HYPERSEXUAL DISORDER -
CLINICAL PRESENTATION AND TREATMENT

Jonas Hallberg

Hypersexual Disorder – Clinical Presentation and Treatment

THESIS FOR DOCTORAL DEGREE (Ph.D.)

By

Jonas Hallberg

Principal Supervisor:
Katarina Görts Öberg
Karolinska Institutet
Department of Medicine
Unit for Metabolism

Co-supervisors:
Viktor Kaldo
Linnaeus University
Department of Psychology
Faculty of Health and Life Sciences

Stefan Arver
Karolinska Institutet
Department of Medicine
Unit for Metabolism

Opponent:
Peer Briken
University Medical Center Hamburg-Eppendorf
Institute for Sex Research and Forensic Psychiatry
Center for Psychosocial Medicine

Examination Board:
Katja Boersma
Örebro University
Faculty of Humanities and Social Sciences
School of Law, Psychology and Social Work

Johanna Ekdahl
Mid Sweden University
Department of Psychology and Social Work
Faculty of Human Sciences

Owe Bodlund
Umeå University
Department of Clinical Sciences, Psychiatry
Faculty of Medicine

To

Emma Johansson (1981–2014)

Stefan Renström (1965–2015)

Anders Fagerberg (1960–2002)

Valhalla, Heaven, or Nangijala: Who hit the jackpot?

ABSTRACT

Background: Persistent hypersexual behavior (HB) leading to negative consequences is a phenomenon that has lacked a recognized diagnosis in the psychiatric nomenclature, despite extensive study. Due to differences in the means of assessment and conceptualization of the phenomenon, it has been difficult to compare and generalize from the results of treatment studies. Hypersexual Disorder (HD) was proposed for the 5th edition of the Diagnostic and Statistical Manual (DSM-5) as an atheoretical formulation of HB. However, it was rejected despite receiving empirical support in a field trial and studies in clinical and forensic sample populations. However, the HD and its proposed criteria enabled targeted treatment studies based on uniform, albeit preliminary diagnostic, categorization.

Aims: The overall aim of the thesis was to investigate the validity of the HD criteria for categorizing HB and develop a cognitive behavioral therapy (CBT) treatment protocol based on the findings, and subsequently evaluate the feasibility and efficacy of the protocol and implement its administration via the Internet. The specific research questions were:

- Is the HD diagnosis and its criteria suitable means to categorize a group of men and women who engage in excessive sexual behavior to a degree that leads to personal distress and impairment?
- Is a newly developed CBT intervention protocol efficacious for amelioration of the symptoms associated with HD if administered in group settings?
- If the CBT intervention protocol is efficacious in treatment of HD symptoms, can it be administered via the Internet?

Methods: In Study I, the validity of the HD criteria was examined in a sample of self-identified hypersexual individuals using the Hypersexual Disorder Screening Inventory (HDSI). Subsequently in Study II, the feasibility of a newly developed CBGT treatment for HD was examined in a sample of hypersexual men recruited through Study I. Measurements were made pre-, mid-, and post-treatment as well as 3 and 6 months after the end of treatment.

Study III was a larger RCT, comparing 7 sessions of CBGT treatment with a waitlist. Measurements were performed pre-, mid- and post-treatment during the comparative study period. The waitlist participants subsequently underwent CBGT and were measured at the same relative time points. Both groups were also measured at 3 and 6 months after their respective treatment period. Data from both groups were pooled and analyzed for intragroup effects.

Study IV investigated the feasibility and intragroup effects of a 12-week ICBT program for HD, with or without paraphilia(s)/paraphilic disorder(s). Participants were assessed according to the procedures used in Study II and III and after inclusion were assigned a therapist for feedback, support, and clarifications during treatment. Measurements were performed

weekly, with focus on pre-, mid-, and post-treatment, as well as 3 months after cessation of treatment. Participants were also offered a follow-up assessment interview.

Results: In Study I, 50% of the sample met the criteria for HD. Some gender differences were noted regarding the overall symptom severity and types of exhibited sexual behaviors. The HD criteria were found to be valid for both men and women, although the proposed interpretation of HDSI appeared to be too restrictive. Study II found the CBGT treatment for HD to be feasible. Substantial reductions in HD symptoms were noted at the end of treatment and were maintained at the 3- and 6-month follow-ups.

The main findings from Study III suggested moderate post-treatment intergroup effects on the primary outcome. Similar effects were found for the secondary outcomes. The results from the pooled data analyses revealed moderate decreases in hypersexual symptoms at post-treatment and at follow up. Participants' overall psychiatric wellbeing also improved significantly, albeit to a lesser degree.

In Study IV, considerable effects were observed as a result of ICBT treatment of HD, with or without paraphilia(s)/paraphilic disorder(s). Moderate effects were noted for paraphilia(s)/paraphilic disorder(s). Psychiatric wellbeing also improved, but to a lesser extent.

Conclusions: The HD criteria were found useful for categorizing patients with hypersexual behavior even though the recently recognized diagnose compulsive sexual behavior disorder (CSBD) is more applicable today. Study II and III showed that CBGT is a feasible treatment that relieves HD symptoms. The results from Study IV suggests that the treatment can be administered via the internet and efficaciously reduces HD and its associated symptoms. Further development of the interventions may have the potential to prevent unwanted sexual behavior, including sexual offending.

ABSTRACT

Bakgrund: Ihållande hypersexuellt beteende (HB) med negativa konsekvenser är ett fenomen som länge uppmärksammats, men trots det saknat en erkänd diagnos i den psykiatriska nomenklaturen, trots omfattande undersökningar. På grund av skillnader i konceptualiseringar av och mätmetoder av fenomenet, har resultat från behandlingsstudier varit svåra att jämföra och generalisera utifrån. Hypersexuell störning (HS) föreslogs som en ateoretisk formulering av HB för 5: e upplagan av Diagnostic and Statistical Manual (DSM-5) som dock inte inkluderades, trots empiriskt stöd från en fältprövning och studier i kliniska och forensiska urvalsgrupper. HS och dess specificerade kriterier möjliggjorde emellertid behandlingsstudier baserade på en enhetlig, om än preliminär diagnostisk kategorisering.

Syfte: Det övergripande syftet med avhandlingen var att undersöka giltigheten hos HS-kriterierna för kategorisering av övermåttlig sexualitet och baserat på fynden, utveckla ett kognitivt beteendeterapeutiskt (KBT) behandlingsprotokoll för att sedan undersöka dess genomförbarhet och behandlingseffekter för att slutligen implementera behandlingen för administration via internet. De specifika forskningsfrågorna var:

- Är HS-diagnosen och dess kriterier lämpliga för kategorisering av män och kvinnor som ägnar sig åt överdrivet sexuellt beteende till sådan grad att det leder till personligt lidande och funktionsnedsättning?
- Har ett nyutvecklat KBT-behandlingsprotokoll förbättrande effekter på symtom associerade med HD om det administreras i gruppformat?
- Om KBT-behandlingsprotokollet har effekt på HS- och dess associerade symptom, kan det då administreras via Internet?

Metod: I en grupp personer med självidentifierad hypersexuell problematik, undersöktes i Studie I giltigheten hos HS-kriterierna med hjälp av formuläret Hypersexual Disorder Screening Inventory, (HDSI). Därefter undersöktes i Studie II genomförbarheten av en nyutvecklat CBGT-behandling i ett urval av hypersexuella män som rekryterats genom Studie I. Mätningar avseende symtomgrad gjordes före, vid mitten av, och efter behandlingen samt 3 och 6 månader efter behandlingsslut.

Studie III var en större RCT-studie där effekterna av ett 7 sessioner långt CBGT-behandlingsprogram jämfördes med en väntelista. Mätningar gjordes i den jämförande studien före, vid mitten av och efter behandlingen. Väntelistans deltagare genomgick därefter CBGT-behandlingen och mättes vid samma relativa tidpunkter. Båda grupperna mättes också 3 och 6 månader efter respektive behandlingsperioder. Data från båda grupperna slogs därefter samman och analyserades för inomgrupps-effekter.

I Studie IV undersöktes genomförbarheten och inomgrupps-effekterna av en 12 veckor lång internetadministrerad KBT-behandling (ICBT) för HS, med eller utan parafili/parafil störning. Deltagarna bedömdes i enlighet med proceduren i studie II och III och tilldelades efter inkludering, en terapeut för feedback, stöd och förtydliganden under behandlingstiden.

Mätningar gjordes varje vecka med fokus på resultat före, vid mitten av mitt och efter behandlingen. Uppföljningsmätningar genomfördes även 3 månader efter behandlingsslut. Deltagarna erbjöds även en uppföljande bedömningsintervju

Resultat: I Studie I uppfyllde 50% av gruppen kriterierna för HS. Vissa könsskillnader noterades avseende symptomgrad och typ av sexuella beteenden. HS-kriterierna bedömdes giltiga för både män och kvinnor även om den föreslagna tolkningen av HDSI föreföll väl restriktiv. Studie II fann CBGT-behandlingen för HS genomförbar. Stora minskningar av HS-symtom noterades vid behandlingsslut och vilka upprätthållits vid 3- och 6-månadersuppföljningarna.

Studie III påvisade medelstora mellangruppseffekter avseende både hypersexuella och allmänna psykiatriska symptom. Resultaten för den sammanslagna gruppen visade medelstora minskningar av hypersexuella symtom efter behandlingen och vid uppföljningsmätningarna. Det övergripande psykiatriska välbefinnandet förbättrades också men i lägre utsträckning.

Stora effekter avseende HD-symptom observerades i Studie IV till följd av ICBT-behandling för HS, med eller utan parafili/parafil störning. Medelstora behandlingseffekter uppvisades även för parafilier/parafila störningar. Det övergripande psykiatriska välbefinnandet förbättrades även det men i lägre grad.

Slutsatser: HS-kriterierna visade sig vara valida och användbara för kategorisering av patienter med HB, även om den nyligen erkända diagnosen compulsive sexual behavior disorder (CSBD) är mer tillämplig idag. Studie II & III visade att CBGT är en genomförbar behandling som har lindrande effekt för HS-symptom. Resultaten från Studie IV indikerade att behandlingen kan administreras via Internet och att den har effekt på HS och dess relaterade symptom. Vidare utveckling av behandlingsinterventionerna kan potentiellt förebygga oönskad sexualitet och även sexualbrott.

LIST OF SCIENTIFIC PAPERS

I. Öberg, K. G., Hallberg, J., Kaldo, V., Dhejne, C., & Arver, S. (2017). Hypersexual Disorder According to the Hypersexual Disorder Screening Inventory in Help-Seeking Swedish Men and Women With Self-Identified Hypersexual Behavior. Sexual Medicine, 5(4), e229-e236.

II. Hallberg, J., Kaldo, V., Arver, S., Dhejne, C., & Öberg, K. G. (2017). A Cognitive-Behavioral Therapy Group Intervention for Hypersexual Disorder: A Feasibility Study. J Sex Med, 14(7), 950-958.

III. Hallberg, J., Kaldo, V., Jokinen, J., Arver, S., Dhejne, C., & Öberg, K. G. (2019). A Randomized Controlled Study of Group-Administered Cognitive Behavioral Therapy for Hypersexual Disorder in Men. J Sex Med 2019; 16(5): 733-745.

IV. Hallberg, J., Kaldo, V., Arver, S., Dhejne, C., Jokinen, J., Piwowar, M., & Öberg, K. G. Internet-Administered Cognitive Behavioral Therapy for Hypersexual Disorder, with or without Paraphilia(s) or Paraphilic Disorder(s) in Men: A Pilot Study. In Manuscript.

CONTENTS

LIST OF ABBREVIATIONS

BA   Behavioral Activation

CBGT   Cognitive Behavioral Group Therapy

CBOSB   Cognitive and Behavioral Outcomes of Sexual Behavior Scale

CBT   Cognitive Behavior Therapy

CORE-OM   Clinical Outcomes in Routine Evaluation

CSB   Compulsive Sexual Behavior

CSBD   Compulsive Sexual Behavior Disorder

DSM   Diagnostic and Statistical Manual of Mental Disorders

ECF   Executive Cognitive Functioning

HB   Hypersexual Behavior

HBI-19   Hypersexual Behavior Inventory

HD   Hypersexual Disorder

HD:CAS   Hypersexual Disorder: Current Assessment Scale

HDSI   Hypersexual Disorder Screening Inventory

HPA   Hypothalamic Pituitary Adrenal

HS   Hypersexuell Störning

ICBT   Internet-administered Cognitive Behavior Therapy

ICD   International Statistical Classification of Diseases and Related Health Problems

IOU   Intolerance of Uncertainty

IOV   Identification of values

KBT   Kognitiv Beteendeterapi

MADRS   Montgomery-Åsberg Depression Rating Scale

MPC   Mechanistic Property Clusters

OCD   Obsessive Compulsive Disorder

RCT   Randomized Controlled Trial

RP   Response Prevention

SA	Sexual Addiction
SAST	Sexual Addiction Screening Test
SC	Sexual Compulsivity
SCS	Sexual Compulsivity Scale

1 INTRODUCTION

"People ask me a lot about my drive. I think it comes from, like, having a sexual addiction at a really young age. Look at the drive that people have to get sex to dress like this and get a haircut and be in the club in the freezing cold at 3 A.M., the places they go to pick up a girl. If you can focus the energy into something valuable, put that into work ethic."

Kanye West

Unrestrained sexuality and sexual preoccupation that negatively affect work lives, relationships, and daily activities have been described in the clinical history for well over 100 years (Kafka, 2010). The condition has been explored by countless writers, dramatists, and philosophers over the years, and continues to be relevant. The easy and limitless access to pornography and opportunities for casual sexual encounters without further obligations, lay a devious foundation upon which the regulation of sexual behavior may go awry. Still, it was only recently that a part of the scientific community agreed on a name and conceptualization for the condition. There had been several suggestions, each with its own perception of symptoms, etiology, and suitable means to ameliorate the symptoms. In 2010, Kafka (2010) proposed the atheoretical diagnosis hypersexual disorder (HD) for inclusion in the fifth revision of the Diagnostic and Statistical Manual Of Mental Disorders (American Psychiatric Association, 2013b).

In the spring of 2010 I started to plan the project on which this thesis is based, together with my main supervisor. The overall purpose was to create an evidence-based treatment for HD and to make it accessible for those affected by the condition. The first aim was to investigate whether HD was an appropriate conceptualization of the condition by adequately capturing the symptoms of patients exhibiting patterns of excessive sexual behavior with adverse consequences. The second aim was to develop a CBT treatment and investigate its feasibility and thereafter evaluate the effects more thoroughly in a larger randomized clinical study. The results paved the way to the final installment of the project: the implementation of administration of the treatment via the Internet.

Stockholm, August 2019

2 BACKGROUND

2.1 DIAGNOSTIC FEATURES

2.1.1 Hypersexual disorder – a proposal for DSM-5

The work group on Sexual and Gender Identity Disorders proposed the diagnosis HD and its criteria for inclusion in DSM-5 (American Psychiatric Association, 2010a; Kafka, 2010). HD was defined as a persistent and pervasive pattern of behavior in which the individual loses control of his/her sexual fantasies, urges, and/or behaviors, up to a point where it causes significant negative consequences such as personal suffering, interpersonal distress, and/or impairment. The diagnostic criteria (presented below in Table 1) stipulate that the individual during at least the preceding six months, has spent an excessive amount of time seeking, planning for, or engaging in sexual activities, made repeated but unsuccessful attempts to control these sexual behaviors, and despite negative consequences inflicted on the individual or others, continued with the sexual behaviors (American Psychiatric Association, 2010a; Kafka, 2010; Samenow, 2011). The criteria also suggest that the individual may use the sexual behaviors as a mean to handle anxiety, depression, or stressful life events. The sexual behaviors specified for HD are normophilic (as opposed to paraphilic) and include masturbation, pornography consumption, sexual behaviors with consenting adults (including purchase or sale of sexual services), cybersex, telephone sex, or visits to venues for sexual entertainment. The proposition was the result of a comprehensive review and analysis of the existing research literature on excessive sexual behavior.

Table 1. Diagnostic criteria for hypersexual disorder proposed for inclusion in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition

A.	Over a period of ≥ 6 months, recurrent and intense sexual fantasies, sexual urges, or sexual behaviors in association with ≥ 4 of the following 5 criteria:
A1.	Time consumed by sexual fantasies, urges, or behaviors repetitively interferes with other important (non-sexual) goals, activities, and obligations
A2.	Repetitively engaging in sexual fantasies, urges, or behaviors in response to dysphoric mood states (e.g., anxiety, depression, boredom, irritability)
A3.	Repetitively engaging in sexual fantasies, urges, or behaviors in response to stressful life events
A4.	Repetitive but unsuccessful efforts to control or significantly decrease these sexual fantasies, urges, or behaviors
A5.	Repetitively engaging in sexual behaviors while disregarding the risk for physical or emotional harm to self or others
B.	There is clinically significant personal distress or impairment in social, occupational, or other important areas of functioning associated with the frequency and intensity of these sexual fantasies, urges, or behaviors
C.	These sexual fantasies, urges, or behaviors are not due to the direct physiologic effect of an exogenous substance (e.g., a drug of abuse or a medication)

Specify if: Masturbation, pornography, sexual behavior with consenting adults, cybersex, telephone sex, venues for sexual entertainment, other

In its infancy, three out of five A criteria and the B criteria (either "significant personal distress" or "impairment") had to be fulfilled for confirmation of an HD diagnosis (Kafka, 2010). The criteria were later tightened to a requirement of 4 out 5 A criteria, in order to decrease the risk of false positives (Kafka, 2013). This modification was the result of received advisory feedback and recommendations from academics and healthcare professionals.

2.1.2 HD: an atheoretical diagnostic proposal

Since the third edition of "Diagnostic and Statistical Manual of Mental Disorders" (American Psychiatric Association, 1980), psychiatric diagnoses have been criteria-based and atheoretical. This is due to the lack of empirical support for clear causes and pathogeneses of psychiatric disorders (Kafka, 2010). This also applies to sexual behavior disorders. In line with this atheoretical approach, the diagnosis HD objectively describes the phenomena/symptoms of excessive sexual desire and behaviors without assuming a specific etiology. The establishment of the atheoretical and unprejudiced diagnostic category HD paved the way for unbiased research initiatives (Kafka, 2010; Samenow, 2011). In addition, formal recognition opened research funding routes that enable studies aiming to advance the understanding of the biological, psychological, and social underpinnings of the condition. Proponents of the validity of the diagnosis HD consider the diagnosis to be relevant, and have performed research that has significantly increased the general knowledge of hypersexuality and possible biopsychosocial causes (Chatzittofis et al., 2016; Chatzittofis et al., 2017; Kafka, 2013, 2014; Kafka & Krueger, 2011; Parsons et al., 2013; Reid, Garos, & Carpenter, 2011; Samenow, 2010a, 2011; Scanavino et al., 2014).

2.1.2.1 The diagnostic controversy

Nonetheless, the HD diagnostic criteria have been heavily debated (Reid & Kafka, 2014). Objections are mostly related to the validity and utility of such classification. Moser (2011) considered that the proposed HD diagnosis was based on *"faulty and inconsistent logic, imprecise criteria, historical inaccuracies, and poorly conceived constructs"*. He concluded that the empirical basis for the HD diagnosis was scanty and did not meet the requirements for inclusion in DSM-5. In response to this critique, Carpenter and Krueger (2013) argued that there is no universally agreed-upon definition of what actually constitutes a mental disorder but refers to DSM-IV-TR (American Psychiatric Association, 2000) and their conceptualization of: *"a clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and that is associated with present distress (e.g., a painful symptom) or disability (i.e., impairment in one or more important areas of functioning) or with a significantly increased risk of suffering, death, pain, disability, or an important loss of freedom"*. These defining characteristics are all present in those who seek treatment for HD or related conditions (Carpenter & Krueger, 2013). In his critique of the diagnostic construct, Halpern (2011) stated that individuals carrying out hypersexual behavior are *"not a distinct group of people who need appropriate clinical attention"* and that HD is

not *"sufficiently distinct from other diagnoses to warrant being considered a separate diagnosis"*, inferring that HD-like behavior and consequences may be better accounted for by other, already established diagnoses. To meet this argument, Kafka and Krueger (2011) respond that the symptoms and consequences associated with non-paraphilic sexual impulsivity disorder are in fact well documented and that comorbidity is commonly associated with many disorders: "*Conclusions regarding causality can't be based on temporal correlations of various symptoms/conditions only since we have scarce knowledge regarding the full etiology of many psychiatric disorders*". Halpern (2011) concludes that the diagnostic category may provide competent lawyers with yet another mitigating psychiatric circumstance in forensic settings, such as when a person is arrested for possession of child pornography. Kafka and Krueger (2011) respond to this point of concern by claiming that even if both a paraphilia and HD are concurrent and salient, the comorbidity doesn´t extenuate the immorality of the perpetrator's conduct. The authors conclude that the HD-diagnose could provide a well-tuned tool for differential diagnostics, which in turn may facilitate the choice of treatment with higher resolution when the set of criminogenic factors is complex. This discussion also taps into the sociological analysis of the DSM nosology, in which there are two distinct perspectives on the role of psychiatry and psychiatric nomenclature, the *"Hippocratic"* and the *"Lombrosian"* (Malon, 2012). The first perspective is grounded on the concept that psychiatric nosology supplies clinicians and healthcare professionals with tools for improved understanding and increased capacity to make qualified assumptions in the assessment and treatment of patients. The latter perspective implies that psychiatry is a means of exercising social control.

2.1.2.2 Scientific Support

There have been two independent field trials in outpatients (Reid, Carpenter, et al., 2012; Scanavino et al., 2014) and in incarcerated sexual offenders (Kafka, 2014), both of which support HD as an applicable diagnostic category. Reid, Carpenter, et al. (2012) presented results from a group of outpatients (N = 207) who were assessed for HD and other psychopathological disorders. In subset of the sample (N = 50), two blinded raters assessed each patient to determine the inter-rater reliability of the HD criteria. Participants also submitted responses to several self-reporting measures to assess the validity of the HD criteria. The results indicated a high inter-rater reliability ($\kappa = .93$, $p < 0.001$). A third rater assessed another subset of the sample (N = 32) two weeks after the initial rating. This to evaluate the stability of HD criteria over time and found a high test-retest congruence ($\varphi = .81$, $p < 0.001$). The HD diagnostic criteria showed good internal consistency as well as good validity with theoretically related measures of hypersexuality, impulsivity, emotional dysregulation, and propensity for stress. The criteria also accurately reflected problems experienced by patients. In line with these findings, a study of 172 participants (female: 19, male: 153) by Scanavino et al. (2014) supported the conceptualization of hypersexual disorder as a group of problematic symptoms that manifests consistently across various measures.

Although HD was rejected for inclusion in DSM-5, there is research corroborating the validity of the diagnosis (Kafka, 2014; Parsons et al., 2013; Reid, Garos, & Fong, 2012; Scanavino et al., 2014).

2.1.3 Compulsive Sexual Behavior Disorder (CSBD) – a new beginning?

In 2018, the diagnosis Compulsive Sexual Behavior Disorder (CSBD) was included in the 11th edition of International Classification of Diseases, ICD-11 (Kraus et al., 2018; World Health Organization, 2018a). CSBD was included in the impulse control disorders section.

As for HD, CSBD is characterized by a persistent pattern of failure to control intense, repetitive sexual impulses or urges, resulting in sexual behavior (World Health Organization, 2018a). Symptoms may include:

(i)   Repetitive sexual activities becoming a central focus of the individual's life to the point of neglecting health and personal care or other interests, activities, and responsibilities

(ii)   Numerous unsuccessful efforts to significantly reduce repetitive sexual behaviors

(iii)   Continued repetitive sexual behavior despite adverse consequences or deriving little or no satisfaction from the behavior

(iv)   A pattern of failure to control intense, sexual impulses or urges, resulting in repetitive sexual behavior, manifested over an extended period (e.g., 6 months or more)

(v)   Marked distress or significant impairment in personal, family, social, educational, occupational, or other important areas of functioning

The criteria maintain that any distress entirely related to moral judgments and disapproval of sexual impulses, urges, or behaviors is not regarded as sufficient to meet the necessary diagnostic requirements.

In its included form, CSBD shares diagnostic features with HD but omits the function of sexual behavior as a response to dysphoric mood states and stressful life events (i.e., sexual behaviors as a coping strategy). As pointed out by Bothe et al. (2018), sexual behavior as a coping strategy may be viewed as an motivational factor rather than problematic factor. The coping motive is not necessarily associated with problems; however, loss of control and negative consequences of sexual behaviors can be considered symptomatic of problematic behavior. Using sex to cope with negative emotions and stress has the potential to lead to problematic behavior but this is not inevitable.

It is likely that the HD and CSBD diagnostic constructs describe the same population. However, CSBD may be more inclusive with regards to diagnostic endorsement due to the omission of the coping factor. This notion is further corroborated by the findings of Dickenson, Gleason, Coleman, and Miner (2018) that led to the conclusion that compulsive sexual behavior is more prevalent than previously estimated.

2.2 CLINICAL CHARACTERISTICS

2.2.1 Prevalence, comorbidity, and course

2.2.1.1 Prevalence

Due to the lack of both a generally accepted diagnostic definition, and valid and reliable tools of measurement, estimations of the prevalence of HD vary considerably (Moser, 2011; Reid, 2013; Winters, 2010). Nevertheless, there have been studies on hypersexuality and the prevalence has been estimated as 2–6% of the general population (Coleman, 1992; Kuzma & Black, 2008; Odlaug et al., 2013). Among males, sex offenders, and homosexual men the rate has been found to be much higher (Carnes, 1991; Kafka, 1997a; Kingston & Bradford, 2013; Kuzma & Black, 2008). When conceptualized as a non-paraphilic hypersexual behavior, Langstrom and Hanson (2006) estimated the population prevalence to be 12% for men and 7% for women. In a sample of Internet-recruited Swedish men (n = 652, age: $M = 29$, $SD = 13$) and women (n = 1250, age: $M = 28$, $SD = 10$), Ross, Mansson, and Daneback (2012) found that 7% of the women and 18% of the men reported experiencing some or severe problems with Internet-related sexual problems. The private and delicate nature of problems associated with sexuality may cause individuals to be reluctant to report the presence of hypersexual symptoms (Kuzma & Black, 2008). Therefore, it must be noted that these prevalence estimates may not be fully reliable.

