EDITORIAL

A Word on this Special Edition . . .

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Although the American Psychiatric Association (APA) ultimately decided not to include Hypersexual Disorder in the upcoming DSM-5, we chose to dedicate a special edition to this model because of the important contributions those who have been involved in the research related to Hypersexual Disorder have made to the field.

The evolution of Hypersexual Disorder represents a long journey that clearly intersects with the research, scholarship, and practice of our organization. Salzman (1972) began discussing hypersexuality with the medical community and suggested it may be related to affect regulation or tension reduction strategies. Orford (1978) advanced ideas that theories of dependence should consider other forms of excessive appetite beyond substance abuse and wrote about hypersexuality. Many others also made early contributions to helping bring attention to the construct of hypersexuality such as research on group therapy conducted by Quadland (1985) among gay and bisexual men. Coleman (1986, 1987, 1991, 1992) was publishing work in an effort to educate the scientific community about “sexual compulsivity.” Kafka was beginning to publish research on what he labeled “non-paraphilic hypersexual” behaviors to further illuminate our understanding about this issue (Kafka, 1991, 1997; Kafka & Prentky, 1992, 1994). Schwartz & Brasted (1985) along with others began to advance ideas about possible treatment etiology and treatment strategies. Some investigators began looking at how hypersexual behavior might impact the family system (Schneider, 1989; Schneider, Corley, & Irons, 1998). And of course, Patrick Carnes’ seminal work Out of the Shadows disseminated valuable information about sex addiction to public audiences around the world (Carnes, 1983) and he was instrumental in starting this journal as a platform for research on this topic along with other efforts to educate clinical providers (Carnes, 1986, 1996; Carnes, Nonemaker, & Skilling, 1991).

Indeed, we have come a long way. And, although there remains no unified model for what we and our clients call sex addiction, I think in reviewing the research presented in this journal one can only conclude that the similarities between the constructs and different research continues to outweigh the differences.
Over the past several years, I have personally struggled in my own acceptance of different names and models for classifying this disorder. Others have also wrestled with this issue (e.g., Barth & Kinder, 1987; Coleman, 1987; Goodman, 2001) while some have simply criticized the legitimacy of the construct itself (Giles, 2006; Gold & Heffner, 1998; Levine & Troiden, 1988). Regardless to which model you subscribe, the DSM-5 decision and recent vocal dissenters of our field—including one whose voice is included in this issue—remind us that we have tremendous work ahead of us. It is by being open and inclusive to new ideas and scholarship that we will grow as a field and gain acceptance. We recognize the importance of solid research and scholarship in order to advance the field and gain wider acceptance about this topic.

This edition of the journal marks an important step and includes a team of experts who have published some of the most robust and rigorous empirical research in this area. Future work must include developing grounded theories, research to illuminate the biological and neurochemical mechanisms associated with problematic sexual behaviors, and outcome research to find effective treatments (both pharmacological and psychosocial) to relieve the pain and suffering associated with this phenomenon.

The Society for the Advancement of Sexual Health (SASH), which sponsors this journal, is committed to exploring and supporting multiple models and theories behind problematic sexual behaviors. It is my hope that this is the first of many special editions that continue to present diverse and evidence-based perspectives, research and theory on this problem.

REFERENCES


Considerable empirical knowledge has been gathered about hypersexual behavior during the past decade. Like so many emerging phenomena, more questions have been raised than answered. Having been trained in the scientist-practitioner model, I have attempted to balance my clinical experience with data derived from the research in order to cultivate a deeper understanding of this phenomenon. In my early work, I would frequently listen to patients share their stories, offer empathy for their suffering, and provide some feedback about strategies I believed might attenuate the symptoms and consequences they encountered. As patients increasingly sought help, I began looking for common threads that tied their narratives together. The scientist in me began conducting research to see what insights might emerge from the data to facilitate case conceptualization and treatment planning. Some results converged with what prominent individuals in the field proclaimed about this phenomenon while other findings contradicted widely held beliefs and assumptions. Complicating matters, controversies in the social science literature introduced a number of legitimate challenges to the construct of hypersexuality. At times, I have been both curious and critical, both collaborative and confrontational, and both concerned and complacent. Over the years, I've learned a lot from research, colleagues, and most of all, my patients. As the guest editor of a special issue of *Sexual Addiction & Compulsivity* dedicated to perspectives on hypersexual disorder, I wanted to take the opportunity to share some of my own viewpoints in an effort to bring attention to issues I believe are important as the field continues to grow.

Despite APA’s decision to exclude hypersexual disorder (HD) from the forthcoming DSM-5, the proposed criteria for HD (Kafka, 2010) represent a milestone in the field. Kafka, along with others, invested a tremendous amount of effort in drafting the proposed criteria. I’m grateful for his efforts
Defining Hypersexual Behavior

What to call it? Does it really matter? Well, yes, and no. Some individuals have dedicated entire articles arguing for one label versus another (Coleman, 2003; Goodman, 2001). Clinically speaking, a patient’s subjective description of sexual fantasies, urges, and behaviors combined with their personal distress, feelings of diminished control, and negative consequences, is likely more meaningful for treatment purposes than the label given to these characteristics. Diagnostic precision, accuracy, and agreement among providers about the classification and operationalization of hypersexuality can also have utility. For example, if agreement is reached about a clinical diagnosis derived from a standardized set of criteria, communication is enhanced among mental health professionals regarding patient care. Researchers too, can benefit from confidence that various studies are investigating the same phenomenon operationalized in the same way across subjects.

Although for some, definitions are incidental to the phenomenon itself, labels such as sexual addiction, sexual compulsivity, sexual impulsivity, or hypersexuality, do have importance related to how we conceptualize and provide treatment for patients (Bancroft & Vukadinovic, 2004; Coleman, 2003; Goodman, 2001; Kafka, 2001; Kingston & Firestone, 2008; Mudry et al., 2011; Stein, 2008). Some labels have implications for a theoretical conceptualization of hypersexuality, although a cohesive theory is significantly lacking at this point in time. The current criteria and operationalization of HD by Kafka (2010) attempts to avoid the connotations of other labels, such as sexual addiction, that imply parallels and etiology not clearly demonstrated (e.g., an addiction model). Kor and colleagues (2013/this issue) have elaborated more on the evidence in the current body of literature and whether it supports classifying HD as an addiction. Miner and Coleman (2013/this issue) are currently conducting research investigating the contributions of a model that incorporates aspects of impulsivity and compulsivity in their
characterization of hypersexuality. It will be exciting to see how their research will evolve and whether their findings will offer support for their conceptualization of hypersexual behavior. For now, the jury is still deliberating, and more research is needed to help clarify how hypersexual behavior should be defined and operationalized. The bigger question of course, is whether the cluster of symptoms we associate with hypersexuality rise to the level of what is necessary to constitute a distinct psychiatric disorder.

PREVALENCE AND CULTURAL DIVERSITY ISSUES

Although some individuals have estimated that 3–6% of the general population in the United States may be sexually compulsive (Carnes et al., 2011; Coleman, 1992), no published studies have been cited to support this figure. In a Swedish study, Långström & Hanson (2006) reported prevalence rates of behavior in 12.1% of men \((n = 1244)\) and 7.0% of women \((n = 1142)\) based upon the frequency of masturbation, pornography consumption, and sexual infidelity. A non-clinical sample of men \((n = 474)\) and women \((n = 466)\) in New Zealand were asked to report “out of control” sexual fantasies and urges over a 12-month period. Although 12.7% of men and 6.7% of women reported having a lack of control over their sexual fantasies and urges, these rates dropped to only 0.8% and 0.6%, respectively when actual sexual behavior that disrupted daily life was analyzed (Skegg, Nada-Raja, Dickson, & Paul, 2010). Finally, an online study of men \((n = 5834)\) and women \((n = 7251)\) designed to help the researchers investigate differences between sexually dysregulated behavior and high levels of sexual desire found that 1.83% of men and 0.95% of women had significantly elevated scores on the Sexual Compulsivity Scale and a history of having sought treatment for sexual compulsivity, addiction, or impulsivity (Winters, Christoff, & Gorzalka, 2010). Like other forms of sexual behavior such as those among the paraphilias, obtaining accurate estimates of the prevalence of HD is a difficult task due to under-reporting, differences in definitions, and other challenges commonly encountered in conducting sex research.

Current accounts of HD suggest that although most pronounced in adulthood, a significant portion of adult patients began experiencing problematic sexual behavior during adolescence (Reid et al., 2012). Studies suggest that men are more likely to develop HD than women. This is particularly true for men who report a homosexual preference. Although studies frequently indicate the majority of hypersexual individuals are Caucasian heterosexual and homosexual men, comparisons of hypersexual men (many of whom are “straight” or bisexual) who have sex with other men reflect more similarities than differences across racial and ethnic groups (Coleman et al., 2010). It has been hypothesized that gay and bisexual men may be at a greater risk for developing HD, given reports of higher levels of lifetime sex partners
compared to other social groups. Moreover, gay and bisexual hypersexual men tend to frequent a greater variety of sexual outlets such as bathhouses or sex parties (Parsons et al., 2008). Among the paucity of studies about HD in adult women, some evidence suggests that childhood sex abuse is more common in hypersexual women than in samples of hypersexual men (Opitz, Tsytsarev, & Froh, 2009). Thus, childhood sexual abuse may be a predisposing risk factor in the development of HD in women, although research from our group suggests there may be more similarities than differences among hypersexual men and women (Reid, Dhuffar, Parhami, & Fong, 2012).

As we consider the emerging data in the field of research on hypersexuality, the reality is we know very little about the prevalence rate of this phenomenon and how it manifests across gender, various ethnic groups, and between cultures. Moreover, I believe it is important for us to understand how various symptoms of HD may manifest in general community samples in the context of the larger picture that includes a broad range of sexual behavior. This type of information could be collected in large national surveys that have been conducted in the past such as the National Health and Social Life Survey (Laumann, Gagnon, Michael, & Michaels, 1994) or the National Survey of Sexual Health and Behavior (Reece et al., 2010).

CLINICAL ASSESSMENT OF HYPERSEXUALITY

Assessment of hypersexual behavior is still fraught with a vast array of difficult challenges. Our DSM-5 field trial (Reid et al., 2012) provided preliminary evidence that the proposed HD criteria can be reliably evaluated. However, Prause, Staley, and Fong (2013/this issue) provide some laboratory evidence challenging one of the criteria for HD and Moser (2013/this issue) calls into question whether the phenomenon itself is valid, regardless of criteria. There is some legitimacy to these arguments that our field needs to address. Much of the existing work has relied heavily on self-report measures and Womack and colleagues (2013/this issue) have extended prior work from their research group (Hook, Hook, Davis, Worthington, & Penberthy, 2010) to give us an update on the current instruments in the field. Although I’m partial to the Hypersexual Behavior Inventory that our group developed over a period of 6 years (Reid, Garos, & Carpenter, 2011), others have developed scales including Carnes and colleagues (2012) who have worked on a brief screening instrument that might have potential application in routine clinical care. Yet, in assessing hypersexual behavior, it is important to understand a constellation of issues that may precipitate and perpetuate hypersexuality, including cultural factors (e.g., societal norms), personality characteristics, religiosity, biophysiological factors, genetics, reward sensitivity, decision making, affect regulation, stress coping, comorbid psychopathology, developmental factors, and so forth. We know based on findings from our research group and
others, that hypersexual patients are not a homogeneous group (Reid, 2010; Reid, Carpenter, & Lloyd, 2009), and comprehensive assessments may help us better understand similarities and differences among those we treat.

An uncharted domain of assessing hypersexual behavior will also require us to consider how we might operationalize “severity” of this phenomenon. We recently conducted a study looking at the vast array of consequences encountered by hypersexual patients (Reid, Garos, & Fong, 2012). However, should severity be considered based on consequences and if so, are there some consequences that should be given more weight? To what extent should the level of impairment in social, legal, vocational, psychological distress, and so forth be considered in assessing severity? Another perspective might assess a symptom-count approach to operationalizing severity but would this actually capture the seriousness of a given case? Even within the endorsement of a given symptom, there is variability, such as psychological distress that leads one to feel depressed versus distress causing such hopelessness that a patient is contemplating suicide. The age of onset, clinical course of the disorder, and resistance to treatment are additional ways to conceptualize severity. As others have noted, the question of how severity should be conceptualized is not easily answered (Moss, 2011). Moving forward, we will need to wrestle with operationalizing how severity of hypersexual behavior should be defined.

**TYPOLOGIES AMONG HYPERSEXUAL INDIVIDUALS**

As an extension of the work on the heterogeneity of hypersexual patients, we need to stop talking about this population as a homogeneous group. Speakers at professional conferences have made statements such as “every hypersexual patient I’ve worked with has a history of developmental attachment ruptures” or “all sex addicts have internalized shame.” Researchers in several fields, including eating disorders, substance-abuse, and pathological gambling, have published numerous articles highlighting evidence of subtypes among these respective populations and their work provides a template for possible typologies that might exist among hypersexual individuals (Babor & Caetano, 2006; Ledgerwood & Petry, 2010; Milosevic & Ledgerwood, 2010; Thompson-Brenner & Westen, 2005). For example, a number of years ago I investigated whether the proposed transtheoretical model stages of change (Prochaska & DiClemente, 1983) observed among substance-abuse populations could be generalized to hypersexual patients and found that 70% of treatment-seeking men had high levels of ambivalence about change (Reid, 2007). Of course, classifying hypersexual patients based on their readiness to change is only one of numerous ways to approach subtyping or various subgroups with distinctive characteristics. Our research group also explored possible subtypes through cluster analysis using MMPI-2 data and
found 4 different subtypes of MMPI-2 profiles (Reid & Carpenter, 2009). Interestingly, one of the MMPI-2 profiles for hypersexual patients showed no evidence of psychopathology or any other elevation across all of the clinical scales. Research on shame in eating-disordered populations (Keith, Gillanders, & Simpson, 2009) and among patients with substance-related disorders (Luoma, Kohlenberg, Hayes, & Fletcher, 2012) may have implications for subtypes of hypersexual patients who have maladaptive shame. Again, our research group has found evidence of shame and maladaptive defenses in response to shame in a subset of hypersexual patients in four separate studies (Reid, 2010; Reid, Cooper, Prause, Li, & Fong, 2012; Reid, Harper, & Anderson, 2009; Reid, Stein, & Carpenter, 2011) suggesting that interventions targeting shame reduction might be appropriate for a particular subgroup of hypersexual individuals.

We might also consider subtypes based on the manifestations of hypersexual behavior such as solo-sex versus relational sex, or whether sexual activities place the individual at risk of a sexually transmitted infection. Subtypes based on psychopathology (e.g., with or without comorbid adult ADHD), facets of personality (e.g., levels of impulsivity), response to treatment, severity of consequences, and so forth are also a possibility. One of our labs here at UCLA is currently running algorithms against neuroimaging and EEG data to predict treatment response to surgery among epileptic patients. This type of work is exciting, and as our field applies neuroimaging, genetics, and other measures to understanding hypersexuality, I envision similar possibilities for our work that will enable us to determine more accurately what interventions might work best for which patients. Regardless of the typologies, I’m confident that as we move forward, it will be important to consider empirically derived typologies among hypersexual patients in our assessments, case conceptualizations, and treatment planning. Cookie-cutter approaches to treatment need to be curtailed and more customized interventions based on the individual strengths and limitations of our patients need to become the new standard of care (Cantor et al., in press).

COMORBID PSYCHIATRIC DISORDERS

Studies of psychopathology in hypersexual patients have identified a high prevalence of comorbid psychiatric conditions, including histories of mood disorders, anxiety disorders, and substance-abuse (Black, Kehrberg, Flumerfelt, & Schlosser, 1997; Kafka & Prentky, 1994; Raymond, Coleman, & Miner, 2003; Reid, 2007). Increased attention by our research group and others has also observed high rates of adult ADHD in hypersexual patients (Blankenship & Laaser, 2004; Kafka & Prentky, 1998; Kafka & Hennen, 2002; Reid, Carpenter, Gilliland, & Karim, 2011; Reid, Davtian, Lenartowicz, Torrevillas,
& Fong, in press). Collectively, these findings indicate that providers working with this population should assess these conditions at the onset of treatment. Less is known about Axis II personality disorders among treatment seeking samples of hypersexual patients. Subsequently, Carpenter and colleagues (2013/this issue) were asked to report data from our DSM-5 field trial (Reid et al., 2012) on Axis II disorders. Interestingly, the findings suggest early published results by Black and colleagues (1997), as well as others on smaller samples of hypersexual patients may not generalize to treatment seeking samples in outpatient settings.

Future research exploring conditions comorbid with hypersexual behavior might consider populations that have received less attention in the current literature, including patients with learning disorders, eating disorders, and more severe psychiatric disorders. Kingston and Bradford (2013/this issue) offer some insights about how hypersexuality might be a relevant construct among sex offending populations, which is a highly controversial subject. It is likely that any hypersexuality among patients with cognitive impairment resulting from brain insults or other brain trauma are more parsimoniously explained by neurological impairments and subsequently would not meet criteria for HD as it’s currently proposed. However, one area that requires further clarification is whether hypersexuality might be considered “secondary” to a substance-use disorder. This latter issue came up in our DSM-5 field trial when we discovered patients using meth to heighten their sexual experience. Under the current proposal for HD, these patients did not meet the criteria, yet they were clearly using drugs to enhance and perpetuate their excessive sexual activities. Of course, as Moser (2013/this issue) points out, it will be important moving forward to conduct more research to enhance understanding about when HD symptoms constitute a separate phenomenon and when they are simply an extension of existing psychopathology.

BRAIN IMAGING, EXECUTIVE FUNCTIONING, AND HYPERSEXUAL BEHAVIOR

Patients seeking help for hypersexual behavior often exhibit features of impulsivity, cognitive rigidity, and poor judgment as well as deficits in emotion regulation and excessive preoccupation with sex. These characteristics are also common among patients presenting with neurological pathology associated with executive dysfunction, which has led some investigators, including our group, to question whether brain pathology might be linked to hypersexuality (Miner, Raymond, Mueller, Lloyd, & Lim, 2009; Reid, Garos, Carpenter, & Coleman, 2011; Reid, Karim, McCrory, & Carpenter, 2010). First, there has only been one study looking at brain pathology in hypersexual patients using neuroimaging, and it employed a cross-sectional design limiting inferences
about causality. The imaging study by Miner and colleagues had other limitations, given that the majority of the sexually compulsive patient sample had a history of alcohol abuse or dependence and no provisions were made to control for patients with adult ADHD (Miner et al., 2009). As a result, it is difficult to determine whether cortical differences and performance on measures of impulsivity in the study were related to hypersexuality, substance misuse, or other pathology already known to be associated with frontal deficits and executive control.

Using the proposed DSM-5 criteria for Hypersexual Disorder (HD), our research team has conducted two studies assessing executive functioning that have yielded mixed findings. In one study, using neuropsychological self-report measures in a sample of hypersexual men, we found some evidence that executive deficits may exist in this population (Reid, Karim, McCrary, & Carpenter, 2010). However, when actual performance was assessed on neuropsychological tests sensitive to frontal deficits common in executive dysfunction, no differences were found between hypersexual patients and healthy controls (Reid, Garos, Carpenter, & Coleman, 2011). As we have noted elsewhere (Reid, Carpenter, & Fong, 2011), we interpreted these findings to support our theory that hypersexuality is a context-specific phenomenon which is expressed when triggered by a sexual cue or another stimulus, that when activated, is paired with sexual behavior (e.g., a learned behavior arising in response to dysphoric mood or stress such as been proposed in the current DSM-5 criteria for HD). These findings may also explain why we do not see widespread executive deficits in hypersexual patients, with the exception of those patients who also meet criteria for adult ADHD.

Future studies that seek to assess activation of dopaminergic transmission in mesolimbic pathways of the nucleus accumbens, prefrontal cortex, and other brain regions associated with the pleasure reward system in response to sexual cues will need to be conducted with specific a priori hypotheses in mind given the variety of activities that engage this system. Watching a favorite sport, eating food we love, and many other such activities lead to similar neurochemical processes for most individuals. Moreover, dopamine release in these regions is not associated with a reward mechanism per se, but rather, it is part of an arousal process that alerts the brain to the presence of new or novel stimuli in the internal or external environment and such stimuli are not always associated with potential rewards (Robinson & Berridge, 1993).

Our lab is currently conducting some neuroimaging studies in relation to mindfulness interventions among hypersexual patients. Specifically, we are investigating how structural and functional connectivity scans may help shed light on what brain regions or networks might be associated with treatment response. However, in preliminary analysis of the neuroimaging data, I’m not convinced that we’re going to see some of the cortical deficits (structurally or functionally) noted in other populations such as patients
with substance abuse and pathological gambling disorders. Nevertheless, as we move forward, brain imaging has potential to help us understand a constellation of characteristics and mechanisms associated with hypersexual behavior.

PUBLIC HEALTH ISSUES AND SEXUAL RISK TAKING BEHAVIORS

Most of the work done in the area of hypersexual behavior and public health has focused on how HD symptoms may be linked to risks for the contraction of sexually transmitted infections. Miner and Coleman (2013/this issue) discuss these relationships and how hypersexual behavior may be a precipitating risk factor for HIV sexual risk behavior. In our DSM-5 field trial we found that 27.5% of patients meeting criteria for HD reported contracting a sexually transmitted infection on at least one occasion (Reid et al., 2012). Although such associations seem understandable, a colleague recently challenged this position when she argued whether anyone could accurately report precisely when or from whom they contracted an STI when such contraction is characterized by high-frequency sexual behaviors with different partners that might not represent HD behaviors.

Sadly, many other important areas of public health are neglected, such as the paucity of research about unintended pregnancies resulting from hypersexual behavior. Risk for self-harm among hypersexual patients has yet to be rigorously investigated. Equally important is the area of public health related to the well-being of the family system, yet few studies have examined how hypersexual behavior impacts monogamous committed relationships or child development in families where one of the care givers is involved in hypersexual behavior (Reid & Woolley, 2006). In two separate studies conducted by our research group, spouses of hypersexual men reported feeling distressed about their marriage as a result of their husband’s hypersexual behavior (Reid, Carpenter, & Draper, 2011; Reid, Carpenter, Draper, & Manning, 2010). In the DSM-5 field trial, 39.3% of hypersexual patients reported they had lost at least one romantic relationship because of their sexual activities (Reid et al., 2012). Schneider and others have also written extensively on the negative impact of hypersexual behavior on dyadic relationships (e.g., Corley & Schneider, 2002; Schneider, 1989; Schneider, Corley, & Irons, 1998). Findings related to relationship distress among heterosexual partners also appears to extend to homosexual couples who might be at higher risk for contracting sexually transmitted infections (Starks, Grov, & Parsons, 2013). When hypersexuality leads to divorce or termination of relationships, additional community resources are often consumed and children from broken homes can be at risk for additional challenges related to mental health, academic performance, and social functioning. These are among a few of the public health issues that might be the focus of future investigations.
OUTCOME RESEARCH FOR HYPERSEXUAL BEHAVIOR

A number of self-help materials and workbooks containing anecdotal suggestions for change have been published to help hypersexual patients. However, there is a paucity of rigorous outcome studies assessing the efficacy or effectiveness of treatment interventions in this population (Hook, Reid, Penberthy, Davis, & Jennings, in press; Marshall & Briken, 2010). Case studies and non-randomized open clinical trials have reported successful treatment of hypersexual patients with pharmacotherapeutic interventions such as selective serotonin reuptake inhibitors (Kafka & Prentky, 1992) or opiate antagonists such as naltrexone (Grant & Kim, 2001; Raymond, Grant, Kim, & Coleman, 2002). However, Naficy and colleagues (2013/this issue) examined the current literature on pharmacological treatments and found a number of significant methodological limitations to these studies.

Non-medication strategies also assert a vast array of interventions including cognitive behavior therapy (Goodman, 1998; Penix Sbraga & O'Donohue, 2003; Shepherd, 2010), gestalt therapy (Friedman, 1999), acceptance and commitment therapy (Twohig & Crosby, 2010), 12-Step programs (Parker & Guest, 2002) and couples therapy (Laaser, 2002). However, when these studies are subjected to rigorous standards often required by the scientific community, we again find significant limitations that question the validity of their respective results (Hook, Reid, Penberthy, Davis, & Jennings, in press).

Despite the limitations to the current outcome research, the study investigators are to be commended for their pioneering efforts in a field where funding is scarce and much of the work is exploratory. Looking forward, however, if the field is to benefit from empirically supported treatments, future studies will need to raise the bar on the quality of outcome research among hypersexual patients.

CONCLUSIONS

Understanding the etiology, prevalence, treatment, and associated characteristics of HD is in its infancy. Important questions about the neurobiological mechanisms underlying HD remain unanswered at the present time. Debates continue as to which theoretical conceptualizations of HD might offer the best explanation (e.g., addiction, compulsivity, impulse-control models, etc.). Little is known about the onset, clinical course, and trajectories of HD symptoms as they manifest in various populations and across genders. Public health issues beyond the risks for sexually transmitted infections need to be considered including the impact of hypersexuality on the family, monogamous partnered relationships, child development, and potential risks for suicidal ideation. As advances continue to be made, investigators might
benefit from assessing the body of literature about other non-substance-related dysfunctional behaviors such as eating disorders or pathological gambling in order to generate hypotheses to guide future research endeavors. Indeed, it is both an exciting and challenging time for researchers and clinicians to be involved in working with the phenomenon of hypersexual behavior. It is my hope that the articles in this special issue of *Sexual Addiction & Compulsivity* can make a meaningful contribution to this literature and our understanding about hypersexuality.

**NOTE**

It should be noted that patient perceptions rarely evolve independently of cultural or environmental influences (e.g., religiosity, social media, family values, etc.) and it is therefore plausible that a chief complaint of hypersexuality by a patient may inaccurately describe the core issues causing problems.

