating sexual preference from offence status. *Eur Psychiatry* 2018;51:74–85.
11. Wild TSN, Müller I, Fromberger P, et al. Prevention of sexual child abuse: Preliminary results from an outpatient therapy program. *Front Psychiatry* 2020;11:88.
12. Kingston DA, Bradford JM. Hypersexuality and recidivism among sexual offenders. *Sex Addict Compulsivity* 2013;20:91–105.
13. Krasowska A, Jakubczyk A, Czernikiewicz WM, et al. Impulsivity in sexual offenders? New ideas or back to basics? *Psychiatr Pol* 2013;47:727–744.

14. Santtila P, Antfolk J, Råfså A, et al. Men's sexual interest in children: One-year incidence and correlates in a population-based sample of Finnish male twins. *J Child Sex Abus* 2015;24:115–134.
15. Jahnke S, Schmidt AF, Geradt M, et al. Stigma-related stress and its correlates among men with pedophilic sexual interests. *Arch Sex Behav* 2015;44:2173–2187.
16. Cohen LJ, Ndukwe N, Yaseen Z, et al. Comparison of self-identified minor-attracted persons who have and have not successfully refrained from sexual activity with children. *J Sex Marital Ther* 2018;44:217–230.
17. Babchishin KM, Hanson RK, VanZuylen H. Online child pornography offenders are different: A meta-analysis of the characteristics of online and offline sex offenders against children. *Arch Sex Behav* 2015;44:45–66.
18. Klein V, Schmidt AF, Turner D, et al. Are sex drive and hypersexuality associated with pedophilic interest and child sexual abuse in a male community sample? *PLoS One* 2015;10:e0129730.
19. Cohen LJ, Gans SW, McGeoch PG, et al. Impulsive personality traits in male pedophiles versus healthy controls: Is pedophilia an impulsive-aggressive disorder? *Compr Psychiatry* 2002;43:127–134.
20. Cohen LJ, Frenda S, Mojtabai R, et al. Comparison of sexual offenders against children with sexual offenders against adolescents and adults: Data from the New York State Sex Offender Registry. *J Psychiatr Pract* 2007;13:373–384.
21. Cohen LJ, Nesci C, Steinfeld M, et al. Investigating the relationship between sexual and chemical addictions by comparing executive functions in pedophiles, opiate addicts and healthy controls. *J Psychiatr Pract* 2010;16:405–412.
22. Kärge K, Massau C, Weiß S, et al. Evidence for superior neurobiological and behavioral inhibitory control abilities in non-offending as compared to offending pedophiles. *Hum Brain Mapp* 2017;38:1092–1104.
23. Gibbels C, Sinke C, Kneer J, et al. Two sides of one coin: A comparison of clinical and neurobiological characteristics of convicted and non-convicted pedophilic child sexual offenders. *J Clin Med* 2019;8:947.
24. Baltieri DA, Boer DP. Two clusters of child molesters based on impulsiveness. *Braz J Psychiatry* 2015;37:139–145.
25. Carvalho J. Pedophilic sexual interest in convicted child sexual offenders: The predictive role of psychopathology and personality dimensions. *J Forensic Med Forecast* 2018;1:1001.
26. Miner MH, Raymond N, Mueller BA, et al. Preliminary investigation of the impulsive and neuroanatomical characteristics of compulsive behavior. *Psychiatry Res* 2009;174:146–151.
27. Engel J, Veit M, Sinke C, et al. Same same but different: A clinical characterization of men with hypersexual disorder in the sex@brain study. *J Clin Med* 2019;8:157.
28. Miner MH, Romine RS, Raymond N, et al. Understanding the personality and behavioral mechanisms defining hypersexuality in men who have sex with men. *J Sex Med* 2016;13:1323–1331.
29. Reid RC, Bramen JE, Anderson A, et al. Mindfulness, emotional dysregulation, impulsivity, and stress proneness among hypersexual clients. *J Clin Psychol* 2014;70:313–321.
30. Pachankis JE, Rendina HJ, Ventuneac A, et al. The role of maladaptive cognitions in hypersexuality among highly sexually active gay and bisexual men. *Arch Sex Behav* 2014;43:669–683.
31. Walton MT, Cantor JM, Lykins AD. An online assessment of personality, psychological, and sexuality trait variables associated with self-reported hypersexual behavior. *Arch Sex Behav* 2017;46:721–733.
32. Kafka MP. Hypersexual disorder: A proposed diagnosis for DSM-V. *Arch Sex Behav* 2010;39:377–400.
33. Stein DJ, Szatmari P, Gaebel W, et al. Mental, behavioral and neurodevelopmental disorders in the ICD-11: An international perspective on key changes and controversies. *BMC Med* 2020;18:21.
34. Cioccia G, Solano C, D'Antuono L, et al. Hypersexuality: The controversial mismatch of the psychiatric diagnosis. *J Psychopathol* 2018;24:187–191.