However, in a recent study on a representative sample population in the United States (n = 2,325: women = 1,174; men = 1,151), the overall prevalence for compulsive sexual behavior (CSB) was found to be 8.6%, with a smaller gender difference (men = 10.3%; women = 7.0%), than previously has been reported (Dickenson et al., 2018).

2.2.1.2 Comorbidity

Regarding comorbidity, hypersexuality is often reported in conjunction with other psychopathological disorders. Schultz, Hook, Davis, Penberthy, and Reid (2014) found a positive relationship between hypersexual behavior and depressive symptoms ($r = 0.34$). This relationship was not dependent on age, gender, or sexual orientation. Similar results were found by Kafka and Hennen (2002) in a sample of 120 outpatient males with paraphilias and paraphilia-related disorders, where 72% of the participants reported mood disorders (e.g., dysthymia and major depression).

Reid, Carpenter, and Lloyd (2009) investigated psychological symptom patterns among non-59 paraphilic hypersexual patients (n = 59) in comparison to 55 non-hypersexual individuals (Reid, Carpenter, et al., 2009). The hypersexual patients experienced more depressive symptoms than the healthy controls. Furthermore, the hypersexual sample also reported elevated levels of obsessive characteristics, interpersonal sensitivity, and social alienation. When Raymond, Coleman, and Miner (2003) investigated current and lifetime comorbidity in a sample of 25 individuals (women: 2, men: 23) with compulsive/addictive sexual behaviors, they found that the lifetime Axis I comorbidity was 100%. Anxiety disorders was the most

common class of disorders (especially social anxiety and generalized anxiety disorder), followed by mood disorders (major depression, dysthymia, and bipolar disorder). Furthermore, they found that 46% of participants had a lifetime record of experiencing sexual dysfunction.

Langstrom and Hanson (2006) also found that hypersexual individuals were more likely to report substance abuse than the general population. This finding was demonstrated from another perspective when it was found that 25% of a patient sample (N = 211) of individuals seeking treatment for a substance use disorder also screened positive for hypersexual behavior (Stavro, Rizkallah, Dinh-Williams, Chiasson, & Potvin, 2013). Langstrom and Hanson (2006) also found a link between hypersexual behavior and paraphilic/deviant sexual interest.

Sexual deviance includes any arousal or sexual preference directed towards objects or activities outside of societal norms (Lodi-Smith, Shepard, & Wagner, 2014). At the extreme end of the spectrum, such preferences are classified as paraphilias by the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2013a). According to the definition presented in DSM-5, paraphilias are defined as:

(i)   "*any intense and persistent sexual interest other than genital stimulation or preparatory fondling with physically mature, consenting human partners*", or (if the criteria "*intense and persistent…*" is not applicable)

(ii)   "*any sexual interest greater or equal to normophilic sexual interests*"

Fulfillment of either (i) or (ii) is sufficient to be considered as *having* a paraphilia and constitute the A criterion for a *paraphilic disorder*. The diagnosis *paraphilic disorder* is reserved for individuals that fulfill criterion A as well as the B criterion for paraphilic disorder, which states that the paraphilia "*currently inflicts distress, harm or impairment to self or others*". According to the DSM-5 classification, paraphilia can be categorized into two levels:

1. "*having*" a paraphilia by meeting criterion A, and
2. "*being diagnosed*" with a paraphilic disorder (meeting both criterion A and B).

The relationship between hypersexual behavior and paraphilias/paraphilic disorders has previously been noted and gave rise to the now defunct description of hypersexual behavior as "paraphilia-related" disorder (Kafka, 1997a, 2010; Kafka & Hennen, 1999).

Although Kafka (2010) initially formulated HD as a non-paraphilic disorder, the criteria were later rewritten to make the HD diagnosis applicable regardless of concurrent paraphilia or paraphilic disorders (Carpenter & Krueger, 2013). The aim of this reformulation of the diagnostic criteria was to distinguish sexual interest on one side and behavior (in terms of dyscontrol and significant life consequences) on the other. This made it possible for a person to be diagnosed with HD, either as a primary or secondary diagnosis, in conjunction with

having a paraphilia or being diagnosed with a paraphilic disorder (Kafka & Krueger, 2011; Krueger, Kaplan, & First, 2009).

2.2.1.3 Course

There is currently scarce scientific knowledge of the clinical course of HD (Kafka, 2010; Reid, Carpenter, et al., 2012). As part of a study on hypersexual patients, Reid, Carpenter, et al. (2012) asked the participants (N = 123) about onset, course, and patterns of escalation of their problematic sexual behavior. The majority (83%) reported that they had experienced a gradual progression of hypersexual symptoms over a period of months or years. Half of the sample (54%) had experienced dysregulated sexual fantasies, urges, and behaviors before age 18 and one third (30%) reported developing symptoms of HD between 18 and 25 years of age.

2.3 ETIOLOGY AND MAINTENANCE OF HD SYMPTOMS

In the absence of universally accepted diagnostic criteria, the following section aims to present research findings and contemporary theories regarding the nature of excessive sexual behavior. Various names have been used throughout the literature, such as sex addiction (Carnes, 1983), sexual compulsivity/compulsive sexual behavior (Coleman, 1987, 1992), and atypical impulse control disorder/sexual impulsivity (Barth & Kinder, 1987) – to name but a few.

Although the diagnostic theories and starting points do not exactly correspond to the HD criteria, they may still be considered to have relevance for the research field and are therefore included.

2.3.1 Genetic contribution

Little is presently known of the genetics and epigenetics of problematic hypersexual behavior (Blum, Badgaiyan, & Gold, 2015). Melis and Argiolas (1995) have presented evidence that the dopaminergic system is involved both in the preparatory and consummatory phases of male sexual behavior. In line with these findings, Miller et al. (1999) found that the dopaminergic system in the brain plays a major role in the regulation of sexual behavior. However, the role of that system is less clear in female sexuality (Melis & Argiolas, 1995). Blum, Noble, Sheridan, and et al. (1990) presented the first evidence of a relationship between the dopamine receptor gene polymorphism DRD2 and severe alcoholism. The same gene was later identified as being responsible for all reward deficiency syndromic behavior and it was concluded that carriers of that specific gene have a 74% lifetime chance of exhibiting one or more reward deficiency syndromic behaviors (Blum et al., 1996). This leads to the hypothesis that dopaminergic genes and possibly other neurotransmitter-related gene polymorphisms affect hedonic and anhedonic behavioral phenotypes (Blum et al., 2015).

Regarding sexual risk-taking, Daw and Guo (2011) found that individuals with variants in a dopamine transporter gene (DAT1), a dopamine receptor gene (DRD2), and a monoamine oxidase gene (MAOA) were more prone to engage in unprotected sexual intercourse.

In summary: although there may be genetic factors associated with the propensity to develop hypersexual behavior, the literature is by no means conclusive. The specific genes underlying HD are still unknown.

2.3.2 Neurobiological explanations

The HD diagnosis integrates pathophysiological aspects drawn from etiological theories such as sexual desire dysregulation, sexual addiction, impulsivity and compulsivity (Chatzittofis et al., 2016). Few neurobiological correlation studies have been performed, thus leading to a scarcity of knowledge of the neurobiology behind the disorder. Despite several studies investigating the neurobiological underpinnings of hypersexuality, the research literature still does not supply sufficient empirical support to draw causal inferences regarding the neurobiological basis of HD (Kühn & Gallinat, 2016).

A study performed at Karolinska Institutet, Stockholm, compared a sample of HD-diagnosed individuals (n = 67) to matched, healthy controls (n = 39) with regards to regulative function in the hypothalamic pituitary adrenal (HPA) axis (Chatzittofis et al., 2016). Significant correlations were found between HD and dysregulation in the HPA axis. These results challenge the notion of hypersexuality as the symptom of an underlying obsessive-compulsive disorder (OCD), as suggested by Coleman (1987), since OCD has been found to be mediated by cortico-striatal-thalamo-cortical circuits (Ting & Feng, 2011).

In a comparison of 19 individuals suffering from Compulsive Sexual Behavior (CSB) and 19 healthy controls, exposure to sexually explicit stimuli led to greater activation of the dorsal anterior cingulate, ventral striatum, and amygdala for the CSB subjects (Voon et al., 2014). The activation of this neural network was linked with higher subjective sexual desire (but not liking) for the CSB subjects compared with the control group. The dissociation between desire and liking is in line with theories of incentive motivation underlying CSB as well as substance addictions (Robinson & Berridge, 2008).

Another possible neurobiological cause of dysregulated sexual desire has been presented as the "monoamine hypothesis" (Kafka, 1997b, 2006; Kafka & Coleman, 1991). The hypothesis is that enhanced dopaminergic neurotransmission is associated with sexual excitation and enhanced serotonergic neurotransmission is associated with sexual inhibition. Laboratory-induced alterations of the levels these neurotransmitters affect sexually motivated behaviors and induce sexual disinhibition or hypersexuality in primates (Kafka, 2010).

Although neuroscience has contributed important findings to the research field of excessive and problematic sexual behaviors, the lack of a diagnostic consensus has hampered generalizable research projects. Experimental studies aimed at elucidating possible causal biological mechanisms underlying the development and maintenance of HD are therefore warranted.

2.3.3 Psychological explanations

Psychological theories of the factors contributing to the development and maintenance of HD are very complex to outline (Samenow, 2010a). This is partly due to the vast array of theoretical starting points the researchers have applied for investigations of this psychopathological condition.

2.3.3.1 *The dual control model and affect regulation*

Sexual desire refers to the individual's subjective conscious motivation for engagement in sexual behaviors in response to relevant internal and external cues (Kafka, 2010). A definition of "hypersexual desire" based on an assessment of the lifetime frequency of sexual behaviors and measurements of current time spent on sexual fantasies, urges, and behaviors, was derived from evaluations of 220 males (Kafka, 1997a, 2003; Kafka & Hennen, 2003). It does not necessarily follow that hypersexual desire is problematic (Samenow, 2011). Hypersexual desire must be linked to adverse consequences in order to be considered problematic. Researchers at the Kinsey Institute have developed the "dual control model" of sexual arousal that hypothesizes neurobiological sexual excitatory and inhibitory processes as a means to explain differences in sexual desire (Bancroft, 1999; Bancroft & Janssen, 2000; Janssen, Vorst, Finn, & Bancroft, 2002). In their research, they tested the hypothesis that subgroups of homo- and heterosexual men experience increased levels of sexual behavior under the influence of anxious and/or depressive affects. Results indicated that males with low sexual inhibition and/or high sexual excitation and arousal, in combination with negative affect (anxious and/or depressive), exhibited a higher propensity for promiscuous behavior and/or increased frequency of masturbation (Bancroft & Vukadinovic, 2004). The model proposes that neurobiological predispositions in part can explain individual proclivities to engage in sexual behaviors to regulate negative affects. Today, the "dual control model" of sexual arousal, behavior, and risk-taking, is one of the most informative and empirically supported models (Bancroft, Graham, Janssen, & Sanders, 2009; Kafka, 2010).

2.3.3.2 *Sex addiction*

In the late seventies, Orford (1978) suggested that excessive appetitive behaviors, including sexual behaviors, could over time and with high rates of engagement, develop into an addiction-like syndrome despite the absence of exogenous substances. This was further elaborated by Carnes (1983) through the publication of his book *"Out of the Shadows: Understanding Sexual Addiction"*. The clinical term "sexual addiction" (SA) has been well received in popular culture and embraced by persons either suffering from repetitive paraphilic and/or excessive normophilic sexual behaviors. According to Carnes, excessive problematic sexual engagement is associated with increasing sexual risk-taking, "loss of control", and negative psychosocial consequences. Central in Carnes's formulation of the "sexual addiction model" is the repetitive use of sexual behavior to manage dysphoric mood states (i.e., self-medication, affect regulation), an escalation of sexual behaviors (development of tolerance and risk-taking), "loss of control", adverse psychosocial consequences, and withdrawal symptoms. However, symptoms such as tolerance and withdrawal, which are also

present in psychoactive substance dependency, have not been substantiated in the research literature on sexual behaviors (Samenow, 2011). The neurobiology associated with dependency on psychoactive substances has been described based on animal models (Kafka, 2010). It would be helpful to apply neurobiological studies derived from the sexual addiction model to bring clarity to the question of whether there is a similar neurobiological pathway for both excessive sexual behavior and psychoactive substance dependency (Kafka, 2014). Based on these uncertainties, Samenow (2011) concludes that SA is an unsatisfactory term as it implies a specific etiological model, which currently lacks empirical support.

2.3.3.3   Sexual compulsivity

Coleman (1987) proposed the term "sexual compulsivity" (SC) to describe a condition in which excessive sexual behaviors are used to reduce dysphoric affects such as anxiety, depression, and/or shame. From this perspective, the compulsive sexual behaviors are viewed as symptoms of an "underlying obsessive-compulsive disorder". The increasingly time-consuming sexual fantasies are described as "sexual obsession" and are associated with compulsive sexual behavior. The term "sexual compulsivity" is according to Samenow (2010b) misleading. For example, the term "compulsion" is misleading because the sexually compulsive individual receives a "reward" from the sexual activity and does not necessarily experience a reduction in anxiety, which is a central trait in "classic" compulsive behaviors such as hand washing and checking behaviors. Typically, the behaviors in Obsessive-Compulsive Disorder (OCD) do not involve reward (i.e., positive reinforcement) whereas excessive sexual behaviors do (Stein, 2008). Research has also found that OCD is mediated by cortico-striatal-thalamo-cortical circuits (Stein, 2008; Ting & Feng, 2011), while individuals with hypersexual symptoms exhibit dysregulation in the hypothalamic-pituitary-adrenal axis (Chatzittofis et al., 2016).

Furthermore, proposed effective treatments for SC differ from the standard evidence-based treatment for OCD (e.g., exposure with response prevention), indicating that excessive sexual behavior may be a distinct clinical manifestation (Stein, 2008).

2.3.3.4   Childhood adversities and trauma

Langstrom and Hanson (2006) reported that hypersexual individuals were more likely to have adverse family background experiences. This is especially true for individuals who experienced sexual abuse during childhood (Aaron, 2012; Kuzma & Black, 2008). The link between hypersexuality and childhood adversity, including sexual, physical, and emotional abuse, has recently been demonstrated (Chatzittofis et al., 2016; Chatzittofis et al., 2017). Hypersexual men were also more likely to have been exposed to or experienced violent behavior in adulthood than healthy volunteers (Chatzittofis et al., 2017). Conclusions from these studies suggest that childhood adversity may play an important role in HD.

2.3.3.5 Attachment theory

Carnes' (1983) description of SA as an intimacy disorder has led to the use of attachment theory as a framework to understand problematic hypersexual behavior (Montgomery-Graham, 2016). The origin of intimacy difficulties is hypothesized to be in early negative attachment experiences (Schwartz & Masters, 1994). Central to SA is the inability to bond and attach adequately in intimate relationships (Carnes, 1983). The excessive sexual behavior functions as a means to compensate for early attachment failures (Adams & Robinson, 2011). In a comparison attachment orientation in sex-addicted and non-sex-addicted men, Zapf, Greiner, and Carroll (2008) found that 72% of sex addicts had attachment styles high in relationship anxiety. The proportion of the non-sex-addicted counterpart was 50%. Similar results regarding the association between sex addiction and attachment style were found by Gilliland, Blue Star, Hansen, and Carpenter (2015) and Faisandier, Taylor, and Salisbury (2012). The conclusion that individuals behaving in a hypersexual manner have impaired interpersonal functioning which contributes to the development and/or maintenance of hypersexuality may be drawn (Gilliland et al., 2015). However, since the studies examining attachment and hypersexuality are correlational, no inferences regarding the causal direction can be drawn (Montgomery-Graham, 2016).

2.3.3.6 Personality Factors

Investigations of personality factors related hypersexual behavior have consistently found links to personality profiles with high levels of neuroticism and low levels of agreeableness and conscientiousness (Fagan et al., 1991; Pinto, Carvalho, & Nobre, 2013; Reid, Carpenter, Spackman, & Willes, 2008; Reid, Stein, & Carpenter, 2011; Rettenberger, Klein, & Briken, 2016; Walton, Cantor, & Lykins, 2017).

Furthermore, the personality traits low impulse control, negative self-image, affective instability, and dysphoric mood have also been found to be positively related to hypersexuality (Carvalho, Stulhofer, Vieira, & Jurin, 2015; Chaney & Burns-Wortham, 2014; Kalichman & Rompa, 1995; Lloyd, Raymond, Miner, & Coleman, 2007; Reid, Bramen, Anderson, & Cohen, 2014; Reid, Carpenter, Gilliland, & Karim, 2011). Griffin et al. (2016) found a negative relationship between sexual self-esteem and hypersexual behavior. The relationship was stronger in individuals who perceived an incongruence between their sexual behaviors and their sexual values (Griffin et al., 2016).

2.3.3.7 Cognitions and emotions

Hypersexual individuals often report having difficulties in controlling their sexual thoughts, interpret their sexual behaviors as reckless or wrongful, and nurture beliefs that their sexual preoccupations have negative impact on their everyday life (Kalichman et al., 1994; Kalichman & Rompa, 1995; Reid, Garos, et al., 2011). Similarly, HD has been hypothesized to be associated with distorted beliefs and interpretations of one's sexual behaviors, fantasies, and urges (Paunović & Hallberg, 2014). Ruminative and rigid thoughts regarding an inability to change patterns of dysfunctional sexual behaviors is also common, and hypersexual

individuals may consequently experience self-directed hostility and feelings of personal inadequacy (Reid, 2010; Reid, Temko, Moghaddam, & Fong, 2014). Regarding affect regulation, there is scientific support for that hypersexuals in general, have poor affect regulation skills (Reid et al., 2008). They may experience various negative emotions (i.e., boredom, social isolation, anxiety, guilt, shame, grief etc.) either as triggers and/or consequences of patterns of hypersexual urges and behaviors (Bancroft & Vukadinovic, 2004; Chaney & Chang, 2005; Gilliland, South, Carpenter, & Hardy, 2011; Paunović & Hallberg, 2014; Spenhoff, Kruger, Hartmann, & Kobs, 2013). Winters, Christoff, and Gorzalka (2010) reported that "dysregulated sexuality" (as it was at conceptualized at the time), simply was a marker of increased levels of sexual desire in combination with experienced problems and distress associated with the management of these sexual needs, feelings and thoughts.

2.3.3.8   Summary

As presented above, there is a plethora of research on hypersexual behavior, and a wide range of factors that may predict and contribute to the development and maintenance of hypersexuality has been identified. However, these conceptualizations may not individually provide a comprehensive and exhaustive understanding of the heterogenic clinical presentations of the condition (Montgomery-Graham, 2016; Walton, Cantor, Bhullar, & Lykins, 2017). Predispositions for hypersexuality are diverse and complex, and a wide range of risk factors may contribute to the condition and its varying manifestation in individuals (Walton, Lykins, & Bhullar, 2016). The identified predictive factors are not exclusively specific for hypersexuality and most individuals do not use sexual activities to alleviate dysphoric mood states, even though it is likely that the experience of such emotions at some point in life is universal (Walton, Cantor, Bhullar, et al., 2017). Some hypersexual individuals may perceive their sexual behaviors as excessive and uncontrollable, even when they are considered to be functioning normally (Walton et al., 2016). Conversely, non-hypersexual individuals may be easily sexually aroused and have high levels of sexual activity without perceiving their behavior as out-of-control.

2.4 MEASURING HD

As pointed out in the introduction, the lack of a universally accepted definition of hypersexuality significantly limits the methods available to measure the complex of symptoms. There are many similarities between the ways researchers and clinicians define and operationalize hypersexuality, however studies on excessive sexual behavior have often used measures in line with the definitions and clinical conceptualizations proposed or preferred by the respective researchers (Womack, Hook, Ramos, Davis, & Penberthy, 2013).This has led to considerable diversity in focus of the instruments used for assessment and measurement of the clinical manifestations. Some measures emphasize the level of sexual activity, whereas other measures focus on obtaining information related to the consequences of the sexual behaviors performed. This overview focuses on measures of HD conceptualization and criteria as defined by Kafka (2010, 2013).

2.4.1 The Hypersexual Disorder Screening Inventory, HDSI

The HDSI contains 7 items and was designed to screen for HD according to APA's proposed DSM-5 criteria (American Psychiatric Association, 2010b). Five core diagnostic feature items cover the A criteria of hypersexual behavior and two B criteria items assess the distress and impairment dimensions during the preceding 6 months. Each item is rated on a five-graded scale ranging from "never true" (0 points) to "almost always true" (4 points). The scale also maps out sexual behavior specifiers (masturbation, pornography, sexual behavior with consenting adults, cybersex, telephone sex, and visits to sexual entertainment venues) through yes/no questions. Research has suggested that the inventory may measure a unidimensional clinical construct or three symptom clusters (Montgomery-Graham, 2016):

(i) Intense sexual fantasies, urges, and behaviors
(ii) Distress and impairment
(iii) Sex for coping purposes

For a probable HD diagnosis, the polythetic cutoff of 3 or 4 points on at least four of the five A criteria items, and on one of the two items for criterion B, was suggested (Kafka, 2013). An alternative unidimensional scoring and cutoff score of 20 points has also been suggested (Parsons et al., 2013). The total sum score range of HDSI is 0–28. The inventory has exhibited high internal consistency ($\alpha = .88–.96$) and test-retest reliability over a 2-week period ($r = 0.81$); (Montgomery-Graham, 2016).

2.4.2 The Hypersexual Disorder: Current Assessment Scale, HD:CAS

HD:CAS (American Psychiatric Association, 2010c) measures the severity of HD symptoms in accordance with the HD criteria. The scale consists of seven items mapping out the severity of HD symptom and performed sexual behaviors over the preceding two weeks. Item A.1 is a multi-option item covering six sexual behavior specifiers (masturbation,

pornography, sexual behavior with consenting adults, cybersex, telephone sex, and visits to sexual entertainment venues). The criteria-based items quantify:

A.2: The number of times the respondent has had orgasm through any of the specified sexual behaviors

A.3: The amount of time that was spent on problematic sexual fantasies, urges, or behaviors

A.4: The number of occasions on which sexual behaviors or fantasies were used to cope with dysphoric feelings (anxiety, depression, boredom, frustration, guilt, or shame)

A.5: How many times sexual fantasies and behaviors was used to postpone or handle stressful life events or other problems or obligations in life

A.6: The respondent's experienced level of control over sexual fantasies, urges, or behaviors

A.7: Number of occasions the respondents have participated in sexual activities that are risky, harmful, or even dangerous to him/herself, his/her partner, or another person.

Scores range from 0–24 points and supply a dimensional measure of HD symptom intensity/severity. The scale has yet to be validated but has been used to measure the severity of HD symptoms in several studies on HD (Chatzittofis et al., 2016; Hallberg, Kaldo, Arver, Dhejne, & Oberg, 2017a, 2017b; Nair, Pawar, Kalra, & Shah, 2013).

2.4.3 The Hypersexual Behavior Inventory, HBI-19

HBI-19 measures hypersexual behavior through 19 items rated 1–5 (1 = "Never", 2 = "Rarely", 3 = "Sometimes", 4 = "Often", and 5 = "Very Often"), all in accordance to Kafka's proposed diagnostic criteria for HD (Reid, Garos, et al., 2011). Through confirmatory factor analysis, HBI has been found to be both theoretically and psychometrically robust in the assessment of hypersexual symptoms via three factors: "control", "coping", and "consequences", a finding that further supports the HD criteria (Reid, Garos, et al., 2011). The "control" factor refers to the experienced diminished ability to regulate sexual fantasies, urges, and behaviors. "Coping" refers to the use of sexual behaviors to alter negative moods and emotions, for example the use of sex to handle stress or reduce negative feelings (such as boredom, anger, anxiety, or frustration). The "consequence" factor describes the negative effects the individual might experience from engaging in hypersexual behavior. This factor includes negative social, work- or education-related consequences, and possibly neglect of duties or important areas of life. The sum score range is 19–95 and the proposed cutoff score is 53 points. The overall scale has exhibited high internal reliability ($\alpha = .96$). The three subscales have also been found to be highly reliable ($\alpha = .89–.95$). The scale has been found to have high test-retest reliability ($n = 92$; $r = .91$) in a sample of help-seeking males.

2.5   TREATMENT OF HD

There is a pronounced lack of placebo-controlled studies of psychotherapeutic or psychopharmacological treatments for hypersexuality (Rosenberg, Carnes, & O'Connor, 2014). Historically, recommendations of best practices for treatment options for HD have been based on uncontrolled studies, case reports and consensus among clinicians. Below is presented a brief list of studies that exhibit promising findings despite their methodological shortcomings.

2.5.1   Pharmacological treatments

Pharmacological treatment may be helpful in the management of HD symptoms (Rosenberg et al., 2014). Drug treatment studies for HD and related diagnoses have been carried out, with promising effects on the attenuation of hypersexual symptoms (Naficy, Samenow, & Fong, 2013). However, methodological constraints such as small sample sizes, unvalidated outcome measures, and uncontrolled confounders obscure our understanding of the efficacy of pharmacological treatment approaches for HD. Conclusive inferences may therefore only be drawn with caution.

Based on early conceptualizations, hypersexuality was hypothesized to be a symptom of a dysregulation in the central serotoninergic system (Kafka & Prentky, 1992; Naficy et al., 2013). This dysregulation may also account for the associated depressive, compulsive, and impulsive symptoms.