**REFERENCES**


ARTICLES

The Development and Evolution of the Criteria for a Newly Proposed Diagnosis for DSM-5: Hypersexual Disorder

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This manuscript discusses the empirical foundations for the initial development and subsequent revisions of the diagnostic criteria for Hypersexual Disorder (HD). Historically, DSM manuals are constructed using behaviors descriptors or symptoms (A Criteria) and a threshold (Criterion B) characterizing distress or impairment associated with the consequences of Criterion A behaviors. In addition, many psychiatric disorders, like HD, are additionally defined by adding “exclusionary” criteria (e.g., Criterion C and D) to reduce the unintended consequences associated false positive or “over-diagnosis.” The definition and criteria associated with Hypersexual Disorder evolved over 3 years and its development was modified by professional discourse, published critiques, input by educated lay persons, as well as, a rigorous internal review by committees associated with the American Psychiatric Association’s DSM-5 project. Although ultimately rejected for placement in DSM-5, there have been substantive gains associated with this proposal including a successful multicenter field trial as well as continued research in the U.S. and Europe incorporating the operational definition and rating instruments associated with Hypersexual Disorder. Suggested areas for further research of HD are recommended so that this proposal can continue to be taken seriously by researchers as well as clinicians.

CRITERION A: DESCRIPTION OF BEHAVIORAL SYMPTOMS

When I first confronted the challenge of constructing a new sexual disorder diagnosis, I wanted to keep my solution simple. Since the paraphilic
disorders in prior editions of the Diagnostic and Statistical Manual had single operational definition for sexual behavior (the standard “A. criterion”), why not do the same for Hypersexual Disorder?

The problem with this approach essentially boiled down to one of the most salient central criticisms for the HD proposal. Since the core of this condition involves normophilic sexual behaviors that are neither inherently nor statistically unconventional, “deviant” or socially anomalous (like paraphilic disorders for example), what “word” or descriptive phrase could delineate a distinct boundary from “normal.” My first A Criterion formulation in January 2009, included “Over a period of at least 6 months, recurrent, intense and excessive sexually arousing fantasies sexual urges or sexual behaviors involving culturally sanctioned outlets.” Most readers might agree that this seems reasonable as the majority of persons with this affliction certainly enact sexual behaviors excessively! The problem is how is “excessive” operationally defined? Is it number of behaviors, is it diversity of behaviors? Is it the time consumed by such behaviors? In addition, is it primarily the “excessive” behaviors that causes the primary consequences associated with this proposed condition described by the B criterion? Is there a better way to describe a normophilic disorder instead of “culturally sanctioned outlets”?

Several iterations, e-mail communications and Work Group meetings later, Ken Zucker, the Chairperson of the Sexual and Gender Identity Disorders Working Group made a helpful critical comment: Hypersexual Disorder should be a polythetic diagnosis! That sounded rather profound but there was one major initial problem for me—what is a polythetic diagnosis?

A polythetic diagnosis contained multiple descriptive behavioral symptoms (A. criteria) and it is the various combinations of such criteria that could define overlapping but differing behavioral sets characteristic for a “disorder.” Until that point, no paraphilic or sexual dysfunction had been polythetic but there are many DSM-IV non-sexual Axis I diagnoses that were (e.g., Substance Dependence required 3 or more of 7 possible behavioral criteria and Pathological Gambling required 5 or more out of 10 behavioral descriptors).

Hypersexual Disorder currently includes 5 descriptive behavioral criteria or symptoms (Kafka, 2010). These include broadly defined sexual pre-occupation (A.1 excessive time consumed by thinking about, planning, and engaging in sexual behavior), using sex to cope or “self-medicate” (A.2 repetitively engaging in sexual behavior in response to discomforting mood states such as anxiety, irritability, depression, and boredom), and/or repetitively using sexual fantasies, urges, and behaviors in response to stressful life events or circumstances (A.3). A person who could meet criteria for HD may have repetitively tried to control or reduce their sexual behaviors but not been able to do so successfully (A.4) and (A.5) may have repetitively engaged in sexual behaviors despite being aware of but still disregarding the risk for
significant physical or emotional harm such behavior could cause to oneself or to others. In addition to requiring at least 4 of these 5 criteria are manifest concurrently, this pattern of sexual behaviors must be present for at least consecutive 6 months.

Perhaps some might initially ask: why not just apply the psychoactive substance dependence criteria from DSM-IV as has been suggested in the body of work of Carnes (1983, 1990; Carnes & Wilson, 2002), Goodman (1997, 2001), Wines (1997) and many other investigators and clinicians who embrace the sexual compulsivity/addiction model. Hypersexual Disorder and sexual addiction do share common criteria in fact (sexual preoccupation, self-medication, diminished self-control, risk-taking behaviors, significant adverse consequences) but in carefully reviewing the research-based literature, important elements essential to the addiction process such as tolerance and withdrawal, were not adequately subjected to rigorous testing in validated rating scales describing sexual behavior. Furthermore, unlike the field of pathological gambling, studies linking hypersexual behavior to addictive processes using neuroimaging, biophysiology, and genetics were almost non-existent. Subsequently, inasmuch as HD is a condition with no single or known cause, it cannot be classified as a behavioral addiction at this time from the available scientific evidence.

When the monograph proposing HD was formulated and published (Kafka, 2010), it included empirical justification for the 5 aforementioned behavioral criteria. These criteria were each derived from 2 or more research validated rating scales representative of the sexual addiction model, the sexual compulsivity model and a-theoretical models, best exemplified by the Kinsey Institute publications (Bancroft & Vukadinovic, 2004; Janssen, Vorst, Finn, & Bancroft, 2002a, 2002b).

We selected in-common criteria cross represented in these diverse descriptive models for hypersexual behavior. But then one has to ask: how many of these criteria in combinations were necessary? Was 2/5 or more sufficient, 3/5 or more? I thought initially that requiring a person with this affliction to have at least 3 or 4 of the 5 criteria concurrently for a minimum duration of at least 6 months would be a sufficient behavioral threshold and this was recommended in the review monograph proposal (Kafka, 2010). In the time between preparing that manuscript for the Archives and its publication date however, our group had already decided, based on DSM-5 advisor feedback and recommendations from other academic professionals, that 3/5 was too low for a proposed threshold and by late 2009 (in its 19th revision on my computer), the behavioral requirement was increased to 4 out of 5 A. criteria as one mechanism to decrease the risk of potential false positive diagnoses. As field testing conducted by Reid and other clinician investigators has demonstrated in both outpatient samples and with sexual offenders, this threshold requirement has worked well as one of several factors to raise the diagnostic bar required for a psychiatric disorder (Reid et al., 2012)
CRITERION B: SIGNIFICANT PERSONAL DISTRESS
AND/OR SOCIAL ROLE IMPAIRMENT

The B criterion represents a core element that has been incorporated into Sexual Disorder diagnoses since DSM-III-R (American Psychiatric Association, 1987). This criterion directly addresses a central component of a mental disorder as a “harmful dysfunction” (Wakefield, 2006). This criterion has not changed significantly since then. It could be argued that “clinically significant personal distress or impairment” is not sufficiently standardized. Rating scales such as the Global Assessment of Functioning are expected to be administered during psychiatric diagnostic assessment but this and similar scales measure general level of social impairment and are not specific to the consequences associated with sexual disorders. It is widely recognized that persons with HD have significant relationship impairments associated with hypersexuality and the guilt, shame and secrecy specifically associated with this condition. In addition, men and women with HD can be sexual risk-takers, placing them at substantially higher risk to acquire and disseminate sexually transmitted diseases, including HIV, (Kalichman & Cain, 2004; Kalichman, Cherry, Cain, Pope, & Kalichman, 2005) and at higher risk for unintended pregnancies (Henshaw, 1998; McBride, Reece, & Sanders, 2008). Recently, these findings (e.g., personal and relationship distress, interference with vocational pursuits, greater prevalence of sexually transmitted infections) were also reported in a sample of patients specifically assessed for HD using the proposed DSM-5 criteria (Reid, Garos, & Fong, 2012).

As research continues, one possible way to assess more specific levels of harmful dysfunction associated with HD would be to administer a validated rating scale such as the Sexual Compulsivity Scale (Kalichman & Cain, 2004; Kalichman & Rompa, 1995; Kalichman & Rompa, 2001) and analyze correlations with data operationalizing harmful dysfunction. For example, in the outpatient field trials conducted by Reid and colleagues (Reid et al., 2012), the mean SCS score for patients was 27.9 ± 8.2 and the mean score for persons with HD reported for the Hypersexual Behavior Inventory (HBI; Reid, Garos, & Carpenter, 2011) was 67.1 ±19.2 (personal e-mail communication, R. Reid, 7.31.12) and higher scores on these scales were positively correlated with higher levels of depression, anxiety, and stress proneness, and negatively correlated with happiness and life satisfaction (Reid, et al, 2012; Reid, Garos, & Fong, 2012). Moreover, positive endorsement of the B criteria by patients in the field trial was significantly correlated with higher scores on both the HBI ($r = .62, p < .01$) and the SCS ($r = .50, p < .01$). While not endorsing any particular rating instrument (nor are they mandatory for diagnostic assessment), the use of measures with proven discriminant validity can assist clinicians in assessing dimensional severity or “harmful dysfunction” of HD, particularly when research has shown that higher scores on these scales is linked to the types of distress and impairment noted in the B criterion.
CRITERIA C AND D: EXCLUSIONARY CRITERIA

When it can be clearly established that hypersexual behaviors or HD are temporally associated with the administration of a prescribed medication (e.g., some-dopamine-enhancing medications used to treat Parkinson’s Disease, a self-administered drug associated with drug abuse such as cocaine or amphetamines, or a concurrently occurring medical or neurological condition (e.g., brain injury, dementia, Huntington’s Disease), the diagnosis of HD should not be coded as an independent diagnostic entity (Criterion C). It is possible for a patient to have a substance-related or bipolar diagnosis comorbid with an HD diagnosis provided that the symptoms of HD do not occur exclusively in the context of substance misuse or manic episodes.

Criterion D: Minimum Age Requirement

The age restriction (Criterion D) was added to HD after public as well as professional feedback summarily stated something analogous to “you are describing every American adolescent male” who may engage in heightened levels of sexual experimentation and sexual-risk taking behaviors as he explores his budding sexual identity. In the U.S., the age for mutual sexual consent is 18 years. It is important to note that the modal age for seeking help for non-paraphilic sexual behavior disorders is typically between ages 25 and 40 (Black, Kehrberg, Flumerfelt, & Schlosser, 1997; Carnes, 1991; Kafka & Hennen, 2002; Reid et al., 2012). Thus, while it is likely that adolescents may have dimensional features of hypersexuality, the significant personal distress, relationship vicissitudes, and other serious consequences associated with HD are much more likely to accrue by adult middle age, when relationship and family stability is at a premium. Analogously, episodes of alcohol intoxication may begin during adolescence but progression to alcohol dependence is more likely to occur by the fourth decade (American Psychiatric Association, 2000). Including a minimum age threshold also helped to further reduce false positive diagnoses of HD.

In summary, the diagnostic criteria for HD have been significantly modified since early 2009 when they were initially being formulated. Although HD was ultimately rejected by the American Psychiatric Association’s extensive review process, we would hope that both clinicians and researchers worldwide would continue to utilize this empirically based proposal as a template for additional research. This author is aware of such research proceeding both in North America and Western Europe at this time. In particular, areas of research that would be most fruitful would include testing the HD criteria in large community or epidemiological samples to further establish the reliability of the criteria and their discriminant validity, including whether the disorder would be overly diagnosed in adolescents and young adults. Neuroimaging and neurobiological studies could further establish whether
the neural pathways of HD are similar to other behavioral addictions, such as gambling disorder. Rating scales to assess behavioral tolerance and withdrawal symptoms would help to establish the clinical criteria needed to elucidate whether HD is the same phenomenon as sexual addiction. Last, additional studies of Axis I and Axis II comorbidities associated with HD could help to determine whether HD is an epiphenomenon or a true and distinct condition.

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Both lay and professional feedback has been acquired by 2 waves of public feedback to the DSM-5 website (in 2011 and 2012), oral presentations by Work Group members at various national meetings, letters, and articles written to journals (primarily the Archives of Sexual Behavior) and a final review by a series of scientific committees organized by the APA to scrutinize the depth of the empirical evidence in support of the proposed diagnosis. We have made a genuine effort to weigh both the benefits and limitations to further modify and word-craft the proposed diagnosis of HD and its criterion items based on these sources of thoughtful input and feedback.

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Should Hypersexual Disorder be Classified as an Addiction?

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Hypersexual behavior has been documented within clinical and research settings over the past decade. Despite recent research on hypersexuality and its associated features, many questions remain around how best to define and classify hypersexual behavior. Diagnostic criteria for Hypersexual Disorder (HD) have been proposed for the DSM-5 and a preliminary field trial has lent some support to the reliability and validity of the HD diagnosis. However, debate exists with respect to the extent to which the disorder might be categorized as a non-substance or behavioral addiction. In this article, we will discuss this debate in the context of data citing similarities and differences among hypersexual disorder, drug addictions, and pathological gambling. The authors of this article conclude that despite many similarities between the features of hypersexual behavior and substance-related disorders, the research on HD at this time is in its infancy and much remains to be learned before definitively characterizing HD as an addiction.

For more than a century, hypersexual behavior has been described and assigned different labels such as sex addiction or sexual compulsivity/impulsivity by diverse bodies of clinicians (Barth & Kinder, 1987; Coleman, 1987; Garcia & Thibaut, 2010; Goodman, 2001; Kingston & Firestone, 2008; Schreiber, Odlaug & Grant, 2012; Stein, 2008). Hypersexual disorder (HD) has recently been proposed for consideration as a formal
diagnostic entity in the DSM-5 (Kafka, 2010). A greater awareness of hypersexual behavior in both clinical and non-clinical populations has led to an increase in research, although the clinical relevance and possible etiologies for HD have yet to be established. Existing research suggests putative risk factors, developmental pathways, and pathophysiologies and has identified HD-related clinical characteristics (Grov, Parsons, Bimbi, 2010; Raymond, Coleman, & Míner, 2003; Reid, Carpenter, Gilliland, & Karim, 2011; Winters, Christoff, & Gorzalka, 2010).

In proposing the name HD for the DSM-5 criteria, Kafka intended to avoid language such as “sex addiction” that might suggest a possible etiology (Kafka, 2010; Kafka, 2013/this issue). Although some evidence has recently been advanced to support the reliability and validity of the DSM-5 proposed criteria for HD (Reid et al., 2012), questions remain about how to best classify hypersexuality as a psychiatric condition. At this juncture, the empirical science is not available to establish causality or pathogenesis for psychiatric disorders (Caine, 2003), including sexual disorders (Winters et al., 2010). Despite this limitation, data exist describing similarities between hypersexual behavior and substance addictions (Garcia & Thibaut, 2010), suggesting that an addiction model might apply to a disorder characterized by hypersexuality. However, alternate conceptualizations exist, given links between hypersexual behavior and internalizing disorders like anxiety and depression and phenomenological and theoretical similarities with compulsive disorders like obsessive-compulsive disorder (OCD). Furthermore, given the focus of the excessive behavior, HD may be best considered a sexual disorder and categorized with other sexual disorders in DSM-5 as has been proposed (Kafka, 2010). As further research evolves, it will be important to consider data from co-occurring disorders, clinical characteristics, genetic contributions, and central and peripheral biologies in determining how best to characterize HD.

Several authors have suggested that HD might constitute a behavioral addiction and be considered for inclusion in the DSM-5 within a category of Addictions and Related Disorders (Schreiber et al., 2012; Winters et al., 2010). Historically, the extent to which non-substance or behavioral addictions exist has been questioned (Holden, 2001). The word addiction derives from the Latin addicere meaning “bound to” or “enslaved by” and was not originally linked to substance-use behaviors (Maddux & Desmond, 2000). However, for several centuries, the term addiction has become increasingly linked to excessive patterns of alcohol and drug use so that by the time of DSM-III-R, the Substance-Use-Disorder workgroup identified addiction as reflecting compulsive drug use (O’Brien, Volkow, & Li, 2006). However, the extent to which non-substance disorders, particularly gambling, might be considered within an addiction framework has been given greater consideration, in large part due to research identifying similarities between pathological gambling (PG) and substance-use disorders (SUDs; Petry, 2006; Potenza,
Should Hypersexual Disorder be Classified as an Addiction?

These data involve frequent co-occurrence of PG and SUDs, shared phenomenological features (high rates in adolescents and young adults, lower rates in older adults, telescoping patterns of progression in women versus men whereby women versus men who develop problems with the behaviors tend to demonstrate problems more rapidly following initial engagement), genetic contributions, neurobiologies, and efficacious treatments (Leeman & Potenza, 2012; Potenza, 2008).

Although limited, several alternate conceptual models have been explored but do not demonstrate the same degree of empirical data supporting a close relationship (El-Guebaly, Mudry, Zohar, Tavares, & Potenza, 2012; Potenza, Koran & Pallanti, 2009). For example, if one considers PG as an obsessive-compulsive-spectrum disorder, then one might expect similarities with obsessive-compulsive disorder (OCD) with respect to co-occurrence, phenomenology, genetics, neurobiology and treatments, and such similarities are not observed to the same degree as with PG and SUDs (El-Guebaly et al., 2012; Potenza et al., 2009). The idea that PG and SUDs both might be categorized as addictions also reflects shared common elements that have been proposed as central to addictive disorders: (a) continued engagement despite adverse consequences; (b) an appetitive urge or craving state prior to engagement; (c) diminished self-control over behavioral engagement; and (d) compulsive engagement (Shaffer, 1999). Taken together, the data have been used by the SUD Workgroup to propose grouping PG with SUDs in DSM-5. Collectively, the history of research linking PG to SUDs might serve as a template to consider whether HD should be classified as an addictive disorder. However, at the present time, research on HD is lacking, particularly in the areas of neurobiology, genetics, and treatment efficacy (Hook, Reid, Penberthy, Davis, & Jennings, in press). Subsequently, it is unclear whether HD might show SUDs (or PG). Below we describe existing data, beginning with a description of HD, its formulation in the DSM, clinical characteristics associated with HD, and the neurobiological underpinnings of the disorder. In these descriptions, we highlight similarities to and differences with addictive disorders including SUDs and PG. We next describe alternate non-mutually exclusive conceptual frameworks (including obsessive-compulsive-spectrum and impulsivity/compulsivity models) before summarizing data on HD’s conceptualization within an addiction framework. We conclude by describing briefly existing gaps in understanding and the relevance of appropriate classification of HD.

DEFINING HYPERSEXUAL BEHAVIOR

In defining hypersexual behavior, it is important to consider “normal” sexual behavior, from an adaptive evolutionary perspective. Sex is fundamental for the survival of species, requiring an instinctual drive and reward-based
reinforcement to ensure perpetuation of the species (Frascella, Potenza, Brown, & Childress, 2010). When this drive becomes intensive and leads to “out-of-control” sexual activity despite negative consequences and risk of harm to one’s emotional and physical health, its protective and evolutionary values are diminished. Similarly, if sexual activity hinders completion of non-sex-related vital tasks, this evolutionarily positive drive has become negative and arguably turned addictive. Males often engage in sexual activity for pleasure and esteem reasons (Impett & Paplau, 2003). The pleasure related to sexual activity has been described to be as basic as eating, fulfilling the basic drive of hunger (Codispoti, 2008). Thus, if sexual behaviors are to be viewed within an addiction framework, one should consider whether, or the extent to which, abstinence (as promoted by many clinicians and 12-Step programs) represents a reasonable goal for individuals with HD.

Both the DSM-III-R and DSM-IV include criteria for a sexual disorder not otherwise specified that can be used to diagnose patterns of hypersexuality; however, the diagnostic criteria lack specificity beyond the general notion that an individual feels distress about patterns of sexual behavior. Hypersexual behavior has been described as poorly controlled, excessive sexual behaviors that intrude on an individual’s thoughts and feelings, and distract the individual from focusing on other objectives (Bancroft, 2008; Garcia & Thibaut, 2010). These sexual thoughts and behaviors involve functional impairment and distress, and may evolve into impulsive or habitual patterns of sexual behavior that are poorly controlled (Bancroft 2008; Black, Kehrberg, Flumerfelt, & Schlosser, 1997; Gerevich et al., 2005; Schreiber et al., 2012; Tepper, Owens, Coleman, & Carnes, 2007).

Many manifestations of hypersexual behavior are considered legal and morally acceptable; it is the excessiveness of hypersexual behavior combined with risks and associated consequences that may lead to functional impairment and distress. Excessive masturbation and behavioral interactions with multiple partners are two examples of behaviors that are most often reported as being poorly controlled and leading to functional impairment (Bancroft, 2008; Kafka, 2010). Internet pornography also represents a significant problem for some individuals (Bancroft, 2008) and was the most widely endorsed manifestation of hypersexual behavior in a DSM-5 field trial (Reid et al., 2012). There is no uniformly agreed-upon definition or level of sexual behavior that is excessive, interfering, or out of control. Although population-based surveys suggest the presence of persistent and increased frequency rates of enacted sexual behaviors and thoughts in individuals with hypersexual behavior as compared to those without (as one might anticipate given the groupings), it is important to consider the extent to which these behaviors are distressing and interfering when conceptualizing HD (Garcia & Thibaut, 2010; Kafka, 2010).

Current proposed diagnostic criteria for HD have been based on ways in which recurrent or intense sexual thoughts and behaviors might lead to
impairment or distress (Kafka, 2010). The proposed diagnostic criteria for HD are exclusive of being induced by exogenous substances, mania, or a medical condition that would otherwise explain sexual activity. Inclusionary criteria include the presence of recurrent and intense sexual fantasies, sexual urges, or sexual behaviors for a period of at least 6 months. Four or more of the following five criteria must also be present: (a) excessive time consumed by sexual fantasies, urges, or behaviors repetitively interferes with other important (non-sexual) goals, activities, and obligations; (b) repetitively engaging in sexual fantasies, urges, or behaviors in response to dysphoric mood states (e.g., anxiety, depression, boredom, irritability); (c) repetitively engaging in sexual fantasies, urges, or behaviors in response to stressful life events; (d) repetitive but unsuccessful efforts to control or significantly reduce these sexual fantasies, urges, or behaviors; and, (e) repetitively engaging in sexual behaviors while disregarding the risk for physical or emotional harm to self or others (Kafka, 2010). There must also be 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. Also, individuals must be 18 years of age or older. Specifications include: masturbation, pornography, sexual behavior with consenting adults, cybersex, telephone sex, strip clubs, and other (Kafka, 2010).

CLINICAL CHARACTERISTICS

As with other psychiatric disorders (including PG and substance abuse and dependence), individuals with HD appear to comprise a heterogeneous group (Reid & Carpenter, 2009; Reid, Carpenter, & Lloyd, 2009). Large-scale, population-based epidemiological studies assessing the prevalence of hypersexual behavior are lacking. Some researchers have suggested the prevalence of hypersexual behaviors or disorder in approximately 3–6% of the general population (Carnes et al., 2011; Coleman, 1992; Garcia & Thibaut, 2010), although no original research data have been published to support these estimates. Psychological differences between hypersexual and non-hypersexual groups have also been reported (Reid & Carpenter, 2009; Reid, Carpenter, & Lloyd, 2009). The psychological aspects of groups displaying hypersexual behavior show both similarities with and differences from SUDs and PG, as described in greater detail below. As with SUDs and PG, males constitute the majority of treatment-seeking individuals for hypersexual behavior, with onset typically occurring during late adolescence (Reid et al., 2012). Treatment-seeking individuals report experiencing preoccupation with sexual fantasies, or being overly sexually active, with difficult-to-control and distressing sexual urges. “Triggers” inducing sexual urges may include sadness and depression,
happiness, loneliness, and shame (Schreiber et al., 2012). These urges and triggers observed in association with hypersexual behaviors are similar to those reported for SUDs and PG (Baker, Piper, McCarthy, Majeskie & Fiore, 2004; Edwards & Koob, 2010; Grant & Kim, 2002).

As in SUDs and PG, significant marital, occupational, and financial difficulties have been documented, particularly in relation to sexual urges and behaviors (Coleman, Raymond, & McBean, 2003; McBride, Reece, & Sanders, 2008; Muench et al., 2007; Reid, Garos, & Fong, 2012). Hypersexuality has also been related to difficulties in developing healthy attachments among romantic partners (Reid & Wooley, 2006; Zapf, Greiner, & Carroll, 2008). The most common behaviors reported are masturbation, compulsive use of pornography, compulsive cruising, and multiple relationships (Black et al., 1997; Briken et al., 2007; Kafka & Hennen, 1999; Raymond et al., 2003; Wines, 1997). Compulsive fixation on an unattainable partner, compulsive autoeroticism, compulsive use of erotica, compulsive use of Internet for sexual purposes, and compulsive sexuality in a relationship are other common behaviors (Coleman, 1992; Coleman et al., 2003). As in SUDs and PG, these preoccupations and behaviors typically interfere significantly with other areas of life functioning including work and social (spousal, familial) relations (American Psychiatric Association, 2000; Reid et al., 2012).