35. Duarte Garcia F, Thibaut F. Sexual addictions. *Am J Drug Alcohol Abuse* 2010;36:254–260.
36. Briken P. An integrated model to assess and treat compulsive sexual behavior disorder. *Nat Rev Urol* 2020;17:391–406.
37. Kraus SW, Krueger RB, Briken P, et al. Compulsive sexual behavior disorders in the ICD-11. *World Psychiatry* 2018;17:109–110.
38. Reid RC, Kafka MP. Controversies about hypersexual disorder and the DSM-5. *Curr Sex Health Rep* 2014;6:259–264.
39. Fuss J, Briken P, Stein DJ, et al. Compulsive sexual behavior disorder in obsessive-compulsive disorder: Prevalence and associated comorbidity. *J Behav Addict* 2019;8:242–248.
40. Bóthe B, Kovács M, Tóth-Király I, et al. The psychometric properties of the Hypersexual Behavior Inventory using a large-scale nonclinical sample. *J Sex Res* 2019;56:180–190.
41. Derbyshire KL, Grant JE. Compulsive sexual behavior: A review of the literature. *J Behav Addict* 2015;4:37–43.
42. Bear RA, Nietzel MT. Cognitive and behavioral treatment of impulsivity in children: A meta-analytical review of the outcome literature. *J Clin Child Adolesc Psychol* 1991;20:400–412.
43. Kendall PC, Finch AJ. A cognitive-behavioral treatment for impulsivity: A group comparison study. *J Consult Clin Psychol* 1978;46:110–118.
44. Morrison KL, Madden GJ, Odum AL, et al. Altering impulsive decision making with an acceptance-based procedure. *Behav Ther* 2014;45:630–639.
45. Morrison KL, Smith BM, Ong CW, et al. Effects of acceptance and commitment therapy on impulsive decision-making. *Behav Modif* 2020;44:600–623.
46. Shelton D, Sampl S, Kesten KL, et al. Treatment of impulsive aggression in correctional settings. *Behav Sci Law* 2009;27:787–800.

47. Amorim Neto R, True M. The development and treatment of impulsivity. *Psico* 2011;42:134–141.
48. Moeller FG, Barratt ES, Dougherty DM, et al. Psychiatric aspects of impulsivity. *Am J Psychiatry* 2001;158:1783–1793.
49. Doering S, Hörz S, Rentrop M, et al. Transference-focused therapy v. treatment by community psychotherapists for borderline personality disorder: Randomised controlled trial. *Br J Psychiatry* 2010;196:389–395.
50. Perez DL, Vago DR, Pan H, et al. Frontolimbic neural circuit changes in emotional processing and inhibitory control associated with clinical improvement following transference-focused psychotherapy in borderline personality disorder. *Psychiatry Clin Neurosci* 2016;70:51–61.
51. Schag K, Rennhak SK, Leehr EJ, et al. IMPULS: Impulsivity-focused group intervention to reduce binge eating episodes in patients with binge eating disorder—A randomised controlled trial. *Psychother Psychosom* 2019;88:141–153.
52. Grant JE, Donahue CB, Odlaug BL. Treating Impulse Control Disorders: A Cognitive-Behavioral Therapy Program. Therapist Guide. New York, NY: Oxford University Press; 2011.
53. Hague B, Hall J, Kellett S. Treatments for compulsive buying: A systematic review of the quality, effectiveness and progression of the outcome evidence. *J Behav Addict* 2016;5:379–394.
54. Kulacaoglu F, Kose S. Borderline personality disorder (BPD): In the midst of vulnerability, chaos, and awe. *Brain Sci* 2018;8:201.
55. Bernstein DP, Nijman HLI, Keulen-de Vos M, et al. Schema therapy for forensic patients with personality disorders: Design and preliminary findings of a multicenter randomized clinical trial in the Netherlands. *Int J Forensic Ment Health* 2012;11:312–324.
56. Kaplan MS, Krueger RB. Diagnosis, assessment, and treatment of hypersexuality. *J Sex Res* 2010;47:181–198.
57. Blycker GR, Potenza MN. A mindful model of sexual health: A review and implications of the model for the treatment of individuals with compulsive sexual behavior disorder. *J Behav Addict* 2018;7:917–929.
58. Braun-Harvey D, Vigorito MA. Treating Out of Control Sexual Behavior. Rethinking Sex Addiction. New York, NY: Springer; 2015.
59. Rosenberg KP, Carnes P, O'Connor S. Evaluation and treatment of sex addiction. *J Sex Marital Ther* 2014;40:77–91.
60. von Franqué F, Klein V, Briken P. Which techniques are used in psychotherapeutic interventions for nonparaphilic hypersexual behavior? *Sex Med Rev* 2015;3:3–10.
61. Hook JN, Reid RC, Penberthy JK, et al. Methodological review of treatments for nonparaphilic hypersexual behavior. *J Sex Marital Ther* 2014;40:294–308.