Based on this assumption, selective serotonin reuptake inhibitors, SSRIs (a functional class of antidepressant medication) were the focal point of several studies, with promising effects on attenuation of hypersexual symptoms (Kafka, 1991, 1994; Kafka & Prentky, 1992; Wainberg et al., 2006). In one study, the effects of the SSRI were enhanced by concomitant use of methylphenidate, a psychostimulant drug usually prescribed for attention-deficit/hyperactivity disorder, ADHD (Kafka & Hennen, 2000). The rationale for this combination of therapies was that psychostimulant drugs may have an counteracting effect on SSRI tolerance (Mischoulon, Nierenberg, Kizilbash, Rosenbaum, & Fava, 2000) and may also neutralize the sexual dysfunction side effects otherwise associated with SSRI medication (Bartlik, Kaplan, & Kaplan, 1995). This study concluded that psychostimulants may be used with caution to supplement the SSRI treatment of men with paraphilia or paraphilia-related disorders (Kafka & Hennen, 2000). Other antidepressants and mood stabilizers have also been evaluated (Naficy et al., 2013). Kafka (1991) reported that nine out of ten hypersexual patients exhibited reduced hypersexual symptoms after treatment with either the SSRI fluoxetine, the tricyclic antidepressant imipramine, or the mood stabilizer lithium in an open trial. Furthermore, in a retrospective study, 14 male outpatients were treated with nefazodone (an atypical antidepressant) for non-paraphilic compulsive sexual behavior (Coleman, Gratzer, Nesvacil, & Raymond, 2000). All participants underwent psychotherapy concomitantly during the time period examined. The outcome was measured by a physician, and of the eleven participants who remained on nefazodone, six were considered to have

gained "good control" over their sexual symptoms while five were considered to be "in remission". None of the 11 participants reported sexual side effects or other negative physical or psychological undesirable effects.

Based on the findings from a retrospective study, Raymond and Grant (2010) concluded that naltrexone (an opioid antagonist) may be a useful adjunctive treatment for patients suffering from compulsive sexual behavior (CSB). Of the 19 reviewed patients, 18 were diagnosed with a concurrent psychiatric condition, 16 were prescribed another psychiatric drug and all of them underwent simultaneous psychotherapy. Outcomes indicated that 17 patients experienced a significant reduction of CSB symptoms with naltrexone pharmacotherapy.

Winder et al. (2017) evaluated and compared two types of pharmacological treatment for HD (antiandrogens and SSRIs) among incarcerated male sex offenders. The results indicated that both SSRIs and antiandrogens significantly reduce hypersexual behavior and sexual preoccupation. However, no control group was assigned and therefore large-scale efficacy studies were recommended.

As pointed out above, the field of pharmacological treatments for HD remains in its infancy due to a lack of uniformity regarding measurement of HD symptoms (Hook, Hook, Davis, Worthington, & Penberthy, 2010), methodological shortcomings, and small sample populations (Naficy et al., 2013).

2.5.2 Psychotherapeutic treatments

There have been few evaluations of psychotherapeutic treatment interventions for hypersexual behavior (Marshall & Briken, 2010). The lack of a common diagnostic criteria and knowledge regarding causes has resulted in considerable variation in treatment recommendations and specified treatment goals, depending on the specific diagnostic perspective applied to hypersexual behavior (Efrati & Gola, 2018b; Samenow, 2010a). To examine the status of this research field, Hook, Reid, Penberthy, Davis, and Jennings (2014), reviewed the existent empirical studies on psychotherapeutic treatment approaches for non-paraphilic hypersexual behavior and concluded that overall, the studies exhibited crucial methodological shortcomings. Few of the studies used comparative and randomized controlled designs. The outcome measures used varied between studies and were in most cases unvalidated, making comparisons between treatments challenging. This further diminishes our understanding of which treatments demonstrate clinically relevant effects. Stringently designed research projects have been recommended in order to resolve these methodological deficiencies and expand the general understanding of hypersexuality and possible treatments (Efrati & Gola, 2018b; Hook et al., 2014). The studies have supplied interesting results and vary in their conceptualization of hypersexuality, but basically address complexes of symptoms in accordance with HD.

Crosby and Twohig (2016) examined the efficacy of a treatment protocol based on acceptance and commitment therapy (ACT) for problematic use of online pornography using

a randomized trial design (n = 26). The treatment group reported a 93% decrease in pornography use, in comparison to a reported 21% decrease in the control condition.

Carnes (1983, 1991), proposes treatment interventions that to a large extent resemble the 12-step programs used for substance abuse treatment. So far, one efficacy study for this treatment model has been published (Efrati & Gola, 2018a) and the results suggest that symptoms of sexual addiction may be attenuated through attendance of 12-step meetings. The study did not utilize outcome measures that enable the results to be compared to other studies. The conclusion drawn was that despite the limitations, 12-step programs could be recommended for patients who are experiencing compulsive sexual behavior (CSB) and who were previously treated in an individual treatment setting without success. The positive treatment effects of 12-step programs for substance abuse has been debated. A review article suggests no, or possible harmful treatment effects of 12-step programs for substance abuse disorder (Miller, 2008). If these conclusions are relevant, it seems precocious to recommend such treatment from a single study that not only use an arbitrary diagnostic conceptualization, but also incomparable outcome measures and a doubtfully effective treatment.

2.5.3 Combination treatments

As presented above, there have been several studies of pharmacological treatment options for HD, but most studies did not exclusively examine the effects of the specific medications (Naficy et al., 2013). Several of the studies were performed on participants that underwent psychotherapeutic interventions concurrently with the medication trials. It is therefore not possible to draw inferences regarding the efficacy of combinations of pharmacological and psychotherapeutic interventions. As seen with other psychiatric and psychobehavioral diagnoses, combinatory treatments often yield the best results, even though the occurrence of negative side effects from desire-hampering medicinal agents may influence long-term compliance with the medication regimen.

3 RESEARCH QUESTIONS

The overall aim of the research project was to investigate the utility of the diagnostic criteria HD on individuals exhibiting excessive sexual behavior. A further aim was to develop and assess the feasibility and efficacy of a CBT treatment program for the condition and its related symptoms, both when administered in group settings and via the Internet. The project aimed to answer the following questions:

1. Is the HD diagnosis and its criteria suitable means to categorize a group of men and women who engage in excessive sexual behavior to a degree that leads to personal distress and impairment?
2. Is a newly developed CBT intervention protocol efficacious for amelioration of the symptoms associated with HD if administered in group settings?
3. If the CBT intervention protocol is efficacious in treatment of HD symptoms, can it be administered via the Internet?

To answer these research questions, four different studies were performed during the project:

Study I: Investigation of the validity of the proposed HD criteria (measured with the HDSI) on a sample of help-seeking individuals suffering from negative consequences of excessive sexual behavior.

Study II: Examination of the feasibility of a newly developed cognitive behavioral group therapy (CBGT) for HD and its associated symptoms.

Study III: Investigation of the efficacy of the CBGT for HD and associated symptoms through a randomized, controlled study.

Study IV: Investigation of the feasibility of Internet-administered cognitive behavioral therapy (ICBT) for HD, with or without paraphilia(s)/paraphilic disorder(s) and associated symptoms.

4 METHODS

4.1 RECRUITMENT

For Study I and II, participants were recruited through advertisements and articles in the media addressing men and women that self-identified as experiencing excessive and "out-of-control" sexual behavior, and who were interested in participating in a CBT program. For Study III, participants were recruited through newspaper advertisements and Google AdWords. Patients either referred to, or contacting the ANOVA clinic at Karolinska University Hospital, experiencing symptoms in accordance with the target sample, received information about the study and were encouraged to apply if interested. The same recruitment procedure was used for Study IV; but the target sample was extended to also include participants exhibiting concomitant paraphilia(s) or paraphilic disorder(s). Participants for all four studies applied for participation by providing informed consent, adequate contact information, and responses to a web-administered screening battery.

4.2 ASSESSMENT

In Study I, the participants´ responses to the web-administered screening battery, constituted the data that subsequently was analyzed. Participants applying for Study II[1], III, and IV were contacted and offered clinical assessment interviews – one with a psychiatrist and one with a clinical psychologist. The clinical interviews aimed to assess the participants' overall psychiatric and physical health, to control for possible contraindicating factors. The interviews also assessed the participants' HD diagnostic status. Following the interviews, all participants were reviewed in ensuing referral meetings in which a decision regarding inclusion/exclusion was made.

4.3 OUTCOME MEASURES IN STUDY I–IV

The outcome measures used in the project in its entirety are presented below. The outcomes are divided into three groups: 1. Measures of hypersexual symptoms 2. Measures of general psychiatric symptoms, and 3. Other measures.

4.3.1 Measures of hypersexual symptoms

Throughout the project, the following outcome measures were used to measure symptoms of hypersexuality.

4.3.1.1 *Hypersexual Disorder Screening Inventory, HDSI*

The HDSI was used to screen for HD in Study I–IV. It was also used an outcome measure in Study II. The inventory screens for the possible occurrence of an HD diagnosis over the

---

[1] Participants were recruited from the sample in Study I.

preceding six months (American Psychiatric Association, 2010b). For a full description and psychometric properties, see section 1.5.1.

4.3.1.2 Hypersexual Disorder: Current Assessment Scale, HD:CAS

HD:CAS (American Psychiatric Association, 2010c) was used as a severity measure of HD symptoms over the preceding two weeks in Study II–IV. For a thorough description of the measure, see section 1.5.2.

During the analyses, an error in item A3 of HD:CAS was found, affecting Study III and IV. The item incorrectly included the wording "*the last six months*" and asked whether the respondent had used sexual fantasies, urges, or behavior "*in response*" to distressing feelings (i.e., anxiety, grief, boredom, guilt or shame). The response options were correct. Originally, item A.3 referred to the amount of time over the preceding two weeks the respondent had engaged in sexual fantasies, urges, or behaviors (cf. section 1.5).

To investigate the extent of the inflation of the results in Study III and IV, we performed the following analyses:

1. Investigation of the influence of item A.3 on internal consistency for the internal reliability of HD:CAS of the pre- and post-treatment measurement.
2. Reanalyses of the data with the linear mixed model repeated measurement omitting item A.3.
3. Recalculations of the effect sizes of the results.

4.3.1.2.1 Internal consistency

Cronbach's α calculated on the pre-treatment item data derived from all items in Study III showed good internal consistency (Cronbach's $\alpha = 0.81$), which was marginally lower (Cronbach's $\alpha = 0.80$) if item A.3 was excluded. The post-treatment measurement exhibited similar consistency. When all items were included there was a high internal consistency ($\alpha = .831$); when item A.3 was excluded there was an insignificantly higher internal consistency ($\alpha = .839$).

In Study IV, the pre- and post-treatment measurements had good internal consistency when all items were included (pre-treatment: $\alpha = .81$; post-treatment: $\alpha = .90$); if item A.3 was excluded, the internal consistency was marginally higher at pre-treatment ($\alpha = 0.82$) and insignificantly higher at post-treatment ($\alpha = .91$).

4.3.1.2.2 <u>Main analyses and effect sizes</u>

The sum scores and observed means differed depending on whether item A.3 was included or excluded. Table 2 presents the calculated internal consistencies and effect sizes for HD:CAS with, and without item A.3.

Table 2. Internal consistencies, unstandardized and standardized effect sizes for HD:CAS in Study III & IV.

Time points	α	β	CI	β_1	CI	d	CI
Study III							
HD:CAS (Full scale)							
Pre	.81	-	-	-	-	-	-
Post	.83	-3.6	-3.5; -1.5	3.2	1.8, 4.7	0.66	0.29; 1.0
HD:CAS (A.3 omitted)							
Pre	.80	-					
Post	.84	-3.1	-4.2; -1.1	2.7	-1.0; 0.70	0.72	1.1; 0.30
Study IV							
HD:CAS (Full scale)							
Pre	.81	-	-	-	-	-	-
Post	.90	-3.8	-4.6; -3.0	-	-	0.91	0.42; 1.4
HD:CAS (A.3 omitted)							
Pre	.82	-	-	-	-	-	-
Post	.91	-3.9	-4.7; -3.1	-	-	0.96	0.46; 1.5

Note: α = Cronbach´s alpha; β = beta-coefficient or estimated raw-score change from baseline; β_1= estimated raw score change in relation to β *(i.e., divergence from the treatment groups β-value)*; CI = 95% confidence interval; d = Cohen´s d.

At post-treatment in Study III, the estimated mean decrease of the sum score was 3.6 points (β = -3.6, CI = -3.5; -1.5, $p < 0.05$) for the treatment group; for the waitlist the mean increase of the sum score was 3.2 points. This yielded an intergroup effect size of Cohen's d = 0.66, CI = 0.29–1.0. When item A.3 was omitted, the estimated mean decrease was 3.1 points (β = -3.1, CI = -4.2; -1.1, $p < 0.05$) for the treatment group whereas the waitlist on average scored 2.7 points higher (β = 2.7, CI = -1.0; 0.70, $p < 0.05$). The standardized intergroup effect size was d = 0.72 (CI = 1.1–0.30).

In Study IV, the β coefficient (the model-implied estimation of mean score difference between the pre- and post-treatment measurement) was β = -3.8 (CI = -4.6; -3.0, $p < 0.05$). Removal of item A.3 yielded a somewhat larger decrease (β = -3.9, CI = -4.7; -3.1, $p < 0.05$). The standardized effects size of the sum score change at post-treatment was larger when item A.3 was excluded (d = 0.96, CI = 0.46–1.5) than when it was included (d = 91, 0.42–1.4).

4.3.1.3 Hypersexual Behavior Inventory, HBI-19

HBI-19 (Reid, Garos, et al., 2011) was used as the primary HD symptom severity measure in Study IV. HBI-19 is presented in detail in section 1.5.3.

4.3.1.4   Sexual Compulsivity Scale, SCS

SCS (Kalichman & Rompa, 1995, 2001) is a scale that was developed to measure the risk for contracting HIV following compulsive sexual behavior. SCS measures sexual compulsivity in regard to the estimated amount of insistent, intrusive, and unwanted urges to perform sexual behaviors (Montgomery-Graham, 2016). The scale consists of 10 items which rate the respondents' agreement with statements related to sexually compulsive behavior, sexual preoccupation, and intrusive sexual thoughts (Öberg, Hallberg, Kaldo, Dhejne, & Arver, 2017). The items are rated along a four-point scale ranging from 1 ("not at all like me") to 4 ("very much like me"). The scoring range is 10–40 points and respondents are considered sexually compulsive if their mean score exceeds 21 points. SCS has been found reliable in a sample of HIV-positive men ($\alpha = .89$) and women ($\alpha = .92$) (Kalichman & Rompa, 2001). SCS is one of the most commonly used measures of hypersexuality/sexual addiction (Karila et al., 2014). The SCS (Kalichman & Rompa, 1995, 2001) was used in Study I, III, and IV to measure the level of sexual compulsivity symptoms.

4.3.1.5   Cognitive and Behavioral Outcomes of Sexual Behavior Scale, CBOSB

CBOSB is a scale developed to assess the extent to which respondents are concerned about negative outcomes of their sexual behaviors, and the extent to which such outcomes are actually experienced (McBride, Reece, & Dodge, 2010). The scale includes 36 items divided into 2 subscales: "concerns regarding possible consequences" and "consequences of sexual behavior" within financial, legal, physical, psychological, spiritual, and social areas. Twenty items constitute the cognitive outcomes scale which uses a four-point scale ranging from "never" to "always" to assesses the extent to which respondents worry that things they have done sexually may result in a specified outcome. The 16 behavioral outcome items are measured dichotomously ("yes" or "no") to assess the extent to which the respondent has experienced specific outcomes as a result of their sexual activities over the preceding year. Internal consistency for the 20-item cognitive scale was high ($\alpha = .89$), with a slightly lower level of reliability ($\alpha = .75$) for the 16-item behavioral scale.

4.3.2 Measures of paraphilia

4.3.2.1   Severity Self-rating Measures for Paraphilic Disorders

The DSM-5 Paraphilia Sub-workgroup proposed self-rating scales for measuring the severity of the paraphilic disorders (American Psychiatric Association, 2011). For this thesis, the measured paraphilias were voyeurism, exhibitionism, frotteurism, pedophilia, sadism, and sexual coercion. The self-rating scales offer reasonable metrics to quantify the severity of paraphilia that can be psychometrically validated over time (Krueger & Kaplan, 2012). The scales consist of five items rated from 0–4 points. Item 1 quantifies the frequency of the respondent's experience of the paraphilic urge over the preceding two weeks and is scored as: "Never" (0 points), "Once" (1 point), "About once a week" (2 points), "Several times a

week" (3 points), or "About every day" (4 points). Item 2 assesses the number times during the preceding two weeks sexually arousal has followed from imagining or remembering engagement in the paraphilic behavior. This item is scored as for item 1. Item 3 measures how sexually exciting the idea of engaging in the respective paraphilic behavior has been over the preceding two weeks and is scored as: "Not at all exciting" (0 points), "Slightly exciting" (1 point), "Moderately exciting" (2 points), "Strongly exciting" (3 points), or "Extremely exciting" (4 points). Items 4 and 5 assess the number of nonconsenting victims the respondent has exposed to the paraphilic behavior. Item 4 concerns the preceding two weeks and is scored as: "0" (0 points), "1" (1 point), "2" (2 points), "3" (3 points), or "4 or more" (4 points). Item 5 concerns the cumulative lifetime number of victims and is scored as: "0" (0 points), "1" (1 point), "2" (2 points), "3–50" (3 points), or "More than 50" (4 points). The total score range is 0–20 points. The scales are not yet validated.

To screen for the presence or absence of paraphilia, ideation, desire and/or behavior, each self-rating measure was dichotomized based on the following score spans: 0 = "no indication of paraphilia" and ≥ 1= "indication of paraphilia". The dichotomized results were then summed to obtain a measurement of the number of indicated paraphilias. A composite measure was created by summing the scores on *all* the paraphilic severity measures and dividing the sum with the number of measures with a score ≥ 1. The score range of the composite was 0–20. The composite constitutes a global measure of paraphilic symptoms and was used to monitor changes in paraphilic symptoms.

4.3.3 Measures of general psychiatric symptoms

4.3.3.1 Montgomery-Åsberg Depression Rating Scale, MADRS

The MADRS (Svanborg & Åsberg, 2001) was used in Study III and IV to measure the participants' level of depressive symptoms. MADRS was developed to be sensitive to changes in depressive symptomatology. The scale consists of nine items that are scored 0–6, yielding a possible sum score range of 0–54. The following score span categorizations have been proposed: 0–2 = "no depression", 13–19 = "mild depression", 20–34 = "moderate depression", and scores exceeding 34 = "severe depression". The scale exhibits good test-retest reliability ($r = 0.80–0.94$) and has demonstrated high internal validity (Cronbach's $\alpha = 0.82–0.90$).

4.3.3.2 Clinical Outcome in Routine Evaluation, CORE-OM

To measure the participants' level of psychological distress, the CORE-OM (Elfström et al., 2013; Evans et al., 2002) was used as a secondary outcome measure in Study III and IV. CORE-OM consists of 34 items that measure four dimensions of distress: (i) Symptoms (anxiety, depression, somatic and trauma), (ii) Functioning (in close relationships, generally, and socially), (iii) Subjective wellbeing, and (iv) Risks to oneself and/or others. CORE-OM exhibits good internal reliability (Cronbach's $\alpha = 0.75–0.95$) and stable good test-retest reliability for all sub-scores ($r = 0.87–0.91$), with the exception of the risk sub-score ($r = 0.64$). The total score is divided by the number of items, resulting in a mean score range of 0–

4. The risk dimension was excluded throughout Study III and IV. In addition, as proposed by Barkham, Mellor-Clark, Connell, and Cahill (2006), the mean score was multiplied by 10 to obtain a clinically straightforward format. CORE-OM has been validated for the Swedish population and the results yielded a cutoff score of 14 that distinguish between non-clinical and clinical populations (Elfström et al., 2013).

4.3.4 Other Measures

4.3.4.1 Client Satisfaction Questionnaire, CSQ-8

To measure the participants' post-treatment level of treatment satisfaction, CSQ-8 (Attkisson & Greenfield, 1994) was used in Study II–IV. Participants submitted responses to CSQ-8 after treatment cessation. CSQ-8 consists of 8 items which are scored 1–4, leading to a possible sum score span of 8–32. The higher the score, the higher the respondent's treatment satisfaction. Further, Smith et al. (2014) have proposed the following interpretative categorization of the sum score: 8–13 = "poor", 4–19 = "fair", 20–25 = "good" and 26–32 = "excellent". The questionnaire has a high internal consistency (Cronbach's α range = 0.83–0.93) and sum scores have been demonstrated to correlate with changes in self-reported symptoms.

4.3.5 Summary

Table 3 presents an overview of the outcome measures and the function each measure had in the studies included in this thesis.

Table 3. Measures used in Study I-IV and their function in respective study.

	Measures								
	HDSI	HD:CAS*	HBI-19	SCS	CBOSB	Paraphilia Composite	MADRS	CORE-OM	CSQ-8
Study									
I	X [S]			X [SO]	X [SO]				
II	X [S, SO]	X [PO, *]							X [SO]
III	X [S]	X [PO *]		X [SO]			X [SO]	X [SO]	X [SO]
IV	X [S]	X [SO *]	X [PO]	X [SO]	X [SO]	X [SO]	X [SO]	X [SO]	X [SO]

Note: [S] = used for Screening, [PO] = used as primary outcome measure, and [SO] = Secondary outcome measure. * = including number of sexual behavior specifier(s) as a secondary outcome measure.

4.4 TREATMENT COMPONENTS, MODALITIES, AND PROCEDURE

4.4.1 The CBT Treatment

The treatments evaluated in Study II–IV were all based on cognitive behavioral therapy principles. Based on the proposed HD criteria and the knowledge gained from Study I, a group-administered cognitive behavior therapy treatment program was created. The aim was

to address the assumed core features of HD as postulated in the proposal by Kafka (2010). The treatment and its components were subsequently slightly modified in Study III and IV to better fit the patients and the treatment formats. Table 4 presents an overview of the treatment components and interventions in Study II–IV. All treatment material and exercises were assigned as homework until the following group session[2] or the next treatment module[3].

---

[2] Study II and III
[3] Study IV

Table 4. Treatment content/components in Study II-IV.

Treatment content/components	Study II	Study III	Study IV
Psychoeducation			
-Description of the principles behind CBT and the hypothesized relationships between thoughts, behaviors and emotions.	X	X	X
-Description of HD from a CBT-perspective.	X	X	X
-Description of paraphilias, and information on the unconditional requirement of mutual consent for interpersonal sexual activities, on the internet as well as in real life.	-	-	X
Stimulation of motivation and perspectives on behavioral change			
-Information on theoretical perspectives on the process of change. Assessment and stimulation of motivation and readiness for behavioral change through examination of personal perspectives on pros and cons of change.	X	X	X
Functional behavior analysis			
-Behavioral analysis for increased awareness of the incentives for, and function of problematic/excessive sexual behaviors. Identification of behavioral surplus and deficits.	X	X	X
Impulse control skill training			
-Development of functional impulse management skills and handling techniques for risk-situations. Creation of personal risk card, urge-surfing (an acceptance-based technique), and mindfulness practice exercises.	X	X	X
Identification of values and behavioral activation			
-Identification of values in different areas of life in accordance with principles from acceptance and commitment therapy (ACT).	X	X	X
-Behavioral activation in accordance with identified values and operationalization of these in short-, and long-term goals.	X	X	X
Cognitive restructuring, behavioral experiments and functional problem solving			
-Information on the nature and function of cognitions and emotions. Techniques for handling of negative cognitions and emotions through cognitive restructuring, behavioral experiments and directed problem-solving.	X	X	X
Time management techniques*			
-Inventory of chores and tasks. Division of these into manageable chunks.	X	-	-
Assertiveness skill training			
-Behavior analysis of communication styles in various social contexts (including sexual and intimate situations) for identification of those in need of communicative improvement.	X	X	X
-Development of communication styles through behavioral experiments and behavioral activation in accordance with assertiveness skill training.			
-Development of interpersonal intimacy and sexuality through sensual communication and sensate focus exercises. For participants without an intimate partner, exercises for development of personal sexuality through solitary sensate focus exercises.	-	-	X
Relapse prevention			
-Review and summary of the treatment. Identification of the interventions found most useful and feasible for continued work towards improvement.	X	X	X
-Creation of individual maintenance and relapse prevention programs and presentation of techniques for handling of set-backs.	X	X	X

* = Intervention was removed from the treatment manual after Study II since it was considered redundant.

4.4.1.1 Psychoeducation

It was hypothesized that acquirement of diagnosis-specific knowledge would benefit the treatment responsivity. A thorough meta-analysis has revealed that psychoeducational interventions in themselves can reduce psychological distress and symptoms in depressed patients (Donker, Griffiths, Cuijpers, & Christensen, 2009). Andersson, Carlbring, Furmark, and Group (2012) found a significant but small correlation between diagnosis-specific knowledge and positive treatment outcomes in patients taking part in ICBT for social anxiety.

In line with these findings, the psychoeducative components were designed to:

1. Describe HD from a CBT perspective.
2. Describe each treatment intervention, exercise, and worksheet in a comprehensive manner.
3. Facilitate the transition between treatment components and induce a sense of good symptom-to-intervention-fit.

All psychoeducative components were formulated in lay terms and provided in an easy-to-follow text format.

4.4.1.2 Stimulation of motivation and perspectives on behavioral change

The motivational part of the treatment consisted of psychoeducation on theoretical perspectives of behavioral change in accordance with "*the transtheoretical model of change*" (Norcross, Krebs, & Prochaska, 2011).

As with most behavioral change treatments (e.g., smoking, alcohol, or drug cessation; medication compliance, improvement of diet, or initiation of exercise), motivating the client to engage in therapy is considered challenging (Levensky, 2003). If the client is ambivalent to and/or exhibits a lack of motivation regarding a behavioral change, attempts may be less successful (Garfield, 1994; Miller, 2002). Miller (1985) suggests that the evocation of an uncomfortable discrepancy between the client's present lifestyle and an ideal one, leads to a higher willingness to engage in a behavioral change.