As is the case for SUDs and PG, certain clinical populations may be at a higher risk of exhibiting hypersexual behavior. Some of the “high-risk” groups for HD may include individuals with drug addictions, perhaps acting through shared mechanisms. For instance, methamphetamine has been found to increase sexual desire and sensation while decreasing sexual inhibition (Degenhardt & Topp, 2003; Semple et al., 2002). Medications such as levodopa and dopamine agonists (pramipexole, ropinirole, and others) used in the treatment of Parkinson’s disease and other conditions also have been associated with hypersexuality and other impulse-control behaviors (Uitti et al., 1989; Voon et al., 2011; Weintraub et al., 2010a, b). In uncontrolled trials, hypersexuality has been reported to diminish when dopamine-replacement medications like dopamine agonists were stopped and/or different medications were added (Klos et al., 2005). In a case series, individuals taking pro-dopaminergic medications were reported to have increased sexual interest, and an earlier mean age of Parkinson’s disease onset (approximately 10 years earlier) has been described for patients with hypersexual behavior (Uitti et al., 1989). However, multiple other features (e.g., geographic location, marital status, impulsivity, family history of addiction, and personal history of impulse control disorders or behaviors prior to the onset of Parkinson’s disease) have also been associated with hypersexuality and other impulse control behaviors and disorders, suggesting that the precise etiology of hypersexual behavior in Parkinson’s disease is poorly understood and likely multi-factorial in nature (Leeman, Billingsley, & Potenza, 2012; Leeman & Potenza, 2011; Potenza et al., 2007; Weintraub et al., 2010a, b).
Should Hypersexual Disorder be Classified as an Addiction?

Moreover, under the current proposed criteria for HD, substance-induced hypersexual behavior would not satisfy symptom endorsement towards an HD diagnosis. Thus, more research is needed to understand the mechanisms underlying hypersexual behaviors and their relationships to drug and other addictive behaviors in multiple clinical contexts.

Psychiatric Co-Morbidities

Many individuals with hypersexual behavior suffer from psychiatric disorders. Being able to confidently identify and treat hypersexual behavior may relieve features of both hypersexual behavior and the co-occurring disorders and help affected individuals lead improved lives. In one report, 72% of patients with hypersexual behavior reported mood disorders, 38% reported anxiety disorders, and 40% reported substance abuse (Kafka & Hennen, 2002). Other reports indicate a range from 80% (Black et al., 1997) to 100% (Raymond et al., 2003) of comorbidity with Axis I DSM disorders such as anxiety, substance-use, or mood disorders, sexual dysfunction, and impulse-control disorders. Axis II disorders including paranoid, passive-aggressive, and narcissistic personality disorders also have been reported in association with hypersexual behavior (Black et al., 1997; Raymond et al., 2003). Among individuals with Parkinson’s disease, those with hypersexual behavior show both similarities to those with PG (both associated with depression) as well as differences (lower impulsivity and sensation-seeking), with PG tending to show greater similarities with compulsive buying than with hypersexual behavior (Voon et al., 2011). Thus, the patterns of co-occurrence with hypersexual behavior are not exclusively or predominantly with SUDs, nor are the clinical characteristics necessarily similar to PG, raising questions as to whether HD might be best categorized as an addiction.

Studies have reported “some level of classic” attention deficit hyperactivity disorder (ADHD) in 67% of their subjects reporting hypersexual behaviors (Blankship & Laaser, 2004, p. 14). Other data suggest lower estimates; e.g., 23% of individuals with hypersexual behaviors were found to meet criteria for adult ADHD (Reid, 2007; Reid, Bruce, Carpenter, Gilliland & Karim, 2011). Recently, hypersexual behavior was not found to be strongly influenced by impulsivity and hyperactivity characteristics among individuals diagnosed with ADHD. These findings share some similarities and show some differences with what is understood regarding the relationships between ADHD and PG. For example, PG was not associated with elevated odds of ADHD in the general population (Kessler et al., 2008). However, young adults with childhood ADHD that persists into adulthood, as compared with young adults with childhood ADHD that remits, or young adults with no history of ADHD, have been found to have greater problem gambling severity (Breyer et al., 2009). In a separate study, adults with PG and childhood ADHD, as compared to non-ADHD groups with and without PG, have

2010). Moreover, under the current proposed criteria for HD, substance-induced hypersexual behavior would not satisfy symptom endorsement towards an HD diagnosis. Thus, more research is needed to understand the mechanisms underlying hypersexual behaviors and their relationships to drug and other addictive behaviors in multiple clinical contexts.
been found to report high levels of self-reported impulsivity, have diminished capacities or willingness to delay gratification, and exhibit less inhibitory control (Rodrigues-Jimenez et al., 2006). Together, these findings suggest a role for ADHD in relation to PG, particularly when considering ADHD from a developmental perspective.

Other characteristics might also show relationships with HD similar to those reported with PG and SUDs. For example, low self-esteem was found as an influencing variable in severity of hypersexual behavior (Reid, Bruce, Carpenter, Gilliland & Karim, 2011). Analogously, low self-esteem has also been reported in association with PG (Kaare, Mottus, & Konstabel, 2009) and SUDs (Silverstone & Mahnaz, 2003). However, the extent to which these findings support the classification of HD as an addiction is questionable as low self-esteem has been associated with a broad range of psychiatric conditions, particularly depression (Silverstone & Mahnaz, 2003).

**NEUROBIOLOGICAL BASIS**

Research investigating neurobiological pathways relating to hypersexual behavior is at an early stage. Potential similarities to substance and behavioral addictions have been preliminarily extended to neurobiological pathways (Brewer & Potenza 2008; Leeman & Potenza, 2012; Leeman & Potenza, in press). Sexual pleasure has been described as a “primal non-drug reward process” (Frascella, Potenza, Brown, & Childress, 2010), and neural systems involved in pleasure and reward (e.g., the mesolimbic dopamine pathway) have been implicated in sexual behaviors (Balfour, Yu, & Coolen, 2003). Brain imaging studies indicate sexual arousal and orgasm affect the mesolimbic reward system including the striatum, medial prefrontal cortex, and the orbitofrontal cortex (Frascella, Potenza, Brown, & Childress, 2010). These regions, particularly the ventral striatum and ventromedial prefrontal cortex, have been implicated in both SUDs and PG (Leeman & Potenza, 2012). However, the extent to which individuals with and without hypersexual behavior differ in mesolimbic dopamine function has not been investigated systematically. Furthermore, such relationships tend to support the notion that sexual behavior is rewarding, not necessarily addictive *per se*, and direct investigation into potential relationships between mesolimbic dopamine function and severity of HD, for example, may help in ascertaining the extent to which mesolimbic dopamine function relates to potentially addictive aspects of HD.

White matter integrity, relevant to the efficient communication of information within neural circuits, can be investigated using diffusion tensor imaging. Individuals with specific SUDs have shown poorer white matter integrity, with disorders like alcohol dependence showing diffuse patterns of poorer integrity that may in part reflect the effects of the abused substance
on brain substrate. However, PG and impulse control disorders like kleptomania (Pfefferbaum et al., 1992) have been shown to have poorer white matter integrity in the genu of the corpus callosum and in frontal cortical regions (Grant, Correia, & Brennan-Krohn, 2006; Yip et al., in press), suggesting poorer white matter integrity relating to impaired impulse control independent of abused substances (Kafka & Hennen, 2003; Joutsa et al., 2011). However, individuals with hypersexual behavior have shown significantly lower mean diffusivity (suggesting better white matter integrity) in the superior frontal region of the prefrontal cortex (Miner et al., 2009), suggesting that HB might differ from substance and non-substance addictions. However, this latter study of hypersexual patients involved a small sample and did not control for other important pathologies (e.g., alcohol abuse or dependence or adult ADHD). Thus, additional research is needed to examine the extent to which there exist differences in white matter integrity as related to hypersexual behaviors, and the extent to which such possible differences are similar to or distinct from those in SUDs.

Correlates between hypersexual behaviors and deficits in executive functioning have been hypothesized (Reid, Karim, McCrory, & Carpenter, 2010) including: difficulties controlling sexual behaviors, inhibit impulse deficits to change behavior; alexithymia, emotion dysregulation, rumination and emotional control; cognitive flexibility, inhibition; choose sex despite negative consequences, decision making judgment, preoccupation and rumination about sex and cognitive flexibility. Features that might reflect poor executive functioning, such as impulsivity, poor judgment and planning, and impoverished concentration, have been reported amongst individuals with SUDs and PG (Giancola & Mezzich, 2003; Gonzalez, Bechara, & Martin, 2007; Ihara, Berrios, & London, 2000; Leeman & Potenza, 2012). Using the Behavior Rating Inventory of Executive Function—Adult Version (BRIEF-A), hypersexual behavior was related to deficits in executive functioning (Reid et al., 2010). Specifically, in a patient group compared with control comparison participants, deficits in a majority of executive-function domains were reported, particularly those involving shifting (assessing function relating to making transitions and solving problems), emotional regulation or control, initiation (assessing function relating to initiating tasks, generating ideas, and solving problems), and planning and organizing (Reid et al., 2010). Higher scores on self-report measures of executive functions also were positively related to hypersexual behavior. However, when executive deficits in hypersexual patients have been assessed through objective neuropsychological tests, hypersexual patients failed to exhibit executive deficits when compared to healthy controls (Reid, Garos, Carpenter, & Coleman, 2011). Collectively, these mixed findings suggest that further research is needed to determine whether brain-behavior relationships and executive deficits observed among individuals with SUDs generalize to hypersexual individuals.
PG gained greater acceptance as an “addictive” neurobiological disorder paralleling those found among individuals with SUDs (Leeman & Potenza, 2012). For example, similar to findings in alcohol-dependent individuals, the ventral striatum and ventromedial prefrontal cortex have been identified as showing diminished activation associated with the processing of monetary rewards in a manner that differs from individuals with OCD (Balodis et al., 2012; Beck et al., 2007; Choi, 2012; Wrase et al., 2007). Studies demonstrating these types of relationships are needed among hypersexual individuals in order to ascertain the extent to which hypersexual behavior might share these features with substance and other addictive behaviors such as those noted among PG. Reward-related brain regions also may link SUDs and hypersexual behavior. For example, the amygdala was activated in cocaine-dependent individuals when drug and sex cues were presented and is implicated in sexual arousal, orgasm, romantic love, and cocaine use (Frascella et al., 2010). Patients with prefrontal lesions and bilateral lesions of the temporal lobe regions have been found to demonstrate hypersexual behavior (Rees, Fowler, & Maas, 2007). Positron emission tomography scans assessing regional cerebral blood flow in healthy men during orgasm and ejaculation indicated activation of the ventral tegmental area (Holstege et al., 2003), a brain region innervating the ventral striatum and implicated in studies of substance addictions. However, the extent to which the amygdala and these other brain regions show similar or distinct patterns of activation in HD as compared to SUD groups has not been examined directly. Such studies may help better understand the extent to which from a neurobiological perspective hypersexual behavior might be considered within an addiction framework, particularly if the biological measures relate to excessive or interfering patterns of sexual behaviors.

**OBSESSIVE-COMPULSIVE SPECTRUM MODEL**

The obsessive-compulsive model is based on parallels between hypersexual behavior and OCD. Sexual obsessions are described as increasing and time-consuming sexual fantasies associated with compulsive sexual behavior, and these may be supplementary to underlying OCD (Garcia & Thibaut, 2010). High rates of comorbidities between hypersexual behavior and anxiety disorders, including OCD, have been reported in clinical samples, although population-based studies are lacking (Black et al., 1997; Raymond et al., 2003). As in OCD, compulsive behaviors may be successful in reducing anxiety by refocusing one’s concerns and avoiding depressive or anxious thoughts (Black et al., 1997; Kafka & Pretenky, 1997). This may be the case for individuals with hypersexual behavior. Fantasizing about sexual activity may provide individuals with even more distraction than sexual experiences
and may help negate negative emotions through intense focus on pleasure present during sexual arousal and orgasm. As in OCD, obsessive and intrusive thoughts may be managed through performing ritualistic behaviors; hypersexual behavior may serve in this capacity. This may be true as the complexities and inherent problems of being with a partner are not present (Reid et al., 2012). However, the extent to which repetitive and compulsive hypersexual behaviors are ego-dystonic or considered not to make sense, as is typically the case in OCD, is not clear, and may represent an important difference between hypersexual behavior and OCD.

There may be similarities between hypersexual behavior and OCD with respect to the reinforcement model hypothesized and used in cognitive behavioral treatments for individuals suffering from OCD (Schreiber, Odlaug, & Grant, 2012). This model suggests that both positive and negative reinforcement are likely involved in maintaining compulsive behaviors. Similarly, positive and negative reinforcement motivations have been described for substance addictions (Sinha, 2008). The use of Internet pornography (IP) may provide both psychological and physiological reinforcement (e.g., sexual arousal and/or sexual gratification) at a high schedule of reinforcement, thus encouraging maintenance of IP use (Mick & Hollander, 2006) and other addictive behaviors (Griffiths, 2001; Putnam, 2000).

Notably, OCD behaviors may differ from hypersexual behavior in that behaviors associated with OCD, such as washing and checking, may not be pleasurable and are typically performed to reduce anxiety. There may be no ego-syntonic motivations to perform compulsions in OCD as there are typically for sexual behaviors. One’s sexual behavior may not be specifically anxiety-reducing as is the case with OCD. Individuals with OCD do not necessarily act on their obsessions due to their hedonic desire for the behavior. In many instances, they may not act on their obsessions at all as their obsessions may be considered even by themselves to be irrational. Individuals with hypersexual behavior typically act on their sexual fantasies because they desire the pleasure associated with the sexual behavior (Aboujaoude & Koran, 2008). Together, the findings provide some support for conceptualizing hypersexual behavior within an obsessive-compulsive-spectrum framework.

**IMPULSIVITY/ COMPULSIVITY**

Impulsivity and compulsivity have been proposed as intermediary phenotypes or potential endophenotypes relevant to multiple psychiatric disorders including SUDs, PG, and OCD. Impulsivity has been defined as, “a predisposition toward rapid, unplanned reactions with diminished regard to the negative consequences of these reactions to the impulsive individual or
Compulsive behavior has been described as involving repetitive behaviors without apparent adaptive function (Leeman & Potenza, 2012). The impulsive components of hypersexual behavior such as pleasure and arousal may be related to the initiation of the disorder, while a compulsive component could be involved in the persistence of the behavior (Brewer & Potenza, 2008; Garcia & Thibaut, 2010).

In one small study, individuals with hypersexual behavior were found to be more impulsive than a control group using the Compulsive Sexual Behavior Inventory and the Barratt Impulsiveness Scale (Miner et al., 2009). Other studies have also noted positive relationships between impulsivity and hypersexual behavior (Reid, Garos, & Carpenter, 2011; Reid, Stein, & Carpenter, 2011). These findings are similar to those in PG and SUDs in which both groups have been found to be more impulsive on both self-report and behavioral measures of impulsivity (Leeman & Potenza, 2012). However, these findings might not hold consistently for a range of impulse-control behaviors and disorders. For example, among individuals with Parkinson’s disease, significant differences in temporal discounting patterns were observed across groups with and without impulse-control problems (Voon et al., 2011). Specifically, individuals with PG and compulsive shopping demonstrated steeper discounting (reflecting greater impulsivity) as compared to those with compulsive sexual behaviors and those without impulse-control problems (Voon et al., 2011). Additionally, among groups with impulse-control problems (relating to gambling, shopping, sex, and eating), the group with compulsive sexual behaviors reported the lowest mean score on the Barratt Impulsiveness Scale, although all groups demonstrated higher mean scores as compared to individuals without impulse-control problems (Voon et al., 2011). A similar pattern was observed with measures of compulsivity using the obsessive-compulsive inventory (Voon et al., 2011). Thus, although problematic sexual behaviors have been conceptualized as being related to characteristics of both impulsivity and compulsivity (Coleman, Raymond, & McBean, 2003; Mick & Hollander, 2006), additional studies of impulsivity and compulsivity in HD (particularly in non-Parkinsonian groups) are needed, particularly as existing data suggest that these constructs may be more relevant to conditions like PG than to HD.

**ADDITION MODEL**

As described previously, addictions typically consist of activities conducted repeatedly, habitually, and compulsively and interfere in major areas of life functioning (Miller, Forcehimes & Zweben, 2011; Potenza, 2006). Both substance and non-substance addictions may involve chronic relapsing, feelings of tension or arousal before committing the act (e.g., gambling or substance
Should Hypersexual Disorder be Classified as an Addiction?

use), and subsequent pleasure, gratification, or relief at the time of committing the act. Behaviors often become less pleasurable and more habitual over time. They may be driven by negative reinforcement and involve craving states (Grant, Potenza, Weinstein, & Gorelick, 2010).

Hypersexual behaviors may parallel substance addictions in various ways (Black et al., 1997; Garcia & Thibaut, 2010; Gold & Heffner, 1998; Kafka & Hennen, 2002; Maranda, Han, & Rainone, 2004; Orford, 1978; Raymond et al., 2003; Valois, Oeltmann, Waller, & Hussey, 1999; Wines, 1997). Patients often report an escalation in sexual behaviors as HD develops and progresses (Reid et al., 2012). Other features including withdrawal-like states (e.g., the development of anxiety and depression when not engaging in sexual behavior—see Wines, 1997), ruminating about sex, and feelings of guilt and remorse related to a reduction of sexual activities may also share similarities with SUDs, although more research is needed in this area (Garcia & Thibaut, 2010). HD patients also report it to be difficult when attempting to stop or reduce the frequency of sexual activities. HD patients may spend excessive amounts of time seeking potential partners, and they may increase the amount of time as the disorder develops. They may simultaneously reduce the time they engage in other non-HD-related goal-directed activities. They may maintain this pattern of sexual behavior despite the knowledge that they are at risk of potential adverse consequences such as contracting sexually transmitted diseases, having marital or legal problems, or being subjected to physical violence (Reid, Garos, & Fong, 2012).

The proposed criteria for HD share some features with those for substance dependence (Goodman, 1992; Kafka, 2010). Proposed changes for the DSM-5 include categorizing PG as a non-substance-related addictive disorder. Although some data suggest that HD might be considered as an addiction, further research is needed to identify potential similarities and differences across multiple phenomenological, clinical, and biological domains to provide support for categorizing HD as an addiction. Studies investigating neurobiological mechanisms, genetics, and treatment response to hypersexual behavior will be helpful in evaluating whether HD should be characterized as an addictive disorder.

Perhaps more so than for other models, an addiction model suggests a development pathway that might be particularly applicable to HD. Both SUDs and HD may initiate with a drive for pleasure either through sexual behavior or the euphoria brought about through the ingestion of a rewarding substance. The feelings of sexual or drug-related pleasures may then be reinforced and lead to addictive engagement. Sexual addiction and impulsivity models are sometimes criticized in that they may fail to clearly distinguish between healthy sex and hypersexuality (Gold & Heffner, 1998; Moser, 1992). However, such a criticism may apply similarly to alcohol consumption and alcohol abuse/dependence and gambling and PG, suggesting this consideration may be important and debatable for addictions more broadly.
One may argue that behavioral addictions, including HD if it is viewed within an addiction framework, may be particularly hazardous due to ease of access. Masturbation and IP viewing, two of the most common hypersexual behaviors, can both be done anonymously and in private. Given current technologies, one may access pornography from just about anywhere for free. In contrast, certain substances may be more difficult to attain as they may be illegal, more costly and may not be obtained without the help of a supplier. However, addictive substances may have initial and cumulative effects, potentially adding to their negative impact on health. Recent estimates indicate that substance addictions are among the most costly illnesses to society (Uhl & Grow, 2004). Similar studies should investigate the health impact of HD, and such efforts would be facilitated by uniformly agreed-upon criteria for the disorder.

CONCLUSION

Although many gaps exist in knowledge in our understanding of HD, available data suggest that considering HD within an addiction framework may be appropriate and helpful. However, the data for considering other behaviors, particularly gambling, within an addiction framework appear stronger than do the data for considering HD within an addiction framework, perhaps in part reflecting differences between HD and PG and/or less HD-related research having been conducted. Although some authors (e.g., Peele, 2000) argue that the definition of addiction may have lost meaning due to its broad inclusion, the proposed inclusion of PG as a non-substance or behavioral addiction in DSM-5 strengthens the argument that an addiction need not be defined based on the ingestion or consumption of a substance. The consideration of PG as an addiction has helped not only with research, but also with clinical treatments. For example, cognitive behavioral therapies for substance addictions have been modified and shown to be efficacious for PG (Petry et al., 2006). Additionally, the conceptualization of PG as an addiction without the drug in part led to the testing in PG of medications indicated for SUDs (e.g., opioid antagonists like naltrexone) or other promising compounds (e.g., the glutaminergic agent n-acetyl cysteine) rather than medications with indications for OCD (e.g., serotonin reuptake inhibitors) that have shown mixed results in PG and substance addictions (Bullock & Potenza, 2012). However, more research is warranted to determine the extent to which HD shares features with addictions across multiple domains, and the extent to which therapies effective for addictions may be adapted for HD. Although investigators are inclined to focus on addictive models to explain HD, it will be important for other models such as those mentioned in this article to be studied in order to understand the most parsimonious explanation for hypersexuality.
DISCLOSURES

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Should Hypersexual Disorder be Classified as an Addiction?


Hypersexual Disorder: Searching for Clarity

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The conceptualization of Hypersexual Disorder that was proposed for DSM-5 is reviewed and found to be inconsistent with the existing data. Any proposal for adding a new psychiatric disorder should demonstrate the need for a new diagnosis, describe individuals with only that psychiatric disorder, and explain why existing diagnoses are inadequate to describe the new entity. The conceptualization and diagnostic criteria should distinguish between those with the disorder from those without it, as well as demonstrate that the disorder is not a symptom or result of another psychiatric disorder. The current proposal falls short of all these goals. The problems and dangers of adding Hypersexual Disorder to our diagnostic classification system are discussed.

There are individuals who seek mental health treatment because they (or sometimes those close to them) perceive their sexual fantasies, urges, or behaviors to be “out of control.” At present there is no consensus on how to conceptualize these individuals or even how to label their problem. Proposed diagnoses include Compulsive Sexual Behavior (Coleman, 1991), Dysregulated Sexuality (Winters, Christoff, & Gorzalka, 2010), Hypersexual Disorder (Kafka, 2010), Impulsive/Compulsive Sexual Behavior (Coleman, 2011; Raymond, Coleman, & Miner, 2003), Paraphilia Related Disorder (Kafka & Hennen, 2002), Sexual Addiction (Carnes, 1983), and Sexual Impulsivity (Barth & Kinder, 1987). All of these labels have been criticized (see Joannides, 2012; Ley, 2012; Moser, 2011a) and none have gained general acceptance. Nevertheless, Hypersexual Disorder (HD; Kafka, 2010) was considered for inclusion in the forthcoming fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM), to be published by the American Psychiatric Association (APA).
The current critique will focus on Kafka’s (2010) HD proposal and expand on my previous criticisms (see Moser, 2011a). The present article will argue that Kafka’s (2010) conceptualization of Hypersexual Disorder is inconsistent with Kafka’s (2010) own data and proposed diagnostic criteria; the data do not distinguish HD from other existing diagnostic concepts; the diagnostic criteria do not distinguish those with the disorder from those without; “hypersexual” is a misnomer that does not describe the individuals who are likely to be labeled with this diagnosis; and the potential for misuse far outweighs any benefit of including it in a diagnostic manual.

There are individuals who perceive their sexual behavior “as out of control” and there is no dispute that some of these individuals could benefit from psychiatric intervention. Nonetheless, the individual’s perception of the problem may not be an accurate assessment or the “problem” may not be an actual problem. Appropriate clinical evaluation may demonstrate that their sexual behavior is a symptom or a result of another disorder (which should become the focus of treatment rather than their sexual behavior) or that the individual’s behavior is within normal limits. Even if the Kafka criteria reliably identified these individuals in treatment-seeking populations (see Reid et al., 2012), it is not clear that those attributes are the correct psychiatric parameters on which to make the diagnosis. The conceptualization of “Hypersexuality” as a disorder risks obscuring other primary diagnoses and pathologizing normal variants.

THE CONCEPTUALIZATION OF HYPERSEXUAL DISORDER

Kafka states, “Hypersexual Disorder is conceptualized as primarily a non-paraphilic sexual desire disorder with an impulsivity component” (2010, p. 377). He further characterized HD as “a sexual desire disorders [sic] characterized by an increased frequency and intensity of sexually motivated fantasies, arousal, urges, and enacted behavior in association with an impulsivity component—a maladaptive behavioral response with adverse consequences” (2010, p. 385). Kafka’s “definition for Hypersexual Disorder was specifically derived to include elements of . . . both Hypoactive Sexual Desire Disorder and the Paraphilias” (2010, p. 379). I will start by considering the elements of the Kafka’s conceptualization.

Is it Impulsive?

Impulsivity is not mentioned or included in the diagnostic criteria for Hypoactive Sexual Desire Disorder, the Paraphilias, or Hypersexual Disorder. According to Stedman’s Medical Dictionary, an impulse is a “sudden, often unreasoning, determination to perform some act” and impulsive implies the
act is not “controlled by reason or careful deliberation” (1995, p. 860). Even though individuals may feel their sexual behavior is out of control, this does not imply that their behavior is impulsive. Anecdotally, many of these individuals are quite deliberate in how they pursue their sexual activity, their actions have a clear rationale, and there is no evidence that the desire and behavior are so sudden that individuals are unable to postpone the act temporarily until a more appropriate time or place. These individuals can hide the behavior from those who would judge them, often successfully. Their perceived inability to control or reduce the fantasies, urges, and behaviors may be ego dystonic, but it does not suggest the impulse is either sudden or unreasoned. The association of impulsivity with “hypersexuality” has been based on self-report measures. The lack of any objective assessment of whether impulse control is actually compromised in the wake of a sexual cue is absent (Reid, Garos, & Carpenter, 2011). If Kafka means something else by impulsive, he needs to define his terms clearly and carefully.

Kafka and Krueger (2011) suggest that the “hypersexuality” in response to dysphoric affect, stress, and the disregard of the inherent risks of the behavior are signs of impulsivity. Everyone experiences dysphoric moods and stress at times and most use a variety of techniques to mitigate these emotional states (McRae et al., 2010). It is usually the lack of a response or a repeated ineffective response that signifies a disorder. Engaging in a sexual behavior as a response to negative emotional states can be rational, deliberate, and healthy (Coleman, 2002). There is nothing inherently impulsive or unhealthy about acting to alleviate one’s dysphoria. Kafka and Krueger (2011) do not offer any suggestions of “healthy” behaviors to decrease stress or improve mood, possibly because any behavior can be dysfunctional.