62. Hallberg J, Kaldo V, Arver S, et al. A cognitive-behavioral therapy group intervention for hypersexual disorder: A feasibility study. *J Sex Med* 2017;14:950–958.
63. Hallberg J, Kaldo V, Arver S, et al. A randomized controlled study of group-administered cognitive behavioral therapy for hypersexual disorder in men. *J Sex Med* 2019;16:733–745.
64. Kjellgren C. Outcomes for treatment of hypersexual behavior by specialized social welfare units. *Res Soc Work Pract* 2019;29:103–112.
65. Patton JH, Stanford MS, Barratt ES. Factor structure of the Barratt Impulsiveness Scale. *J Clin Psychol* 1995;51:768–774.
66. Preuss UW, Rujescu I, Giegling I, et al. Psychometrische Evaluation der deutschsprachigen Version der Barratt-Impulsivness-Skala [Psychometric evaluation of the German version of the Barratt Impulsiveness Scale]. *Nervenarzt* 2008;79:305–319.
67. Reid RC, Garos S, Carpenter BN. Reliability, validity, and psychometric development of the Hypersexual Behavior Inventory in an outpatient sample of men. *Sex Addict Compulsivity* 2011;18:30–51.
68. Klein V, Rettenberger M, Boom KD, et al. Eine Validierungsstudie der deutschen Version des Hypersexual Behavior Inventory (HBI) [A validation study of the German version of the Hypersexual Behavior Inventory (HBI)]. *Psychother Psychosom Med Psychol* 2014;64:136–140.
69. Upton G, Cook I. A Dictionary of Statistics. Oxford, UK: Oxford University Press; 2014.
70. Kim TK. T test as a parametric statistic. *Korean J Anesthesiol* 2015;68:540–546.
71. Bortz J, Schuster C. Statistik für Human- und Sozialwissenschaftler [Statistics for scholars in human and social sciences]. 7th ed. Berlin: Springer; 2010.
72. Stanford MS, Mathias CW, Dougherty DM, et al. Fifty years of the Barratt Impulsiveness Scale: An update and review. *Pers Indiv Dif* 2009;47:385–395.
73. Mulhauser KRW, Struthers WM, Hook JN, et al. Performance on the Iowa Gambling Task in a sample of hypersexual men. *Sex Addict Compulsivity* 2014;21:170–183.
74. Karila L, Wéry A, Weinstein A, et al. Sexual addiction or hypersexual disorder: Different terms for the same problem? A review of the literature. *Curr Pharm Des* 2014;20:4012–4020.
75. Reid RC, Dhuffar MK, Parhami I, et al. Exploring facets of personality in a patient sample of hypersexual women compared with hypersexual men. *J Psychiatr Pract* 2012;18:262–268.
76. Walton MT, Cantor JM, Bhullar N, et al. Hypersexuality: A critical review and introduction to the “sexhavior cycle”. *Arch Sex Behav* 2017;46:2231–2251.
77. Fossati A, Di Ceglie A, Acquarini E, et al. Psychometric properties of an Italian Version of the Barratt Impulsiveness Scale-11 (BIS-11) in nonclinical subjects. *J Clin Psychology* 2001;57:815–828.
78. Långström N, Hansen RK. High rates of sexual behavior in the general population: Correlates and predictors. *Arch Sex Behav* 2006;35:37–52.
79. Spinella M. Normative data and a short form of the Barratt Impulsiveness Scale. *Int J Neurosci* 2007;117:359–368.

80. Dickenson JA, Gleason N, Coleman E, et al. Prevalence of distress associated with difficulty controlling sexual urges, feelings, and behaviors in the United States. *JAMA Netw Open* 2018;1:e184468.
81. Krueger RB, Kaplan MS, First MB. Sexual and other Axis I diagnoses of 60 males arrested for crimes against children involving the Internet. *CNS Spectr* 2009;14:623–631.
82. McCarthy JA. Internet sexual activity: A comparison between contact and non-contact child pornography offenders. *J Sex Aggress* 2010;16:181–195.
83. Reid RC, Berlin HA, Kingston DA. Sexual impulsivity in hypersexual men. *Curr Behav Neurosci Rep* 2015;2:1–8.
84. Bancroft J, Graham CA, Janssen E, et al. The dual control model: Current status and future directions. *J Sex Res* 2009;46:121–142.
85. Institute for Sexology and Sexual Medicine of the Charité. BEDIT. The Berlin Dissexuality Therapy Program. Berlin: Charité; 2013.
86. Grieger L, Hosser D, Schmidt AF. Predictive validity of self-reported self-control for different forms of recidivism. *J Crim Psychol* 2012;2:80–95.
87. Mokros A, Banse R. The “Dunkelfeld” project for self-identified pedophiles: A reappraisal of its effectiveness. *J Sex Med* 2019;16:609–613.