Exercises and interventions to stimulate client motivation entailed:

1. Examination of personal perspectives on the pros and cons of behavioral change.
   Worksheet: "*Cross of change*", "*Wheel of change*".
2. Identification of surpluses and deficits of sexual and non-sexual behaviors.
   Worksheet: "*Inventory of behavioral surpluses and deficits*".
3. Monitoring of problematic sexual behaviors to gain a more detailed picture of their magnitude and duration.
   Worksheet: "*Registration of problematic sexual behaviors*".

4.4.1.3 Functional behavior analysis

Functional behavior analysis was applied and performed early in the treatment to gain a thorough understanding of the function of problematic sexual behaviors as specified in criteria A2 and A3, and the motivational processes that underlie them. The analysis was based on principles of classic and operant conditioning according to Mowrer's two-factor model (Eikeseth & Svartdal, 2007). The principles of positive and negative reinforcement and punishment were also included.

Another important area used for the understanding of the function of the sexual behaviors, as well as the situations and mood states that elicit them, was the examination of Establishing Operations (EOs). Establishing Operations are factors that are not necessarily discriminative Stimuli (S^D), but rather factors or circumstances that increase the reinforcing consequences of a specific behavior (Eikeseth & Svartdal, 2007; Iwata, Smith, & Michael, 2000). Such factors may include prolonged stress responses due to a heavy work load, marital and/or relationship discord, or dysfunctional time management – circumstances that may amplify the diverting effects of, or the pleasure experienced from, engagement in sexual behaviors. Apart from the explorative and knowledge-gaining function of the intervention, Forsyth and Eifert (1996) suggest that behavior analysis is in itself a potent symptom-ameliorating intervention.

The functional behavior analyses were performed through;

A. situations and associated discriminative stimuli for sexual behaviors (S^D)
B. appraisals and psychological reactions to stimuli (thoughts, inner experiences, physiological states, etc.)
C. behavioral responses to I and II, and
D. short- and long-term consequences of problematic sexual behaviors, including interpretations of the functional reinforcement of the events (i.e. positive/negative reinforcement/punishment).

Worksheet: "*Functional behavior analysis form*"

4.4.1.4 Impulse control skill training

Target Criteria: A4 and A5

The A4 HD criterion "*repetitive but unsuccessful efforts to control or significantly reduce these sexual fantasies, urges, and behavior*" (Kafka, 2010) was hypothesized to reflect the clients' experiences of being unable to control, reduce, or regulate their sexual behaviors, i.e., low impulse control. As noted above, this lack of control may be due to both classic and operant conditioning processes. In the case of respondent conditioning, the results from the functional behavior analysis map out possible discriminative stimuli (S^D) that increase the reinforcing effects of engagement in sexual behaviors. In the light of this increased stimuli awareness, the client was helped to further develop skills for recognition and prediction of

potential high-risk situations in which impulses to engage in sexual behaviors may arise. Preventative measures were then applied by helping the clients to plan and rehearse more balanced behavioral responses.

As formulated in the diagnostic proposal by Kafka (2010), hypersexual behavior includes an impulsivity component. In line with this impulsivity feature of HD, the treatment entailed "urge-surfing", an acceptance-based technique aimed to increase the resilience against suddenly arisen impulses to engage in problematic behaviors (Lloyd, 2003). By repeatedly and successfully postponing or inhibiting engagement in sexual behavior, the clients may gain increased trust in their ability to control their behaviors more appropriately.

The mindfulness techniques included aimed to increase the emotional stability since this has been found to reduce impulsive decision-making (Sohn et al., 2015). It has previously been suggested that mindfulness practice have the potential to attenuate hypersexual symptoms, strengthen affect regulation and help the clients to develop tolerance for unpleasant emotional experiences from shame and self-criticism (Reid, Bramen, et al., 2014; Reid, Harper, & Anderson, 2009).

These treatment components are also intended to address the A5 criterion "*repetitively engaging in sexual behavior while disregarding the risk for physical or emotional harm to self or others*".

Exercises for increased impulse control:

1. Development of functional impulse management skills and handling techniques for risk situations.
2. Identification of risk situations for engagement in problematic sexual behaviors. Worksheet: "*Registration of urge-eliciting situations*"
3. Creation of a personal "*risk card*" (i.e., list of situations and stimuli that might lead to a proclivity to engage in sexual behaviors).
4. Development of the "Urge-surfing" technique.
5. Mindfulness techniques and practice.

4.4.1.5   Identification of values and behavioral activation

Target criteria: A2 and B1

The depression-oriented dysphoric mood states (i.e. depression and boredom) specified in criterion A2 of the diagnostic proposal (Kafka, 2010), were addressed in the treatment protocol through identification of values, using the method of Acceptance and Commitment Therapy (ACT). This intervention aims to help clients to identify and specify behavioral processes and goals that are important to pursue in order to give life a valuable and meaningful direction (Hayes, Strosahl, & Wilson, 2011). The results of the value identification exercise are used to facilitate the subsequent treatment component, behavioral activation. Behavioral activation (BA) has been found to be a potent way to counteract

depressive symptoms (Martell, Addis, & Jacobsen, 2001). The identified values were functionally operationalized in specific behaviors to be executed on a regular basis. The intention was to increase the instances in which the clients encounter value based reinforcing consequences and gradually gain a positive experience of direction in life.

The BA intervention also encourages clients to engage in behaviors that provide positive reinforcement in important areas of life and functioning. Note that this intervention also addresses criterion B1: "*… clinically significant distress or impairment in social, occupational or other important areas of functioning associated with the frequency and intensity of these sexual fantasies, urges, and behavior*". If clients come in contact with additional instances of positive reinforcement, the presence of depressive indices are hypothesized to decrease (Martell et al., 2001).

Exercises for this treatment component:

1. Identification of values.
   Worksheet: "*Identification of Values*"
2. Operationalization of values in short-term and long-term goals.
   Worksheet: "*Identification of value-based goals*"
3. Behavioral activation.
   Worksheet: "*Daily activation schedule DAS*"

4.4.1.6   Cognitive restructuring, behavioral experiments, and functional problem solving

Target criteria: A2 and A3

In addition to the depression-related part of the dysphoric mood states in criterion A2, anxiety-related moods were addressed in the treatment. Negative interpretations and appraisals of avoided situations and events were addressed using standard procedure "cognitive restructuring" techniques. In this intervention, negatively-colored private experiences (physical sensations, thoughts and emotions) were analyzed and disputed through generation of more balanced thoughts and interpretations (Ellis, 2003).

According to Dugas and Robichaud (2009), important pathways to anxiety include intolerance of uncertainty (IOU), positive beliefs about worry, and negative problem orientation. Intolerance of uncertainty has been found to be a predictor for excessive worry and when people learn to tolerate uncertainty, they usually worry less (Dugas, Schwartz, & Francis, 2004; Ladouceur, Gosselin, & Dugas, 2000). To address IOU, information on the impossibility of attaining full certainty in real life situations was presented (Dugas & Robichaud, 2009). Further, it was proposed that the development of tolerance, can lead to less worry. Exercises to address this included behavioral experiments in which the clients were encouraged to face situations and acts that usually elicit anxiety, without using maladaptive security-seeking strategies. Through exposure to these situations, reevaluation of the benefits of worry may take place and hopefully result in the development of a higher level of tolerance. Furthermore, these experiences may also modify the belief on worry as an effective

mean for problem-solving, i.e., cognitive restructuring through behavioral experiments (Dobson & Hamilton, 2003; Dugas & Robichaud, 2009).

Problem-solving skill training through brainstorming was also included to counteract and modify IOU and negative problem orientation (Dugas & Robichaud, 2009). This intervention has also been found to stimulate the development of tolerance for uncertainty (D'Zurilla & Nezu, 1999; Dugas & Robichaud, 2009).

These presented interventions can be seen through the lens of the above incorporated BA component of the treatment and thus also address the depression-oriented dysphoric mood states specified in criterion A2 (American Psychiatric Association, 2010a; Kafka, 2010). Criterion A3 "*repetitively engaging in sexual fantasies, urges, and behavior in response to stressful life events*" may also be addressed, since problem-solving skills may lead to more efficient management of stress-inducing events (D'Zurilla & Nezu, 1999).

Exercises for this treatment component:

1. Cognitive restructuring through disputing of irrational beliefs.
   Worksheet: "*Cognitive restructuring form*"
2. Behavioral experiments
3. Worksheet: "*Behavioral experiment form*"
4. Problem-solving through brainstorming
   Worksheet: "*Procedural problem-solving form*"

4.4.1.7   Assertiveness skills training

Target criteria: A1, A2, A3, and A4

Assertiveness is a core interpersonal behavior that can profoundly influence relations as well as experienced self-worth and self-esteem (Paterson, 2000). Assertiveness includes a functional set of behaviors that enable individuals to act according to their own interests and to comfortably express opinions, thoughts, and feelings without experiencing anxiety or risking harm to the feelings or rights of others (Vatankhah, Daryabari, Ghadami, & Naderifar, 2013). Frustration and interpersonal difficulties due to communicative shortcomings are common in many psychiatric disorders (Paterson, 2000). Shortcomings may lead to frustration due to excessive compliancy, feelings of shame, and/or guilt from exhibiting inappropriate aggressive or dominant behavior, or intimate relational discord caused by irritation stemming from a lack of a suitable means of communication.

Through the analysis of commonly used communicative behavior styles (aggressive, passive, passive-aggressive, or assertive) in various typical social interactions, sticking points and areas in need of improvement can be isolated. Subsequently, by experimenting with the application of more assertive-oriented interpersonal behaviors, more fulfilling interactions may be achieved (Paterson, 2000). A potential result is the experience of less anxiety, stress, and frustration. Overall, this component targets HD criteria A1–4.

Exercises for this treatment component:

1. Behavior analysis of communication styles in various social contexts (including sexual and intimate situations) for the identification of skill deficits.
   Worksheet: "*Assessment of assertive communicative skills*"
2. Development of alternative communication styles through behavioral experiments.
   Worksheet: "*Behavioral experiment form*"
3. Reminder sheet for active listening and respectful criticism.

4.4.1.8   Time management techniques

Target criteria: A3

The A3 criterion "*repetitively engaging in sexual fantasies, urges, and behavior in response to stressful life events*" (American Psychiatric Association, 2010a; Kafka, 2010) was interpreted as the use of sexual behaviors as an avoidant coping strategy to events eliciting subjectively experienced stress responses. Stressful life events in this sense may include the loss of a loved one, a separation, or being laid off from work. Stressful life events may also be more protracted and less intense events such as poor relationship interaction, or stressful work or study situations. The hypothesis was to address these events through functional behavior analyses (cf. above) to identify stress-eliciting events and circumstances. By breaking down seemingly overwhelming tasks into smaller parts, prioritizing tasks, and planning for the execution of these through BA principles (cf. above), the stress responses were hypothesized to decrease.

Exercises for this treatment component:

1. Functional behavior analysis.
2. Prioritizing tasks and breaking tasks down into manageable steps.
3. Execution of parts of tasks using behavioral activation.

4.4.1.9   Relapse prevention

Relapse prevention (RP) procedures refers to the processes in which the clients' self-management skills are enhanced to maintain the therapy induced behavior changes over time (Brunswig, Sbraga, & Harris, 2003; George, 1989). The RP conceptualization has been found valuable in treatment of addictions, especially since addiction oriented disorders share common features such as short-term reinforcement, long-term negative consequences and personal distress and social impairment (Ward & Hudson, 1996). RP has typically been applied in therapeutic management of problems involving issues of self-control, including uncontrolled sexuality (Brunswig et al., 2003) Perspectives on the difference between "setbacks" and "relapse" was also presented. The term "setback" was defined as a temporary instance of engagement in the maladaptive behavior whereas a "relapse" was defined as the complete violations of the established and self-imposed, rules for abstinence.

This final treatment step involved a review and summary of the treatment content and identification of the material found most helpful. Further, interventions and techniques in need of more thorough processing and refinement, were explored. Based on this exploration interventions for continuous work towards further improvement, an individual maintenance and relapse prevention program was designed. Routines for regular repetition and review of the treatment materials were also established.

Procedure for the relapse prevention component:

1. Treatment review and summary.
2. Identification of the most helpful treatment material.
3. Explorations of treatment techniques in need of further processing and refinement.
4. Design of personal maintenance and relapse prevention program.
5. Establishment of routines for repetition and review of the treatment materials.

4.4.2 Treatment modalities

4.4.2.1 Cognitive Behavioral Group Therapy, CBGT

In Study II and III, treatment was administered in a group therapy setting. The positive treatment effects of group-administered psychotherapy have been well documented (Burlingame, Fuhriman, & Mosier, 2003; McRoberts, Burlingame, & Hoag, 1998). In meta-studies of group treatment interventions, it was consistently found that group therapy has beneficial effects for a variety of disorders across different treatment models (Burlingame et al., 2003; Fuhriman & Burlingame, 1994). Furthermore, results from a meta-analysis of group treatment interventions suggest that homogeneity of symptomatology within the target group and behavioral-oriented and manualized treatments correlated positively with symptom reductions (Burlingame et al., 2003).

One of the benefits of group therapy is that the domain of interpersonal functioning may profit from the treatment format due to the interpersonal focus and social support aspects of group interventions (McDermut, Miller, & Brown, 2001; Yalom, 2005). In a study of group therapy for social anxiety, diagnosis-specific shame was significantly reduced after treatment (Hedman, Strom, Stunkel, & Mortberg, 2013). The authors hypothesized that the treatment format may have had a curative effect by offering opportunities to realize that each individual patient's situation and experiences are shared with others. It has been proposed that the group treatment format is a feasible way to address the symptoms specific to hypersexuality (Adams & Robinson, 2011; Turner, 2008).

4.4.2.2 Internet-Administered Cognitive Behavioral Therapy, ICBT

In Study IV, treatment was administered individually via the Internet. During the last 15 years, the Internet has become a new and promising arena for the administration of psychotherapeutic treatment (Andersson, 2016; Andersson et al., 2008). Therapist-guided treatments administered via the Internet have been found to be an effective option for various psychiatric and somatic conditions in over 100 controlled trials. Internet-administered therapy can be as effective as face-to-face treatments, lead to sustained clinical improvements and offer cost-effective alternatives to conventional psychotherapy (Andersson, 2016; Hedman, Carlbring, Ljótsson, & Andersson, 2014). Furthermore, since the attendance of real-life meetings is not required to the same extent, patients who would otherwise not seek suitable help due to geographic inaccessibility can be reached (Andersson, 2016). Also, the Internet offers a relative anonymity that may appeal to a group of patients that under normal treatment circumstances are reluctant to seek help (Andersson, 2016). Internet Delivered Therapy has profoundly challenged the general way we think about how psychotherapy should or can be performed. Further implementation of this treatment format in existing clinical settings is warranted as a supplemental alternative to traditional clinical practices, to enhance the accessibility of adequate treatment options.

4.4.3 Treatment procedure

4.4.3.1 Study II

The CBGT in Study II was led by two licensed CBT psychologists (the author and the main supervisor), who conducted the treatment program in collaboration. Two treatment groups were formed: the first ($n = 6$) took part in the treatment over seven 2.5-hour sessions, and the second ($n = 4$) took part in the treatment over ten 2.5-hour sessions. The different treatment lengths aimed to evaluate the impact of the number of sessions and total treatment duration. To ensure treatment integrity, the material was supplied in written form and consisted of detailed self-help-oriented texts with associated exercises and homework assignments. The material was also presented orally by the group leader during the group sessions. Opportunity to discuss and elaborate the material in relation to the participants' specific situations and problems was offered. The homework assignments were later reviewed and commented on in the following group session.

4.4.3.2 Study III

The CBGT in Study III was led by at least one licensed CBT psychologist and one licensed psychotherapist, both experienced within the field of sexology/sexual medicine. The treatment group sizes varied (2–8 participants), depending on the number of included participants from each recruitment period. In total, 26 groups (13 treatment and 13 waitlist controls) were formed throughout the study. The author of this thesis led 77% of the study groups, distributed equally between the treatment and the waitlist groups. The treatment procedure was conducted in the same manner as in Study II.

4.4.3.3 Study IV

In Study IV the treatment was modified for, and administered through, the Internet in accordance with feasible principles for ICBT (Andersson, 2016; Hedman et al., 2014). All treatment material was supplied on a secure internet platform used exclusively for ICBT. All participants were assigned an individual therapist and all therapist-participant communication was performed via an e-mail service through the platform, unless circumstances required other measures. SMS notifications were sent to the participants to alert them that new treatment material was available, therapist messages were sent, or to or remind the participant that responses to the outcome measures were to be submitted. The treatment consisted of 10 treatment modules with an expected work rate of approximately one module per week. The treatment procedure prompted participants to work through the treatment material and submit responses to the specified treatment assignments. The therapist reviewed these assignments and supplied feedback. Contact with the therapist was guaranteed on Mondays, Wednesdays, and Fridays every week (unless national holidays interfered). The treatment was provided over 12 weeks and was based on the same treatment components as in Study II and III. However, the treatment material was slightly modified and expanded to also address mutual consent for sexual interaction as well as information on paraphilias and paraphilic behaviors.

Following treatment cessation, 12 weeks after the start, access was granted to all ten modules regardless of the number of modules completed by the participant.

4.4.4 Sample Characteristics

Table 5 supplies an overview of the screening characteristics of the participants in Study I–IV.

Table 5. Sample Characteristics for Study I–IV

Baseline Characteristics	Study I ($n = 80$)	Study II ($n = 10$)	Study III ($n = 137$)	Study IV ($n = 36$)
Gender, *n (%)*				
Women	16 (20)	0 (0)	0 (0)	0 (0)
Men	64 (80)	10 (100)	137 (100)	36 (100)
Age, *M (SD)*, years	38 (11)	39 (8.1)	40 (12)	39 (8.5)
Currently in relationship, *n (%)*	48 (60)	8 (80)	78 (57)	30 (83)
Children, *n* (% yes)	35 (44)	5 (50)	78 (57)	27 (75)
Highest education level, *n (%)*				
Compulsory School	3 (4)	0 (0)	6 (4.4)	3 (8)
Senior High School	28 (35)	3 (30)	48 (35)	11 (31)
University Experience	49 (61)	7 (70)	78 (57)	21 (58)
Other	0 (0)	0 (0)	4 (2.9)	1 (3)
Occupation, *n (%)*				
Student	NA	1 (10)	9 (6.6)	2(5.5)
Unemployed	NA	0 (0)	5 (3.6)	2 (5.5)
Paid work	50 (63)	9 (90)	112 (82)	32(89)
Other (parental/sick leave, retired)	NA	0 (0)	11 (8.0)	0 (0)
Screening sum scores				
HDSI	19	19	19	20
HD:CAS	NA	13	10	11
SCS	28	26	28	29
HBI-19	NA	NA	NA	73

No significant differences ($p > 0.05$) were found between studies I–IV for the variables compared.

4.5 STATISTICS

4.5.1.1 *Study I*

Spearman rank correlations analyses were used to establish item-item and item-total correlations of HDSI. The Mann-Whitney U-test and the Wilcoxon rank sum test were used

to detect differences between groups of ordered data. Dichotomous data were analyzed using cross-tabulation with χ^2 and the Fisher exact tests when appropriate. P-values less than 0.05 were considered significant.

4.5.1.2 Study II

Since data did not meet the assumption of normal distribution according to the Kolmogorov-Smirnov test, the Wilcoxon signed rank test was used to determine changes to the outcomes. Effect sizes of changes were calculated in accordance with Cohen (1988). Spearman correlation analysis was used for analysis of possible correlations between treatment gains and the proportion of attended sessions. HD:CAS items A4, A5, and A6 at the end-treatment measurement of three respondents were lost and imputed using the last-observation-carried-forward procedure (Molnar, Hutton, & Fergusson, 2008). P-values less than 0.05 were considered significant.

4.5.1.3 Study III

T-tests were used for analysis of differences in continuous data. Dichotomous data were analyzed using χ^2 test for independence. The internal consistency of the primary outcome measure was determined through Cronbach's α.

For intergroup comparison and for analysis of the long-term intragroup effects, linear mixed model analyses were performed using restricted maximum likelihood (REML) with patient as random intercept (Laird & Ware, 1982).

According to White, Carpenter, and Horton (2012), the linear mixed model handles missing data efficiently, leading to the model being in line with the "intent-to-treat" (ITT) principle. The missing data were regarded as missing at random. Time was defined as a categorical variable with pre-treatment as the reference. A group variable was also included (treatment vs. waitlist), and interactions between group and time where the latter was used to test differences in change between the two conditions. The β coefficients are the results in the metric of the original outcome scale (e.g., mean difference between groups as a function of one unit change in time).

Standardized effect sizes and confidence intervals were established through the calculation procedure proposed by Feingold (2009, 2013, 2015). Inter-group effect sizes were based on the differences in the model-implied means at the respective time-points in relation to the pre-treatment mean, divided by the observed inter-group standard deviations. Intra-group effect sizes were based on the differences in the model-implied means within a group in combination with the observed intra-group standard deviations. Inter-, and intragroup effect sizes were interpreted in accordance with Cohen (1988).

Ordinal regression analyses with cluster robust standard errors were used with calculations of Odds Ratios (OR) for sensitivity analyses of the primary analyses. Ordinal logistic regression may be considered a generalization of the Wilcoxon test (Harrell & Lee, 1985). These analyses

provide non-parametric, more restrictive forms of analysis. The ordinal logistic regression was also used for analysis of changes in the number of reported sexual behavior specifiers at each time point, using the pre-treatment measurement as reference point.

P-values less than 0.05 were considered significant.

4.5.1.4 *Study IV*

T-tests were used for continuous baseline data and for the post-treatment CSQ-8 scores. The χ^2 test for independence was used for the dichotomized and categorical variables.

The intragroup treatment effects were analyzed with a linear mixed model using the maximum likelihood method (Laird & Ware, 1982). Participants were used as random intercepts. Time was defined as a categorical variable using the pre-treatment measurement as baseline and the weekly and 3-month follow-up measurements as the other categories. The beta coefficients (β) represent an unstandardized measure of effect size in the metric of the original outcome and are the estimated mean change at mid-, and post-treatment and the 3-month follow up. The β_1 is the estimated mean difference as a function of the number of completed treatment modules. The Estimated Marginal Means (EMM) were implied by the LMM analysis. Observed means and standard deviations (SD) were also calculated.

Effect sizes (Cohen's *d*) and 95% confidence intervals were based on the estimated means derived from the LMM together with the observed pooled standard deviation (Feingold, 2009, 2013, 2015). Intragroup effect sizes were thus based on the differences in estimated means within the group, divided by the observed pooled intragroup standard deviation. In line with Cohen (1988), intragroup effect sizes (*d*) of 0.20, 0.50, and 0.80 were defined as small, medium, and large. P-values less than 0.05 were considered significant.

4.6 SAFETY PARAMETERS

The data collection was performed[4] on an encrypted web-based platform. The treatment in Study IV was provided via the same platform. All activity on the platform server was logged and only the researches involved in the project had access to this information. To further strengthen the security, a procedure involving double authentication was required to log in to the platform for both participants and therapists.

To ensure the safety of the participants in Study I, every participant who submitted informed consent for participation was contacted by telephone and offered the assessment appointments. If the submitted responses to the screening battery raised any concerns regarding the psychiatric health and/or the safety of the participant, they were contacted and offered guidance regarding an appropriate psychiatric and/or somatic healthcare provider. Since there is an increasing body of research indicates that psychotherapy may have adverse side-effects (Boettcher, Rozental, Andersson, & Carlbring, 2014; Rozental, Magnusson,

---

[4] In study II, responses on the outcome measures were submitted on paper.

Boettcher, Andersson, & Carlbring, 2017), the psychiatric statuses of the participants were monitored. During Study II, III, and IV, the continuous measurements enabled monitoring of individual participants' current psychiatric state and if deemed necessary, the participants were guided to or offered acute and suitable psychiatric or somatic healthcare options.

In Study II and III, the group treatment participants signed a contract regarding appropriate in-session interpersonal behavior.

4.7 ETHICAL CONSIDERATIONS

The treatments offered were experimental insofar as they were not yet empirically supported, therefore may have led to expectation of symptom amelioration that were not satisfactory fulfilled. The potential benefits of the research project were, however, considered to outweigh the possible risks, as there has been a significant increase in knowledge of the target group through the retrieved data. This in turn enables further development of effective treatment options for a previously understudied group of patients.

All studies were vetted and approved by the Regional Ethical Review Board in Stockholm, Sweden.

5 THE EMPIRICAL STUDIES

5.1 STUDY I: HYPERSEXUAL DISORDER ACCORDING TO THE HYPERSEXUAL DISORDER SCREENING INVENTORY IN HELP-SEEKING SWEDISH MEN AND WOMEN WITH SELF-IDENTIFIED HYPERSEXUAL BEHAVIOR

5.1.1 Aim

The primary aim of Study I was to explore the distribution of the diagnostic category HD according to the Hypersexual Disorder Screening Inventory, HDSI (American Psychiatric Association, 2010b) in a sample of help-seeking men and women experiencing problematic hypersexual behavior. Specific aims were to: (i) describe the distribution of HD and the specified hypersexual behaviors, (ii) explore the relationship between adverse consequences, sociodemographic characteristics, and gender differences, and (iii) examine the internal consistency of HDSI and correlation with the validated measure Sexual Compulsivity Scale, SCS.

5.1.2 Methods

The study investigated the characteristics of 80 self-identified hypersexual individuals (16 women and 64 men). Respondents were recruited through advertisements offering psychological treatment for hypersexual behavior. Data was collected through an online platform. Analyses of sociodemographics, symptoms of hypersexuality (measured with the Hypersexual Disorder Screening Inventory, HDSI (American Psychiatric Association, 2010b) and the Sexual Compulsivity Scale, SCS (Kalichman & Rompa, 1995, 2001)), and consequences of hypersexual behavior, measured with the Cognitive and Behavioral Outcomes of Sexual Behavior, CBOSB (McBride, Reece, & Sanders, 2008a) were carried out. Spearman rank correlations were performed for item-item and item-total calculations for HDSI. To establish and examine the internal consistency on the HDSI, Cronbach's α was calculated for the composing items.