There are individuals who do pursue their sexual desires “impulsively,” despite recognizing that negative consequences are likely. Missing work deadlines, not attending to childcare responsibilities, or choosing to engage in sex acts above their risk tolerance are examples. Under Kafka’s criteria, this would have to be a frequent occurrence and not limited to just a few occasions. Kafka offers no data on how frequently these individuals report this type of impulsivity. If impulsivity is an important aspect of HD, Kafka should demonstrate that impulsivity exists and occurs with a frequency that generates unwanted consequences.

A hidden assumption in this conceptualization is that it is important to be able to control or reduce one’s sexual fantasies, urges, and behaviors. Many individuals seek out mental health professionals because the content of their desires disturbs them (e.g., women’s rape fantasies) and they have been unable to control or reduce them. The distress often resolves with reassurance and education, rather than focusing on controlling or eliminating these fantasies. Others have been able to “control” the objectionable fantasies, but now complain of a lack of sexual desire.
Is it Non-Paraphilic?

Kafka (2010) contends that the Paraphilias and HD are similar disorders, Paraphilias focus on “non-normative” sexual interests and HD focuses on “normative” sexual interests (normophilia). The HD subtypes (masturbation, pornography, cybersex, telephone sex, strip clubs, and consensual sexual behavior), which Kafka contends “… were deliberately chosen as non-paraphilic behaviors” (Kafka & Krueger, 2011, p. 231), can be applied to either paraphilic (e.g., fetish) or normophilic (e.g., coitus) interests.

Kafka’s conceptualization implicitly suggests that there are important differences between normophilic and paraphilic interests, but attempts at defining this distinction have been criticized repeatedly (see Moser, 2011b; Moser & Kleinplatz, 2005). A number of studies have demonstrated that paraphilic interests are quite common (see Ahlers et al., 2011; Crepault & Couture, 1980; Reynaud & Byers, 1999; Tomassilli, Golub, Bimbi, & Parsons, 2009) and no studies were found suggesting that the non-criminal paraphilias (fetishism, sexual masochism, sexual sadism, and transvestic fetishism) were associated with a pattern of distress or dysfunction (Shindel & Moser, 2011; also see Moser, 2009).

Kafka’s HD diagnostic criteria do not exclude a Paraphilia diagnosis, allowing both diagnoses to be made. As noted above, impulsivity is not part of the diagnostic criteria of the Paraphilias and the criteria which Kafka purports to imply impulsivity in the HD criteria are not part of the Paraphilias diagnostic criteria. If there is a relationship between the Paraphilias and HD, Kafka has not demonstrated it.

Is it Hypersexual?

Kafka (2010) admits he could not define “excessive” sexual behavior and it is quite possible to satisfy the Hypersexual Disorder criteria with a low level of sexual fantasies, urges, or behavior (Hall, 2011). Kafka (1997, 2010) seems particularly concerned about the individual’s Total Sexual Outlet (TSO, number of orgasms from any source) greater than 7/week, but presents no data on the percent of individuals with that frequency who meet the criteria for a HD diagnosis, the percent of individuals who meet HD diagnosis criteria who also have a TSO that high, or the percent of treatment seeking individuals with a frequency that high. Kafka cites a personal communication from Långerström that places individuals in the “high hypersexuality” group with a TSO of 4/week for men and 3/week for women (Kafka, 2010, p. 380), about half of Kafka’s concerning frequency. Janus and Janus (1993) found the frequency of all sexual activity at least a few times per week was 53–63% for men and 32–49% for women, depending on their age bracket, suggesting these frequencies are not unusual.
Winters et al. (2010) studied 14,396 participants including 176 individuals who had sought treatment for sexual compulsivity, addiction, or impulsivity. They found no statistically significant difference in TSO between those who had and had not sought treatment. There was also no difference in the reported average frequency of masturbation or the number of partnered sex acts, between the two groups. There was a significant difference in average hours spent per week viewing pornography for men (3.69 versus 6.83; a difference of about 30 minutes a day) for men, but not for women.

There are no data to suggest that most people who meet Kafka’s diagnostic criteria for HD have a high TSO. Although some individuals who are distressed about their sexual behavior may have a high TSO, there are no data to suggest that most people with a high TSO either perceive it to be a problem or have a problem controlling their sexual urges or behavior. There is no indication that for most individuals with a high TSO, the time consumed by their sexual fantasies and urges, and by planning for and engaging in sexual behavior is “excessive” or interferes with accomplishing their goals or meeting other obligations. Again, if Kafka means something else by “hypersexual,” he needs to define his terms clearly and carefully.

Is it a Disorder or a Symptom of another Disorder?

If the nosology of mental disorders is to be useful, a symptom of another disorder should not be identified as its own disorder. If Hypersexual Disorder is a distinct mental disorder and not a symptom of other disorders, we should be able to identify individuals seeking help for hypersexual behavior who have no other psychiatric diagnoses. Kafka and Hennen (2002) found that 100% of their “Paraphilia-Related Disorder” sample had a lifetime incidence of at least one diagnosable non-sexual DSM axis I diagnosis, with a mean of 2.5 ±1.0 Axis I diagnoses. Raymond, Coleman, and Miner (2003) similarly found 100% of their Compulsive Sexual Behavior sample had a lifetime incidence of at least one diagnosable non-sexual DSM axis I diagnosis (88% were diagnosable at the time of the interview), with a mean of five Axis I diagnoses. Kafka and Prentky (1994) found 86% of their “Paraphilia-Related Disorder” sample had a lifetime incidence of at least one Axis I diagnosis, with a mean of 2.8 ± 2.1 Axis I diagnoses. Pharmacological treatment (which would treat these other disorders) also decreases the “symptoms” of Paraphilia-Related Disorder an earlier term for HD (see Kafka 2000; Kafka & Hennen, 2000) suggesting that hypersexuality may be a symptom or result of the other disorder.

The characteristics of a sample with a disorder do not define the disorder. Twice as many women as men are diagnosed with Major Depression (APA, 2000), but we do not pathologize being a “woman.” Even if 100% of blue-eyed blondes are diagnosed with Dysthymic Disorder, the correct diagnosis is Dysthymic Disorder, not being a blue-eyed blonde. Treatment
should be focused on the dysthymia, not changing the patient's eye color. The conceptualization of Hypersexual Disorder as a separate disorder and not a symptom of another disorder is not supported.

What is the Nature of the Problems Individuals with Hypersexual Disorder Have?

Kafka suggests that it is the “hypersexuality” which leads to “a maladaptive behavioral response with adverse consequences” (2010, p. 385). He suggests individuals with HD are prone to engaging in unsafe sex, acquiring sexually transmitted infections (STI), unintended pregnancy, sexual risk-taking behaviors, and “promiscuity” (which usually implies having more sex partners than the individual making the determination). Considering that almost all of the subtype modifiers of Hypersexual Disorder (i.e., masturbation, pornography, cybersex, telephone sex, and strip clubs) can be seen as healthy alternatives, those behaviors would limit these adverse consequences. Only the “Sexual Behavior with Consenting Adults” subtype possibly could increase the individual’s risk of encountering these problems. Kafka’s formulation paradoxically allows us to conclude that HD actually may prevent the consequences he associates with the disorder.

Some individuals seeking help for their self-perceived out of control sexual behavior do report relationship problems, dysphoria, stress, and impairment in non-sexual functioning associated with the intensity of their sexual interests, but Kafka does not consider the possibility that these symptoms could be a response to the problems emanating from their (or their partners’ or family members’) discomfort with the content or strength of the individual’s sexual fantasies, urges, or behaviors. Whatever problems these individuals may experience, Kafka has not demonstrated that they relate to their “hypersexuality,” rather than the discomfort emanating from their sexual interests or desires. A conflict between the individual and society (related to either’s discomfort with sex) is explicitly excluded from the definition of a mental disorder (APA, 2000).

Clinical Judgment

Kafka and Krueger (2011) suggested that “clinically informed judgment” would mitigate any of my concerns about the misdiagnosis of HD. Clinically informed judgment means just that, the expert needs the clinical experience to make that judgment. A goal of the DSM is to allow the non-expert clinician to apply the diagnostic criteria and make a valid and reliable diagnosis. Without appropriate clinical experience, personal bias rather clinical objectivity would predominate. Even with appropriate clinical experience, the effects
of subjective personal bias are difficult to separate from objective clinical judgments. Here is an example:

Mr. A is a 40 year old successful attorney, who has been married for 15 years. He lives with his wife and two children (ages 13 and 10) in suburbs. Since adolescence, he reports sexual fantasies which are intrusive, disturbing, and he is remorseful when he acts upon them. They repetitively interfere with other goals and activities upon which he wants to focus. He reports the frequency of the fantasies, urges, and behaviors increase when he is depressed or anxious. He reports more depression and anger over the last several years as he has tried repeatedly and unsuccessfully to stop or reduce the fantasies, urges, and behaviors. Stressful life events increase the frequency of the urges and behavior, which leads to remorse and more depression; he reports feeling stuck in a tailspin. He recognizes that engaging in the behaviors is harmful in a variety of ways, but this recognition has not changed his behavior. He admits to intrusive fantasies several times a day, including during marital coitus. During “binges” he has engaged in the behavior several times a day, usually with strangers. His wife suspects, but does not know. He keeps pornography at his office locked in a desk drawer. He has contracted various sexually transmitted diseases over the years, but has been able to avoid infecting his wife. He is seeking help to stop.

Most professionals who treat patients with purported “hypersexuality” will recognize this man as a typical patient, perhaps with less denial than most, who meets all of Kafka’s HD diagnostic criteria. Nevertheless, I admit to a bit of subterfuge here. Mr. A was actually seen in 1969 and it was the patient’s homosexuality that was so distressing to him. At the time, “Compulsive Homosexuality” was a term bandied about to describe these individuals and Homosexuality was listed in the then current DSM (APA, 1968). This “problem” was so pervasive that individuals like Mr. A were relatively common fixtures in psychotherapists’ offices. The diagnosis and the patients it afflicted seemed to disappear after 1973, when the APA “depathologized” Homosexuality. In this case, after psychotherapy helped Mr. A to accept his homosexuality, he developed a satisfying relationship with another man. The symptoms and triggers he associated with his sexual urges and behaviors disappeared. Nevertheless, societal bias against homosexuals at the time affected the viability of his law practice, his wife divorced him, and his children rejected any further contact with him. These new stressors did not lead to reemergence of his previously out of control sexuality.

The prevailing “clinically informed judgment” of the therapists and psychiatrists in the 1969 was that Mr. A suffered from a mental disorder (i.e., Homosexuality) and required years of treatment for this disorder. Of course, we now know that treatment was ineffective and we have stopped classifying homosexuality as a mental disorder.
Are the Hypersexual Diagnostic Criteria Useful and Reliable?

Reid et al. (2012) present intriguing evidence that applying the HD diagnostic criteria reliably diagnoses treatment-seeking individuals who are distressed about their sexual behavior. It should be noted that the subjects were drawn from clinics primarily providing treatment to “hypersexual patients” which may explain why the criteria accurately identified patients who themselves “self-identified” with the criteria. If you go to a clinic known to treat people with depression you will find depressed people, no matter which criteria you use.

I also would caution that even if the criteria can be reliably applied, they may not be valid. The identification of reliable criteria does not imply those are the appropriate clinical focus of treatment. Although the DSM is concerned only with diagnosis, not treatment, an inaccurate diagnosis may lead to ineffective or even harmful treatment. If the diagnostic criteria are not properly formulated, treatment may be focused on the effects or correlates of the disorder rather than the underlying disorder.

THE DANGERS OF INCLUDING HYPERSEXUAL DISORDER IN A DIAGNOSTIC MANUAL

Aside from the conceptualization problems, many significant unintended consequences may result from the inclusion of HD in any future revisions to the DSM-5. For example, one potential problem could be the use of HD as an additional diagnostic label in designating individuals as Sexually Violent Predators (SVP; see First & Halon, 2008). The use of these laws is quite controversial and being designated as an SVP is almost always a lifetime “civil” commitment to a psychiatric hospital. However, given that the DSM-5 field trial (Reid et al., 2012) did not apply the HD criteria in sex offending populations, we cannot be certain whether the HD criteria has adequate discriminant validity to avoid classifying false positives in such cases. Moreover, if legislatures wish to increase the sentences of sex offenders, they should act explicitly to do so. Psychiatry should not be a partner in the process and should act proactively to prevent the misuse of its diagnoses. The APA at least at one time agreed that it had “... a strong interest in ensuring that medical diagnoses not be improperly invoked to support involuntary confinement ... [and SVP’s] are not mentally ill under normal standards justifying civil commitment” (APA, 1996, p.1). HD as presently conceptualized, risks extending the SVP laws to another group of prisoners, flaunting APA policy.

As Kafka (2010) correctly noted, throughout history there has been concern about excessive sexual behaviors. That concern led to draconian measures to prevent children and the institutionalized from engaging in masturbation (and other sex acts). Many individuals became concerned that
non-marital sex and masturbation were signs of mental illness or would cause other mental and physical illnesses. It is hard to imagine how concerns about “hypersexuality” would not suppress healthy sexual development, discourage the healthy use of sex stimulation, produce a new class of the worried well, and create yet another medically sanctioned sexual performance standard for the public. Subsequently, it is likely that the potential risk for abusing an HD diagnosis to the detriment of vulnerable populations far outweighs any potential benefits.

SUMMARY

Kafka has fallen short of clearly demonstrating that the HD conceptualization describes the intended population. The data demonstrating that it is hypersexual, impulsive, or a distinct mental disorder are lacking. The diagnostic criteria are open to interpretation and misinterpretation (see Moser, 2011a). The distinction between the paraphilias and normophilia appears to be artificial and requires further clarification.

The first step in understanding a new disorder is extensive and objective study of those individuals, which appears to be lacking. The current state of our knowledge about individuals who are seeking help for purported “hypersexual behavior” appears to be superficial and characterized by subjective interpretations and preconceptions of the nature of this disorder.

We are left with the initial problem that some individuals seek help because they perceive their sexuality as out of control. It is not clear if this perception is accurate, the result of another mental disorder, a new mental disorder (HD), or a conflict between the individual and society (or the individual’s religious beliefs, self-imposed morality, personal expectations, or a misunderstanding of what constitutes normal sexuality). The argument that these individuals are presenting with a new mental disorder is woefully lacking.

There is reasonable evidence (see Kafka 2000; Kafka & Hennen, 2000) that the treatment of the coexistent psychiatric disorders will ameliorate the sexual symptoms and will be more effective than branding an individual as hypersexual (a disorder that cannot be resolved, only put into remission). The proposal to recognize HD as its own disorder cannot be debated seriously until a consistent combination of diagnostic criteria and conceptualization allow for empirical research to test the existence and characteristics of HD. Objective (rather than subjective self-report) measures of brain pathology, genetic variations, and other biophysiological markers to support HD as a distinct and separate disorder are needed. Sadly, the history of psychiatry is littered with moralistic pronouncements masquerading as scientifically validated entities. The present proposal is another example of politics and moralism rather than science, caveat emptor.
NOTE

1. See www.dsm5.org website for updated diagnostic criteria for HD.

REFERENCES


Comment on Moser’s “Hypersexual Disorder: Searching for Clarity”

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Dr. Moser is an outlier in this special issue, as he obviously opposes the notion of Hypersexual Disorder (HD). Indeed, he has opposed considering as disordered most forms of atypical sexual behavior, including paraphilias, instead encouraging a viewpoint that sexual expression in itself is natural, regardless of its form and the degree of difference from what might be considered typical or within normal limits. Thus, his present paper is consistent with his previous statements, and from an a priori perspective, might be a reasonable starting place for one to hold, as ultimately, whether or not something should be viewed as disordered is, to a great extent, a judgment call, involving attitudes and personal values. It is extremely helpful to have a critic challenge both the science of HD and the interpretation of data from studies of HD; those who see merit in having an HD diagnosis available to describe and aid in the understanding of persons who experience clinically significant distress and/or functional impairment related to their atypical sexual behavior can benefit. Such criticism obligates us to be honest with our data and can help guide research.

Unfortunately, although it adds a few particulars, this article has little new to offer beyond previous comments (e.g., Moser, 2011) to which many have responded (e.g., Kafka & Krueger, 2011). Although it claims to be a challenge of HD, it is actually more of a critique of a few statements from Kafka’s 2010 review. Even so, it can serve as a reminder that we have work to do, such as to better understand: (a) the impact of allowing clients to self-define “excessive”; (b) the role of potential risk factors, such as impulsivity or negative mood states; (c) comorbidity (see Carpenter, Reid, Garos, & Najavits, this issue); and (d) ways of militating against potential misuse of the diagnosis (such as in the courts).

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Moser selectively applies to HD an unrealistic threshold for considering an emerging disorder. Although there is no universally agreed-upon definition of what constitutes a mental disorder, DSM-IV-TR offers the 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.” (e.g., DSM-IV-TR, 2000, p. xxxi). All of these are present among those who seek treatment for HD or related conditions (e.g., sexual addiction). These individuals clearly see their sexual behavior as the focal point of their difficulties, even if they often present with comorbid conditions, and Moser is unable to present a cogent case for how in most cases another condition can account for their distress or dysfunction. Indeed, he offers no data directly revealing that other conditions account for maladaptiveness and dysfunction found in HD. His argument that HD arises in most cases from underlying conditions and that it is these conditions which should be treated in order to reduce the symptoms of HD is similar to past treatment practices used for substance use disorders which posited that treatment should be focused on underlying conditions of depression, neurosis, or interpersonal conflict instead of addressing the substance use disorder directly. No one would argue that comorbid conditions should not be treated, but substance abuse treatment practices have evolved to focusing on the substance use disorder directly and targeting it with a variety of treatments. Likewise other “behavioral addictions” (gambling, compulsive overeating, dysfunctional internet use) have adopted therapies that focus directly on controlling the behaviors themselves, rather than focusing on underlying conditions. It is true that there is disagreement as to the best label for hypersexual behavior that results in distress or dysfunction, mostly arising from differences in the suspected (but not yet well-understood) etiology of such behavior. However, the literature reflects that most often researchers are talking about the same people, target behaviors, and consequences, and that unifying criteria (especially which sidestep problem-laden and unproven causal models, as the etiologically neutral label of HD does) would add to consistency of approach and comparability of results. In fact, such disagreement about labels and etiological models is often present in DSM diagnoses (e.g., Multiple Personality Disorder versus Dissociative Identity Disorder, or spectrum disorders versus separate diagnoses).

This same inflating of difficulties arises in some of Moser’s specifics as well. For example, his analysis of purported impulsivity within HD relies on absolutes not representative of most impulsivity. His “anecdotal” analysis argues that because impulsive tendencies do not trump all, impulsivity must not be present. In fact, populations with well-documented impulsivity (e.g., Antisocial Personality Disorder) can act deliberately, have a rationale, and
temporarily postpone behavior (e.g., not many would carry out a plan to rob a convenience store if a policeman were standing at the counter). Rather, the question is whether impulsive tendencies are more likely to present in those with HD than in those without HD, and whether such impulsivity is a salient variable to include within the HD criteria. We must recognize that we still don’t know much about the role of impulsivity (an important reason it was not included in the proposed DSM definition). For example, we do not yet know if the impulsivity self-reported by clients is actually manifest in their behavior, and if persons with HD are more impulsive generally or if impulsive tendencies are limited to sexual behavior.

Moser’s criticism seemingly objecting to defining HD as non-paraphilic is confusing. Although initially Kafka conceptualized HD as being non-paraphilic, the criteria were subsequently clearly written such that HD could apply to individuals regardless of whether their sexual behavior was non-paraphilic or paraphilic. Moser’s apparent preference for considering sexual behavior broadly as normal regardless of its nature and harmful consequences seems to be at the crux of his argument: If all sexual behavior is normal, then why select out HD as a diagnosis? The contrasting approach would be to utilize the diagnosis of HD to distinguish sexual interest and behavior defined by dyscontrol and significant negative life consequences. Many individual with HD do not qualify for a paraphilic diagnosis (e.g., Black, Kehrberg, Flumerfelt & Schlosser, 1997; Raymond, Coleman & Miner, 2003), but some do (Krueger, Kaplan & First, 2009). Further research needs to be done using accepted and published criteria for HD.

Many researchers may share Moser’s concern that “sexual addiction” and other HD-like conditions have prematurely “entered the popular lexicon” or resulted in premature claims about treatment. However, it is reasonable for people to seek help for troubling conditions, and psychological interventions apparently have something to offer. Identifying a condition (even if called a “diagnosis”) and attaching a literature about presentation, etiology, course, and sequelae seems both reasonable and expected if we are to help. That the broader psychiatric community has yet to endorse this as an accepted diagnosis, even for further study, reflects the state of knowledge and attitudes of the psychiatric community and those responsible for final inclusion of diagnoses in psychiatric manuals. To maintain that there is a lack of support for HD is simply wrong; there has been and is a growing body of studies and literature, which have progressively expanded and continue to expand the database supporting this diagnosis.

Finally, in dismissing the reliability of the HD criteria because the field trial (Reid et al., 2012) used clients from clinics which specifically treat such clients, Moser failed to report that the trial also included clients from other settings. It is worth noting that this is exactly the design expected of DSM-5 field trials and that the reliability, sensitivity, and specificity, which Moser overlooks, were high. This is not to say that we ought not to extend our
knowledge regarding those who do and do not endorse criteria, but the results are promising, regardless of Moser’s unsupported dismissiveness.

In sum, a reading of Moser’s review requires a critical mind and a bit of fact checking. He reminds us of areas where we need to expand our knowledge base, but his critique is inadequate to suggest that Hypersexual Disorder inherently fails to meet a threshold for a diagnosable condition. Indeed, it underscores the need for some agreement on criteria for this condition and the best practice way of defining it, which the current criteria for Hypersexual Disorder provide.

REFERENCES


A Rejoinder to Carpenter and Krueger: It is about Clarity and Consistency

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After reading Carpenter and Krueger’s response I was somewhat perplexed, given their criticisms were addressed in my article. My second reaction is a bit more subtle and even ironic. I was criticized for being a consistent critic and for pointing out that the HD concept has been persistently inconsistent.

The HD proponents do not take me to task for faulty logic, misrepresenting the data, or taking the statements by its proponents out of context. Rather they suggest that I should “present a cogent case for how in most cases another condition can account for their distress or dysfunction.” Actually, it is the responsibility of the HD proponents to demonstrate that another condition does not account for the presenting individuals’ distress or dysfunction. It was the data from the studies published by the HD proponents that indicated treatment of the underlying conditions mitigates the symptoms of individuals they would diagnose with HD. In this regard, my article underscores the inconsistency between their conclusions and their own data.

Although Carpenter and Krueger indicate that the HD “criteria were subsequently clearly written such that HD could apply to ... nonparaphilic or paraphilic [behavior]”, they did not provide a citation as to where we can find these new clearly written criteria. A major point of my article was that we need a consistent conceptualization of HD and clarification about what HD is, and more importantly, what it is not.

The APA has rigorous scientific standards for incorporating a new mental disorder into the DSM. It was the DSM editors (not Moser) who rejected the HD proposal for inclusion in DSM-5 because the current body of literature failed to provide adequate empirical support for the construct. Even the principal investigator of the largest DSM-5 field trial on HD acknowledges there are limitations to our understanding of HD (Reid, this issue). My criticisms represent some of the issues that proponents of HD will need to
address if the HD construct is to be given serious consideration by APA and the larger psychiatric community in the future.

For the record, I acknowledged some individuals have a problem controlling their sexual behavior. I never suggested what the content of treatment should or should not be as Carpenter and Krueger assert. It is true that I proudly believe that “sexual expression in itself is natural, regardless of its form and degree of difference from what might be considered typical or within normal limits.” Critics of this perspective may need to consider whether they have an underlying sex negative bias inappropriately influencing their opinion. Throughout the history of psychiatry the view that “we” know what is healthy and what is pathological has destroyed the lives of countless individuals who engaged in same sex behavior, masturbation, and a constellation of other harmless sexual behaviors. That was not the golden age of psychiatry and the primary point of my paper was to warn that the HD has the same potential for misuse and abuse.
Measuring Hypersexual Behavior

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Georgia State University, Atlanta, Georgia

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Research on hypersexual behavior consisting of excessive and uncontrollable sexual fantasies, urges, and behavior has increased in recent years. Although no formal diagnosis for hypersexual behavior exists, criteria were proposed for Hypersexual Disorder (HD) for possible inclusion in the DSM-5 (Kafka, 2010). The present article aims to (a) review extant measures of hypersexual behavior, (b) compare the items on the existing measures to the proposed criteria of HD, and (c) evaluate which measures best reflect the proposed criteria. We present and review 32 measures, which fall into 3 categories: (a) clinical interviews, (b) self-report measures of general symptoms, and (c) self-report measures of consequences associated with hypersexual behavior. We conclude by providing recommendations for researchers and clinicians regarding use of these assessments.

The term hypersexual behavior (also referred to as sexual addiction, compulsive sexual behavior, or sexual impulsivity) refers to excessive and uncontrollable sexual fantasies, urges, and behaviors (Garcia & Thibaut, 2010; Kafka, 2010). Although there is currently no specific diagnosis relating to hypersexual behavior (Kaplan & Krueger, 2010), the Work Group on Sexual and Gender Identity Disorders has proposed diagnostic criteria for Hypersexual Disorder (HD; Kafka, 2010) to be considered for inclusion in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5).
HD has been characterized as a repetitive and intense preoccupation with non-paraphilic sexual fantasies, urges, and behaviors, which lead to adverse consequences and significant impairment in important areas of functioning. Patients meeting criteria for HD often use sexual fantasies, urges, and behaviors in response to dysphoric mood states or to cope with stress. Also, patients meeting criteria for HD have experienced multiple unsuccessful attempts to cut down or control the sexual fantasies, urges, and behaviors that have been problematic. Symptoms must last for a period of at least 6 months and occur independent of drug use, a general medical condition, or mania (see Table 1 for the proposed criteria).