5.1.3 Main results

The results showed that half of the sample fulfilled the criteria for HD according to HDSI. Although sociodemographic variables did not influence the likelihood of an HD diagnosis, gender did. Men were more likely to report pornography use as their primary HD behavior, while women were more likely to engage in interpersonal sexual encounters. Women also received higher scores on HDSI than men and reported more risky sexual behavior.

HD-diagnosed participants were more likely to report many sexual behaviors and to have higher sum scores on the SCS. According to the results on the CBOSB, the participants screening positive for HD also reported more negative effects of their performed sexual behavior and were more concerned about negative consequences than the sub-clinical group.

The core diagnostic criteria of the HDSI were found to have high internal reliability for both men and women ($\alpha = .80$ and $\alpha = .81$ respectively). Scores on HDSI and SCS were moderately correlated ($r = 0.51$). In the whole sample, 90% reached the cutoff for sexual compulsivity on the SCS.

5.2 STUDY II: A COGNITIVE BEHAVIORAL THERAPY GROUP INTERVENTION FOR HYPERSEXUAL DISORDER: A FEASIBILITY STUDY.

5.2.1 Aim

The aim of Study II was to test the feasibility of the newly developed CBGT treatment for HD. Feasibility was defined in terms of symptom reduction, treatment attendance, and clients' level of treatment satisfaction. The hypotheses were that: (i) the treatment would generate significant intragroup improvements from pre- to post-treatment and (ii) these improvements would be maintained at three and six months after treatment cessation.

5.2.2 Methods

Ten HD patients received manual-based, group-administered CBT treatment for HD and related symptoms. The main outcome measure of the study was the Hypersexual Disorder: Current Assessment Scale, HD:CAS (American Psychiatric Association, 2010c), measuring HD symptom severity over the preceding two weeks. Secondary outcomes were HDSI, Client satisfaction Questionnaire, CSQ-8 (Attkisson & Greenfield, 1994), and the level of treatment session attendance. To examine changes along the measurement time points, the data was analyzed with Wilcoxon signed rank tests. Spearman correlation analysis was used to examine possible correlation between positive treatment outcome and the proportion of attended treatment sessions.

5.2.3 Main results

The treatment was found to be feasible. Large intragroup effect sizes ($r = .53–.61$) were found on the post-treatment median score for HD:CAS. HD:CAS decreased at post-treatment in comparison to the pre-treatment measurement (pre-treatment median = 12, IQR = 4; vs. post-treatment median = 7.5, IQR = 7). The 3-month follow-up median score was = 8, (IQR = 7). Similar sum score decreases were found for HDSI (pre-treatment median score = 20, IQR = 7; post-treatment median score = 12.5, IQR = 8, the 3-month follow-up median score = 13.0, IQR = 4, and the 6-month follow-up median score = 8.0, IQR = not applicable). The effect sizes were larger at the post-treatment measurement ($r = .58$) and at the 3-month follow-up ($r = .52$).

5.3 STUDY III: A RANDOMIZED, CONTROLLED STUDY OF GROUP-ADMINISTERED COGNITIVE BEHAVIORAL THERAPY FOR HYPERSEXUAL DISORDER IN MEN

5.3.1 Aim

In Study III, the aim was to investigate the efficacy of the CBGT treatment protocol for HD developed for Study II. The study compared a treatment condition with waitlist controls. The hypothesis was that the treatment would generate significant intergroup effects, compared to the waitlist on HD-specific as well as overall psychiatric symptoms.

5.3.2 Methods

Study III was a randomized, controlled study of 137 male HD patients randomly allocated to either a 7-week manual-based CBGT for HD and related symptoms, or to a waitlist condition. Primary outcome measure was the HD:CAS (American Psychiatric Association, 2010c) and secondary outcome measures were the Sexual Compulsivity Scale, SCS (Kalichman & Rompa, 1995, 2001), Montgomery-Åsberg Depression Rating Scale, MADRS (Svanborg & Åsberg, 2001; Zimmerman, Chelminski, & Posternak, 2004), and Clinical Outcome in Routine Evaluation, CORE-OM (Elfström et al., 2013; Evans et al., 2002). Measurements were performed pre-, mid-, and post-treatment during the study period. Following the initial period, the participants in the waitlist condition underwent the same treatment protocol and submitted responses to the outcome measurements at the same relative time-points during their treatment period. Both conditions were also measured at 3 and 6 months following the respective treatment periods. Data from both conditions were subsequently pooled and analyzed for long-term intragroup treatment effects. Baseline group characteristics were analyzed with t-tests for numerical data and a chi-square test for independence for categorical data. Both the intergroup and time effects and the pooled intragroup and long-term effects were analyzed with a linear mixed model regression, using restricted maximum likelihood (Laird & Ware, 1982). Standardized effect sizes were established in accordance with the calculation method proposed by Feingold (2009).

5.3.3 Main results

There was a significant intergroup effect size ($d = 0.66$, CI = 0.29–1.0) at post-treatment, favoring CBGT on the primary outcome measure HD:CAS. Furthermore, at post-treatment, the waitlist participants were nearly four times as likely (OR = 3.6, SE = 1.3, CI = 1.7–7.4) to report a higher number of sexual behavior specifiers than the participants in the treatment groups. There was also a large intergroup effect on the secondary outcome measure SCS ($d = 0.83$, CI = 0.42–1.2), while MADRS ($d = 0.65$, CI = 0.27–1.0), and CORE-OM ($d = 0.72$, CI = 0.33–1.1) exhibited medium-sized decreasing post-treatment effects.

When the results from both the treatment and waitlist group were pooled, similar effects were found post-treatment (HD:CAS: $d = 0.74$, CI = 0.55–0.93; SCS: $d = 0.62$, CI = 0.44–0.80; MADRS: $d = 0.50$, CI = 0.34–0.66; and CORE-OM: ($d = 0.57$, CI = 0.39–0.76)).

5.4 STUDY IV: INTERNET-ADMINISTERED COGNITIVE BEHAVIORAL THERAPY FOR HYPERSEXUAL DISORDER, WITH OR WITHOUT PARAPHILA(S) PARAPHILIC DISORDER(S) IN MEN: A PILOT STUDY

5.4.1 Aim

The aim of Study IV was to investigate the effects of a newly developed, Internet-based CBT (ICBT) for HD with or without paraphilia/paraphilic disorder. The hypothesis was that ICBT would yield decreases in HD symptoms as well as overall psychiatric symptoms from pre- to post-treatment and at 3-month follow up.

5.4.2 Methods

The 12-week ICBT treatment consisted of 10 treatment modules with an estimated work rate of approximately one module per week. The modules were based on the treatment protocol used in Study II–III but were elaborated to also address paraphilic ideation, desires and/or behaviors. Primary outcome measure was the Hypersexual Behavior Inventory, HBI-19 (Reid, Garos, et al., 2011) and secondary outcomes were HD:CAS (American Psychiatric Association, 2010c), the SCS (Kalichman & Rompa, 1995, 2001), MADRS (Svanborg & Åsberg, 2001; Zimmerman et al., 2004), and CORE-OM (Elfström et al., 2013; Evans et al., 2002). Measurements were administered at the initiation of the treatment (pre-treatment), at the 6th week (mid-treatment), 12th week (end of treatment) as well as 3 months after treatment cessation. Adherence was calculated using the number of completed modules at treatment cessation. Treatment satisfaction was measured at the 12th week of treatment, using CSQ-8 (Attkisson & Greenfield, 1994). The data was analyzed using mixed-effects multilevel regression analyses and standardized effect sizes were calculated with the procedure proposed by Feingold (2009).

5.4.3 Main results

The analysis revealed large treatment effects on the primary outcome measure HBI-19 at post-treatment ($d = 1.2$, CI = 0.70–1.7). Similar effect sizes were found on the two other sexually-oriented secondary outcomes (HD:CAS: $d = 0.91$, CI = 0.42–1.4; and SCS: $d = 1.1$, CI = 0.57–1.6). The effects on the depressive and overall psychiatric symptom were a bit smaller (MADRS: $d = 0.51$, CI = 0.033–0.99; CORE-OM: $d = 0.53$, CI = 0.051–1.0). The decreases in hypersexual symptoms were maintained 3-months after treatment cessation. There was also a positive correlation between treatment satisfaction (CSQ-8) and treatment responsivity on the HBI-19 ($r = .93$) post-treatment. Of the 36 participants, 15 (42%) qualified for being considered clinically significantly improved at post-treatment.

6 GENERAL DISCUSSION

6.1 IS HD A SUITABLE CATEGORIZATION OF EXCESSIVE SEXUAL BEHAVIOR?

An increasing number of patients seek help for out-of-control sexual behavior at the clinic where the research project on which this thesis is based was conducted. At the start of the research project there was no generally agreed-upon categorization of excessive sexual behavior. Still, and as pointed out by several researchers within the field, a large proportion of patients seek help for their difficulties in controlling their engagement in sexual behaviors to a degree that it negatively affects various important life areas (Kafka, 2010; Samenow, 2011; Öberg et al., 2017). From this perspective, HD constituted a atheoretical diagnostic entity from which further investigations could be performed (American Psychiatric Association, 2010a; Kafka, 2010). This was most welcome, both within the clinical and the research field. The question at the time was whether the diagnostic proposal and its criteria were valid and feasible means to categorize the help-seeking population – a group in profound need of tools to control their level of sexual outlet.

This question was addressed in Study I (Öberg et al., 2017). The objective was to find support for the HD criteria by using the HD-specific screening tool HDSI (American Psychiatric Association, 2010b) to examine HD symptoms in a sample of help-seeking men and women with self-identified hypersexual problems. Through this, a clinical conceptualization of hypersexuality could be obtained – a tentative one, at least. Potentially effective treatments could be developed and evaluated on such a basis.

The results from Study I suggested that 50% of the self-identified hypersexual sample fulfilled the criteria for HD according to the HDSI. This was somewhat surprising when the HDSI scores were compared with the scores on SCS (Kalichman & Rompa, 1995, 2001), the widely-used measure of sexual compulsivity. Although both measures aim to evaluate similar diagnostic concepts, they differ in some regards. There were significantly fewer participants qualifying for an HD diagnosis (50%) according to HDSI than the proportion of the sample exceeding the cutoff score for sexual compulsivity on SCS (95%). We concluded that the proposed cutoff HDSI for confirmation of a positive HD diagnosis was very restrictive. This may be an artifact of the raised cutoff score presented by Kafka (2013). One could argue that being a screening tool, HDSI should instead lead to a higher proportion of false positives than false negatives. Given that HD may lead to a myriad of potential negative consequences (Kafka, 2010; McBride, Reece, & Sanders, 2008b), it seems counterproductive to stipulate a threshold so high that a patient must exhibit a level of symptom severity that may already have led to dire consequences in order to reach the threshold – perhaps even to the degree that there is a slim chance of successfully managing these consequences. In line with this reasoning, we suggested further research on the HD and the HDSI. For example, the cumulative sum scores on the HDSI could be categorized in different levels of severity (Öberg et al., 2017). A less restrictive diagnostic threshold could also be established to supersede the initial binary and blunt cutoff point. It is important to keep in mind that the HD

statuses was determined solely on responses to HDSI during screening, not through standard clinical assessments. The results should therefore be interpreted with caution. It is evident, given the larger proportion of participants screening positive for sexual compulsivity via the SCS, that the restrictive cutoff for HDSI missed a significant proportion of the sample that would have received a positive HD diagnosis following clinical assessment interviews. Indeed, this was the case in Study II. Eight out of ten participants received an HD diagnostic status based on their HDSI scores in accordance to the suggested cutoff (American Psychiatric Association, 2010b; Kafka, 2013). Nonetheless, all of them were in accordance to the HD-criteria, considered HD-positive in the clinical assessment interviews. This was even more salient in Study III in which a little more than half of the included and randomized participants (56%) did not screen positive for HD even though their diagnostic statuses were verified in the clinical assessment interviews. Substantially more participants were also considered sexually compulsive according to the SCS (85%), despite not exceeding the cutoff point of the HDSI.

The fact that HD was proposed for inclusion in the DSM-5 (Kafka, 2010) made it natural to consider it the most appropriate clinical categorization of excessive sexual behavior at the time for the onset of this research project. The findings of Study I (Öberg et al., 2017) and the studies that have demonstrated the validity of the HD diagnosis in forensic and clinical samples (Kafka, 2014; Reid, Carpenter, et al., 2012; Scanavino et al., 2018), support this choice for clinical categorization. At the same time, we have acknowledged and encouraged the need for additional research on the condition.

However, HD was rejected for inclusion in the DSM-5 which has been considered an unfortunate obstacle by leaving both clinicians and researchers without a formal diagnosis for hypersexual behavior (Potenza, Gola, Voon, Kor, & Kraus, 2017). This has hindered research as well as the development of suitable options for prevention and treatment. Nonetheless, the condition exists, regardless of formal recognition and has been found to be useful in everyday clinical practice and for scientific investigations. Both at our clinic and elsewhere.

This lack of a designated and officially recognized diagnosis was partially resolved in 2018 when the Compulsive Sexual Behavior Disorder (CSBD) was included in the 11th edition of the International Classification of Diseases (ICD-11) under impulse control disorders (World Health Organization, 2018b). It is however important to keep in mind that CSBD was not presented, let alone included, in any diagnostic nomenclature at the time of the initiation of the present project. As stated in section 1.2.3, it is likely that HD and CSBD describe the same clinical population even though the latter in its criteria, seems to be more inclusive. Screening tools for CSBD are likely to be developed which may be more congruent with the clinical impressions following assessment interviews.

In summary: HD was in Study I found feasible to be used for clinical and research purposes even though the proposed screening tool HDSI seemed overly exclusive. The inclusion of CSBD as a clinical diagnosis in the ICD-11, may pave the way for future research and the development of diagnostic-specific screening and severity measures.

6.2 IS THE NEWLY DEVELOPED CBT INTERVENTION PROTOCOL EFFICACIOUS FOR TREATMENT OF HD AND IF SO, CAN IT BE ADMINISTERED VIA THE INTERNET?

In Study II, the treatment effects as measured by HD:CAS (American Psychiatric Association, 2010c) and HDSI (American Psychiatric Association, 2010b) were found to be large for hypersexual symptoms, but given the small sample size and lack of a control condition, the results had to be cautiously interpreted and generalized from. Another limitation of the study was that it only used the outcome measures Hypersexual Disorder: Current Assessment Scale, HD:CAS (American Psychiatric Association, 2010c) and HDSI (American Psychiatric Association, 2010b). At the time, these were the only available HD-specific tools designed to: (a) measure the current severity of HD symptoms (HD:CAS), and (b) screen for a possible HD diagnostic status (HDSI) in accordance with the specified HD criteria.

Their respective psychometric properties of the included measures were however unknown, and in hindsight it would have been beneficial to include other tools for measurement of HB, for example the Sexual Compulsivity Scale, SCS (Kalichman & Rompa, 1995, 2001). SCS has previously been used in several studies of the HD diagnostic sibling, sexual compulsivity (Hook et al., 2010; Montgomery-Graham, 2016). Despite the methodological shortcomings, Study II was important insofar that it was a pilot study on the feasibility of the newly developed CBT-treatment protocol for a tentative and under-investigated condition. It was found to be feasible considering the symptom reduction achieved, attendance levels, and treatment satisfaction. The results justified the initiation of larger scale studies on the treatment effects of the CBGT program for HD, which led to Study III.

The results from Study III were in line with those found in Study II, albeit with smaller effect sizes on the primary outcome measure HD:CAS. The procedures for the calculation of effect sizes in the respective studies were however different, mainly due to the use of different statistical analyses. In Study II, the effect sizes on the outcomes were calculated from the results of the Wilcoxon signed rank test, a non-parametric statistical method for calculations of repeated outcome measurements. The method is based on the computation of medians to yield the correlation coefficient *r* as the effect size measure. In Study III, there were two measures of effect size: one unstandardized (the model-implied β coefficient) and one standardized (Cohen's *d*). The latter may be compared to the effect size measure in Study II in accordance with the effect size classification proposed by Cohen (1988). If these are applied, Study II yielded larger effects than Study III on the primary outcome measure HD:CAS. Coe (2002) argues that these measures of effect size are comparable. However, the difference between the sizes of effects might have been influenced by the difference in number of included participants between the two studies. Since the sample in Study II was very small (n = 10), no definitive conclusions could be drawn regarding the actual efficacy of the treatment. Study III included a considerably larger sample of participants. There was also an assigned waitlist condition for comparison which may account for the smaller, yet medium-sized, effect estimates on the primary outcome measure HD:CAS.

Following Study III, we modified and adapted the treatment protocol slightly for administration via the Internet. The target sample for the study was also modified to also include participants with paraphilia(s)/paraphilic disorder(s). The link between hypersexuality and paraphilias has been noted for a long time; early descriptions of excessive sexual behavior were referred to as "paraphilia-related disorder" to acknowledge the close relationship (Kafka, 1994). The results from Study IV yielded even larger effect sizes in comparison to Study III. This raises questions regarding possible effects emanating from the characteristics of the recruited samples as well as the treatment procedures and materials used in the studies.

In Study IV, the moderate sized post-treatment effects found for the paraphilia composite must be interpreted with great caution considering the unvalidated measure used and the modest sample size. A possible explanation for this reduction is that since paraphilia can be considered a subset of the general sexual expression, reductions of hypersexuality would also entail a decrease in the paraphilic symptoms. Therefore, inferences regarding the treatment´s efficacy on paraphilic symptoms, independently of reductions of HD-symptoms such as sexual preoccupation, can´t be drawn.

As noted in the introduction, sexual preoccupation has been associated with paraphilic interest and an increased risk of recidivism in sexual offending (Hanson & Morton-Bourgon, 2005; Kingston & Bradford, 2013; Marshall, 1997; Marshall, Marshall, Serran, & O'Brien, 2008). If the observed treatment effects indicate reliable paraphilic symptom reductions, and these reductions are the result of decreased sexual preoccupation, the treatment could have the potential to reduce the risk of sexual offences and the development of paraphilia. However, the design of Study IV does not allow such elaborated conclusions. Nonetheless, based on the association between sexual preoccupation, paraphilia and recidivism in sexual offending, it seems important to curb symptoms of hypersexuality when treating patients with paraphilic co-morbidity.

Further, the reductions of paraphilic symptoms may also be attributed to the interventions in treatment protocol. Among the included interventions in Study IV, one was designed to stimulate and develop functional and benign expressions of sexuality through interpersonal an/or solitary sensate focus exercises. Another contained exercises for development of functional interpersonal communication and a third focused on education on the unconditional requirements of mutual consent for interpersonal sexual activities. Well-developed skills within these areas of functioning, have previously been linked to the normalization of sexual arousal when exposed to deviant sexual stimuli (Marshall, 1997; Marshall et al., 2008).

I summary: The results from Study II, III suggest that CBT is an efficacious treatment option for HD and its related symptoms. Study IV provided additional support for the efficacy of CBT treatment of HD and that it can be administered via the Internet. Moreover, the treatment also led to amelioration of concomitant symptoms of paraphilia/paraphilic disorder.

6.2.1 The applied CBT treatment components

HD and its symptoms have been proposed to be structured as a core network between psychological distress (i.e., depression, anxiety, stress) and negative emotions triggered by excessive and uncontrolled sexual behaviors (Werner, Stulhofer, Waldorp, & Jurin, 2018). The network perspective on hypersexuality suggests that HD emerges as a result of a dynamic system of various symptoms and components that interact (Werner et al., 2018). This theoretical network approach to the structure of HD, is in line with the definition of psychiatric disorders as mechanistic property clusters (MPC) proposed by Kendler, Zachar, and Craver (2011). According to this perspective, psychiatric disorders consist of reciprocally reinforcing networks that together constitute causative mechanisms for psychiatric disorders (Kendler et al., 2011). From this perspective, it was considered important to address the most salient components of the networks (i.e., depression, anxiety, stress, negative emotions and impulsivity) to interrupt, or at least mitigate, the impact these had on the overall symptomatology. The included treatment interventions Study II–IV were chosen based on the empirical support, each of the interventions have demonstrated in targeting the assumed components in the hypersexual network structure.

Functional behavior analysis is considered an inherently potent treatment intervention (Forsyth & Eifert, 1996). One way to view the function and utility of behavior analysis is to consider it as a form of exposure. By systematically formulating the contingencies in which the problematic behaviors occur, a deeper understanding of oneself in relation to the problematic behavior may be obtained. This is in line with the proposed beneficial effects of written self-narratives popularized by Pennebaker (1997), where writing serves a means for rigorous contemplation. In Study IV, which applied the ICBT, the treatment client/therapist communication relied exclusively on e-mail correspondence that may have stimulated such contemplation.

The functional behavior analysis and the identification of values (IOV) with its associated behavioral activation (BA) – was thought to target potential inactivity in important and clinically relevant areas of the participant's life, all in accordance with Acceptance and Commitment Therapy, ACT and behavioral activation (Hayes et al., 2011; Martell et al., 2001). A gradual increase of engagement in valued behaviors, has demonstrated ameliorating effects in a sample of patients who experienced problems controlling their level of problematic pornography viewing (Crosby, 2011; Crosby & Twohig, 2016). It is, however, important to bear in mind that pornography viewing is just one problematic behavior specified in in the HD criteria, and that the positive reinforcing function of other sexual behaviors may be more powerful, and therefore less susceptible to change. However, ACT has been suggested as a transdiagnostic treatment (Hayes et al., 2011) and it is therefore plausible that the interventions IOV and the subsequent BA, would also have effects on HD as manifested in other sexual behaviors even though these may have served different positive and negative reinforcing functions.

To develop more efficient management of thoughts and urges to engage in problematic sexual behaviors, exercises were applied to stimulate the level acceptance for both malign appetitive and aversive inner experiences. These were presented in the form of mindfulness and acceptance-based techniques and exercises. For example, urge-surfing (Lloyd, 2003), a technique in which the participant is taught to experience urges in an acceptance-based manner, without engagement in the problematic behavior. As noted by Reid, Stein, et al. (2011), acceptance-based interventions as well as mindfulness practice may have important effects on shame; in combination with self-monitoring techniques and behavior analysis, this may have contributed to participants' experience of being able to abstain from problematic sexual behaviors. By repeatedly being successful in abstinence, an increased self-efficacy in accordance with the model proposed by Bandura (2012) was intended and hopefully achieved. This may also have influenced the participants' self-esteem, particularly in participants with ADHD comorbidity. Low self-esteem, possible as a result of ADHD rather than ADHD in itself, has been associated with hypersexuality in a sample of help-seeking men (Reid, Carpenter, et al., 2011).

In line with the development of self-efficacy, the problem-solving strategies included in the program have previously been found effective for handling stress and problems in social interaction leading to an overall improvement of experienced quality of life (D'Zurilla & Nezu, 1999). Furthermore, this intervention in combination with directed exposure to previously avoided stimuli or situations, effectively contributes to decreased anxiety in the treatment of anxiety disorders (Deacon & Abramowitz, 2004; Dugas & Robichaud, 2009).

The verbal communication development exercises applied assertiveness skills training as presented by Paterson (2000), which may also be viewed as functional behavior activation. Resentment and low self-esteem may follow from a lack of the tools necessary for expressing one's beliefs, opinions, or preferences. By gradually applying communicative behavioral experiments in which new and balanced methods of communication are explored, alternative responses to previously feared and avoided situations can be developed and applied. The critical aim was not necessarily to get what one wants, but rather to be able to express oneself in a balanced and effective manner while simultaneously respecting the rights of oneself and others.

6.3   THE INFLUENCE OF THE TREATMENT FORMATS

The results from Study IV were somewhat surprising. The effect sizes of the sexually-related outcomes were larger than in Study II and III; possible reasons for this have to be explored.

There was no significant difference ($p = 0.70$) in the mean age between Study III ($M = 40$, SD $= 12$) and Study IV ($M = 39$, SD $= 8.5$) which precludes further speculation of age possibly impacting the differences in treatment responsivity. The studies differed insofar that they did not use the same primary outcome measure. Study III used HD:CAS as its primary outcome, whereas Study IV used HBI-19. However, HD:CAS, as well as SCS, was used in both studies and therefore the pre-treatment sum scores on these measures were analyzed regarding

possible baseline differences. The pre-treatment sum score of HD:CAS did not differ significantly between the studies (Study III: M = 9.1, SD =4.8; Study IV: M = 9.9, SD = 4.6, p = 0.73); neither did the pre-treatment scores on SCS (Study III: n = 112, M = 9.1, SD =4.8; Study IV: n = 36, M = 9.9, SD = 4.6, p = 0.73). In effect, these variables have little explanatory value for the difference in treatment effects. That leaves us with the conclusion that other factors must influence treatment responsivity.

In Study IV, the inclusion criteria were broadened insofar that participants with paraphilias/paraphilic disorders were welcome to participate. Paraphilia in combination with sexual preoccupation and/or excessive sexual behaviors may entail higher level of discomfort. Pedophilic interest has been associated with discomfort through high levels of shame and social stigmatization (Levenson, Grady, & Morin, 2019). This discomfort could be interpreted as disease severity, a factor previously found to predict treatment adherence in studies on ICBT (Christensen, Griffiths, & Farrer, 2009). It may also have motivated the participant to comply with the treatment interventions to a greater extent. This could be a potential explanation of the difference in treatment effects between Study III and IV.

As noted by Andersson, Carlbring, and Cuijpers (2010), efficacy studies usually involve samples with patients with a clear-cut diagnosis without comorbidity, something which raises questions regarding the treatment's external validity i.e., whether the treatment works in real clinical settings or not. It has been noted that high rates of sexual behaviors and sexual preoccupation are associated with paraphilic interests (Black, Kehrberg, Flumerfelt, & Schlosser, 1997; Kafka & Hennen, 1999, 2002; Kingston & Bradford, 2013; Langstrom & Hanson, 2006). Study IV could therefore be considered more representative of a real clinical setting, than Study II and III, based on the inclusion of participants with paraphilia(s)/paraphilic disorder(s). The results from Study IV may therefore indicate that ICBT for HD, in fact have the potential to exhibit external validity.

The influence of the treatment format used may be an important factor contributing to the differences in outcome between the studies. ICBT may be less vulnerable to attrition than CBGT. It has been noted that ICBT offers a flexible treatment format in the sense that temporal or geographical presence is not required (Andersson, 2014; Andersson, 2016; Andersson et al., 2008). These important features facilitate the dissemination of and access to highly specialized, and therefore, scantily provided treatment. Good accessibility, in combination with the freedom to work with the treatment at home while maintaining frequent access to therapist support, may have contributed to higher motivation to work through the treatment. Engagement in treatment is a robust predictor of positive treatment outcomes in efficacy studies on CBT for anxiety and depression (Chavira et al., 2014; Glenn et al., 2013; Kazantzis, Brownfield, Mosely, Usatoff, & Flighty, 2017). To stimulate the participants´ treatment engagement, we sent SMS notifications via the internet platform to remind or alert them of that material of measurements were available. This is known to increase treatment adherence in studies on Internet-administered psychotherapy (Kelders, Kok, Ossebaard, & Van Gemert-Pijnen, 2012). As previously found, the technology and means for interaction

with it are factors that also stimulate treatment adherence in ICBT for anxiety disorders (Kelders et al., 2012). Whether this also applies to ICBT for HD is yet to be investigated.

Another aspect that may have influenced the larger effect sizes in Study IV was the treatment duration. In Study III the treatment was supplied over seven sessions (i.e., 6–7 weeks depending on national holidays), whereas in Study IV the treatment period lasted for ten weeks, followed by a two-week self-care period before the post-treatment measurement. The longer treatment period may have facilitated a deeper processing of the treatment material and exercises. However, drop-out rates have been known to increase progressively with program length (Christensen et al., 2009). This is also true for high volumes of treatment content and high demands for reading and writing (Johansson, Michel, Andersson, & Paxling, 2015). The text material for the ICBT program in Study IV was condensed in comparison to the two preceding studies which potentially is a factor that further promoted treatment adherence.

In comparison to ICBT, CBGT is a somewhat rigid treatment modality. The level of drop out in Study III may be partially explained by the following factors: Firstly, the CBGT had a fixed treatment session schedule. Given that many of the participants in the CBGT studies had families, obligations associated with the treatment may have contributed to the high drop-out rate. It has previously been demonstrated that family emotions are a prognostic factor for non-adherence in the treatment of anxiety disorders (Taylor, Abramowitz, & McKay, 2012). This may also apply to treatment of HD. In fact, due to the delicate nature of sexuality, the treatment may have elicited high levels of emotion within the context of the patients' families, thus rendering the CBGT for HD in our studies more vulnerable to non-adherence than treatment for other disorders.

Shame has been proposed as a central feature of HD (Gilliland et al., 2011; Reid, Harper, et al., 2009; Reid, Stein, et al., 2011; Reid, Temko, et al., 2014). It has been proposed that group therapy is a good treatment alternative for disorders that involve shame (Fuhriman & Burlingame, 1994) and that this format therefore should be particularly suitable for the treatment of sexual compulsivity (Adams & Robinson, 2011; Turner, 2008). If this was true, it would have been likely that the CBGT would yield larger effects than the ICBT treatment. Interestingly enough, the results from our studies point in the opposite direction. So, in what way did the shame factor influence treatment responsivity? It is common to experience shame as a result of engagement in problematic sexual behavior (Reid, Harper, et al., 2009). Shame is also associated with manifestations of self-criticism and low confidence in one's ability to manage interpersonal problems (Covert, Tangney, Maddux, & Heleno, 2003; Whelton & Greenberg, 2005). According to Reid, Harper, et al. (2009), hypersexual individuals are more likely to withdraw from potential confrontations regarding their sexual behaviors, probably to minimize experiences of shame. The CBGT used in Study II and III can be considered an arena in which the patients are confronted with their problematic sexual behavior, and this in the presence of several others. The group sessions may also contain stimuli, similar to those inherent in previously experienced confrontative events (e.g., within relationships). Although

the participant has previously expressed ambitions to address their hypersexual problems, their experiences of shame and self-criticism may be activated in-session, thus triggering a tendency to emotionally withdraw from the group treatment context. This emotional withdrawal may have resulted in a lower degree of self-disclosure, which is suggested as an important factor in the treatment of couples experiencing sex addiction within the relationship (Corley, Pollard, Hook, & Schneider, 2013). If so, this might have had bearing on the level of the participant's involvement in the therapeutic process. Perhaps the group therapeutic modality provides patients with a forum in which they can address their problems, but only within the limits of their comfort zone. If this is the case, their hypersexual problems may not have been properly addressed – with smaller treatment gains as a result.

Another interesting finding concerns treatment satisfaction. An independent samples t-test of the post-treatment CSQ-8 scores from Study III ($n = 79$) and Study IV ($n = 33$) revealed a significantly higher mean sum score in Study III ($M = 29$, $SD = 3.0$) than in Study IV ($M = 25$, $SD = 4.7$, $t (110) = -5.0$, $p = 0.05$). The magnitude of the difference was however small (*Hedge's g* $= 0.14$). This is possibly a result of the difference in sample sizes, which motivated the usage of the *Hedge's g* as the standardized effect size measure due to it being preferred for the calculation of effect sizes when comparing groups of unequal sizes (Fritz, Morris, & Richler, 2012). Although the difference was small, a higher level of satisfaction was expected in Study IV – at least when taking into consideration that positive treatment response has been linked to higher levels of treatment satisfaction (Attkisson & Greenfield, 1994).

In summary: ICBT seems to be a more efficacious treatment modality for HD than CBGT even though the results must be interpreted with caution due to the differences in sample sizes, participant characteristics, and level of therapist/client interaction.

6.4 LIMITATIONS

The limitations throughout the research project need to be addressed. The most obvious limitation is the lack of a uniform clinical conceptualization of excessive sexuality. As stated previously, at the time of the initiation of the project, HD was the most recent and sound formulation of excessive sexual behavior. It has also been used and evaluated in several studies on hypersexual behavior and regarded a valid clinical conceptualization (Chatzittofis et al., 2016; Nair et al., 2013; Reid, Carpenter, et al., 2012; Scanavino et al., 2018). It therefore constituted a valuable contribution to the field. HD encapsulated previously proposed concepts of excessive sexual behaviors without making etiological claims (Kafka, 2010; Samenow, 2011). The use of the atheoretical diagnosis HD as the starting point for the research project led to several uncertainties. The elaborated treatment protocol used in Study II–IV may be considered as based on an overly simplified understanding of the complex of symptoms, primarily in the sense that the treatments were based on the proposed diagnostic criteria rather than on empirical findings of the nature of the diagnosis. This does not necessarily mean that the treatments were prematurely conceived or inadequately thought

through. The included interventions were all in line with generic, and empirically supported CBT treatment interventions. Although some important aspects of uncontrolled sexual behavior may have been neglected, it is hoped that the generic nature of the interventions sufficiently targeted significant problem areas within the participants' lives and living.

In Study II, responses to three items were lost at the post-treatment for three participants. The loss of data was handled through the last-observation-carried-forward procedure (Molnar et al., 2008). Even though it was considered reasonable to assume that the lost data would have followed a similar trend of reduction the rest of the items exhibited, the exact scores remain obscure.

Another serious flaw in the project was the error in one item in HD:CAS, which affected Study III and IV. As presented in section 4.3.1.2, the internal consistency of HD:CAS was thoroughly examined. The results indicated that the internal consistency of HD:CAS in Study III did not improve positively due to the faulty item. When it was omitted it increased, albeit to a small degree. These results indicate that the erroneous item A.3 did not significantly influence the reliability of the HD:CAS sum scores. HD:CAS in Study III, with all items included, may therefore be considered reliable. When the mixed model linear regression analyses were rerun, this time with the erroneous item omitted, the results remained significant ($p < .05$) between the treatment group and the waitlist. Further, the effect size was larger when A.3 was omitted than when all items were included, indicating that the interpretation of the estimated treatment effects was not inflated. In Study IV, the reliability was higher when item A.3 was omitted, although to an insignificantly small degree. Therefore, we concluded that the results on HD:CAS in Study IV were also reliable. When the effect size calculations were performed, the results showed that the effects were larger when item A.3 was excluded. This leads us to deduct that the conclusions drawn from the analysis in Study IV was not over interpreted. Apart from the now discounted potential inflating effects of the faulty item, we of course lost the information covered by the question.

Regarding the measures of hypersexual symptoms (HDSI, HD:CAS, SCS, CBOSB, and HBI-19), none of these have been validated for the Swedish population. The lack of validated measures renders the interpretation of the gathered data in the studies, inherently less reliable. This is a limitation that is yet another effect of the lack of an official diagnostic category. Hopefully, this problem will be solved by the recently recognized CSBD in ICD-11 (Kraus et al., 2018; World Health Organization, 2018a, 2018b). The CSBD diagnosis is an important contribution to the field that not only provides a uniform diagnostic category for problematic hypersexual behavior but also may enhance the likelihood of funding for further research projects.

Another limitation of the project was that the participants were on average highly educated and socially well-established, particularly in comparison to the general Swedish population. This means that the results may not be generalizable to the whole HD population. Nevertheless, it cannot be logically inferred that the treatment would not be efficacious for patients with other sociodemographic characteristics. In a study of the effects of ICBT for

obsessive compulsive disorder (Andersson et al., 2015), no predictive treatment responsivity effects were found for education. Since there have been no prior studies on the specific HD criteria, the examination of predictive factors for treatment responsivity is warranted.

Another bias in Study II to IV is that only men were included and treated. It is not known whether there are any gender differences in responsivity to treatment of HD. As demonstrated in Study I (Öberg et al., 2017), women generally exhibited different clinical profiles in comparison to men, with more severe HD symptomatology and concerns regarding possible averse physical consequences. Women were also more prone to engage in interpersonal sexual activities. It is important to remember that only 16 women were included in Study I (n = 80). Based on the findings regarding differences in clinical representations, it is possible that gender, and the form of sexual outlet can predict both the level of experienced distress and treatment responsivity. By analyzing larger samples of hypersexuals that include women, men as well as individuals that don´t identify with binary gender norms, important scientific and clinical insights regarding possible differences and levels of distress based on gender characteristics, can be won. If these analyses are made with possible latent classes based on specified patterns of sexual behaviors, sexual orientation, several subgroups with different clinical presentations may emerge.

The use of HD as a diagnostic conceptualization and the unvalidated tools to measure it, lead to uncertainties regarding the interpretation of the obtained treatment effects. The erroneous item in HD:CAS added to this uncertainty. The selection bias (unilateral samples in Study II–IV) and lack of sub-categorization of participants, constitute crucial limitations.

In summary: The use of HD as a diagnostic conceptualization and the unvalidated tools to measure it, lead to uncertainties regarding the interpretation of the obtained treatment effects. The erroneous item in HD:CAS added to this uncertainty. The selection bias (unilateral samples in Study II–IV) and lack of sub-categorization of participants, constitute crucial limitations.

6.5   SUGGESTIONS FOR FUTURE RESEARCH

Although the HD diagnosis has been found to adequately describe the symptoms of a group of patients exhibiting excessive and uncontrolled sexual behavior (Parsons, Rendina, Ventuneac, Moody, & Grov, 2016; Parsons et al., 2013; Scanavino et al., 2018; Scanavino et al., 2014; Öberg et al., 2017), some considerations must be taken into account.

If the HD diagnosis adequately describes a discrete group of individuals, then the diagnosed patients should exhibit similarities in reported symptoms, both regarding the type of behaviors performed and the function of these. This does not seem to be the case. As pointed out by Montgomery-Graham (2016), HD may be viewed as a group of symptoms, all related to excessive sexual outlet, that most likely have several substrates and functions. For example, patients experiencing problems controlling the amount of pornography consumed and frequency of masturbation (both sexual behaviors usually performed privately) may appease feelings of loneliness and/or social skill inadequacy. More interpersonal-oriented

sexual behaviors such as prolonged promiscuity may be the result of excellent skills in effective, but shallow social interaction, while skills required to form and maintain genuine and intimate relationships are lacking. The aptitude for establishing enough rapport to initiate sexual relationships may nevertheless be gratifying, both from a sexual, social and self-affirmatory perspective. Therefore, more precisely formulated sexual behavior specifiers and validated tools to measure them, are warranted. For example, the specifier "sex with consenting adults", could be divided into several types of behavior. Now, it seems to have too low resolution by encompassing both behaviors such as repeated establishment of short-term sexual relations as well as purchase and vending of sexual services. From a motivational perspective these behaviors appear very different. Possible gender differences in the clinical presentation is an area in need of further investigation. In line with the results presented by Dickenson et al. (2018), CSB seems to be more prevalent than previously has been suggested. They also found that the gender difference was smaller than has been estimated earlier. In line with these findings, a general adoption of the CSBD diagnose (World Health Organization, 2018a) is recommended since it is now included in the psychiatric nomenclature and may be considered a more inclusive diagnostic concept for categorization of HB.

Suggestion for future research:

- Investigations of possible motivational processes involved in CSBD, based on predominant type of problematic sexual behavior
- Development and validation of screening and severity measures for CSBD
- Development and validation of measures of specification of sexual behaviors involved in CSBD

As it has been proposed that HD (and by extension also CSBD) is an umbrella term, covering symptoms related to difficulty controlling sexual behaviors, there may be a multitude of possible causes that alone or in combination result in HD symptomatology (Kafka, 2010; Montgomery-Graham, 2016). Indeed this is what have been indicated in the network approach to hypersexuality (Werner et al., 2018). Even if the relevance of the HD criteria has been validated for a particular group of patients, a broader knowledge of subcategories based on patient characteristics is warranted. For example, a group of 267 individuals (women: 81, men: 186) exhibiting problematic online sexual behavior was investigated and revealed interesting findings regarding differences in personality traits based on gender (Shimoni, Dayan, Cohen, & Weinstein, 2018). Scores on the Sexual Addiction Screening Test, SAST (Carnes, 1989) was in the sample negatively correlated with conscientiousness and male participants high in neuroticism, had a significantly higher propensity for sex addiction than women (Shimoni et al., 2018). Therefore, the influence of personality factors within the hypersexual population constitutes an important area of the HD phenomenon for clinicians and scholars to consider and investigate.

Social anxiety is another factor that is correlated with high scores on SAST among internet dating service users (Zlot, Goldstein, Cohen, & Weinstein, 2018). The authors concluded that social anxiety rather than sexual sensation seeking, or gender, affected the use of internet dating for finding sexual partners. This may also be an important area to focus on when designing treatments, since it has been suggested that as many as 85% of patients with social phobia do not attend follow-up treatment sessions (Santana & Fontenelle, 2011). Research initiatives to investigate a potential relationship between HD and executive cognitive functioning (ECF) have been performed (Montgomery-Graham, 2016). ECF characteristics in patients with affect and behavior regulation issues (i.e., problematic gambling, binge eating, etc.) may share similarities with hypersexual patients with regards to ECF profiles (Reid et al., 2008). If ECF characteristics are linked to a tendency to engage in excessive sexual behavior in subgroups of HD patients, this could be interpreted congruent with the dual-control model approach (Bancroft et al., 2009). The dual control model suggests that hypersexual behavior is a result of low inhibitory functioning in the presence of high levels of sexual excitation. In line with this hypothesis, dysregulation in the Hypothalamic Pituitary Adrenal (HPA) axis, has been found to be correlated with hypersexual behavior in men (Chatzittofis et al., 2016). This dysregulation leads to protracted physical excitation or arousal, that in combination with poor behavior regulation (low inhibition due to deficient ECF) adds another dimension that should be further examined in the quest to understand HB.

As noted above, we know significantly less regarding hypersexual women and individuals that don´t identify with binary gender norms. It therefore seems appropriate to further investigate these populations.

The suggested differences in treatment responsivity between Study III and IV may be another area for further investigations. Study IV was a feasibility study that did not assign a control condition. The sample was also significantly smaller than in Study III. Future studies could investigate possible differences through an RCT study with three study conditions: 1. CBGT, 2. ICBT, and 3. A control condition.

Suggestions for future research:

- Examinations of the potential influence personality factors have on HB
- Investigations of the association between HB and social anxiety
- Investigations possible interactions of ECF and HPA dyregulation with regard to HB
- Examinations of possible differences in treatment efficacy between CBGT, ICBT and a control condition.

Since the diagnostic proposal for DSM-5 (American Psychiatric Association, 2010a; Kafka, 2010) and from the point of inception of the project constituting this thesis, the field of hypersexual behavior has gained increased scientific attention. HD did not make any etiological claims in its formulation (Kafka, 2010, 2014; Samenow, 2011), and was therefore a good starting point for sound and theoretically unbiased research. Although the results found in Study I (Öberg et al., 2017) and other studies on the validity of HD (Parsons et al.,

2016; Scanavino et al., 2018; Scanavino et al., 2014) have suggested HD as an appropriate diagnostic category, it is important to remember that it is but one possible categorization. Through the newly included CSBD diagnosis in ICD-11 (Kraus et al., 2018; World Health Organization, 2018a, 2018b), future studies on the complex of problems associated with excessive sexual behavior will surely lead to increased understanding of a salient psychiatric problem.

7 CONCLUSIONS

The overall aim of this thesis was to examine the utility of the HD criteria when categorizing individuals with excessive sexual behavior and to develop a feasible and efficacious treatment for the condition, both administered in group settings and via the Internet. HD was considered the most suitable conceptualization of excessive sexual behavior at the time of the initiation of the project. The research project found HD and its criteria suitable for categorization of men and women exhibiting excessive sexual behaviors. Both for clinical and research purposes. However, considering the rejection of the diagnostic proposal for inclusion in the DSM-5 (Kafka, 2014), and the recent inclusion of CSBD in ICD-11 (World Health Organization, 2018a), HD seems less applicable for categorization of HB today. Therefore, CSBD should be preferred over HD for categorization of HB. Since significantly fewer women were included in Study I, the clinical presentation of HD among women as well as among individuals that don´t identify with binary gender norms, are less understood and should be investigated.

The results from Study II and III answered research question number 2, suggesting that the CBGT intervention protocol was efficacious for amelioration of the symptoms associated with HD. The significance of these findings is large insofar that Study II and III were the first investigations of treatment effects on the specific HD-criteria and its associated symptoms.

In line with the overall aim of the research project and research question number 3, the treatment protocol was in Study IV implemented and found feasible when administered via the Internet.

The clinical implications of our findings are that CBT-interventions for HB can be administered in group-setting, but with more cost-effectiveness and flexibility, via the Internet. However, conclusions regarding the treatment effects on paraphilia(s) must be cautiously drawn considering the small sample size and the unvalidated measures. Nonetheless, our findings that reduced hypersexual symptoms, and in particular sexual preoccupation, are associated with reduced paraphilic symptoms, emphasize the need for further developments of interventions to prevent unwanted sexual behavior, including sexual offending.

8 ACKNOWLEDGEMENTS

through hard and very sweaty work during my 2018 summer vacation) I believe that the growth curve of my statistical knowledge finally was positive. And significant. Thank you!

Matteo Bottai, thank you for your help with the statistical analyses of Study IV. Watching your relaxed and methodological working process, really deepened my understanding for how mixed model analyses can be used. I think.

Tania Samuelsson McConaghy, for revision of the texts. Your expertise has improved my texts immensely. I thought I knew how to write in English. Obviously not… Thank you so much!

Maria Carola Bure, the mouth harpist, my clinical inspiration and friend. You opened my eyes on how to relate to patients in a way they don´t teach in school. I want to go to more philosophical, Jungian and Buddhistic seminars with you. Your view of the world is very contagious, and I like being infected.

Nenad Paunovic, the eccentric mini moog-player, my co-author but first and foremost my friend. Our discussions (usually a mash-up of science, psychotherapy and cheesy Hollywood action-movies) are sometimes confusing, most of the time demanding but in some mysterious way, always surprisingly stimulating. Take my advice: cite Karl Popper, Chris Brewin and Jean-Claude Van Damme in the same sentence and your book will be a killer. Let´s go to Günthers.

Maria Breide, the violinist of the string section and my primordial Mozart sister. We had so much fun when we composed the first ethical application for the project. Your delicate sense of melody (and humor) supplied an atmospheric and emotional timbre to our texts. This symphony would never have been realized without you.

Maria Ilestam, the back-up singer. Your jokes tend to make me more embarrassed than mine will ever make you (not really). I blame my good upbringing. What´s your excuse? Nonetheless, keep joking and I´ll do my best to make you blush in the not so distant future.

Amanda Netscher, the saxophone player, a dear friend and a passionate protagonist of vulvic awareness. You are one of the most encouraging and inspirational persons I´ve met. Beside all the things you do, you also make beautiful things that glitters… or clitters.

Louise Adermark, assistant professor at Gothenburg University. I´ve actually known you for at least forty years. The first memory I have of you is when you munched on an onion while waiting for the school bus. Is it possible to be addicted to onions? If so, what parts of the brain are involved? Thank you for having me as a lecturer on your course in 2011. I learned a lot. I hope your students did.

Mats, Roger, Alex and Hugo, it´s about time we play some heavy grooves again. I can´t wait to get to shred over your rhythms, sweat during our rehearsals and then finally hit the road with you again. Another European tour like the one we did, is what we need. You know:

three bands crammed in a bus, an erratic but loving tour manager, and the luxury of at least have a chance of taking biweekly showers. I´m in!

Mattias, Per, John and Daniel, my Simon Says-brothers. I miss the delight mingled with terror I think we all felt when we hit the stage. Those songs were hard, man. Even though the results won´t be anything like Stefan imagined, we should really put "Tigers" on tape. To give it our touch. To honor Stefan and his beautiful music and off course: to get a reason to hang.

Anna Hansson, your friendship means the world to me. We have known each other for more than thirty years. Your academic eyes are so sharp, and your comments always hit bull´s eye. And then I haven´t even mentioned your sense of humor. Your qualities are hard to value even though that is way easier than trying to verbalize the amount of the light, joy and love your beautiful son *Ludvig* emits. *Vous êtes le soleil!*

Karl Lindblom, my hyper-intellectual and close friend. We met more than thirty years ago, hit it off right away and we´re still hanging. All thanks to Snus. You are one of the most peculiar and complex philosophers I know. You have always been my inspiration when it comes to thinking and writing. And you still are. For better or for worse.

Jonny, Torben, Mäla and Jeppe, the dear co-members of the dynamic quintet of world-explorers. Our gatherings are always a perfect blend of deep emotional discussions, a rough round with Mike Tyson and an ecstatic full moon party. We have done it for fifteen years now. Let´s do for another hundred!

Dan the Man, the culinary soul mate of mine. Damn!?! You are now a better cook than I ever was. Let´s start that restaurant so I can catch up.

Christian Walén, one of my finest friends and fellow pirate. We almost did everything together from the first day of "psykologprogrammet" in 2003 up to we graduated. Jeez, it´s been 16 years!?! You are a true master of opportunity spotting. Just think of that morning in May 2010. It resulted in our first boat! Then we got another one! Does that mean that we know how to sail now? Honestly? Hmm… I don´t care; Let´s set sails for Maracaibo!

Christian, Anders and Kristofer, the crew of the "Committee for evidence-based leisure activities". We must do it again! I´ll plan for the meals, the drinks and make sure I take the prophylactic antibiotics while Christian buys the best equipment available and reads the instructions. Kristofer; make shure it´s not your week and then dance over the pine cones. Anders; call the cab, don´t not bring Dr. Moen and hide your Atlas. Fair?

Styrbjörn Rudfelt, my dear friend and the one who kind of is responsible for the mental embryo that resulted in me buying a boat. Our friendship goes a long way back and is, funnily enough, the second one among the ones I mention here that I partially owe to tobacco. Anyway, we always seem to have important things to discuss. Let it be religion, relationships

or national economics. I doesn´t matter. I think it´s time to go to "Bastuholmen" as crew members on "Orm av Skaftö".

Emilie, my friend and my partner for existential discussions. Thank you so much for the paintings. They are way better than you think. We really should start that pod.

Pernilla, my siz and close friend. Your brilliant scientific mind is only outperformed by your witty humor. Do you remember what you said when we watched that movie with Jodie Foster? It was not "Kartong". I guess you remember what I said when that cabbage head was about to be cut. Well, that was the start of my development in academic linguistics. Or decay…

Sanna, the honest, warm and encouraging charismatic entity that makes me, and anybody else who comes in your presence, feel seen, welcomed and comfortable. Talking and hanging with you always remind me of what people (and I) should strive to become. I think it´s about time we open that bottle of wine. You are the best!

Elin, my fake nephew. We don´t see each other often enough. Make sure to soon make an appointment for that that tattoo so you must come here and hang with the gang!

Annika, the warm, fun and natural force that keeps my dear brother in check. When this is over, I promise to help you.

Anders, Gunn and Carl-Henrik, my dearly loved family. Even though we all live in different parts of Sweden, you are always with me. I hope that I am always with you. Thank you, daddy for teaching me how to carve sallow whistles when I was barely trusted with plastic spoons. Thanks mum for reading real literature to us when we were kids. Your artistic interpretation and reading intonation outperform the most seasoned voice actors any day. Let´s put it on tape! Thank you, my dear brother, for all the help with the numbers and the evil technology I´ve stumbled upon over the years. I´ve learned so much from you even though I have failed my part: You still can´t sing… ;) And by the way; thanks for the proof reading. In sum; You are all the best!

9 REFERENCES

Aaron, M. (2012). The Pathways of Problematic Sexual Behavior: A Literature Review of Factors Affecting Adult Sexual Behavior in Survivors of Childhood Sexual Abuse. *Sexual Addiction & Compulsivity, 19*(3), 199-218. doi:10.1080/10720162.2012.690678

Adams, K. M., & Robinson, D. W. (2011). Shame Reduction, Affect Regulation, and Sexual Boundary Development: Essential Building Blocks of Sexual Addiction Treatment. *Sexual Addiction & Compulsivity, 8*(1), 23-44. doi:10.1080/10720160127559

American Psychiatric Association. (1980). *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed. ed.). Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders*. Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2010a). Hypersexual Disorder. Retrieved from http://www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=415#

American Psychiatric Association. (2010b). Hypersexual Disorder Screening Inventory. Retrieved from http://www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=415#

American Psychiatric Association. (2010c). Hypersexual Disorder: Current Assessment Scale. Retrieved from http://www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=415#

American Psychiatric Association. (2011). Severity Self-rating Measures for Paraphilic Disorders. Retrieved from http://www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=415#

American Psychiatric Association. (2013a). *Diagnostic and Statistical Manual of Mental Disorders*. Washington, DC.