Empirical research on hypersexual behavior has increased in recent years (for recent reviews, see Kafka, 2010; Kaplan & Krueger, 2010; Levine, 2012; Marshall & Briken, 2010) leading to considerable interest in developing measures that assess problematic hypersexual behavior (Hook, Hook, Davis,

TABLE 1 Proposed Diagnostic Criteria for Hypersexual Disorder

| A. | Over a period of at least 6 months, recurrent and intense sexual fantasies, sexual urges, or sexual behaviors in association with 3 or more 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 reduce 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 physiological effect of an exogenous substance (e.g., a drug of abuse or a medication). |
| D. | The individual is at least 18 years of age. |

Specify if:
Masturbation
Pornography
Sexual Behavior with Consenting Adults
Cybersex
Telephone Sex
Strip Clubs
Other:

Note. http://www.dsm5.org
Worthington, & Penberthy, 2010). For example, a recent review of measures examining problematic hypersexual behavior revealed a wide variety of instruments assessing this construct (Hook et al., 2010). The instruments varied widely in their psychometric properties. Many instruments were recently created, and thus the evidence supporting their reliability and validity were limited. Also, some instruments were studied only in specific populations, which may limit their generalizability for use in research and clinical settings. Overall, the review reflected the fact that research on hypersexual behavior is an emerging field, with many new instruments being developed in response to the demand for research on this construct.

One significant limitation of the previous review of measures (and of the field of hypersexual behavior in general) is that definitions of hypersexual behavior have not yet been consolidated. Although there are many similarities in how researchers define and operationalize problematic hypersexual behavior, there are also some differences reflected across studies. This is evident in the considerable debate regarding the best term or language used to describe problematic hypersexual behavior (e.g., Bancroft & Vukadinovic, 2004; Gold & Heffner, 1998), which has made measurement of hypersexual behavior a moving target. Not surprisingly, researchers have tended to use measures that align with their preferred and sometimes idiosyncratic definitions and conceptualizations. For example, some measures focused primarily on level of sexual activity (e.g., number of orgasms per week), whereas other measures focused on perceptions that the sexual behavior was out of control. Others attained information on the consequences of the hypersexual behavior.

As the field of hypersexual behavior develops, it is likely that definitions will begin to converge. The proposed diagnostic criteria of HD for the DSM-5 may provide a catalyst for the convergence of definitions. Indeed, the proposed diagnostic criteria have already generated ample debate (e.g., Halpern, 2011; Moser, 2011; Winters, 2010). As the definitions of hypersexual behavior begin to converge, it is likely that the measurement of hypersexual behavior will become more precise. However, given the variability of definitions, conceptualizations, and measurement of hypersexual behavior at this time, the purpose of the current review was to evaluate the extent to which existing measures of hypersexual behavior aligned with the proposed diagnostic criteria for HD. We have also updated the list of measures to include instruments not available at the time of the Hook et al. (2010) review.

METHOD

We reviewed empirical studies that utilized or described a measure of hypersexual behavior, sexual addiction, sexual compulsivity, or sexual impulsivity. Since symptoms must occur independently of a general medical condition
for HD to be diagnosed (Kafka, 2010), we excluded studies that assessed hypersexual behavior solely within the context of another condition (e.g., some measures assessing Parkinson’s disease include sub-sections that assess hypersexual behavior).

We conducted the literature search through August 25, 2012, and used three strategies. First, we consulted prior reviews of the literature (e.g., Hook et al., 2010) to identify existing measures. Second, we searched the PsycINFO and ProQuest databases using the following terms: sexual addiction, sexual compulsivity, sexual impulsivity, and hypersexual to identify empirical studies examining hypersexual behavior. We reviewed the method sections of these articles to identify any additional measures. Third, we examined the reference sections of the empirical articles in order to identify additional empirical articles. We again reviewed the method sections of these articles to identify any additional measures. Overall, we found 32 separate measures that examined hypersexual behavior.

After identifying the measures of hypersexual behavior that met inclusion criteria, we coded each item from each of the measures according to the proposed criteria for HD (see Table 1). Each item was coded as either assessing (or not) seven of the eight proposed diagnostic criteria (e.g., A3. Repetitively engaging in sexual fantasies, urges, or behaviors in response to stressful life events). Criterion D (i.e., the individual is at least 18 years old) was excluded from the analysis because no measure included any items assessing age. Two independent coders rated each item. A third independent coder resolved any discrepancies.

RESULTS

We identified three main types of measures, including (a) clinical interviews (4 instruments), (b) self-report measures that provided an overview of symptoms associated with hypersexual behavior (24 instruments), and (c) self-report measures that focused on the consequences associated with hypersexual behavior (4 instruments). Data describing the number of items that assessed the diagnostic criteria for HD are summarized in Table 2. We also report descriptive information for the number of diagnostic criteria assessed by each type of measure (see Table 3), as well as the number of items assessing each diagnostic criterion (see Table 4). We organize our review of instruments based on type of measure.

Clinical Interviews

Clinical interviews assessing hypersexual behavior are typically administered by trained professionals, and assess symptoms and consequences of
### TABLE 2 Analysis of Measures: Items per Proposed Hypersexual Disorder Criteria

<table>
<thead>
<tr>
<th>Measure</th>
<th>Criterion</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
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(Continued on next page)
TABLE 2  Analysis of Measures: Items per Proposed Hypersexual Disorder Criteria (Continued)

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Self-Report Consequences

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<td>13</td>
<td>23</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Compulsive Sexual Behavior Consequences Scale (CSBCS; Muench et al., 2007)</td>
<td>21</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>18</td>
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<tr>
<td>Hypersexual Behavior Consequences Scale (HBCS; Reid, Garos et al., 2012)</td>
<td>22</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Primary Appraisal Measure – Compulsive Sexual Behavior (PAM-CSB; Muench et al., 2007)</td>
<td>7</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

problem thoughts, urges, and behaviors. The format of the clinical interview, which allows communication between the administrator and the participant, has several strengths. Administrators can probe for more detailed answers or more thorough explanations of symptoms, and participants can ask for clarification on items that might be confusing or otherwise misunderstood. Clinical interviews may be less subjective than self-report measures, and often include open-ended questions that allow for additional information to be gathered. However, clinical interviews often require more time and energy to administer than self-report measures, and participants might feel uncomfortable discussing distressing sexual thoughts and behaviors verbally with another individual in certain settings.

The clinical interviews included in the present review varied in length (i.e., three instruments contained eight questions and one instrument contained 17 multi-part questions). Overall, the clinical interviews assessed a greater number of the proposed diagnostic criteria for HD than the self-report measures ($M = 5.25$ criteria per instrument), but did not provide

TABLE 3  Number of Proposed Hypersexual Disorder Criteria

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Interview</td>
<td>5.25</td>
<td>1.71</td>
<td>3.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Self-Report General</td>
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<td>1.72</td>
<td>1.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Self-Report Consequences</td>
<td>2.00</td>
<td>0.00</td>
<td>2.00</td>
<td>2.00</td>
</tr>
</tbody>
</table>
TABLE 4 Number of Items per Hypersexual Disorder Criterion

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Interview</td>
<td>1.82</td>
<td>3.02</td>
<td>0.00</td>
<td>16.00</td>
</tr>
<tr>
<td>Self-Report General</td>
<td>2.35</td>
<td>5.43</td>
<td>0.00</td>
<td>61.00</td>
</tr>
<tr>
<td>Self-Report Consequences</td>
<td>3.07</td>
<td>6.69</td>
<td>0.00</td>
<td>23.00</td>
</tr>
</tbody>
</table>

Much in-depth information for each criterion ($M = 1.82$ items per HD criterion). Thus, the clinical interviews may be useful for assessing the breadth of the proposed HD criteria, but may not provide detailed information about each criterion.

Examining the four instruments, the Hypersexual Disorder Diagnostic Clinical Interview (HDDCI; Reid et al., 2012) included items that fit all seven of the proposed HD diagnostic criteria we analyzed, and the Hypersexual Disorder Screening Inventory (HDSI; American Psychiatric Association, 2012) addressed six, but each measure only included one or two items per criterion. The Diagnostic Interview for Sexual Compulsivity (DISC; Morgenstern et al., 2009) assessed five of the seven criteria we analyzed, but included more items per criterion than the HDDCI. The Yale Brown Obsessive Compulsive Scale—Compulsive Sexual Behavior (YBOCS-CSB; Morgenstern et al., 2009) only included items that fit three of the criteria, but included at least two items per criterion.

Self-Report Measures of General Symptoms

Self-report measures of general symptoms provided an overview of hypersexual behavior or general symptoms associated with hypersexuality. The self-report measures generally used rating scales or yes/no answers, and tended to be more subjective than the other types of measures included in the present review (e.g., they often focused on the subjective perception of experiences and feelings). These self-report measures of general symptoms have several important strengths. The questions on these measures are usually quick and easy to answer, and considering the personal nature of the topic, participants may feel more comfortable completing a questionnaire than a face-to-face interview. Despite these advantages, self-report measures present several challenges for researchers and clinicians. Participants might misunderstand items or instructions and therefore provide inaccurate reports, or they may answer in a socially desirable way. There is also the potential for over-endorising symptoms to exaggerate or for underreporting hypersexual behavior due to the stigma and shame associated with such activities.

There was a great deal of variability in the length of the self-report measures of general symptoms ($M = 31.5$ items, $SD = 34.2$), as well as in the focus and content. Some measures were very broad in scope (e.g.,
Hypersexual Behavior Inventory; Reid, Garos, & Carpenter, 2011), while others were more specific (e.g., Cyber-Pornography Use Inventory; Grubbs, Sessoms, Wheeler, & Volk, 2010).

Overall, this general type of measure assessed fewer diagnostic criteria than clinical interviews but more than the self-report measures of consequences associated with hypersexual behavior \((M = 3.07)\). Similar to the other measures, self-report measures of general symptoms included relatively few items that assessed each criterion \((M = 2.35\) items per criterion). Self-report measures of general symptoms focused primarily on criteria A1 (i.e., excessive time), A4 (i.e., attempts to control or reduce behavior), and B (i.e., subjective distress), although there was a high degree of variability among the measures.

This group of measures also had the highest variability in terms of utility in assessing the diagnostic criteria of HD. The Hypersexual Disorder Questionnaire (HDQ; Reid et al., 2012) provided the most comprehensive assessment of the proposed criteria for HD (i.e., it assessed all seven criteria we analyzed) but only included one or two items per criterion, whereas the Compulsive Sexual Behavior Inventory (CSBI; Coleman, Miner, Ohlerking, & Raymond, 2001) also provided a thorough assessment of the diagnostic criteria (i.e., six out of seven criteria we analyzed) and included multiple items per criterion. Other measures included only one or two items within one criterion, and therefore would be less useful in establishing a broad picture of problematic hypersexual behaviors.

Self-Report Measures of Consequences

The third type of measure included in this review primarily assessed the consequences associated with hypersexual behaviors. The advantages and disadvantages of this type of measure are similar to those discussed for self-report measures of general symptoms, although the self-report measures of consequences included more objective items than the self-report measures of general symptoms.

The majority of self-report measures of consequences associated with hypersexual behavior were moderate in length \((M = 21.5\) items, \(SD = 11.9\)). In general, this group of measures did not address a majority of the proposed HD criteria (i.e., all measures addressed 2 out of 7 criteria we analyzed), but were thorough in their assessment of two of the seven criteria \((M = 10.6\) items each for criteria A5 and B). This type of self-report measure might be useful for providing a more in-depth assessment of subjective distress (criterion B) or the potential for harm (criterion A5) associated with problem hypersexual behaviors.

The Cognitive and Behavioral Outcomes of Sexual Behavior Scale (CBOSB; McBride, Reece, & Sanders, 2007) provided the most complete
assessment of the proposed HD criteria (13 questions for criterion A5, 22 questions for criterion B), in that it had the highest number of items for each criteria, though the Compulsive Sexual Behavior Consequences Scale (CSBCS; Muench et al., 2007) and the Hypersexual Behavior Consequences Scale (HBCS; Reid, Garos, & Fong, 2012) would also be useful in thoroughly assessing the A5 and B proposed criteria of HD.

DISCUSSION

Research on hypersexuality is in a formative stage, and the possibility that HD may be included in the DSM-5 has provided a catalyst for consolidating definitions and measurement strategies. Should HD get adopted into the DSM-5, the criteria may remain more stable. In the present review, we examined and summarized how well existing measures of hypersexuality relate to the proposed criteria for HD.

Several measures of hypersexual behavior address the proposed diagnostic criteria for HD and could therefore be useful assessment tools for researchers or clinicians interested in providing an accurate diagnosis of these criteria. Most notably, all items on both the HDDCI (clinical interview) and the HDQ (self-report of general symptoms) assess aspects of the proposed criteria, and both measures assess seven out of eight criteria for HD. Other measures such as the DISC and HDSI (clinical interviews), the HBI, ISST, and all versions of the SAST (self-reports of general symptoms) would also be useful for assessing HD because they include a multi-item assessment of at least five of the proposed criteria. Several measures (CBOSB, CSBCS, HBCS, DSI-SAS; SCS; CPUI) provide a thorough evaluation of one or two criteria and might be useful for assessing specific issues (e.g., subjective distress, risk of physical or emotional harm).

Although several measures fit exactly with the proposed criteria for HD, the majority of instruments examined in the present review did not. For example, one item on the CSBI (Coleman et al., 2001) asked participants how often they promised to change their sexual behavior. This item is similar to criterion A4 (i.e., repetitive and unsuccessful attempts to control or reduce sexual behaviors), but does not align with the criterion exactly. Similarly, one item on the SCS asked participants to rate a statement about feeling out of control when aroused (Kalichman et al., 1994). This item also relates to control of sexual behavior (criterion A4). However, neither item from the CSBI nor the SCS fit the criterion as well as one item from the HDQ, which specifically asked whether the participant had made unsuccessful attempts to reduce or control sexual behaviors (Reid et al., 2012). Therefore, some caution should be exercised in choosing measures to assess HD, because the majority of instruments were designed before the proposed diagnostic criteria were developed.
Criterion B (i.e., subjective distress) was the most thoroughly examined criterion among the measures (i.e., 29 out of 32 studies included at least one item addressing it). By contrast, criterion A3 (i.e., engaging in hypersexual behaviors in response to stress) was addressed by 12 measures, criterion A2 (i.e., engaging in hypersexual behaviors in response to dysphoric mood) was assessed by 8 measures, and criterion C (i.e., hypersexual behaviors not due to substances or medical conditions) was assessed by 4 measures. These three criteria were underrepresented among the measures included in this review.

Limitations

There are several limitations to the present review of measures. First, the proposed criteria for HD were developed relatively recently, and even the definition of “hypersexual behavior” has changed over time. Kafka (2010) outlined a more detailed list of criteria for possible inclusion in the DSM-5. Twenty-three of the measures included in this review (71.9%) pre-date Kafka’s criteria for HD. Only nine of the measures included in the present review (28.1%) were written after the proposed criteria for HD were established. Given the short existence of formal criteria for HD, most of the measures included in this review were not specifically designed to align with the proposed criteria. Of the 12 measures that addressed five or more criteria of HD, 7 were written after Kafka’s criteria were published (58.3%). It is likely that the measures that fit well with the proposed criteria did so because they were written after the criteria were proposed. In fact, four of the measures in this review were specifically tailored for HD as outlined by Kafka. Therefore, the poor fit of many measures to the proposed diagnostic criteria may be a product of the time at which they were written and the shifting nature of the definition of HD more so than a lack of utility.

Second, most of the measures only provide a partial picture of HD as outlined by its diagnostic criteria. Twenty out of thirty-two measures (62.5%) assessed four or fewer proposed criteria, making them less useful for a comprehensive diagnosis of HD than measures such as the HDQ that assess seven out of eight criteria.

Third, most of the instruments reviewed were self-report measures and subjective in nature. They relied on the participant to define “excessive” hypersexual thoughts, urges, and behaviors, and therefore may not accurately reflect the level of hypersexual behavior. It is possible that some participants might report higher levels of hypersexual behavior because they feel that any “unsuitable” thoughts or behaviors are “excessive” (e.g., individuals from conservative religious groups; Kwee, Dominguez, & Ferrell, 2007). On the other hand, some participants may fail to report significant levels
of hypersexual behavior due to stigma and shame surrounding “unsuitable” sexual thoughts, urges, and actions.

Finally, some of the proposed criteria for HD, such as A2 (i.e., engaging in behaviors due to dysphoric mood) and A3 (i.e., engaging in behaviors due to stressful life events) are somewhat similar to one another, and therefore are often addressed by the same item in a measure. For example, one item on the CSBI asks participants how often they use sex to cope with “worries or problems in your life” (Coleman et al., 2001). For items such as these, it may be difficult to differentiate between whether the participant is using hypersexual behavior in response to dysphoric mood states, stressful life events, or both. This lack of specificity makes it difficult to assess accurately each criterion.

Recommendations for Researchers and Clinicians

Based on the results from the present review, we provide several recommendations for researchers and clinicians wanting to assess HD as defined by the proposed diagnostic criteria. First, there are several instruments that have been created specifically to assess the proposed diagnostic criteria for HD. These measures provide a broad overview of the diagnostic criteria and are likely to be the best choice of measures if the researcher or clinician is looking for a brief instrument.

Second, if possible, we recommend that researchers and clinicians combine instruments and especially measurement methods to provide a more complete picture of a client’s problematic hypersexual behavior. For example, a self-report measure could be combined with a clinical interview. The self-report measure assesses the client’s subjective experience, whereas the clinical interview might generate more detailed information and clarify discrepancies or misunderstandings. Also, a measure of general symptoms could be combined with a measure of consequences associated with HD. The measure of symptoms could give a broad overview of HD, whereas the measure of consequences could clarify the extent to which a person’s hypersexual behavior is actually causing problems in one’s life. Finally, a subjective measure of general symptoms could be combined with an objective measure of sexual behavior (e.g., number of orgasms per week, number of hours spent viewing pornography; either self-report or via a clinical interview). Again, the measure of symptoms could give a broad overview of HD, whereas the objective measure of sexual behavior could clarify the extent to which a client’s views about his or her sexual behavior are normative. Ideally, a thorough assessment of hypersexual behavior would include (a) a self-report measure of general symptoms, (b) a self-report measure of consequences, (c) a clinical interview, and (d) an objective assessment of sexual behavior.
REFERENCES


*Indicates instrument used in the present review.
Personality Disorder Comorbidity in Treatment-Seeking Men with Hypersexual Disorder

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Consideration of Hypersexual Disorder as a diagnosable condition has led to recognition that various aspects of its psychopathology, including comorbidity, are largely unknown. Comorbidity with personality disorders (PDs) has been hypothesized, but the few studies assessing PD comorbidity are limited by sample size, recruitment methods, and varying definitions of hypersexuality. This study examines the presence of confirmed PD diagnoses among 132 men seeking treatment for Hypersexual Disorder, as diagnosed by the criteria proposed for DSM-5. The SCID-II Personality Questionnaire, a screening measure for DSM-IV-TR PDs, suggested potential disorders in 92% of the sample. However, only 17% of the sample met full criteria for a PD based on the SCID-II interview. Thus, whereas personality-based difficulty appears commonplace in these men, the broad, severe dysfunction required for a PD diagnosis does not. This prevalence is higher than expected for community samples, but lower than for either general clinic samples or that found in previous studies. The differences between this and previous studies may arise largely out of different sampling methods, suggesting that PD comorbidity among hypersexuals may be strongly influenced by other factors. Implications for clinicians and researchers are discussed.
The consideration of Hypersexual Disorder (HD) for inclusion in the *Diagnostic and Statistical Manual*—5th edition (DSM-5, APA, in press) has generated increased and more systematic attention to the various elements expected of DSM diagnoses. Basic data about key aspects of psychopathology provide a foundation for HD diagnosis; however, gaps exist regarding onset, course, epidemiology, and the like. One important area for understanding any disorder is that of comorbidity. These patterns of co-occurring conditions provide information about symptom overlap, potential areas of diagnostic confusion, the role of general versus specific vulnerability, risk patterns, potential for common underlying etiological factors, and how one disorder may contribute to developing another. A focus on comorbidity complements the extensive data already emerging on the psychological, behavioral, and sociological correlates of HD. In this study we examine the comorbidity of HD with Axis II personality disorders (PD).

There is no *a priori* expectation that Axis I conditions overlap with Axis II diagnoses, although about half do. PDs are found in about 10% of community adults (Sansone & Sansone, 2011) and about 14% of community adolescents (Johnson et al., 2000), but at much higher rates among psychiatric adults and teens (e.g., Feenstra, Busschbach, Verheul, & Hutsebaut, 2011; Zimmerman, Rothschild, & Chelminski, 2005). PDs, as pervasive, enduring, and early emerging conditions, by definition, are fertile soil for the development of many Axis I disorders. Furthermore, comorbidity is often associated with more severe psychopathology and high risk for negative prognosis (Crawford et al., 2008; Kessler, Chiu, Demler, & Walters, 2005). For example, as noted by Oldham et al. (1995), “When any personality disorder was present, there were significant odds that a mood, anxiety, psychotic, or eating disorder would also be present. . . .” (p. 571).

**PROPOSED LINKAGES**

**General Psychopathology**

Not surprisingly, a number of writers have suggested connections between HD and other psychopathology, and some data is available. Indeed, the proposed DSM-5 criteria for HD specify that hypersexual behavior is commonly “in response to dysphoric mood states (e.g., anxiety, depression, boredom, irritability)” and “in response to stressful life events,” a conceptualization that appears early in the literature (e.g., Coleman, 1987, 1990; Quadland, 1985). This connection to psychopathology has been challenged by studies with non-clinical populations, which generally find little if any association between sexual behavior, even when defined as deviant or extreme, and dysphoric mood or diagnosable psychopathology. For example, Rinehart and McCabe (1997) found that among college students, negative mood states are not more common among those with high versus low sexual desire.
Similarly, in a community-solicited sample of men, Brand et al. (2011) found that self-ratings of internet pornography addiction were only mildly associated with depression and not associated with anxiety. (However, with addiction scores of $M = 30.7 \ [SD = 9.2]$ on a 20–100 scale, we might speculate that the variance mostly assessed normal ranges of behavior rather than much actual “addiction” behavior).

In contrast, associated psychopathology is more commonly found among those reporting out-of-control sexual behavior or among those seeking help for HD behavior, highlighting the apparent discontinuity between normal sexual behavior and hypersexuality. For example, Black, Kehrberg, Flumerfelt, and Schlosser (1997) found that among a sample of 36 adults reporting compulsive sexual behavior, one-third had six-month and one-half had lifetime comorbidity for any anxiety disorder and about one-third had comorbidity for a depressive disorder. Raymond, Coleman, and Miner (2003), in a sample of 24 non-patient adults with sexual compulsivity, found a mood disorder among 33% and an anxiety disorder among 42%. Lloyd, Raymond, Miner, and Coleman (2007) found that in a sample of 85 patients treated for compulsive sexual behavior, 68% had comorbid mood disorders and 25% had anxiety disorders.

In a series of studies, Reid and colleagues examined effect sizes between HD client means and normal means on various measures of psychopathology. An MMPI-2 study (Reid & Carpenter, 2009a) indicated effect sizes of about .8 to 1.5 for scales on Depression, Hysteria, Psychopathic Deviate, Paranoia, Psychasthenia/Anxiety, and Schizophrenia. About one-half had a clinically elevated score on Psychasthenia/Anxiety, and about one-third on Depression. When patients were clustered into four groups, based on similar MMPI-2 clinical scale profiles, the largest group (38%) had essentially normal MMPI-2 profiles; clinically elevated scores on Depression and Psychasthenia/Anxiety were present in the remaining three groups. In a similar study with the MMPI-2 Restructured Clinical Scales (Reid & Carpenter, 2009b), they found effect sizes of about 1.3 for scale Demoralization, .6 for RC scale Low Positive Emotions and .4 for RC scale Dysfunctional Negative Emotions; interestingly, however, almost half of this patient sample had no clinical elevation on any RC scale. In a study with the SCL-90, the HD group differed reliably from normal controls on most symptom subscales, with about one-half to three-quarters falling into clinical ranges (Reid, Carpenter, & Lloyd, 2009). Finally, with the NEO-PI-R (Reid, Carpenter, Spackman, & Willes, 2008), HD clients had an effect size of 1.1 on the factor scale of Neuroticism, and 1.4 and 1.1 for facet scores of Depression and Vulnerability to Stress, respectively; about half had clinical elevations on Neuroticism and Depression, and about one-third on Stress Vulnerability. In summary, though seemingly not associated with high sex drive, dysphoric emotional states do appear to have a moderate to strong association with the out-of-control sexual behavior of a subset of HD individuals.
Various writers suggest connections between HD and PDs. For example, Carnes (1991) suggested that Cluster B (Antisocial, Borderline, Histrionic, Narcissistic) personality disorder traits are common among those with compulsive sexual behavior, with men more often displaying antisocial traits and women commonly displaying borderline, histrionic, and dependent traits. Montaldi (2002) proposed that many cases of hypersexuality “resemble the wider patterns of personality disorder” (p. 3), with hypersexual behavior as a form of acting out personal and interpersonal themes to validate the self, with mood regulation serving only a secondary function. Similarly, Montaldi suggested the nature of behavioral [dys]control is much like that seen in PDs and proposes an extensive list of parallels between HD and PDs, including patterns aligning with borderline, histrionic, narcissistic, ressentiment, and sadistic/masochistic personality styles.