American Psychiatric Association. (2013b). *Diagnostic and statistical manual of mental disorders: DSM-5*: Fifth edition. Arlington, VA : American Psychiatric Publishing, [2013] ©2013.

Andersson, E. (2014). *Enhancing Cognitive Behavior Therapy in The Treatment if Obsessive-Compulsive Disorder.* (Doctoral Degree (Ph.D.)), Karolinska Institutet, Stockholm, Sweden.

Andersson, E., Ljótsson, B., Hedman, E., Enander, J., Kaldo, V., Andersson, G., . . . Rück, C. (2015). Predictors and moderators of Internet-based cognitive behavior therapy for obsessive–compulsive disorder: Results from a randomized trial. *Journal of Obsessive-Compulsive and Related Disorders, 4*, 1-7. doi:10.1016/j.jocrd.2014.10.003

Andersson, G. (2016). Internet-Delivered Psychological Treatments. *Annu Rev Clin Psychol, 12*, 157-179. doi:10.1146/annurev-clinpsy-021815-093006

Andersson, G., Bergström, J., Buhrman, M., Carlbring, P., Holländare, F., Kaldo, V., . . . Waara, J. (2008). Development of a New Approach to Guided Self-Help via the Internet: The Swedish Experience. *Journal of Technology in Human Services, 26*(2-4), 161-181. doi:10.1080/15228830802094627

Andersson, G., Carlbring, P., & Cuijpers, P. (2010). Internet interventions: Moving from efficacy to effectiveness. *E-Journal of Applied Psychology, 5*(2). doi:10.7790/ejap.v5i2.169

Andersson, G., Carlbring, P., Furmark, T., & Group, S. O. F. I. E. R. (2012). Therapist experience and knowledge acquisition in internet-delivered CBT for social anxiety disorder: a randomized controlled trial. *PLoS One, 7*(5), e37411. doi:10.1371/journal.pone.0037411

Attkisson, C. C., & Greenfield, T. K. (1994). *Client Satisfaction Questionnaire-8 and Service Satisfaction Scale-30. The use of psychological testing for treatment, planning and outcome assessements.* Mahwah: Lawrence Erlbaum Associates.

Bancroft, J. (1999). Central inhibition of sexual response in the male: a theoretical perspective. *Neuroscience and Biobehavioral Review, 23*, 763–784.

Bancroft, J., Graham, C. A., Janssen, E., & Sanders, S. A. (2009). The dual control model: current status and future directions. *J Sex Res, 46*(2-3), 121-142. doi:10.1080/00224490902747222

Bancroft, J., & Janssen, E. (2000). The dual control model of male sexual response: a theoretical approach to centrally mediated erectile dysfunction. *Neuroscience & Biobehavioral Reviews, 24*(5), 571-579. doi:https://doi.org/10.1016/S0149-7634(00)00024-5

Bancroft, J., & Vukadinovic, Z. (2004). Sexual addiction, sexual compulsivity, sexual impulsivity, or what? Toward a theoretical model. *J Sex Res, 41*(3), 225-234. doi:10.1080/00224490409552230

Bandura, A. (2012). On the Functional Properties of Perceived Self-Efficacy Revisited. *Journal of Management, 38*(1), 9-36.

Barkham, M., Mellor-Clark, J., Connell, J., & Cahill, J. (2006). A core approach to practice-based evidence: A brief history of the origins and applications of the CORE-OM and CORE System. *Counselling and Psychotherapy Research, 6*(1), 3-15. doi:10.1080/14733140600581218

Barth, R. J., & Kinder, B. N. (1987). The mislabeling of sexual impulsivity. *J Sex Marital Ther, 13*(1), 15-23. doi:10.1080/00926238708403875

Bartlik, B. D., Kaplan, P., & Kaplan, H. S. (1995). Psychostimulants apparently reverse sexual dysfunction secondary to selective serotonin re-uptake inhibitors. *J Sex Marital Ther, 21*(4), 264-271. doi:10.1080/00926239508414646

Black, D. W., Kehrberg, L., Flumerfelt, D. L., & Schlosser, S. S. (1997). Characteristics of 36 Subjects Reporting Compulsive Sexual Behavior. *American Journal of Psychiatry, 154*(2), 243-249.

Blum, K., Badgaiyan, R. D., & Gold, M. S. (2015). Hypersexuality Addiction and Withdrawal: Phenomenology, Neurogenetics and Epigenetics. *Cureus, 7*(10), e348. doi:10.7759/cureus.348

Blum, K., Noble, E. P., Sheridan, P. J., & et al. (1990). Allelic association of human dopamine d2 receptor gene in alcoholism. *JAMA, 263*(15), 2055-2060. doi:10.1001/jama.1990.03440150063027

Blum, K., Sheridan, P. J., Wood, R. C., Braverman, E. R., Chen, T. J. H., phd, J. G. C., & Comings, D. E. (1996). The D2 Dopamine Receptor Gene as a Determinant of

Reward Deficiency Syndrome. *Journal of the Royal Society of Medicine, 89*(7), 396-400. doi:10.1177/014107689608900711

Boettcher, J., Rozental, A., Andersson, G., & Carlbring, P. (2014). Side effects in Internet-based interventions for Social Anxiety Disorder. *Internet Interventions, 1*(1), 3-11. doi:10.1016/j.invent.2014.02.002

Bothe, B., Kovacs, M., Toth-Kiraly, I., Reid, R. C., Griffiths, M. D., Orosz, G., & Demetrovics, Z. (2018). The Psychometric Properties of the Hypersexual Behavior Inventory Using a Large-Scale Nonclinical Sample. *J Sex Res*, 1-11. doi:10.1080/00224499.2018.1494262

Brunswig, K. A., Sbraga, T. P., & Harris, C. D. (2003). Relapse Prevention. In W. O'Donohue, J. E. Fisher, & S. C. Hayes (Eds.), *Cognitive Behavioral Therapy: Applying Empirically Supported Techniques in Your Practice* (pp. 321-329). Hoboken, New Jersey: John Wiley & Sons, Inc.

Burlingame, G. M., Fuhriman, A., & Mosier, J. (2003). The differential effectiveness of group psychotherapy: A meta-analytic perspective. *Group Dynamics: Theory, Research, and Practice, 7*(1), 3-12. doi:10.1037/1089-2699.7.1.3

Carnes, P. (1983). *Out of the shadows: Understanding sexual addiction*. Minneapolis, MN: CompCare.

Carnes, P. (1989). *Contrary to love: Helping the sexual addict*. Minneapolis, MN: CompCare Publishers.

Carnes, P. (1991). *Don't call it love: Recovery from sexual addiction*. New York: Bantam.

Carpenter, B. N., & Krueger, R. B. (2013). Comment on Moser's "Hypersexual Disorder: Searching for Clarity". *Sexual Addiction & Compulsivity, 20*(1-2), 59-62. doi:10.1080/10720162.2013.775633

Carvalho, J., Stulhofer, A., Vieira, A. L., & Jurin, T. (2015). Hypersexuality and high sexual desire: exploring the structure of problematic sexuality. *J Sex Med, 12*(6), 1356-1367. doi:10.1111/jsm.12865

Chaney, M. P., & Burns-Wortham, C. M. (2014). The Relationship Between Online Sexual Compulsivity, Dissociation, and Past Child Abuse Among Men Who Have Sex with Men. *Journal of LGBT Issues in Counseling, 8*(2), 146-163. doi:10.1080/15538605.2014.895663

Chaney, M. P., & Chang, C. Y. (2005). A Trio of Turmoil for Internet Sexually Addicted Men Who Have Sex with Men: Boredom Proneness, Social Connectedness, and Dissociation. *Sexual Addiction & Compulsivity, 12*(1), 3-18. doi:10.1080/10720160590933671

Chatzittofis, A., Arver, S., Oberg, K., Hallberg, J., Nordstrom, P., & Jokinen, J. (2016). HPA axis dysregulation in men with hypersexual disorder. *Psychoneuroendocrinology, 63*, 247-253. doi:10.1016/j.psyneuen.2015.10.002

Chatzittofis, A., Savard, J., Arver, S., Oberg, K. G., Hallberg, J., Nordstrom, P., & Jokinen, J. (2017). Interpersonal violence, early life adversity, and suicidal behavior in hypersexual men. *J Behav Addict, 6*(2), 187-193. doi:10.1556/2006.6.2017.027

Chavira, D. A., Golinelli, D., Sherbourne, C., Stein, M. B., Sullivan, G., Bystritsky, A., . . . Craske, M. (2014). Treatment engagement and response to CBT among Latinos with

anxiety disorders in primary care. *J Consult Clin Psychol, 82*(3), 392-403. doi:10.1037/a0036365

Christensen, H., Griffiths, K. M., & Farrer, L. (2009). Adherence in internet interventions for anxiety and depression. *J Med Internet Res, 11*(2), e13. doi:10.2196/jmir.1194

Coe, R. (2002). *It's the Effect Size, Stupid: What effect size is and why it is important.* Paper presented at the British Educational Research Association annual conference, Exeter.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. New York, NY: Routledge Academic.

Coleman, E. (1987). Sexual compulsivity: Definition, etiology, and treatment considerations. *Journal of Chemical Dependency Treatment, 1*, 189-204.

Coleman, E. (1992). Is your patient suffering from compulsive sexual behavior. *Psychiatric Annals, 22*, 320-325.

Coleman, E., Gratzer, T., Nesvacil, L., & Raymond, N. C. (2000). Nefazodone and the treatment of nonparaphilic compulsive sexual behavior: a retrospective study. *The journal of clinical psychiatry, 61*(4), 282.

Corley, M. D., Pollard, S. E., Hook, J. N., & Schneider, J. P. (2013). Impact of Disclosure of Relapse for Self-Identified Sexual Addicts. *Sexual Addiction & Compulsivity, 20*(3), 157-170. doi:10.1080/10720162.2013.786659

Covert, M. V., Tangney, J., Maddux, J., & Heleno, N. M. (2003). Shame-Proneness, Guilt-Proneness, and Interpersonal Problem Solving: a Social Cognitive Analysis. *Journal of Social and Clinical Psychology, 22*(1), 1-12. doi:10.1521/jscp.22.1.1.22765

Crosby, J. M. (2011). *Acceptance and Commitment Therapy for the Treatment of Compulsive Pornography Use: A Randomized Clinical Trial.* All Graduate Theses and Dissertations. Paper 999,

Crosby, J. M., & Twohig, M. P. (2016). Acceptance and Commitment Therapy for Problematic Internet Pornography Use: A Randomized Trial. *Behavior Therapy*. doi:10.1016/j.beth.2016.02.001

D'Zurilla, T. J., & Nezu, A. M. (1999). *Problem-solving therapy: A social competence approach to clinical intervention.* New York: Springer.

Daw, J., & Guo, G. (2011). The influence of three genes on whether adolescents use contraception, USA 1994-2002. *Popul Stud (Camb), 65*(3), 253-271. doi:10.1080/00324728.2011.598942

Deacon, B. J., & Abramowitz, J. S. (2004). Cognitive and behavioral treatments for anxiety disorders: a review of meta-analytic findings. *Journal of clinical psychology, 60*(4), 429-441. doi:10.1002/jclp.10255

Dickenson, J. A., Gleason, N., Coleman, E., & Miner, M. H. (2018). Prevalence of Distress Associated With Difficulty Controlling Sexual Urges, Feelings, and Behaviors in the United States. *JAMA Netw Open, 1*(7), e184468. doi:10.1001/jamanetworkopen.2018.4468

Dobson, K. S., & Hamilton, K. E. (2003). Cognitive Restructuring: Behavioral Tests of Negative Cognitions. In W. O'Donohue, J. E. Fisher, & S. C. Hayes (Eds.), *Cognitive Behavioral Therapy: Applying Empirically Supported Techniques in Your Practice* (pp. 84-88). Hoboken, New Jersey: John Wiley and Sons, Inc.

Donker, T., Griffiths, K. M., Cuijpers, P., & Christensen, H. (2009). Psychoeducation for depression, anxiety and psychological distress: a meta-analysis. *BMC Med, 7*, 79. doi:10.1186/1741-7015-7-79

Dugas, M. J., & Robichaud, M. (2009). *Cognitive-behavioral treatment for generalized anxiety disorder: From science to practice*. New York, NY: Routledge/Taylor & Francis Group.

Dugas, M. J., Schwartz, A., & Francis, K. (2004). Brief Report: Intolerance of Uncertainty, Worry, and Depression. *Cognitive Therapy and Research, 28*(6), 835-842. doi:10.1007/s10608-004-0669-0

Efrati, Y., & Gola, M. (2018a). Compulsive sexual behavior: A twelve-step therapeutic approach. *J Behav Addict, 7*(2), 445-453. doi:10.1556/2006.7.2018.26

Efrati, Y., & Gola, M. (2018b). Treating Compulsive Sexual Behavior. *Current Sexual Health Reports, 10*(2), 57-64. doi:10.1007/s11930-018-0143-8

Eikeseth, S., & Svartdal, F. (2007). *Tillämpad beteendeanalys* (1. uppl. ed.). Lund: Lund : Studentlitteratur.

Elfström, M. L., Evans, C., Lundgren, J., Johansson, B., Hakeberg, M., & Carlsson, S. G. (2013). Validation of the Swedish version of the Clinical Outcomes in Routine Evaluation Outcome Measure (CORE-OM). *Clin Psychol Psychother, 20*(5), 447-455. doi:10.1002/cpp.1788

Ellis, A. (2003). Cognitive Restructuring of the Disputing of Irrational Beliefs. In W. O'Donohue, J. E. Fisher, & S. C. Hayes (Eds.), *Cognitive Behavior Therapy: Applying Empirically Supported Techniques in Your Practice* (pp. 79-83). Hoboken, NJ: John Wiley & Sons, Inc.

Evans, C., Connell, J., Barkham, M., Margison, F., McGrath, G., Mellor-Clark, J., & Audin, K. (2002). Towards a standardised brief outcome measure: Psychometric properties and utility of the CORE-OM. *British Journal of Psychiatry, 180*, 51-60.

Fagan, P. J., Wise, T. N., Schmidt Jr, C. W., Ponticas, Y., Marshall, R. D., & Costa Jr, P. T. (1991). A Comparison of Five-Factor Personality Dimensions in Males With Sexual Dysfunction and Males With Paraphilia. *Journal of Personality Assessment, 57*(3), 434-448. doi:10.1207/s15327752jpa5703_4

Faisandier, K. M., Taylor, J. E., & Salisbury, R. M. (2012). *What does attachment have to do with out-ofcontrol sexual behaviour?* (Vol. 41).

Feingold, A. (2009). Effect sizes for growth-modeling analysis for controlled clinical trials in the same metric as for classical analysis. *Psychol Methods, 14*(1), 43-53. doi:10.1037/a0014699

Feingold, A. (2013). A Regression Framework for Effect Size Assessments in Longitudinal Modeling of Group Differences. *Rev Gen Psychol, 17*(1), 111-121. doi:10.1037/a0030048

Feingold, A. (2015). Confidence interval estimation for standardized effect sizes in multilevel and latent growth modeling. *J Consult Clin Psychol, 83*(1), 157-168. doi:10.1037/a0037721

Forsyth, J. P., & Eifert, G. H. (1996). "Cleaning-up cognition" in triple-response fear assessment through individualized functional behavior analysis. *Journal of Behavior Therapy and Experimental Psychiatry, Vol 27*(2), 87-98.

Fritz, C. O., Morris, P. E., & Richler, J. J. (2012). Effect size estimates: current use, calculations, and interpretation. *J Exp Psychol Gen, 141*(1), 2-18. doi:10.1037/a0024338

Fuhriman, A., & Burlingame, G. M. (1994). Group Psychotherapy: Research and practice. In A. Fuhriman & G. M. Burlingame (Eds.), *Handbook of Group Psychotherapy* (pp. 3-40). New York: Wiley.

Garfield, S. L. (1994). Research on client variables in psychotherapy. In *Handbook of psychotherapy and behavior change, 4th ed.* (pp. 190-228). Oxford, England: John Wiley & Sons.

George, W. H. (1989). Marlatt and Gordon's relapse prevention model: A cognitive-behavioral approach to understanding and preventing relapse. *Journal of Chemical Dependency Treatment, 2*(2), 125-152.

Gilliland, R., Blue Star, J., Hansen, B., & Carpenter, B. (2015). Relationship Attachment Styles in a Sample of Hypersexual Patients. *J Sex Marital Ther, 41*(6), 581-592. doi:10.1080/0092623X.2014.958787

Gilliland, R., South, M., Carpenter, B. N., & Hardy, S. A. (2011). The Roles of Shame and Guilt in Hypersexual Behavior. *Sexual Addiction & Compulsivity, 18*(1), 12-29. doi:10.1080/10720162.2011.551182

Glenn, D., Golinelli, D., Rose, R. D., Roy-Byrne, P., Stein, M. B., Sullivan, G., . . . Craske, M. G. (2013). Who gets the most out of cognitive behavioral therapy for anxiety disorders? The role of treatment dose and patient engagement. *J Consult Clin Psychol, 81*(4), 639-649. doi:10.1037/a0033403

Griffin, B. J., Worthington, E. L., Leach, J. D., Hook, J. N., Grubbs, J., Exline, J. J., & Davis, D. E. (2016). Sexual Congruence Moderates the Associations of Hypersexual Behavior with Spiritual Struggle and Sexual Self-Concept. *Sexual Addiction & Compulsivity, 23*(2-3), 279-295. doi:10.1080/10720162.2016.1150924

Hallberg, J., Kaldo, V., Arver, S., Dhejne, C., & Oberg, K. G. (2017a). A Cognitive-Behavioral Therapy Group Intervention for Hypersexual Disorder: A Feasibility Study. *J Sex Med, 14*(7), 950-958. doi:10.1016/j.jsxm.2017.05.004

Hallberg, J., Kaldo, V., Arver, S., Dhejne, C., & Oberg, K. G. (2017b). *A randomized controlled study of a group-administered Cognitive Behavioral Treatment for Hypersexual Disorder*. In manuscript.

Halpern, A. L. (2011). The proposed diagnosis of hypersexual disorder for inclusion in DSM-5: unnecessary and harmful. *Arch Sex Behav, 40*(3), 487-488; author reply 489-490. doi:10.1007/s10508-011-9727-3

Hanson, R. K., & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: a meta-analysis of recidivism studies. *J Consult Clin Psychol, 73*(6), 1154-1163. doi:10.1037/0022-006X.73.6.1154

Harrell, F. E., & Lee, K. L. (1985). *The practical value of logistic regression.* Paper presented at the 10th Annual SAS User's Group International Conference.

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2011). *Acceptance and Commitment Therapy, Second Edition: The Process and Practice of Mindful Change*. New York, NY: The Guilford Press.

Hedman, E., Carlbring, P., Ljótsson, B., & Andersson, G. (2014). *Internetbaserad psykologisk behandling : evidens, indikation och praktiskt genomförande*. Stockholm: Stockholm : Natur & Kultur.

Hedman, E., Strom, P., Stunkel, A., & Mortberg, E. (2013). Shame and guilt in social anxiety disorder: effects of cognitive behavior therapy and association with social anxiety and depressive symptoms. *PLoS One, 8*(4), e61713. doi:10.1371/journal.pone.0061713

Hook, J. N., Hook, J. P., Davis, D. E., Worthington, E. L., Jr., & Penberthy, J. K. (2010). Measuring sexual addiction and compulsivity: a critical review of instruments. *J Sex Marital Ther, 36*(3), 227-260. doi:10.1080/00926231003719673

Hook, J. N., Reid, R. C., Penberthy, J. K., Davis, D. E., & Jennings, D. J., 2nd. (2014). Methodological review of treatments for nonparaphilic hypersexual behavior. *J Sex Marital Ther, 40*(4), 294-308. doi:10.1080/0092623X.2012.751075

Iwata, B. A., Smith, R. G., & Michael, J. (2000). CURRENT RESEARCH ON THE INFLUENCE OF ESTABLISHING OPERATIONS ON BEHAVIOR IN APPLIED SETTINGS. *Journal of Applied Behavior Analysis, 33*(4), 411-418. doi:10.1901/jaba.2000.33-411

Janssen, E., Vorst, H., Finn, P., & Bancroft, J. (2002). The Sexual Inhibition (SIS) and Sexual Excitation (SES) Scales: II. Predicting psychophysiological response pattens. *J Sex Res, 39*(2), 127-132. doi:10.1080/00224490209552131

Johansson, O., Michel, T., Andersson, G., & Paxling, B. (2015). Experiences of non-adherence to Internet-delivered cognitive behavior therapy: A qualitative study. *Internet Interventions, 2*(2), 137-142. doi:10.1016/j.invent.2015.02.006

Kafka, M. P. (1991). Successful antidepressant treatment of nonparaphilic sexual addictions and paraphilias in men. *Journal of Clinical Psychiatry, 52*(2), 60-65.

Kafka, M. P. (1994). Sertraline pharmacotherapy for paraphilias and paraphilia-related disorders: an open trial. *Annals of clinical psychiatry., 6*(3), 189-195.

Kafka, M. P. (1997a). Hypersexual Desire in Males: An Operational Definition and Clinical Implications for Males with Paraphilias and Paraphilia-Related Disorders. *Arch Sex Behav, 26*(5), 505-526.

Kafka, M. P. (1997b). A Monoamine Hypothesis for the Pathophysiology of Paraphilic Disorders. *Arch Sex Behav, 26*(4), 343-358. doi:10.1023/A:1024535201089

Kafka, M. P. (2003). Sex offending and sexual appetite: the clinical and theoretical relevance of hypersexual desire. *Int J Offender Ther Comp Criminol, 47*(4), 439-451. doi:10.1177/0306624X03253845

Kafka, M. P. (2006). The Monoamine Hypothesis for the Pathophysiology of Paraphilic Disorders: An Update. *Annals of the New York Academy of Sciences, 989*(1), 86-94. doi:10.1111/j.1749-6632.2003.tb07295.x

Kafka, M. P. (2010). Hypersexual Disorder: A Proposed Diagnosis for DSM-V. *Arch Sex Behav, 39*(2), 377-400. doi:10.1007/s10508-009-9574-7

Kafka, M. P. (2013). The Development and Evolution of the Criteria for a Newly Proposed Diagnosis for DSM-5: Hypersexual Disorder. *Sexual Addiction & Compulsivity, 20*(1-2), 19-26. doi:10.1080/10720162.2013.768127

Kafka, M. P. (2014). What happened to hypersexual disorder? *Arch Sex Behav, 43*(7), 1259-1261. doi:10.1007/s10508-014-0326-y

Kafka, M. P., & Coleman, E. (1991). Serotonin and paraphilias: The convergence of mood, impulse and compulsive disorders (Letter). *Journal of Clinical Psychopharmacology, 11*, 223–224.

Kafka, M. P., & Hennen, J. (1999). The paraphilia-related disorders: an empirical investigation of nonparaphilic hypersexuality disorders in outpatient males. *J Sex Marital Ther, 25*(4), 305-319. doi:10.1080/00926239908404008

Kafka, M. P., & Hennen, J. (2000). Psychostimulant augmentation during treatment with selective serotonin reuptake inhibitors in men with paraphilias and paraphilia-related disorders: a case series. *The journal of clinical psychiatry, 61*(9), 664-670.

Kafka, M. P., & Hennen, J. (2002). A DSM-IV Axis I Comorbidity Study of Males (n = 120) With Paraphilias and Paraphilia-Related Disorders. *Sexual Abuse, 14*(4), 349-366. doi:10.1177/107906320201400405

Kafka, M. P., & Hennen, J. (2003). Hypersexual Desire in Males: Are Males With Paraphilias Different From Males With Paraphilia-Related Disorders? *Sexual Abuse: A Journal of Research and Treatment, 15*(4), 307-321.

Kafka, M. P., & Krueger, R. B. (2011). Response to Halpern (2011). *Arch Sex Behav, 40*, 489–490.

Kafka, M. P., & Prentky, R. (1992). Fluoxetine treatment of nonparaphilic sexual addictions and paraphilias in men. *The journal of clinical psychiatry, 53*(10), 351-358.

Kalichman, S. C., Johnson, J. R., Adair, V., Rompa, D., Multhauf, K., & Kelly, J. A. (1994). Sexual Sensation Seeking: Scale Development and Predicting AIDS-Risk Behavior Among Homosexually Active Men. *Journal of Personality Assessment, 62*(3), 385-397. doi:10.1207/s15327752jpa6203_1

Kalichman, S. C., & Rompa, D. (1995). Sexual Sensation Seeking and Sexual Compulsivity Scales: Validity, and Predicting HIV Risk Behavior. *Journal of Personality Assessment, 65*(3), 586-601. doi:10.1207/s15327752jpa6503_16

Kalichman, S. C., & Rompa, D. (2001). The Sexual Compulsivity Scale: further development and use with HIV-positive persons. *J Pers Assess, 76*(3), 379-395. doi:10.1207/S15327752JPA7603_02

Karila, L., Wéry, A., Weinstein, A., Cottencin, O., Petit, A., Reynaud, M., & Billieux, J. (2014). Sexual Addiction or Hypersexual Disorder:Different Terms for the Same Problem? A Review of the Literature. *Current Pharmaceutical Design, 20*, 000-000.