**Proposed connections between specific personality disorders and Hypersexual Disorder.** In addition to speculations about overlap between HD and PDs broadly, several authors have proposed HD comorbidity with specific disorders. For example, Rickards and Laaser (1999) analyzed elements of Borderline PD and sexual addiction/compulsivity, concluding the two are strongly connected and will thus have substantial comorbidity. In light of their analysis of commonalities, they proposed that comorbidity between these two conditions would be common; therefore, when treatment is offered for one condition, many cases of the other condition are likely to go undiagnosed and untreated. Similarly, in an analysis of psychoanalytic literature and a case study, Williams (2006) proposed a link between HD and Borderline PD such that “borderline and narcissistic processes may govern sexually addictive behavior” (p. 246). In contrast, a review of charts among 85 patients treated for compulsive sexual behavior (Lloyd et al., 2007) found only one case which met diagnostic criteria for Borderline PD, with most symptoms of that disorder being uncommon in the sample. Lloyd et al. concluded that only a superficial relationship between the two conditions exists, such as sharing features of impulsivity or affective instability.

Kastner and Sellbom (2012) found that among a normal, male and female college student sample, psychopathic personality traits, as estimated from MMPI-2-RF scores, were associated with higher scores on various measures of excessive sexual behavior. Those with higher psychopathy scores also reported more sexual partners, more casual sex, and less need to be attached to sexual partners.

In spite of frequent arguments that HD is a compulsive act or arises from anxiety, there are essentially no speculations to tie HD to either Obsessive-Compulsive PD or to Avoidant PD. The notion of sexual compulsivity is commonplace, and the expectation that obsessive-compulsive tendencies make one vulnerable to HD are implicit in the label (indeed, a very reason many
object to the “sexual compulsivity” term). Even so, there is little explicitly on the topic except for proposed connections to Obsessive-Compulsive Disorder (not OCPD; e.g., Raymond, Coleman, & Miner, 2003; Stein et al., 1992), and much of those data are on obsessive and/or compulsive traits, without much focus on whether a disorder is present. For example, Rinehart and McCabe (1998) found that among a sample of male and female, mostly single, college students, those with higher levels of what they termed “deviant sexual behavior/desire” had scores on a measure of obsessive-compulsive behaviors that were not reliably greater than those with lower levels of deviant behavior/desire. However, both the sample (college students) and the measures (true deviance so rarely endorsed that they recoded—without adequate information—into “trends”) appear to examine variation arising primarily within the normal range.

Empirically supported connections between personality disorders in general and Hypersexual Disorder. Two studies have examined the prevalence of PDs among those with variants of HD. Using advertisements in a hospital newspaper, Black et al. (1997) recruited 28 males and 8 females who reported compulsive sexual behavior (only 2 respondents were excluded). Most were in their 20s, single, and had a high school education. Nearly half were students. Using the Structured Interview for DSM-III-R Personality Disorders, the authors found that 83% of the respondents qualified for at least one PD, with 31% who qualified for more than one PD diagnosis. They formed a consensus diagnosis by requiring matching diagnosis on a PD questionnaire (for which 82% received a PD diagnosis) and on an interview (83% received diagnoses); 44% received a consensus diagnosis for any PD diagnosis (revealing much inconsistency in the diagnoses from the two methods). The diagnoses were well distributed across various PDs, with Paranoid, Histrionic, and Passive-Aggressive being somewhat more common.

Raymond, Coleman, and Miner (2003) also recruited subjects through a newspaper advertisement, excluding many who did not meet criteria for non-paraphilic compulsive sexual behavior and distress or impairment, yielding a sample of 22 males and 2 females. Using the SCID-II, they found that 46% qualified for a PD diagnosis, and many of these qualified for more than one. Cluster C PDs were slightly more common, but diagnoses were well distributed across 7 of the 11 PDs. The non-data-driven speculations by other researchers described previously were largely not borne out by these data, in that Borderline and Antisocial PDs were not particularly common.

A number of limitations exist in previous investigations of the co-occurrence of HD and PDs, such as methods for recruiting study participants, varying diagnostic methods, and small sample sizes. This study seeks to address some of these limitations by examining the relationship between HD and PDs in a large sample of treatment-seeking individuals meeting proposed DSM-5 diagnostic criteria for HD.
METHOD

Participants

Participants were 132 males, all meeting criteria for HD who participated in a DSM-5 Field Trial (Reid et al., 2012). Participants were recruited from outpatient mental health treatment facilities in four states, some of which provide treatment for general psychiatric populations and some that specialize in the treatment of hypersexual behavior. All participants were diagnosed using the HD Diagnostic Clinical Interview, which is designed to align with the DSM-5 criteria for HD as currently proposed. Only those patients who were at least 18 years of age, were seeking treatment for out-of-control sexual behavior in an outpatient facility, and had an HD diagnosis were included in the study. Participants ranged in age from 20 to 66 (M = 40.4, SD = 11.4). Race was given as 91% White, 3% Hispanic, 5% Asian/Pacific and 1% African American; 27% were never married, 38% were in a first marriage, and 16% were in a second or more marriage; 36% had less than a college education, 27% had a bachelor’s degree, and 35% had an advanced degree; 89% described themselves as heterosexual, with 9% gay and 2% bisexual; 14% had annual incomes below $16,000, whereas 45% had incomes at or above $100,000; and 82% had full-time employment, with 5% students.

Measures

The HD Diagnostic Clinical Interview (HD-DCI) is a structured interviewed assessing each of the proposed DSM-5 criteria and patterned after traditional structured diagnostic interviews. A field trial of proposed DSM-5 criteria using the HD-DCI found high reliability and strong psychometric properties (further description and data regarding the measure are found in Reid et al., 2012).

The Hypersexual Behavior Inventory (HBI; Reid, Garos, & Carpenter, 2011) is a 19-item, three-factor, self-report measure assessing frequency of hypersexual behaviors as outlined in diagnostic criteria proposed for DSM-5. The scale, yielding a total score and subscale scores assessing elements of control, coping, and consequences of HD, has high reliability (α = .95) and good convergent and discriminant validity. HBI total scores ≥ 53 are considered clinically significant.

The Structured Clinical Interview for DSM Axis II Personality Disorders (SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997) was developed to assess diagnostic criteria for each PD. The SCID-II assesses eleven DSM-IV Personality Disorders (including Personality Disorder NOS) as well as Depressive Personality Disorder and Passive-Aggressive Personality Disorder. The Personality Questionnaire for Axis II personality disorders (PQ) is an attendant, self-report measure intended to screen for major symptoms of each disorder. For this study, if sufficient symptoms on the PQ were reported (thresholds as recommended in the SCID-II manual), the appropriate SCID-II
Personality Disorder Comorbidity in Men with HD

TABLE 1  Axis II Personality Disorders in Men with Hypersexual Disorder (N = 132)

<table>
<thead>
<tr>
<th>Personality Disorder</th>
<th>Threshold Score Elevation</th>
<th>Personality Questionnaire Positive Screen</th>
<th>Clinician-Administered SCID-II Interview Qualified for Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Paranoid</td>
<td>≥ 4/7</td>
<td>34</td>
<td>26</td>
</tr>
<tr>
<td>Schizotypal</td>
<td>≥ 5/9</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Schizoid</td>
<td>≥ 4/7</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Histrionic</td>
<td>≥ 5/9</td>
<td>21</td>
<td>16</td>
</tr>
<tr>
<td>Narcissistic</td>
<td>≥ 5/9</td>
<td>70</td>
<td>53</td>
</tr>
<tr>
<td>Borderline</td>
<td>≥ 5/9</td>
<td>63</td>
<td>48</td>
</tr>
<tr>
<td>Antisocial</td>
<td>≥ 3/7</td>
<td>30</td>
<td>23</td>
</tr>
<tr>
<td>Avoidant</td>
<td>≥ 4/7</td>
<td>52</td>
<td>39</td>
</tr>
<tr>
<td>Dependent</td>
<td>≥ 5/8</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Obsessive-Compulsive</td>
<td>≥ 4/8</td>
<td>89</td>
<td>67</td>
</tr>
<tr>
<td>Passive-Aggressive</td>
<td>≥ 4/7</td>
<td>41</td>
<td>31</td>
</tr>
<tr>
<td>Depressive</td>
<td>≥ 5/7</td>
<td>45</td>
<td>34</td>
</tr>
</tbody>
</table>

interview was administered, with diagnoses made on the basis of interview results.

PROCEDURE

Current clients at the onset of the DSM-5 Field Trial and consecutive admissions afterwards were invited to participate if their presenting complaint was out-of-control sexual behavior. Response rates for the DSM-5 Field Trial averaged across the sites resulted in 73% of subjects accepting the invitation to participate. Participants completed the self-report measures and were then scheduled for an interview by a mental health professional trained in the HD-DCI and the SCID-II. All received the HD-DCI interview, and those who exceeded threshold scores on the PQ (see Table 2) also received relevant portions of the SCID-II administered by a doctoral level clinical psychologist with 10 years of experience. Only participants who met the criteria for HD were included in this analysis. Additional information regarding study methods for the DSM-5 Field Trial have been described elsewhere (Reid et al., 2012). All study procedures were approved by the Intuitional Review Board at the University of California Los Angeles and all patients signed informed consent prior to participation.

RESULTS

Applying the recommended screening threshold scores, the PQ indicated the possibility of at least one PD in 121 of the 132 subjects (92%). Thus, nearly all
participants were administered at least one module of the SCID-II. Many met screening thresholds for multiple PDs; for example, 84 (64%) exceeded the threshold for 3 or more PDs, and 29 (%) exceeded the threshold for 6 or more PDs. The numbers of subjects exceeding each threshold screening score are found in Table 1. Based on PQ results, the most common interview modules administered were for Obsessive-Compulsive, Narcissistic, and Borderline PDs, whereas Dependent, Schizoid, and Schizotypal PD modules were rarely indicated.

Correlations between HBI total scores and PQ scores are found in Table 2. Because the sample only includes individuals with elevated HBI scores, HBI variance is restrained; thus, the resulting correlations may be attenuated. Even so, these data suggest that attributes reflected in several of the PDs are associated with greater levels of hypersexual dysfunction. Indeed, the HBI scores of the 22 participants ($M = 81.2$) receiving PD diagnoses were generally higher than those without diagnosed PDs ($M = 72.8$), $t(130) = 3.07$, $p < .001$. That is, participants with greater levels of hypersexual behavior indicated a somewhat greater degree of personality dysfunction, most notably reflected in Borderline, Narcissistic, Paranoid Depressive, and Passive-Aggressive PD symptoms.

In contrast to the screening measure, SCID-II data suggested that relatively few of these persons actually met DSM-IV PD diagnostic criteria. Collectively, 22 people (17%) met criteria for 25 PDs (one person qualified for two, and one qualified for three). This is somewhat greater than the general population base rate for any PD (about 10%), but below the base rate for clinical samples. As shown in Table 1, Narcissistic PD was most commonly diagnosed and was the only particular PD to meaningfully exceed the general population base rate and the only one to be approximately as high as general outpatient clinic base rates.
DISCUSSION

These data suggest that persons seeking treatment for Hypersexual Disorder are at modestly elevated risk for comorbid personality disorders. The rate of PDs among such persons is not quite twice that compared to the general population, but only about one-third that typically found in persons seeking help for psychiatric conditions. This elevated risk indicates that clinicians should explore the possibility of PDs among their hypersexual patients, although comorbidity will not be particularly common. There are, of course, other psychiatric conditions which have similar, lower-than-average rates of concurrent PD. Even so, this suggests that the development of hypersexual behavior will probably not be well-explained by the broad, extreme, personality-based dysfunction of diagnosed PDs, even if underlying personality variability not necessarily exceeding diagnostic thresholds might have some explanatory power.

The relatively low rates of PDs in our sample are especially important for clinicians, who often hold implicit theories of addictions related to personality. For example, there has been a long-standing view, often still asserted, that addicts of all kinds have an “addictive personality,” which has never been identified in research despite many studies on the topic (Nathan, 1988). Clinicians, as well as researchers, also may believe, by definition, that anyone with an addiction must have personality problems; this stance is typically based in fear, ignorance, or negative emotional attitudes toward addiction clients (Imhof, 1996). Clinicians in the current era, as in past eras, typically do not get formal training in addictions and may hold stereotyped views of patients with addictive-like disorders. Thus, our findings may be especially important in helping provide a more accurate, nuanced understanding of HD, especially as it presents in treatment-seeking samples of men most commonly seen in outpatient clinical practice by providers. What is not present with regard to HD is just as important as what is.

A comparison to other published data is instructive. For example, Reid and Carpenter (2009a), when clustering hypersexual patients into homogeneous groups based on MMPI-2 scores, found the largest cluster (about one-third of participants) to have normal profiles lacking any indication of other pathology. A relatively small proportion had highly deviant profiles (which are also those most likely to indicate PDs). Also consistent with these data, Lloyd et al. (2007) found only one case of Borderline PD among 85 patients in treatment for compulsive sexual behavior. Thus, there is some evidence that broad, highly deviant dysfunction is not common among treatment-seeking hypersexual patients.

These data, however, are in contrast to the earlier studies of Black et al. (1997) and Raymond et al. (2003). Both studies found substantially more comorbid PD among their participants, although our results for the pre-interview questionnaire are not dramatically different from the questionnaire.
results of Black and colleagues (1997). The questionnaire data indicated a substantial number of positive screens for possible PD symptoms, but most patients did not meet full diagnostic criteria upon follow-up during clinical interview. We suspect that at least some of this difference can be explained by the different methods of subject recruitment. Both of these earlier studies recruited through newspaper advertisements, and both had rather small sample sizes. Neither of the earlier studies gave any indication that their participants were seeking treatment for hypersexual behavior. In contrast, all participants in this study were treatment-seeking specifically for hypersexual behavior, usually through a specialty clinic. Moreover, the subjects in this study were assessed as hypersexual based on self-report measures and a diagnostic interview for HD by two separate raters. Although there is a lack of extensive data, the recruitment methods employed by our research group over the past decade have generally captured participants who are older, tend to wait until their thirties or forties before seeking treatment despite reporting the onset of their dysfunctional behavior to be in the teen years, are smarter than average, and are mostly financially well-off (perhaps a prerequisite for treatment for a condition usually not covered by insurance). It’s plausible therefore, that individuals seeking treatment for HD, on average, are generally highly functional. Thus, we may find different rates of comorbidity in other hypersexual populations, such as community samples or those seeking treatment primarily for other Axis I conditions.

The stark differences between the rates suggested by the PQ and those of the full interview are troubling. A screening instrument is best designed to be sensitive to pathology rather than specifics, but the PQs inability to rule out most negative cases puts its utility into question. It does reduce the number of interview modules required, but should not be interpreted by itself as indicative of pathology.

Finally, understanding comorbidity with HD requires understanding of associations with Axis I disorders. Indeed, the diagnostic criteria of HD suggest comorbid difficulties with anxiety disorders, mood disorders, substance-abuse, and attention-deficit disorders. Our understanding of the modest number of HD cases in which a PD is present will be enhanced by a complete picture of its pathology.

REFERENCES


Hypersexuality and Recidivism among Sexual Offenders

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Hypersexuality is a dimensional indicator of sexual interest and behavior and typically includes the frequency, intensity, and time consumed by sexual activity. Hypersexuality has been identified as a psychologically meaningful risk factor for sexual offending. In fact, a relatively high proportion of sexual offenders report hypersexual behavior and this construct seems to be associated with re-offending in these men. The purpose of the present longitudinal investigation was to examine the rate of an objective, behavioral indicator of hypersexuality (Total Sexual Outlet) among 586 adult male sexual offenders and to determine the predictive utility of Total Sexual Outlet utilizing one of the longest follow-up periods used with sexual offenders (up to 20 years). Results indicated that approximately 12% of men met the clinical criterion for hypersexuality and that the presence of this construct was significantly associated with long-term sexual and violent recidivism. Results are discussed in terms of the importance of hypersexuality as an empirically supported risk factor and treatment target among sexual offenders.

Hypersexuality is a dimensional measure of excessive sexual fantasies, urges, and/or behaviors and is considered part of a symptom cluster of several psychiatric conditions (e.g., Bipolar Disorder, Dementia). Although hypersexuality is most commonly associated with paraphilic sexual interest (Kingston, in press; Kingston & Firestone, 2008), a growing body of evidence has shown that such acts can involve culturally sanctioned behaviors. Such normophilic behavior can be manifested as impersonal sexual activity (e.g., frequent masturbation, pornography use) and/or as relational sexual acts (e.g., sex...
Hypersexuality that involves culturally normative sexual outlets has been posited as a fundamental criterion of a putative psychiatric disorder labeled Hypersexual Disorder (Kafka, 2010) and was recently proposed, but ultimately rejected, for inclusion in the upcoming DSM-5 (www.dsm5.org).

One of the problems in identifying hypersexuality is the point at which sexual behavior becomes excessive and problematic for an individual. Several researchers have criticized the notion of hypersexuality and the putative nosological diagnosis of hypersexual disorder as attempts to pathologize healthy, albeit high, sexual drive (Giles, 2006; Moser, 2011). Nevertheless, there have been several attempts to operationally define hypersexuality based on statistical norms (see Kingston & Firestone, 2008 for a review).

Initially, Kinsey, Pomeroy, and Martin (1948) described a quantifiable index of sexual frequency, termed total sexual outlet (TSO), which was defined as the number of orgasms achieved through any combination of methods (e.g., intercourse, masturbation) during a specific week. Based on this index, several studies have shown that few males (3%–6%) report a sexual outlet of seven or more times per week, and that this level of sexual activity is rarely sustained over time (e.g., Janus & Janus, 1993; Kinsey et al., 1948). Kafka (1997) proposed that hypersexuality be characterized by at least seven orgasms per week, over a period of at least 6 months, and that individuals would spend an average of at least 1 to 2 hr per day engaged in sexual activity. Such activity must also be associated with personal distress or adverse consequences.

Längström and Hanson (2006) analyzed data obtained from the 1996 national survey of sexuality and health in a large Swedish community sample (n = 2450). Several sexual outlets were examined, such as masturbation and number of sexual partners, and behavioral infrequency was identified using an integer cut-point near the 90th percentile. A high frequency of masturbation, defined as 15 times or more per month for men and 5 times or more per month for women, identified just over 10% of the sample for each gender. In terms of number of sexual partners, a rate of three or more per year for men and two or more per year for women identified 10% of men and 12.3% of women. It should be noted that Längström and Hanson (2006) distinguished between impersonal and relational sexual activity, suggesting that only the former was associated with adverse outcomes. As such, type of sexual outlet is likely an important factor to consider in sexuality research.

The number of sexual outlets experienced per week is an easily quantifiable index of sexual activity and studies have utilized this measure with paraphilic populations. Kafka and Hennen (2003) investigated TSOs among 120 individuals with paraphilic and paraphilia related disorders. Results indicated that 80% of individuals reported their sustained TSO (i.e., over an
average of 6 years) to be greater than seven times per week and that they engaged in sexual behavior for a significant period of time (approximately 1–2 hr per day), thus satisfying the above noted criterion for hypersexuality. Importantly, this rate was drastically higher than typically found in large community samples (Kinsey et al., 1948; Laumann, Gagnon, Michael, & Michaels, 1994).

Hypersexuality and Sexual Offending

There are relatively few empirical investigations examining the prevalence of hypersexuality and hypersexual disorder among sexual offenders. Initially, Carnes (1989) suggested that approximately 50% of sexual offenders would exhibit hypersexual features, although he provided no empirical data supporting these figures. Subsequent studies, however, have supported Carnes’ claims. For example, Blanchard (1990) administered self-report measures along with detailed file review and found that 55% of his sample of sexual offenders ($n = 107$) met criteria for sexual addiction, although his criteria were not clear and the reliability of his diagnosis was not reported.

More recently, Marshall and colleagues (Marshall & Marshall, 2006; Marshall, Marshall, Moulden, & Serran, 2008; Marshall, O’Brien, & Kingston, 2009) have examined the prevalence of hypersexual behavior by self-report in samples of incarcerated sexual offenders and they have compared these rates with socio-economically matched community controls. Hypersexual behavior was determined using a clinical cut-off score on a measure of “sexual addiction” (SAST; Carnes, 1989). Results were generally consistent with data reported by Carnes (1989) and Blanchard (1990), such that approximately 44% of sexual offenders were considered to be hypersexual, whereas 18% of the socio-economically matched community controls met the criterion.

Features of hypersexual disorder (e.g., sexual self-regulation problems, the drive for impersonal sex, and compulsive masturbation) are essential components among several multi-factorial theories and developmental models of sexually coercive behavior (Malamuth, 2003; Ward, Polaschek, & Beech, 2006). The confluence model (Malamuth, 2003), for example, was constructed from research demonstrating that sexual aggressors possess several key characteristics, which are present both developmentally and at the time of aggression. These characteristics have been empirically reduced into two main clusters of characteristics, or paths, labeled Hostile Masculinity and Impersonal Sex. Of relevance to the present study, the Impersonal Sex path is characterized by a noncommittal, game-playing orientation toward sexual activity and reflects individual differences in the willingness to engage in such acts without closeness or commitment (Malamuth, 2003). Knight and Sims-Knight (2003, 2004) have also emphasized the role of hypersexuality in
adult and juvenile sexual offenders; although emphasis is placed on sexual drive, sexual preoccupation, and sexual deviance, rather than promiscuity and a preference for impersonal sex, as these former variables differentiated sexually coercive and non-coercive males.

A number of investigations utilizing self-report among college males have shown that sexually coercive males report higher levels of sexual behaviors and fantasies, including number of sexual partners, when compared to non-coercive males (Abbey et al., 1998; Malamuth, 2003; Malamuth, Linz, Heavey, Barnes, & Acker, 1995). With regard to forensic samples, Gebhard, Gagnon, Pomeroy, and Christenson (1965) found that sexual offenders had more extensive sexual experiences, such as number of sexual partners, than non-offending men. Similarly, Knight and colleagues (2003, 2004), have reported that sexual drive and sexual preoccupation discriminated sexually coercive males from non-coercive males and that such features of hypersexuality were correlated with pornography use, offense planning, and self-reported hostility toward women (Knight, 1999; Knight & Sims-Knight, 2004). More recently, Lussier, Leclerc, Cale, and Proulx (2007) examined the developmental antecedents to sexual offending in 553 adult male sexual offenders and found elements of impersonal sex, sexual compulsivity, and sexual preoccupation to be important predictors of sexual coercion.

Hanson and Harris (2000) identified sexual preoccupation (generally defined as recurrent sexual thoughts and/or behaviors directed toward numerous casual or impersonal sexual encounters) as one of the most important dynamic risk factors for sexual offending; a finding that was replicated by Hanson, Harris, Scott, and Helmus (2007). In one of the most recent and comprehensive meta-analyses of adult male sexual offenders (n = 1,119), Hanson & Morton-Bourgon (2005) found that sexual preoccupation was significantly associated with sexual recidivism (d = .39) and any violent recidivism (d = .28).

The purpose of this longitudinal study was to add to the existing literature by examining the rate of hypersexuality in a large sample of adult male sexual offenders and to determine the relationship between one of the behavioral criteria (TSO) of hypersexual disorder and long-term sexual and violent recidivism in sexual offenders. Although this study omitted other criteria proposed for hypersexual disorder, the results provide insight that might allow future researchers to consider the possible overlap between sex offending behavior and characteristics associated with hypersexual disorder. This investigation incorporates one of the longest follow-up periods in the examination of hypersexuality and sexual offending. We hypothesized that hypersexuality would be significantly associated with long-term sexual and violent recidivism. Moreover, we predicted that hypersexuality would be significantly associated with recidivism after controlling for other established risk factors for future offending.
METHOD

Participants

Participants were 586 adult men who had been assessed between 1982 and 1996 at a university affiliated forensic Sexual Behaviors Clinic. All participants voluntarily signed an informed consent form at the time of their assessment permitting use of their anonymous data for research; this research study was approved by the institutional ethics board. The clinic provides assessment and treatment to men and women with problematic sexual behaviors (criminal and non-criminal).

All participants had been charged or convicted of a contact (i.e., hands-on) sexual offense against an adult \( (n = 86) \) or child who was under the age of 16 years at the time of the offense; child victims were either related (e.g., biological children, step-children; \( n = 295 \)) or unrelated to the offender \( (n = 205) \). The average age of the sample was 38.1 years \( (\text{Range} = 18–78; \ SD = 12.0 \text{ years}) \) and the average education level was 10.8 years \( (SD = 3.6 \text{ years}) \). Approximately 67% of the participants reported being married or had at least one prior charge or conviction for a previous sexual offense, 32% had previous violent (including sexual) offenses, and 48% had prior criminal offenses.

Materials and Procedure

Hypersexuality was assessed using a quantifiable index of sexual frequency (i.e., total sexual outlet; TSO). TSO was defined as the number of orgasms achieved through any combination of methods (e.g., intercourse, masturbation) during a specific week (Kinsey et al., 1948). In the initial intake questionnaire, participants were asked what the average number of orgasms they experienced in a typical week through any combination of methods (e.g., masturbation, sexual activity with a partner) during the previous year.

The Sex Offender Risk Appraisal Guide (Quinsey, Harris, Rice, & Cormier, 1998, 2006) was developed by integrating variables associated with violent recidivism, extrapolated from the Violence Risk Appraisal Guide (Quinsey et al.), with the addition of items associated with sexual offending (e.g., deviant sexual preference). The measure consists of 14 items measuring criminal history, demographic information, early behavior problems, and psychiatric diagnoses, and is particularly comprehensive. SORAG scores can range from \(-27\) to \(+51\), which can be divided into nine equal-sized risk “bins.” The predictive validity of the SORAG for both sexual and violent recidivism has been supported in a variety of studies (e.g., Hanson & Morton-Bourgon, 2007; Harris & Rice, 2003; Kingston, Seto, Firestone, & Bradford, 2010; Looman, 2006).

Scoring of the SORAG adhered to coding guidelines (Quinsey et al., 2006); however, given our use of a preexisting database, there were slight
coding deviations. There were several deviations involving demographic information and offense characteristics, which have been described in detail elsewhere (see Nunes, Firestone, Bradford, Greenberg, & Broom, 2002 for a more complete description). For example, the “never married” item on the SORAG was scored based on whether the offender reported that he had ever been married or lived in a common-law relationship, regardless of the amount of time he had cohabitated with his partner. Items that were unavailable in our database pertaining to the SORAG (“elementary school maladjustment”) were scored as zero, consistent with Nunes et al. (2002). It should be noted that such modifications have not been found in other research to detract from these instruments’ predictive validity (Kingston & Firestone, 2008; Kingston et al., 2010; Nunes et al., 2002).

The dependent measures in this study were organized in a cumulative hierarchical manner. This classification method is similar to other studies (Firestone, Kingston, Wexler, & Bradford, 2006; Rice, Quinsey, & Harris, 1991) and allows for the inclusion of sexually motivated offenses that may not have resulted in a conviction for a sexual offense, such as in plea bargains (Rice, Harris, Lang, & Cormier, 2006).

Recidivism data were obtained from the Canadian Police Information Centre (CPIC), a national database of criminal arrests and convictions. Recidivism categories included: sexual recidivism, defined as any charge or conviction for a sexual offense (e.g., invitation to sexual touching); and, violent (including sexual) recidivism, which was defined as any charge or conviction for a violent and/or sexual offense (e.g., assault, assault causing bodily harm, invitation to sexual touching). Recidivism was calculated to include all offenses, regardless of when these offenses occurred during the follow-up period in order to capture all recidivism evident during the follow-up period. Survival analyses included only the first incident of recidivism, rather than all incidents of recidivism.

Follow-up time and opportunity to re-offend were dependent on individuals’ initial assessment date at the clinic, which varied between 1982 and 1996. The at-risk period was calculated as the latest of three possible incidents: (a) date of conviction; (b) date of assessment; or, (c) date of release if incarcerated. The at-risk period ended either when a new charge or conviction was incurred or at the study end date if no recidivism was evident. It should be stressed that, because recidivism in this study reflected only detected charges or convictions, recidivism rates were likely underestimates of actual re-offense rates, since some men who re-offended would not have been apprehended.

All data analyses were performed using the Statistical Package for the Social Sciences (SPSS, version 18). Predictive accuracy was evaluated using TSO as both a continuous and dichotomous variable (using a TSO of 7 as an indicator of hypersexuality). In terms of TSO as a continuous variable, the area under the curve (AUC) of the receiver operating characteristic (ROC)
was calculated. AUC values have an advantage over other common indices of predictive accuracy (e.g., Pearson’s correlation coefficient), as they are less affected by recidivism base rates or selection ratios (Rice & Harris, 1995, 2005; Swets, 1986), although they are also influenced by the amount of variability in the putative predictor. AUC values, which can range from 0 to 1, can be interpreted as the probability that a randomly selected recidivist has a higher score on a particular measure than a randomly selected non-recidivist. A value of 1 represents perfect prediction, while a value of .5 indicates chance prediction. For descriptive purposes, AUC values of .56, .64 and .71 can be described as small, medium, and large, respectively (Rice & Harris, 2005).

Next, chi square analyses were conducted to examine the base rates of sexual and violent (including sexual) recidivism among individuals with and without hypersexuality. We followed with survival analyses to examine rates of failure across the recidivism outcomes between individuals with and without hypersexuality.

Cox regression analyses were specifically conducted to evaluate the unique contribution of hypersexuality as a predictor of recidivism after controlling for risk to re-offend. Cox regression estimates relative risk ratios (hazard rates) and controls for important covariates (e.g., actuarially estimated risk to re-offend). Cox regression analyses produces an exponent, reported as \( \text{Exp}(\beta) \), that can be interpreted as a rate ratio, defined as the change in recidivism rate for each unit change in the predictor variable. For categorical predictors such as our cutoff for hypersexuality, \( \text{Exp}(\beta) \), is the ratio of the estimated hazard for a case with the characteristic to that of a case without the characteristic (i.e., relative risk).

**RESULTS**

The average TSO among the entire sample was low \((M = 2.3; SD = 2.9)\). Approximately 12% of the sample met the TSO clinical criterion for hypersexuality \((TSO \geq 7)\). Average TSO was compared across offender type and there was a significant effect, \(F(2, 557) = 4.04, p < .018\). Post-hoc analysis (Tukey) revealed that rapists reported a higher TSO \((M = 2.85; SD = 3.09)\) than incest offenders \((M = 1.97; SD = 2.96)\). Extra-familial child molesters also reported a higher TSO \((M = 2.55; SD = 2.69)\) than incest offenders but this difference did not reach statistical significance.

**Recidivism Outcome**

The follow-up period in the present study ranged up to 20 years \((\text{Mean} = 10.56; SD = 4.33)\). The overall recidivism rates in this study were 16.7% for sexual recidivism and 27.5% for violent (including sexual) recidivism.
We first examined the predictive accuracy of TSO as a continuous variable with regard to sexual and violent recidivism. TSO was significantly associated with sexual recidivism (ROC = .65; 95% CI = .58 – .71) and violent (including sexual) recidivism (ROC = .67; 95% CI = .61 – .72). However, as noted earlier, the majority of participants’ TSO scores fell below the criterion for hypersexuality. As such, we were interested in comparing men with and without hypersexuality.

The base rates of the two recidivism outcomes were examined among individuals who met the cutoff for hypersexuality (TSO ≥ 7) and individuals who did not meet the criterion for hypersexuality (TSO < 7) using chi square and survival analysis. As seen in Table 1, there was a dependent relationship between whether or not someone had met the cutoff for hypersexuality and sexual recidivism, $\chi^2 (df = 1, n = 564) = 13.70, p < .001, \Phi = .16$, as well as violent (including sexual) recidivism, $\chi^2 (df = 1, n = 564) = 37.53, p < .001, \Phi = .26$. In order to further test the dependent relationship between hypersexuality and long-term recidivism, differences between observed and expected values within each cell (i.e., the adjusted standardized residuals) were examined. Departures from independence were noted for both types of outcomes; that is, individuals who met the cutoff for hypersexuality were more likely to have sexually ($z = 3.7$) or violently ($z = 6.1$) reoffended than would be expected by chance.

Kaplan-Meier survival analyses paralleled the results of the chi square analyses but allowed for examination of pairwise differences among the groups while controlling for individual differences in follow-up time. Results for sexual and violent (including sexual) recidivism are graphically presented in Figure 1. Individuals who met the criterion for hypersexuality demonstrated significantly higher sexual recidivism rates than individuals who were not deemed to be hypersexual (log rank $\chi^2 [1, N = 564] = 16.81, p = .001$). With respect to violent (including sexual) recidivism, individuals who met the criterion for hypersexuality demonstrated significantly higher failure rates than individuals who were not deemed to be hypersexual (log rank $\chi^2 [1, N = 564] = 17.95, p = .001$).

A series of Cox regression survival analyses were used to examine the unique contribution of our categorical hypersexuality variable, after controlling for risk to re-offend. SORAG score was entered as a covariate in the first block of each analysis, to control for risk. Following this, hypersexuality

### Table 1

<table>
<thead>
<tr>
<th>Total Sexual Outlet</th>
<th>n</th>
<th>Sexual</th>
<th>n</th>
<th>Violent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypersexuality Present</td>
<td>22</td>
<td>32.4</td>
<td>40</td>
<td>58.8</td>
</tr>
<tr>
<td>Hypersexuality Absent</td>
<td>72</td>
<td>14.5</td>
<td>116</td>
<td>23.4</td>
</tr>
<tr>
<td>Chi square (p-value)</td>
<td>94</td>
<td>13.70 (&lt;.001)</td>
<td>37.53 (&lt;.001)</td>
<td></td>
</tr>
</tbody>
</table>
FIGURE 1 Survival analyses: Cumulative failure rates for sexual (top chart) and violent including sexual (bottom chart) recidivism. Note: Individuals with hypersexuality have significantly higher rates of sexual recidivism (top chart) and violent (including sexual) recidivism (bottom chart) than offenders without hypersexuality; $p < .001$. 
was entered as a block. The dependent variables were sexual and violent (including sexual) recidivism.

With regard to sexual recidivism, the SORAG was significantly related to outcome, $\chi^2 (1, N = 586) = 13.74, p < .001$. Specifically, a one unit increase on the SORAG increased the hazard rate by 47% ($e^{.38}$). In the second block, the role of hypersexual approached significance, after controlling for risk, $\chi^2 (1, N = 586) = 2.9, p = .093$. The presence of hypersexual increased the hazard rate by 9% ($e^{.08}$). Similarly, the SORAG was significantly related to violent (including sexual) recidivism, $\chi^2 (1, N = 586) = 18.25, p < .001$. Specifically, a one unit increase on the SORAG increased the hazard rate by 48% ($e^{.39}$). In the second block, the role of hypersexual approached significance, after controlling for risk, $\chi^2 (1, N = 586) = 3.54, p = .063$. The presence of hypersexual increased the hazard rate by 9% ($e^{.08}$).

**DISCUSSION**

The primary goals of the present study were to examine the rate of TSO (a major behavioral criterion of hypersexual disorder) in a relatively large sample of adult male sexual offenders and to determine the predictive utility of TSO on long-term sexual and violent recidivism. In our sample, the average self-reported TSO was low and only 12% of individuals met the criterion for hypersexuality ($\geq 7$ orgasms per week). With regard to type of sexual offender, both rapists and extra-familial child molesters reported a higher TSO than incest offenders, although only the former relationship was statistically significant.

The rates of hypersexual reported in this investigation were below rates reported in several other studies (see Blanchard, 1990; Marshall et al., 2009) but are similar to studies employing more objective criteria. For example, Hanson, Harris, Scott, and Helmus (2007) reported that 11.3% of their sample of adult male sexual offenders on community supervision met the criterion for sexual preoccupation (a score of 2 on the Stable 2007). More recently, Briken (2012) examined a representative sample of 244 adult male sexual offenders with child victims. Results indicated that approximately 9% met the diagnostic criteria for Hypersexual Disorder, as delineated in the proposed DSM-5 criteria (www.dsm5.org).

In the present study, we also examined the extent to which hypersexual was associated with long-term sexual and violent recidivism. Results showed that individuals who were deemed hypersexual were more likely to re-offend with either a sexual or violent offense than individuals who were not hypersexual. In terms of predictive accuracy, TSO was a moderate individual predictor of recidivism and the effect was similar to results reported in previous studies (e.g., Knight & Thornton, 2007) and meta-analyses (Hanson & Morton-Bourgon, 2005). These results support the notion that
Hypersexuality is a relatively strong individual predictor of sexually violent recidivism and that the construct represents a psychologically meaningful risk factor (see Mann, Hanson, & Thornton, 2010).

It is important to note, however, that the relationship between hypersexuality and recidivism in our study was no longer upheld when controlling for risk, as operationalized by the SORAG, although the effect approached significance. Although it is plausible that hypersexuality is not a valuable risk indicator after considering more established risk factors, we suggest that the limitations associated with our measurement of hypersexuality (see below) may be attenuating the effect. Future investigations should explore the predictive utility of more comprehensive measures of hypersexuality, including the nosological criteria for hypersexual disorder. Such analysis might allow researchers to determine whether the additional features of hypersexual disorder (stress and affect regulation problems, self-perceived diminished control over sexual urges, fantasies, and behaviors, etc.) increase or attenuate risks for recidivism among sex offending populations.

This study had several limitations that need to be considered when interpreting these results. The investigation was not prospective and, as such, we were restricted to the variables available in the archival database. Consequently, TSO was based on the average number of orgasms experienced during the previous year and the question did not inquire about whether this level of activity was sustained over a period of 6 months (an important and relatively recent operational criterion). Additionally, our measure was only assessed at time one and did not account for fluctuations across time and, as such, we did not know the degree of hypersexuality among our participants at the time of recidivism. A similar problem was that we could not account for any potentially mediating events (e.g., medication, non-pharmacological treatment) that may have influenced the relationship between predictor and outcome. Given that our study was limited to one criterion of the proposed criteria for hypersexual disorder, it is unclear how the results of this study might differ if the complete criteria for hypersexual disorder were applied (e.g., distress, lack of control, etc.).

Conclusions and Future Directions

Hypersexuality is a dimensional measure of sexual interest and motivation and is often regarded as a fundamental criterion of Hypersexual Disorder, a putative non-paraphilic syndrome characterized by the use of sex as self-medication, continued sexual risk-taking, and volitional impairment in association with adverse consequences and/or personal distress.

Despite some recent evidence showing Hypersexual Disorder to have good reliability and validity (Reid et al., 2012), several researchers are cautious about defining this construct as a disorder in current nosology (Giles, 2006; Moser, 2011). The results of the present study further add to the extant
literature showing that hypersexuality is relatively prevalent among sexual offenders and that it is an important risk factor and treatment need among this population. Moreover, classifying sexually dysregulated behavior as “hypersexual disorder” rather than “sexual addiction” may help stimulate research among sex offender providers who are often reluctant to introduce the notion of “addiction” over concern that this label might be used by offenders to rationalize or justify their offending behavior.

It is important to note that we were unable to distinguish between interpersonal versus relational sexual outlets in our sample. Långström and Hanson (2006) defined interpersonal sex as sexual behavior that is focused on the act itself (e.g., masturbation without a partner, pornography consumption, impersonal sex with a variety of partners) and relational sexual acts as sexual behavior that is focused upon a particular person (e.g., sexual intercourse with a partner). Långström and Hanson (2006) showed that the problematic type of hypersexual behavior is interpersonal rather than relational. Other studies have similarly shown that certain types of impersonal sexual activities (e.g., pornography use) are particularly problematic for some sexual offenders (Kingston & Malamuth, 2011; Kingston, Malamuth, Fedoroff, & Marshall, 2009). Relational sexual activities with appropriate and consenting partners can be a highly positive experience with positive consequences (e.g., increased sense of intimacy, decreased loneliness). The positive consequences of relational sexual acts are considered protective against future sexual aggression and are often included as treatment targets in programs for sexual offenders (Kingston, Yates, & Firestone, 2012). Future research should distinguish between these types of sexual activities when investigating problematic hypersexuality.

REFERENCES


No Evidence of Emotion Dysregulation in “Hypersexuals” Reporting Their Emotions to a Sexual Film

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People who report distress due to their frequent use of visual sexual stimuli (VSS) may experience primarily negative affect, primarily positive affect, or coactivation of positive and negative affect when consuming VSS. Theories of sexual addiction suggest that these individuals regulate their emotions poorly, as evidenced by coactivation of positive and negative emotions during sexual stimulation. Men and women who either reported problems down-regulating their use of VSS (VSS-P, N = 71) or no problem regulating use of VSS (VSS-C, N = 49) watched a neutral film and a sexual film. They reported their positive and negative feelings after each film. Unexpectedly, the VSS-P group exhibited significantly less coactivation of positive and negative affect to the sexual film than VSS-C. This is inconsistent with emotion dysregulation, supposedly a key feature of “hypersexual disorder.” Affect regulation could be failing at a different stage of sexual stimulus processing not studied. Theories about hypersexuality could be more specific regarding when and how affect dysregulation is thought to occur to allow in hypersexuality to allow testing.

Many proponents of a “hypersexual disorder” suggest that affect dysregulation is a key feature of the disorder. Studies support affect dysregulation as a key feature in over half of Axis I disorders (Gross, 1998). Consider
No Evidence of Emotion Dysregulation in Hypersexuals

107

Reactivity to negative stimuli appears to be a primary mechanism of change in recovery (Siegle, Carter, & Thase, 2006), although hyporesponsivity to positive stimuli (e.g., Sloan, Strauss, & Wisner, 2001) also is present. Research concerning hypersexuality has not yet specified exactly when emotion dysregulation is thought to occur, and clinical publications conflict as to when emotion dysregulation is expected. Consider a prototypical description of the affect regulation process:

[In hypersexuals], pleasure and orgasm is used to soothe and comfort states of internal distress. Sexual feelings merge with shame, sadness, anger, and loneliness, which then become triggers for the addictive cycle. The addiction causes further shame and affect dysregulation. (Adams & Robinson, 2001, p. 25)

Emotion regulation in hypersexuality has been summarized as “conceptual models have posited diverse motivational mechanisms underlying behavioral disorders—that is, whether the behavior was intended to increase pleasure or reduce negative affect” (Kingston & Firestone, 2008, p. 299). The same authors noted that results had been mixed with respect to how sexual behaviors impacted positive or negative affect. None of the research was experimental or longitudinal, which is necessary to establish whether the timing of emotions was consistent with affect dysregulation models. The current experiment seeks to better define and test one model of emotion dysregulation in those who report problems regulating their viewing of sexual stimuli.

Emotion dysregulation has been proposed as both a mechanism and symptom of “hypersexuality.” Kafka (2010) wrote “repetitively engaging in sexual fantasies, urges or behaviors in response to dysphoric mood states [or] stressful life events” (p. 379) constitutes symptoms of such a disorder. While some have suggested that using sexual arousal to reduce stress or sadness is maladaptive, empirical work on the health benefits of sexual behaviors combating negative affect suggests this may not be a maladaptive strategy (see below and Discussion). Consistent with clinical descriptions, the approach taken here is to search for evidence of emotion dysregulation during sexual response. Specifically, emotion ratings are used to test for evidence of emotion dysregulation during visual sexual stimulus (VSS) viewing.

What would constitute evidence of emotion dysregulation during viewing of VSS? Generally, more frequent sexual behaviors are related to positive mental and physical health outcomes (e.g., Lutfey, Link, Rosen, Wiegel, & McKinlay, 2009), although the mechanisms are debated (Jannini, Fisher, Bitzer, & McMahon, 2009). VSS have long been known to evoke pleasant, approach-motivated states (e.g., Vrana, Spence, & Lang, 1988). Thus, evidence of negative affect occurring during pleasant sexual states could provide evidence of such emotion dysregulation. Specifically, if people who report problems regulating VSS use (VSS-P) are failing to regulate their dysphoric
mood, this should manifest as a greater co-activation of negative and positive emotions when engaging in their problematic sexual behavior. This is consistent with clinical reports of hypersexuality (see quote above) as well as broader emotion literature showing that coactivation of positive and negative emotion is problematic (e.g., in decision making, Penz & Hogg, 2011).

In general, sexual stimuli tend to produce high coactivation of negative and positive feelings (Peterson & Janssen, 2007). Sexual response provides one of the strongest challenges to bipolar models of emotion. Briefly, models of emotion typically characterize emotion as more negative or more positive, which falls along a single dimension often referred to as valence (Larsen & Diener, 1992). Others have challenged this model to suggest that positive valence and negative valence fall along two separable dimensions (Cacioppo & Berntson, 1994; Norris, Gollan, Berntson, & Cacioppo, 2010). This is important, because the latter models allow for the co-activation of high positive and negative affect that the former model does not allow. Coactivation is different from ambivalence, and may provide evidence of poor emotion regulation in contexts where a pure positive or negative emotional response was expected. A growing literature has documented the co-activation of positive and negative affect using questionnaires in response to internally generated emotions (Salas, Radovic, & Turnbull, 2012) as well as continuous dual ratings to emotional films (Larsen, McGraw, & Cacioppo, 2001). However, the relevance of affective co-activation to clinical phenomena is relatively uncharacterized. Sexual pathology may be an ideal case for studying the clinical relevance of coactive negative and positive emotions, since this coactivation is common during viewing of sexual stimuli.

Hypersexuality also differs from other disorders with emotion regulation problems since sexual behaviors are pleasurable. Surprisingly little is known about the emotional responses of VSS-P persons to sexual stimuli. VSS-P tend to report more negative affective pathology, such as a history of depression (Black, Kehrberg, Flumerfelt, & Schlosser, 1997). They also generally report a more frequent occurrence of negative emotions and less frequent occurrence of positive emotions in their daily lives (Reid, 2010).

However, state emotions in VSS-P in response to sexual films have received scant attention. Some have cited self-report questionnaires assessing neuroticism as evidence of “affect regulation” problems in VSS-P (Reid, Carpenter, Spackman, & Willes, 2008, p. 133). Regulation of self-reported sexual arousal, which some believe is an emotion (Everaerd, 1988), has been studied in those reporting hypersexual problems (Winters, Christoff, & Gorzalka, 2009). In that study, people reporting hypersexual problems actually exhibited no problems regulating their sexual arousal to sexual films (or their amusement to amusing films) relative to those not reporting hypersexual problems (Winters et al., 2009). This study extends that work by measuring non-sexual positive and negative emotions in response to viewing VSS in participants who report problems regulating their consumption of...
VSS (VSS-P) and controls who deny such problems (VSS-C). Characterizing these emotional responses to VSS may identify whether there is pathology associated with “hypersexual disorders.”

METHODS

Participants

A total of 120 people participated in this study. Fifty-five of these participants had responded to advertisements requesting people who were experiencing problems regulating their viewing of sexual images. This recruitment strategy appears to have successfully recruited participants with scores comparable to those labeled as “patients” with hypersexual problems (see Table 1). For example, in a large convenience sample the average Sexual Compulsivity Scale scores for women $M(SD) = 20.4$ (7.2) and men $M(SD) = 24.3$ (8.0) seeking treatment for sexual compulsivity (Winters, Christoff, & Gorzalka, 2010) were comparable to the current sample scores $M(SD) = 21.8$ (5.7), whereas the female $M(SD) = 14.2$ (4.2) and male $M(SD) = 16.5$ (4.9) non-treatment-seekers in Winter and colleagues’ study scored lower. In the current study, both those reporting a problem and those

<table>
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<tr>
<td>Gender (female)</td>
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<td>Relationship status</td>
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<tr>
<td>Monogamous</td>
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<td>Non-monogamous</td>
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<tr>
<td>Not in a sexual relationship</td>
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<tr>
<td>Age</td>
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<td>Intercourse partners last year</td>
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<td>Sexual desire inventory</td>
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<td>Dyadic</td>
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<td>Solitary</td>
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<td>Behavioral Inhibition Scale</td>
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<td>Behavioral Activation Scale</td>
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<td>Sexual Excitation Scale</td>
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<td>Sexual Inhibition Scale I</td>
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<td>Sexual Inhibition Scale II</td>
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<tr>
<td>Sexual Compulsivity Scale</td>
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<tr>
<td>Compulsive Sexual Behavior Inventory*</td>
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<td>Cognitive</td>
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<tr>
<td>Behavioral</td>
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<td>Pornography Consumption Effects Scale: Negative*</td>
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Note. *Only completed by participants recruited for experiencing problems regulating their viewing of sexual stimuli ($N = 55$).
who did not report a problem were comprised of more men. A majority of participants reported being in a monogamous relationship.

Due to the possibility that participants for the “emotional response” study also may have problems regulating their viewing of sexual images, these participants also were asked to indicate how they felt about their use of sexual images. Specifically, they indicated whether they were “fine with my use,” “fine with it, but my partner doesn’t (or would not) like me using porn,” or to indicate why they were personally not fine with their current use. This was used to reclassify 16 respondents to this more general advertising as also experiencing problems regulating their viewing of sexual stimuli. Analyses were conducted conservatively with participants classified strictly by the study they initially volunteered for as well as using this reclassification strategy. The pattern of results remained the same, thus the results from this more conservative strategy of reclassifying individuals as possibly experiencing problems regulating their viewing of sexual stimuli are reported.

Apparatus and Materials

**STIMULI**

The participants were shown two film excerpts: one containing neutral content and the other containing explicit sexual content. The neutral film was intended to allow participants to acclimate to the laboratory setting and reflect their typical baseline state, so it was 10 min long. The neutral film was a documentary about underwater animals (National Geographic, 1995) and edited to exclude any activating behaviors such as violence, sex, or chasing. The sexual film was 3 min long. This is a typical length for studies of mood induction (Rottenberg, Ray, & Gross, 2007). The film depicted a consensual, erotic, heterosexual encounter between one man and one woman. It was edited to show only penile–vaginal intercourse. The selected sexual film evoked the highest reports of sexual arousal in a previous study (Janssen, Carpenter, & Graham, 2003) and excluded low base rate content reported to be unappealing to women such as anal sex (Woodard et al., 2008).

**QUESTIONNAIRES**

*Sexual History Form.* The Sexual History Form collects general demographic and sexual behaviors. Demographic questions included age, education, and relationship status. Sexual behavior information questions included number of lifetime sexual partners, number of lifetime sexual intercourse partners, masturbation frequency, worry about sexual problems, and orgasm consistency (% times reached orgasm when masturbating by any method, % times reached orgasm when engaged in sexual activity with a partner). Select sexual risk questions were drawn from the National AIDS Behavior Survey (Catania et al., 1992).
Behavioral Inhibition Scale/Behavioral Activation Scale (BIS/BAS, Carver & White, 1994). The BIS/BAS measures how respondents typically react to certain situations by assessing approach and inhibition tendencies. The scale consists of 20 items each measured on a 4-point scale ranging from strongly agree to strongly disagree. The measure has four subscales: Behavioral Inhibition, Behavioral Activation Reward Responsiveness, Drive, and Fun-Seeking. Internal consistencies of subscales have been found to range from Cronbach’s α of .69 to .83 (Kasch, Rottenberg, Arnow, & Gotlib, 2002).

Sexual Excitation Scale/Sexual Inhibition Scale (SIS/SES, Janssen, Vorst, Finn, & Bancroft, 2002). The SIS/SES indexes similar approach/avoidance dimensions as the BIS/BAS within the sexual domain. The SIS/SES consists of 46 items each measured on a 4-point scale ranging from strongly agree to strongly disagree. Similar versions are included for men and women. The scale contains three subscales: Propensity for Sexual Excitation, Propensity for Sexual Inhibition Due to the Threat of Performance Failure, and Propensity for Sexual Inhibition Due to the Threat of Performance Consequences. Cronbach’s α for each subscale are .88, .83, and .66, respectively (Janssen et al., 2002).