Kazantzis, N., Brownfield, N. R., Mosely, L., Usatoff, A. S., & Flighty, A. J. (2017). Homework in Cognitive Behavioral Therapy: A Systematic Review of Adherence Assessment in Anxiety and Depression (2011-2016). *Psychiatr Clin North Am, 40*(4), 625-639. doi:10.1016/j.psc.2017.08.001

Kelders, S. M., Kok, R. N., Ossebaard, H. C., & Van Gemert-Pijnen, J. E. (2012). Persuasive system design does matter: a systematic review of adherence to web-based interventions. *J Med Internet Res, 14*(6), e152. doi:10.2196/jmir.2104

Kendler, K. S., Zachar, P., & Craver, C. (2011). What kinds of things are psychiatric disorders? *Psychol Med, 41*(6), 1143-1150. doi:10.1017/S0033291710001844

Kingston, D. A., & Bradford, J. M. (2013). Hypersexuality and Recidivism among Sexual Offenders. *Sexual Addiction & Compulsivity, 20*(1-2), 91-105. doi:10.1080/10720162.2013.768131

Kraus, S. W., Krueger, R. B., Briken, P., First, M. B., Stein, D. J., Kaplan, M. S., . . . Reed, G. M. (2018). Compulsive sexual behaviour disorder in the ICD-11. *World Psychiatry, 17*(1), 109-110. doi:10.1002/wps.20499

Krueger, R., & Kaplan, M. (2012). *Paraphilic diagnoses in DSM-5* (Vol. 49).

Krueger, R., Kaplan, M., & First, M. (2009). *Sexual and Other Axis I Diagnoses of 60 Males Arrested for Crimes Against Children Involving the Internet* (Vol. 14).

Kuzma, J. M., & Black, D. W. (2008). Epidemiology, prevalence, and natural history of compulsive sexual behavior. *Psychiatr Clin North Am, 31*(4), 603-611. doi:10.1016/j.psc.2008.06.005

Kühn, S., & Gallinat, J. (2016). Chapter Three - Neurobiological Basis of Hypersexuality. In N. M. Zahr & E. T. Peterson (Eds.), *International Review of Neurobiology* (Vol. 129, pp. 67-83): Academic Press.

Ladouceur, R., Gosselin, P., & Dugas, M. J. (2000). Experimental manipulation of intolerance of uncertainty: a study of a theoretical model of worry. *Behaviour Research and Therapy, 38*(9), 933-941. doi:https://doi.org/10.1016/S0005-7967(99)00133-3

Laird, N. M., & Ware, J. H. (1982). Random-Effects Models for Longitudinal Data. *Biometrics, 38*(December 1982), 963-974.

Langstrom, N., & Hanson, R. K. (2006). High rates of sexual behavior in the general population: correlates and predictors. *Arch Sex Behav, 35*(1), 37-52. doi:10.1007/s10508-006-8993-y

Levensky, E. L. (2003). Motivational Interviewing. In W. O`Donohue, J. E. Fisher, & S. C. Hayes (Eds.), *Cognitive Behavioral Therapy: Applying Empirically Supported Techniques in Your Practice* (pp. 252-260). Hoboken, New Jersey: John Wiley & Sons.

Levenson, J. S., Grady, M. D., & Morin, J. W. (2019). Beyond the "Ick Factor": Counseling Non-offending Persons with Pedophilia. *Clinical Social Work Journal*. doi:10.1007/s10615-019-00712-4

Lloyd, A. (2003). Urge Surfing. In W. O`Donohue, J. E. Fisher, & S. C. Hayes (Eds.), *Cognitive Behavioral Therapy: Applying Empirically Supported Technoques in Your Practice*. Hoboken, New Jersey: John Wiley & Sons.

Lloyd, M., Raymond, N. C., Miner, M. H., & Coleman, E. (2007). Borderline Personality Traits in Individuals with Compulsive Sexual Behavior. *Sexual Addiction & Compulsivity, 14*(3), 187-206. doi:10.1080/10720160701480337

Lodi-Smith, J., Shepard, K., & Wagner, S. (2014). Personality and sexually deviant behavior. *Personality and Individual Differences, 70*, 39-44. doi:10.1016/j.paid.2014.06.012

Malon, A. (2012). Pedophilia: a diagnosis in search of a disorder. *Arch Sex Behav, 41*(5), 1083-1097. doi:10.1007/s10508-012-9919-5

Marshall, L. E., & Briken, P. (2010). Assessment, diagnosis, and management of hypersexual disorders. *Curr Opin Psychiatry, 23*(6), 570-573. doi:10.1097/YCO.0b013e32833d15d1

Marshall, W. L. (1997). The Relationship Between Self-Esteem and Deviant Sexual Arousal in Nonfamilial Child Molesters. *Behavior Modification, 21*(1), 86-96.

Marshall, W. L., Marshall, L. E., Serran, G. A., & O'Brien, M. D. (2008). Sexual offender treatment: a positive approach. *Psychiatr Clin North Am, 31*(4), 681-696. doi:10.1016/j.psc.2008.06.001

Martell, C. R., Addis, M. E., & Jacobsen, N. S. (2001). *Depression in Context: Strategies for Guided Action*. New York, NY: W W Norton & Co.

McBride, K., Reece, M., & Sanders, S. A. (2008a). Predicting Negative Outcomes of Sexuality Using the Compulsive Sexual Behavior Inventory. *International Journal of Sexual Health, 19*(4), 51-62. doi:10.1300/J514v19n04_06

McBride, K., Reece, M., & Sanders, S. A. (2008b). *Using the Sexual Compulsivity Scale to Predict Outcomes of Sexual Behavior in Young Adults* (Vol. 15).

McBride, K. R., Reece, M., & Dodge, B. (2010). Sexual Behavior as an Addictive or Compulsive Phenomenon. In *Addiction Medicine* (pp. 661-676).

McDermut, W., Miller, I. W., & Brown, R. A. (2001). The Efficacy of Group Psychotherapy for Depression: A Meta-analysis and Review of the Empirical Research. *Clinical Psychology: Science and Practice, 8*(1), 98-116. doi:10.1093/clipsy.8.1.98

McRoberts, C., Burlingame, G., & Hoag, M. J. (1998). Comparative Efficacy of Individual and Group Psychotherapy: A Meta-Analytic Perspective. *Group Dynamics: Theory, Research, and Practice, 2*, 101-117. doi:10.1037/1089-2699.2.2.101

Melis, M. R., & Argiolas, A. (1995). Dopamine and sexual behavior. *Neuroscience & Biobehavioral Reviews, 19*(1), 19-38. doi:https://doi.org/10.1016/0149-7634(94)00020-2

Miller, J. C. (2008). 12-Step Treatment for Alcohol and Substance Abuse Revisited: Best Available Evidence Suggests Lack of Effectiveness or Harm. *International Journal of Mental Health and Addiction, 6*(4), 568-576. doi:10.1007/s11469-008-9146-4

Miller, W. B., Pasta, D. J., Macmurray, J., Chiu, C., Wu, H., & Comings, D. (1999). DOPAMINE RECEPTOR GENES ARE ASSOCIATED WITH AGE AT FIRST SEXUAL INTERCOURSE. *Journal of Biosocial Science, 31*(1), 43-54. doi:undefined

Miller, W. R. (1985). Motivation for treatment: A review with special emphasis on alcoholism. *Psychological Bulletin, 98*(1), 84-107. doi:10.1037/0033-2909.98.1.84

Miller, W. R. (2002). *Motivational interviewing : preparing people for change* (2. ed. ed.). New York: New York : Guilford Press.

Mischoulon, D., Nierenberg, A. A., Kizilbash, L., Rosenbaum, J. F., & Fava, M. (2000). Strategies for Managing Depression Refractory to Selective Serotonin Reuptake Inhibitor Treatment: A Survey of Clinicians. *The Canadian Journal of Psychiatry, 45*(5), 476-481. doi:10.1177/070674370004500509

Molnar, F. J., Hutton, B., & Fergusson, D. (2008). Does analysis using "last observation carried forward" introduce bias in dementia research? *CMAJ, 179*(8), 751-753. doi:10.1503/cmaj.080820

Montgomery-Graham, S. (2016). Conceptualization and Assessment of Hypersexual Disorder: A Systematic Review of the Literature. *Sex Med Rev*. doi:10.1016/j.sxmr.2016.11.001

Moser, C. (2011). Hypersexual disorder: just more muddled thinking. *Arch Sex Behav, 40*(2), 227-229; author reply 231-222. doi:10.1007/s10508-010-9690-4

Naficy, H., Samenow, C. P., & Fong, T. W. (2013). A Review of Pharmacological Treatments for Hypersexual Disorder. *Sexual Addiction & Compulsivity: The Journal of Treatment & Prevention, 20*(1-2), 139-153. doi:10.1080/10720162.2013.769843

Nair, D., Pawar, A., Kalra, G., & Shah, N. (2013). An Indian Study of Hypersexual Disorder in Patients with Anxiety and Mood Disorders. *Sexual Addiction & Compulsivity, 20*(4), 292-305. doi:10.1080/10720162.2013.814094

Norcross, J. C., Krebs, P. M., & Prochaska, J. O. (2011). Stages of change. *J Clin Psychol, 67*(2), 143-154. doi:10.1002/jclp.20758

Odlaug, B., Lust, K., Schreiber, L., Christenson, G., Derbyshire, K., Harvanko, A., . . . E Grant, J. (2013). *Compulsive sexual behavior in young adults* (Vol. 25).

Orford, J. (1978). Hypersexuality: Implications for a Theory of Dependence. *British Journal of Addiction, 13*, 299-310.

Parsons, J. T., Rendina, H. J., Ventuneac, A., Moody, R. L., & Grov, C. (2016). Hypersexual, Sexually Compulsive, or Just Highly Sexually Active? Investigating Three Distinct Groups of Gay and Bisexual Men and Their Profiles of HIV-Related Sexual Risk. *AIDS Behav, 20*(2), 262-272. doi:10.1007/s10461-015-1029-7

Parsons, J. T., Rendina, J. H., Ventuanec, A., Cook, K. F., Grov, C., & Mustanski, B. (2013). A Psychometric Investigation of the Hypersexual Disorder Screening Inventory among Highly Sexually Active Gay and Bisexual Men: An Item Response Theory Analysis. *Journal of Sexual Medicine, 10*, 3088-3101.

Paterson, R. J. (2000). *The Assertiveness Workbook: How to Express Your Ideas and Stand Up for Yourself at Work and in Relationships*: New Harbinger Publications.

Paunović, N., & Hallberg, J. (2014). Conceptualization of Hypersexual Disorder with the Behavioral-Cognitive Inhibition Theory. *Psychology, 05*(02), 151-159. doi:10.4236/psych.2014.52024

Pennebaker, J. W. (1997). Writing About Emotional Experiences as a Therapeutic Process. *Psychological Science, 8*(3), 162-166. doi:10.1111/j.1467-9280.1997.tb00403

Pinto, J., Carvalho, J., & Nobre, P. J. (2013). The relationship between the FFM personality traits, state psychopathology, and sexual compulsivity in a sample of male college students. *J Sex Med, 10*(7), 1773-1782. doi:10.1111/jsm.12185

Potenza, M. N., Gola, M., Voon, V., Kor, A., & Kraus, S. W. (2017). Is excessive sexual behaviour an addictive disorder? *The Lancet Psychiatry, 4*(9), 663-664. doi:10.1016/s2215-0366(17)30316-4

Raymond, N. C., Coleman, E., & Miner, M. H. (2003). Psychiatric comorbidity and compulsive/impulsive traits in compulsive sexual behavior. *Comprehensive Psychiatry, 44*(5), 370-380. doi:10.1016/s0010-440x(03)00110-x

Raymond, N. C., & Grant, J. E. (2010). Augmentation with naltrexone to treat compulsive sexual behavior: A case series. *Annals of clinical psychiatry., 22*, 56-62.

Reid, R. C. (2010). Differentiating Emotions in a Sample of Men in Treatment for Hypersexual Behavior. *Journal of Social Work Practice in the Addictions, 10*(2), 197-213. doi:10.1080/15332561003769369

Reid, R. C. (2013). Personal Perspectives on Hypersexual Disorder. *Sexual Addiction & Compulsivity, 20*(1-2), 4-18. doi:10.1080/10720162.2013.772876

Reid, R. C., Bramen, J. E., Anderson, A., & Cohen, M. S. (2014). Mindfulness, emotional dysregulation, impulsivity, and stress proneness among hypersexual patients. *Journal of clinical psychology, 70*(4), 313-321.

Reid, R. C., Carpenter, B. N., Gilliland, R., & Karim, R. (2011). Problems of self-concept in a patient sample of hypersexual men with attention-deficit disorder. *J Addict Med, 5*(2), 134-140. doi:10.1097/ADM.0b013e3181e6ad32

Reid, R. C., Carpenter, B. N., Hook, J. N., Garos, S., Manning, J. C., Gilliland, R., . . . Fong, T. (2012). Report of findings in a DSM-5 field trial for hypersexual disorder. *J Sex Med, 9*(11), 2868-2877. doi:10.1111/j.1743-6109.2012.02936.x

Reid, R. C., Carpenter, B. N., & Lloyd, T. Q. (2009). Assessing psychological symptom patterns of patients seeking help for hypersexual behavior. *Sexual and Relationship Therapy, 24*(1), 47-63. doi:10.1080/14681990802702141

Reid, R. C., Carpenter, B. N., Spackman, M., & Willes, D. L. (2008). Alexithymia, emotional instability, and vulnerability to stress proneness in patients seeking help for hypersexual behavior. *J Sex Marital Ther, 34*(2), 133-149. doi:10.1080/00926230701636197

Reid, R. C., Garos, S., & Carpenter, B. N. (2011). Reliability, Validity, and Psychometric Development of the Hypersexual Behavior Inventory in an Outpatient Sample of Men. *Sexual Addiction & Compulsivity, 18*(1), 30-51. doi:10.1080/10720162.2011.555709

Reid, R. C., Garos, S., & Fong, T. (2012). Psychometric development of the hypersexual behavior consequences scale. *J Behav Addict, 1*(3), 115-122. doi:10.1556/JBA.1.2012.001

Reid, R. C., Harper, J. M., & Anderson, E. H. (2009). Coping strategies used by hypersexual patients to defend against the painful effects of shame. *Clin Psychol Psychother, 16*(2), 125-138. doi:10.1002/cpp.609

Reid, R. C., & Kafka, M. P. (2014). Controversies About Hypersexual Disorder and the DSM-5. *Current Sexual Health Reports, 6*(4), 259-264. doi:10.1007/s11930-014-0031-9

Reid, R. C., Stein, J. A., & Carpenter, B. N. (2011). Understanding the roles of shame and neuroticism in a patient sample of hypersexual men. *J Nerv Ment Dis, 199*(4), 263-267. doi:10.1097/NMD.0b013e3182125b96

Reid, R. C., Temko, J., Moghaddam, J. F., & Fong, T. W. (2014). Shame, rumination, and self-compassion in men assessed for hypersexual disorder. *J Psychiatr Pract, 20*(4), 260-268. doi:10.1097/01.pra.0000452562.98286.c5

Rettenberger, M., Klein, V., & Briken, P. (2016). The Relationship Between Hypersexual Behavior, Sexual Excitation, Sexual Inhibition, and Personality Traits. *Arch Sex Behav, 45*(1), 219-233. doi:10.1007/s10508-014-0399-7

Robinson, T. E., & Berridge, K. C. (2008). Review. The incentive sensitization theory of addiction: some current issues. *Philos Trans R Soc Lond B Biol Sci, 363*(1507), 3137-3146. doi:10.1098/rstb.2008.0093

Rosenberg, K. P., Carnes, P., & O'Connor, S. (2014). Evaluation and treatment of sex addiction. *J Sex Marital Ther, 40*(2), 77-91. doi:10.1080/0092623X.2012.701268

Ross, M. W., Mansson, S. A., & Daneback, K. (2012). Prevalence, severity, and correlates of problematic sexual Internet use in Swedish men and women. *Arch Sex Behav, 41*(2), 459-466. doi:10.1007/s10508-011-9762-0

Rozental, A., Magnusson, K., Boettcher, J., Andersson, G., & Carlbring, P. (2017). For better or worse: An individual patient data meta-analysis of deterioration among participants receiving Internet-based cognitive behavior therapy. *J Consult Clin Psychol, 85*(2), 160-177. doi:10.1037/ccp0000158

Samenow, C. P. (2010a). A Biopsychosocial Model of Hypersexual Disorder/Sexual Addiction. *Sexual Addiction & Compulsivity, 17*(2), 69-81. doi:10.1080/10720162.2010.481300

Samenow, C. P. (2010b). Classifying Problematic Sexual Behaviors—It's All in the Name. *Sexual Addiction & Compulsivity, 17*(1), 3-6. doi:10.1080/10720161003697073

Samenow, C. P. (2011). What You Should Know about Hypersexual Disorder. *Sexual Addiction & Compulsivity, 18*(3), 107-113. doi:10.1080/10720162.2011.596762

Santana, L., & Fontenelle, L. F. (2011). A review of studies concerning treatment adherence of patients with anxiety disorders. *Patient Prefer Adherence, 5*, 427-439. doi:10.2147/PPA.S23439

Scanavino, M. T., Ventuneac, A., Abdo, C. H. N., Tavares, H., Amaral, M. L. S., Messina, B., . . . Parsons, J. T. (2018). Sexual compulsivity, anxiety, depression, and sexual risk behavior among treatment-seeking men in São Paulo, Brazil. *Revista Brasileira de Psiquiatria*. doi:10.1590/1516-4446-2017-2476

Scanavino, M. T., Ventuneac, A., Rendina, H. J., Abdo, C. H., Tavares, H., Amaral, M. L., . . . Parsons, J. T. (2014). Sexual Compulsivity Scale, Compulsive Sexual Behavior Inventory, and Hypersexual Disorder Screening Inventory: Translation, Adaptation, and Validation for Use in Brazil. *Arch Sex Behav*. doi:10.1007/s10508-014-0356-5

Schultz, K., Hook, J. N., Davis, D. E., Penberthy, J. K., & Reid, R. C. (2014). Nonparaphilic hypersexual behavior and depressive symptoms: a meta-analytic review of the literature. *J Sex Marital Ther, 40*(6), 477-487. doi:10.1080/0092623X.2013.772551

Schwartz, M. F., & Masters, W. H. (1994). Integration of trauma-based, cognitive, behavioral, systemic and addiction approaches for treatment of hypersexual pair-bonding disorder. *Sexual Addiction & Compulsivity, 1*(1), 57-76. doi:10.1080/10720169408400028

Shimoni, L., Dayan, M., Cohen, K., & Weinstein, A. (2018). The contribution of personality factors and gender to ratings of sex addiction among men and women who use the Internet for sex purpose. *J Behav Addict, 7*(4), 1015-1021. doi:10.1556/2006.7.2018.101

Smith, D., Roche, E., O´Loughlin, K., Brennan, D., Madigan, K., Lyne, J., . . . O`Donoghue, B. (2014). Satisfaction with service following voluntary an involuntary admission. *Journal of Mental Health, 23*(1), 38-45.

Sohn, J. H., Kim, H. E., Sohn, S., Seok, J. W., Choi, D., & Watanuki, S. (2015). Effect of emotional arousal on inter-temporal decision-making: an fMRI study. *J Physiol Anthropol, 34*, 8. doi:10.1186/s40101-015-0047-5

Spenhoff, M., Kruger, T. H., Hartmann, U., & Kobs, J. (2013). Hypersexual behavior in an online sample of males: associations with personal distress and functional impairment. *J Sex Med, 10*(12), 2996-3005. doi:10.1111/jsm.12160

Stavro, K., Rizkallah, E., Dinh-Williams, L., Chiasson, J.-P., & Potvin, S. (2013). Hypersexuality among a Substance Use Disorder Population. *Sexual Addiction & Compulsivity, 20*(3), 210-216. doi:10.1080/10720162.2013.787379

Stein, D. J. (2008). Classifying hypersexual disorders: compulsive, impulsive, and addictive models. *Psychiatr Clin North Am, 31*(4), 587-591. doi:10.1016/j.psc.2008.06.007

Svanborg, P., & Åsberg, M. (2001). A comparison between the Beck Depression Inventory (BDI) and the self-rating version of the Montgomery Åsberg Depression Rating Scale (MADRS). *Journal of Affective Disorders, 64*(2-3), 203-216.

Taylor, S., Abramowitz, J. S., & McKay, D. (2012). Non-adherence and non-response in the treatment of anxiety disorders. *J Anxiety Disord, 26*(5), 583-589. doi:10.1016/j.janxdis.2012.02.010

Ting, J. T., & Feng, G. (2011). Neurobiology of obsessive-compulsive disorder: insights into neural circuitry dysfunction through mouse genetics. *Curr Opin Neurobiol, 21*(6), 842-848. doi:10.1016/j.conb.2011.04.010

Turner, M. (2008). Female sexual compulsivity: A new syndrome. *Psychiatric Clinics of North America, 31*, 713-727.

Wainberg, M. L., Muench, F., Morgenstern, J., Hollander, E., Irwin, T. W., Parsons, J. T., . . . O'Leary, A. (2006). A Double-Blind Study of Citalopram Versus Placebo in the Treatment of Compulsive Sexual Behaviors in Gay and Bisexual Men. *Journal of Clinical Psychiatry, 67*(12), 1968-1973.

Walton, M. T., Cantor, J. M., Bhullar, N., & Lykins, A. D. (2017). Hypersexuality: A Critical Review and Introduction to the "Sexhavior Cycle". *Arch Sex Behav*. doi:10.1007/s10508-017-0991-8

Walton, M. T., Cantor, J. M., & Lykins, A. D. (2017). An Online Assessment of Personality, Psychological, and Sexuality Trait Variables Associated with Self-Reported Hypersexual Behavior. *Arch Sex Behav, 46*(3), 721-733. doi:10.1007/s10508-015-0606-1

Walton, M. T., Lykins, A. D., & Bhullar, N. (2016). Sexual Arousal and Sexual Activity Frequency: Implications for Understanding Hypersexuality. *Arch Sex Behav, 45*(4), 777-782. doi:10.1007/s10508-016-0727-1

Ward, T., & Hudson, S. M. (1996). Relapse prevention: A critical analysis. *Sexual Abuse: A Journal of Research and Treatment, 8*(3), 177-200. doi:10.1007/bf02256634

Vatankhah, H., Daryabari, D., Ghadami, V., & Naderifar, N. (2013). The Effectiveness of Communication Skills Training on Self-concept, Self-esteem and Assertiveness of Female Students in Guidance School in Rasht. *Procedia - Social and Behavioral Sciences, 84*, 885-889. doi:https://doi.org/10.1016/j.sbspro.2013.06.667

Werner, M., Stulhofer, A., Waldorp, L., & Jurin, T. (2018). A Network Approach to Hypersexuality: Insights and Clinical Implications. *J Sex Med, 15*(3), 373-386. doi:10.1016/j.jsxm.2018.01.009

Whelton, W. J., & Greenberg, L. S. (2005). Emotion in self-criticism. *Personality and Individual Differences, 38*(7), 1583-1595. doi:10.1016/j.paid.2004.09.024

White, I. R., Carpenter, J., & Horton, N. J. (2012). Including all individuals is not enough: lessons for intention-to-treat analysis. *Clin Trials, 9*(4), 396-407. doi:10.1177/1740774512450098

Winder, B., Lievesley, R., Elliott, H., Hocken, K., Faulkner, J., Norman, C., & Kaul, A. (2017). Evaluation of the use of pharmacological treatment with prisoners experiencing high levels of hypersexual disorder. *The Journal of Forensic Psychiatry & Psychology, 29*(1), 53-71. doi:10.1080/14789949.2017.1337801

Winters, J. (2010). Hypersexual disorder: a more cautious approach. *Arch Sex Behav, 39*(3), 594-596. doi:10.1007/s10508-010-9607-2

Winters, J., Christoff, K., & Gorzalka, B. B. (2010). Dysregulated sexuality and high sexual desire: distinct constructs? *Arch Sex Behav, 39*(5), 1029-1043. doi:10.1007/s10508-009-9591-6

Womack, S. D., Hook, J. N., Ramos, M., Davis, D. E., & Penberthy, J. K. (2013). Measuring Hypersexual Behavior. *Sexual Addiction & Compulsivity, 20*(1), 65-78. doi:10.1080/10720162.2013.768126

Voon, V., Mole, T. B., Banca, P., Porter, L., Morris, L., Mitchell, S., . . . Irvine, M. (2014). Neural correlates of sexual cue reactivity in individuals with and without compulsive sexual behaviours. *PLoS One, 9*(7), e102419. doi:10.1371/journal.pone.0102419

World Health Organization. (2018a). 6C92 Compulsive sexual behaviour disorder. Retrieved from ICD-11 Beta Draft (Mortality and Morbidity Statistics) website:

World Health Organization. (2018b). The 11th Revision of the International Classification of Diseases (ICD-11). Retrieved from https://icd.who.int/browse11/l-m/en#/http://id.who.int/icd/entity/1630268048

Yalom, I. D. (2005). *The theory and practice of group psychotherapy* (5th ed. ed.). New York: New York : Basic Books.

Zapf, J. L., Greiner, J., & Carroll, J. (2008). Attachment Styles and Male Sex Addiction. *Sexual Addiction & Compulsivity, 15*(2), 158-175. doi:10.1080/10720160802035832

Zimmerman, M., Chelminski, I., & Posternak, M. (2004). A review of studies of the Montgomery–Asberg Depression Rating Scale in controls: implications for the definition of remission in treatment studies of depression. *International Clinical Psychopharmacology, 19*(1), 1-7.

Zlot, Y., Goldstein, M., Cohen, K., & Weinstein, A. (2018). Online dating is associated with sex addiction and social anxiety. *J Behav Addict, 7*(3), 821-826. doi:10.1556/2006.7.2018.66

Öberg, K. G., Hallberg, J., Kaldo, V., Dhejne, C., & Arver, S. (2017). Hypersexual Disorder According to the Hypersexual Disorder Screening Inventory in Help-Seeking Swedish Men and Women With Self-Identified Hypersexual Behavior. *Sexual Medicine, 5*(4), e229-e236. doi:https://doi.org/10.1016/j.esxm.2017.08.001