Sexual Desire Inventory (SDI, I. Spector, Carey, & Steinberg, 1996). The SDI measures levels of sexual desire using two scales comprised of seven items each. The first, the Solitary Sexual Desire scale, measures an individual’s desire for autoerotic sexual activity. The second, the Dyadic Desire scale, measures an individual’s desire for sexual activity with a partner. The SDI has been tested in studies focused on sexual desire (King & Allgeier, 2000; Spector & Fremeth, 1996). Test-retest reliability was calculated at r = .76 over a 1 month period (Spector et al., 1996). SDI scores have been used as an index of trait sexual desire level (Giargiari, Mahaffey, Craighead, & Hutchison, 2005).

Sexual Compulsivity Scale (SCS, Kalichman & Rompa, 1995). The SCS measures compulsive traits linked to difficulty resisting sexual behaviors despite exposure to risk. The scale consists of 10 statements related to compulsive thoughts, preoccupations, and behaviors associated with sexual activity (e.g., “My sexual appetite has gotten in the way of my relationships,” “My sexual thoughts and behaviors are causing problems in my life”). Respondents are asked to rate each statement on a 4-point scale ranging from not at all like me to very much like me. The scale has been shown to be internally consistent for men and women with Cronbach’s α for each equaling .76 and .81, respectively (Reece, Plate, & Daughtry, 2001). The SCS has been administered to members of high-risk groups for HIV infection as well as college students (Dodge, Reece, Cole, & Sandfort, 2004). The SCS was used to characterize the level of felt impairment in function due to sexual behaviors. It was only administered to those who had responded to advertisements for people with problems regulating their viewing of VSS.
Pornography Consumption Effects Scale (PCES, Hald & Malamuth, 2008). The PCES assesses the self-perceived effects of pornography use on an individual’s sexual behavior, attitudes, and perceptions of the opposite gender. The measure contains 47 items divided into positive (27 items) and negative (20 items) effects from viewing pornography. Respondents are asked to indicate the extent they experience various effects on a 7-point Likert scale ranging from 1 to 7 to indicate not at all to an extremely large extent, respectively. The scale has been shown to be internally consistent for Positive (Cronbach’s $\alpha = .91$) and Negative (Cronbach’s $\alpha = .82$) Effect Dimensions. It was only administered to those who had responded to advertisements for people with problems regulating their viewing of VSS.

Cognitive and Behavioral Outcomes of Sexual Behavior Questionnaire (CBOSB, McBride, Reece, & Sanders, 2007). The CBOSB assesses the extent an individual is concerned about the possible consequences resulting from their sexual behaviors. The consequences fall within six domains: financial, legal, physical, psychological, spiritual, and social consequences. Each domain is further divided into two distinct cognitive and behavioral outcome scales, which separate the respondent’s extent of worry from the actual, experienced consequences. Rated on a 4-point scale ranging from never to always, the cognitive outcomes scale consists of 20 items concerning the extent the respondent worried about his/her sexual activities in the past year resulted in negative outcomes. Rated on a binary scale of “yes” or “no,” the behavioral outcomes scale consists of 16 items concerning the extent the respondent experienced negative outcomes as a result of his/her sexual activities in the past year. The CBOSB is not widely used, but is the only psychometrically tested instrument that quantifies actual experienced impairment in separable domains. It was only administered to those who had responded to advertisements for people with problems regulating their viewing of VSS.

Emotion ratings. Items were drawn from the Positive and Negative Affect Rating Scale (Watson, Clark, & Tellegen, 1988) and combined with items from Heiman and Rowland (1983) to measure both general and sexuality specific affect. Responses on each item could range from 1 (not at all) to 9 (very strongly). Ratings were presented in pseudo-random order by computer after each film. Items were not included in this analysis if they were not clearly positive or negative (e.g. “Masculine”) or if they overlapped with affect already included (e.g., “Sexual arousal” and “Sexual desire”) in order to avoid inflating coactivation estimates.1

Procedure

Recruitment

All participants were required to be over age 18 to legally view visual sexual stimuli and be right-handed. Two types of advertisements were used. One requested non-treatment seeking volunteers who had trouble regulating their
viewing of sexual images. The type of sexual dysregulation problem was constrained to VSS to ensure the laboratory task (see below) was relevant to their problem behavior. The second advertisement sought volunteers to participate in a study of emotional response. Both advertisements indicated that the person would be asked to view sexual films. This strategy for recruiting “hypersexual” volunteers is supported by a study of the reliability of hypersexual disorder proposed diagnostic criteria (Reid, Carpenter et al., 2012). This study found that 88.2% of people who complain of hypersexual problems would be diagnosed as having “hypersexual disorder,” suggesting that this recruitment strategy would be effective identifying those likely to be diagnosed. Conservatively, this group is referred to as those with problems viewing sexual stimuli (VSS-P) to make clear that no diagnosis was sought nor given. To rephrase, the VSS-P sample were individuals who either (a) responded to an advertisement that requested people who had problems regulating their viewing of VSS (N = 55), or (b) had enrolled in a study they knew would require VSS viewing and spontaneously reported problems regulating their viewing of VSS that was not due solely to a partner’s disapproval (N = 16). Thus, the VSS-C sample enrolled in a study that did not request volunteers with problems and, when directly asked, they denied these problems (N = 49).

An alternative would have been to recruit people in treatment for “hypersexual” problems. This approach was initially pursued, but the Institutional Review Board prohibited this approach. They cited a concern that asking those who struggle in regulating their viewing of sexual images to view sexual images would cause them to relapse. Post-experimental questions were included to test whether this recruited sample actually appeared at any risk due to their participation (see Table 2).

**LABORATORY**

All of the volunteers who expressed an interest in participating were contacted by phone. During this phone contact, a research assistant described

<table>
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<th>Questions</th>
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<tr>
<td>I feel upset because of this study.</td>
<td>6.65 (.76)</td>
</tr>
<tr>
<td>I feel that I was treated fairly in this study.</td>
<td>1.15 (.36)</td>
</tr>
<tr>
<td>I regret ever participating in this study.</td>
<td>6.42 (1.08)</td>
</tr>
<tr>
<td>I would like to talk to a mental health provider (e.g., counselor) about my experiences or reactions to this study.</td>
<td>6.62 (.91)</td>
</tr>
<tr>
<td>I feel that I responded honestly to questions in this study.</td>
<td>1.13 (.34)</td>
</tr>
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*Note.* Responses were along a 7-point Likert scale from 1 (*agree strongly*) to 7 (*disagree strongly*); Only completed by participants recruited for experiencing problems regulating their viewing of sexual stimuli (N = 55).
the instruments used in the research, and that participation would include viewing an explicit sexual film. Volunteers were provided the opportunity to ask additional questions. Then, each consented volunteer was tested individually. On arrival to the laboratory, the experimented assured him/her of confidentiality and verbally reviewed the procedure. Thereafter, the participant was asked to confirm their desire to continue to participate in the study by signing the informed consent statement. No one declined to participate at this stage.

The participants then completed questionnaires (see above) on a secure computer in a private testing room. Online administration increases reporting of socially undesirable behaviors (Locke & Gilbert, 1995). Next, the experimenter placed electroencephalographic (EEG) recording caps on the participants (results reported elsewhere). Participants first viewed the neutral film (see Stimuli, above) and reported their emotional responses. Then, they viewed the sexual film and reported their responses. These films were not counterbalanced due to sexual arousal carryover risks (discussed further below). After viewing both films, the participants completed a post-experimental questionnaire on the computer, had the EEG removed, and was compensated with course credit or payment.

**DATA ANALYSIS.**

There is no accepted measure of “level of coactivation.” Many approaches were considered. A categorical approach (e.g., chi-square) could be used if some threshold of both positive and negative emotion was reached to qualify as coactivated, but this required judgment about “sufficient” emotional response with little empirical guidance. Correlations between positive and negative emotions would indicate more coactive responses the stronger the positive magnitude. Using this approach would be a challenge since some emotions are infrequently endorsed (see Figure 1) which creates non-normal distributions for some emotions that violate assumptions of correlations. Zero-inflated regression could allow comparison of beta-weights of the non-zero data (Loeys, Moerkerke, De Smet, & Buysse, 2012). However, the zeros were too infrequent to consistently meet thresholds suggested to justify the use of zero-inflation approaches (Warton, 2005). Ultimately, a correlation approach was used. Pearson’s correlations were run between each positive emotion with each negative emotion, then z-transformed and back transformed (Silver & Dunlap, 1987), and finally analyzed with Baye’s t-test with Cauchy distribution (Rouder, Speckman, Sun, Morey, & Iverson, 2012) comparing the affective coactivation of VSS-P to VSS-C.

Gender was not explored as a factor in these analyses for several reasons. First, men and women reporting “hypersexual” problems appear more similar than different (Reid, Dhuffar, Parhami, & Fong, 2012). Second, research has primarily focused on hypersexual men to date without
FIGURE 1 Distribution of emotion ratings after sexual film. (Color figure available online).
justification. Excluding women would limit the generalizability of any findings. Finally, state emotions differ between the genders (e.g., Fujita, Diener, & Sandvik, 1991), but no interaction of gender, hypersexual status, and state emotions has been predicted to justify the inclusion of that interaction. Thus, using gender as a predictor could misattribute differences in emotional responses due to VSS-P/VSS-C status to gender.

Raw scores to the sexual film were analyzed. Difference scores could have been computed, such as from the emotions reported in response to the neutral film. Coactivation in response to sexual stimuli most directly test the hypothesis that emotion dysregulation is more prevalent in VSS-P. Examining emotional responses to neutral films would be relevant only if predictions about baseline emotional state were being tested. While not a focus of this study, simple emotion ratings to neutral and sexual films between VSS-P and VSS-C are novel. Limited tests of the individual emotions were calculated. Specifically, mixed statistical models were used to investigate emotion ratings. The following parameters were specified: Participant as random, Film Type as repeated factor, and Group as fixed factor predicting the rated emotion. The model was estimated using restricted maximum likelihood (REML) and a Toeplitz covariance structure with a maximum of 1000 iterations to reach convergence. Mixed models were used rather than a generalized linear model (GLM) due to the random structure of missing data. Specifically, participants were not forced to rate all emotions for both films and could refuse, or take too long (>2 seconds), to answer. GLM would exclude participants who declined to rate the emotion, while the mixed approach allows these participants to be retained.

RESULTS

Descriptive Ratings

In general, all participants reported more negative and positive emotions to the sexual film as compared to the neutral film (see Figure 2). The only main effect for Group was that VSS-C reported more “Disgust” to both the neutral and sexual films ($F[1,95] = 7.69, p = .007$). Interactions between the film viewed and the group occurred rating “Excited” ($F[1,103] = 159.5, p < .001$) and “Angry” ($F[1,90] = 5.3, p = .02$). Specifically, VSS-C reported more excitement to the neutral film than VSS-P; the effect was reversed for the sexual film where VSS-P reported more Excitement to the sexual film than VSS-C. The pattern was the same rating Anger, where VSS-P reported less anger to neutral and more anger to sexual films as compared to VSS-C. Possibly notable for future investigations, a similar interaction that did not reach $p < .05$ was observed in the ratings for “Guilty” which reported ($F[1,87] = 3.6, p = .06$).
FIGURE 2 Ratings of emotions after a neutral or sexual film by those complaining of problems regulating their viewing of erotica or controls. *Film, †Group, ‡Film X Group

Coactivation

The number of comparisons does not permit the presentation of all scatterplots, but two exemplars are provided (see Figures 3 and 4). The scatterplot of ratings of Sexual Arousal and Anxiety (see Figure 3) shows relationships in which the VSS-C and VSS-P exhibited similar levels of simultaneous positive and negative affect. The scatterplot of ratings of sexual arousal and embarrassment (see Figure 4) shows relationships in which VSS-P exhibited greater coactivation of negative and positive emotions than VSS-C. When
FIGURE 3 Example of positive and negative emotion ratings following a sexual film with controls showing a less mixed emotional response than those complaining of difficulty regulating their own viewing of visual sexual stimuli.

compared, VSS-C had a significantly higher (back-transformed) average correlations (.11) between their positive and negative affect ratings as compared to VSS-P (−.02; $t_{\text{Bayes}}$ [93] = −2.6, CI = −.28 to −.04, $p = .02$, $d = .06$).

Post-experimental Questionnaire

A questionnaire was included to assess if the protocol the participant experienced was distressing (see Table 2). Participants reported that they were not upset, did not regret participating, did not need to talk to a mental health professional about their experience, and felt they were treated fairly. No participant responded with the most extreme, or next most extreme, rating that might suggest a problem on any of these questions.

DISCUSSION

Persons complaining of problems regulating their viewing of visual sexual stimuli (VSS-P) exhibited less coactivation of positive and negative affect than
controls (VSS-C) viewing a sexual film. Although not a focus of the study, most of the emotion ratings were higher following the sexual film than the neutral film and did not interact with group status. “Angry” and “Excited” did interact with group status and were rated higher by VSS-P during the sexual film and lower during the neutral film as compared to VSS-C.

This replicates previous findings that self-reported problems in this “hypersexual” population may not be good methods for assessing this population. A previous study initially reported executive functioning problems that were described as indicative of emotion dysregulation (Reid, Karim, McCrory, & Carpenter, 2010). When later assessed by neuropsychological tests, no actual difference on a large number of executive functioning measures was identified (Reid, Garos, Carpenter, & Coleman, 2011). The self-report assessment of executive functioning used in the original study was unusual and has been demonstrated not to correspond with actual executive measures in other populations (Bakar, Taner, Soysal, Karakas, & Turgay, 2011). It is possible that this does not represent a particular problem with “hypersexuals” self-report accuracy, so much as a problem of over-reliance on weak self-report measures in literature on hypersexuality. Other results suggested “hypersexuals” have higher baseline negative affect (Reid, 2010),
where this study again found the opposite. The only negative affect on which VSS-P differed from VSS-C at baseline (following the neutral film) was “disgust,” where VSS-P actually reported lower, not higher, levels of disgust. Similarly, an interaction with group and film demonstrated VSS-P also reporting lower anger following the neutral film. Experimental approaches appear sorely needed, and neglected (Campbell & Fiske, 1959), in this field where clinical findings are repeatedly failing to replicate with other methods.

These results add to the evidence that “hypersexuality” may not be a distinct clinical entity. Affect dysregulation has been proposed and widely cited as a key element of hypersexual disorder (Kafka, 2010). This study actually found evidence for the opposite pattern: those complaining of difficulty regulating their viewing of VSS had less mixed emotional responses to sexual films than those who did not report problems regulating their viewing. In particular, “anger” was the only negative emotion that interacted with the stimulus type and group. The pattern was in direct contradiction to the anger-integration proposal of Carnes (2001), since controls actually expressed more anger following the neutral film than the sexual film. Perhaps the anger interaction is better interpreted in light of the interaction with “excitement” also observed, where VSS-P might experience some transfer of excitation fueling a perception that their excitement actually reflects anger. The pattern is consistent with another behavioral laboratory study, in which VSS-P were shown to merely have a higher sexual arousal response than controls (Winters et al., 2010). As the VSS-P do not appear conflicted, future studies could explore whether their reports of distress may be attributed to a conflict with personal values rather than any actual abnormal processing of sexual stimuli or disease state.

This is only the second study to show sexual films to persons complaining about difficulty regulating their viewing of VSS. Showing sexual stimuli to people trying to decrease their viewing does raise ethical issues. For comparison, guidelines from the National Advisory Council on Alcohol Abuse and Alcoholism (2005) recommends against administering alcohol to alcoholics during research. Participants in the current study, despite reporting significant difficulties (see Table 1), did not report problems due to the protocol (see Table 2). This may be because sexual stimuli are not addictive, so exposure does not promote relapse. At least, it suggests that this population can be exposed to VSS without provoking significant distress. This appears consistent with research that carefully administers alcohol to already heavy alcohol consumers (e.g., Ray, MacKillop, Leventhal, & Hutchison, 2009). Subsequent studies might contact participants longer after participation to ensure that negative effects do not emerge over time. The advantages and ecological validity offered by studying the actual problem behavior of VSS viewing warrants further development of this protocol in this population.

Affect dysregulation may occur at some other time. Sexually aroused states were tested here based on published models of affect dysregulation
in hypersexuality (see above) that suggested mixed affect during sexual stimulation provided evidence of dysregulation. Bancroft and Vukadinovic (2004) found that those reporting problems with their sexual behaviors were more likely to report increased interest in sex during low mood. Others describe changes in the affective pattern over time, such as “engaging in problematic viewing to cope with experiences such as loneliness or shame may paradoxically serve to increase these emotions over time” (Levin, Lillis, & Hayes, 2012, p. 170). These suggest that it would be useful in the future to study erotica viewing behavior and affect after inducing negative mood. Others have made claims such as “Anger and sex were combined, but not with pleasure” (Carnes, 2001, p. 55). Claims like these, without any specified mechanism, counter to decades of research about the pleasant nature of sexual stimuli, are impossible to test without any specifics about how these states supposedly manifest. In sum, the field could benefit from greater specificity describing how and when affect dysregulation is thought to occur surrounding pernicious sexual behaviors.

Participants in this study were not seeking treatment, but there are reasons to believe they would apply to treatment seeking individuals as well. First, emotional dysregulation is proposed to exist in hypersexuality, not in treatment-seeking hypersexuals. From a theoretical perspective, any hypersexual person should display affect dysregulation. For comparison, depression research commonly recruits community samples to test response patterns assumed to exist in depression (e.g., Henriques & Davidson, 2000). Hypersexuals seeking treatment might be more or less severe than non-treatment seeking hypersexuals. For example, people may choose not to seek treatment because their problems are not very severe or because their problems are so severe they feel no treatment would help. However, problem severity cannot explain the pattern of results observed in this study, because the effects actually were in the opposite of the predicted direction, not merely weaker. Finally, scores on the Sexual Compulsivity Scale in the current participants were comparable to scores in a large convenience sample of men and women who did seek treatment for hypersexuality (reviewed above).

This study had several limitations. The neutral and sexual films were not counterbalanced. Women’s sexual arousal remains elevated for an extended period of time following very brief sexual films (Henson & Rubin, 1978), so presenting a sexual film first very likely would have caused carryover of sexual arousal into the neutral film presentation. One option would be to assess sexual arousal carryover and control it statistically, but there are many publications to suggest sexual arousal is not consistently reported (Chivers, Seto, Lalumière, Laan, & Grimbos, 2010). Subsequent studies could improve on the current design by (a) allowing a very long period between the two test films to allow counterbalancing and (b) recording physiological sexual arousal. The films also were viewed in a contrived laboratory setting, which
might differ from the experience of viewing the same films in the privacy and comfort of one’s home. For example, participants were instructed not to self-stimulate during this study in the private testing room. Several factors may have countered this possibility: they were left fully clothed, the EEG restricted movement, and they may have been inhibited by the relatively public location. Although recent evidence supports the similarity of laboratory and home sexual response patterns (e.g., Bloemers et al., 2010), it would be prudent to replicate these effects in more externally valid approaches, such as the take-home sexual stimulus study by Ariely and Loewenstein (2006).

Finally, the best method to quantify “coactivation” is unclear. Some have suggested methodological changes to assess positive and negative responses simultaneously (Larsen, Norris, McGraw, Hawkley, & Cacioppo, 2009). While allowing continuous assessment during the sexual stimulation, this does not provide a solution for quantifying the level of coactivation. While several options were considered for this study (see Data Analysis), future investigations might consider recruiting larger samples to support exploration of appropriately powered ordinal statistical approaches.

Those complaining of difficulty regulating their viewing of VSS exhibited lesser coactivation of positive and negative affect, inconsistent with affect dysregulation models of “hypersexuality.” This difference could not be attributed specifically to a prominence of sexual arousal, positive affect, or negative affect. Viewing VSS also did not upset participants. The results challenge assumptions of disordered high frequency sexual behaviors, which may increase hesitancy to classify this as a disorder or disease.

NOTES

1. Items in the Emotion Rating scale Positive: Sexual arousal (mean of sexual arousal, physical sexual arousal, mental sexual arousal), pleasant, excited, loving, relaxed; Negative: anxious, angry, disgusted, embarrassed, guilty, angry, inhibited, incompetent, bored, distracted; Not analyzed due to similarity with already included ratings: sexual desire, desire for sex without a condom, desire to be close to someone, genital pulsing or throbbing, warmth in genitals, penile erection (men), desire to masturbate, attracted, sexy, sexually attractive, easy to arouse, sexually turned off, desire to have sex; Not analyzed due to lacking clear valence in this context: any physical reaction at all, any genital feeling, feeling of warmth, perspiration, faster heart beat, faster breathing, interested, dirty, aggressive, focused, feminine, masculine.

2. The analysis was rerun including only those who responded with ratings > 1 for each emotion in the correlation pairs. While the difference was no longer significant, as might be expected from the loss of statistical power, the pattern of VSS-C showing more coactivation than VSS-P remained ($r = .10$ and .04, respectively).

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Compulsive Sexual Behavior and its Relationship to Risky Sexual Behavior

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The extant literature indicates a robust association between compulsive sexual behavior (CSB) and HIV sexual risk. Our research has found that CSB influences multiple measures of HIV sexual risk and that the association between CSB and HIV sexual risk behavior is consistent across multiple populations, including men who have sex with men and African-American women. Further, we have found that CSB can be characterized by disruptions of certain executive functions, impulsivity, and difficulties with emotional regulation. These factors are described within the context of HIV prevention and a model is proposed of how CSB leads to HIV sexual risk behavior.

Classification criteria for Hypersexual Disorder has been proposed for the forthcoming DSM-5. However, the American Psychiatric Association has decided there is insufficient data to warrant its inclusion in the next edition of the DSM. Although there is substantial overlap between the proposed criteria for hypersexual disorder and what our research group has characterized as compulsive sexual behavior, the diagnostic labels have implications for how one views and conceptualizes this phenomenon and subsequently, in this article for a special issue on hypersexual disorder, we will use the name compulsive sexual behavior (CSB) to maintain consistency with our perspectives and prior work on this topic.

Compulsive sexual behavior (CSB) has been consistently linked to risky sexual behavior (most notably unprotected anal intercourse with multiple partners), particularly in men who have sex with men (MSM; Coleman, Miner, Ohlerking, & Raymond, 2001; Kalichman & Rompa, 1995; Miner, Coleman, Center, Ross, & Rosser, 2007; Parsons, Bimbi, & Halkitis, 2001; Reece, Plate,
These studies have used different terminology—mostly "sexual compulsivity" and "compulsive sexual behavior" without knowing the true underlying mechanism. There has been speculation that the underlying mechanisms may be impulsive, compulsive, affect regulation or some kind of addictive process. We also know that there is a high comorbidity of CSB with psychiatric disorders, particularly anxiety disorders, depression, substance abuse, and attention-deficit disorders (Black, Kehrberg, Flumerfelt, & Schlosser, 1997; Kafka & Prentky, 1994; Raymond, Coleman, & Miner, 2003; Reid, Carpenter, Gilliland, & Karim, 2011). This article will review the literature which links compulsive sexual behavior to risky sexual behavior and explore what the underlying mechanisms might be.

Kalichman and colleagues first explored the relationship between sexual compulsivity and HIV-risk behavior which they defined as insistent, repetitive, intrusive, and unwanted urges to perform specific acts often in ritualized or routinized fashion (Kalichman et al., 1994). Sexual compulsivity, as measured by the Sexual Compulsivity Scale (SCS), was found to be inversely associated with risk reduction intentions (e.g., tell a partner to practice safer sex, plan before sexual behaviors, refuse unsafe sex, actively guide safer sex) in both homosexual men (Kalichman & Rompa, 1995) and HIV-positive African American men and women (Kalichman et al., 1994). High SCS scores were also associated with sexual behaviors that could lead to HIV transmission in samples of gay and bisexual men of mixed sero-status (Benotsch, Kalichman, & Kelly, 1999), in HIV positive men and women who were predominantly African American and low income (Benotsch, Kalichman, & Pinkerton, 2001), and among HIV-positive men.

In later studies, higher SCS scores were found to be predictive of higher rates of unprotected sex, greater numbers of sex partners, and greater use of cocaine in HIV-positive men (Benotsch et al., 1999). Similar associations between high SCS scores and unprotected sexual behavior have been reported for samples of male and female college students (Dodge, Reece, Cole, & Sandfort, 2004) and HIV-positive individuals (Kalichman & Rompa, 2001). Kelly, Bimbi, Nanin, Izienicki, and Parsons (2009) found that sexually compulsive gay and bisexual men were more likely than non-sexually compulsive gay and bisexual men to engage in use of alcohol and/or drugs with sex.

Using a different but similar instrument, Dew and Cheney (2005) found that higher scores on the Compulsive Sexual Behavior Inventory (Coleman et al., 2001; Miner et al., 2007), were correlated with higher rates of unprotected oral and anal sex. Reece and colleagues also found associations among MSM’s level of sexual compulsivity and all of the following: their likelihood to participate in high-risk sexual behavior, their perceived level of responsibility to disclose HIV serostatus to sexual partners, and whether they had disclosed their HIV status to a sexual partner in their most recent act of unprotected intercourse (Reece, 2003; Reece et al., 2001).
Compulsive Sexual Behavior Predicts Unsafe Sex in Multiple Samples

Our own group has conducted four studies that have shown an association between compulsive sexual behavior (CSB) and unprotected anal or vaginal intercourse. We studied 627 HIV-positive men who have sex with men (MSM) recruited from 6 major urban HIV epi-centers. Exploring the effects of variables from the Theory of Reasoned Action (Fishbein & Ajzen, 1975) and the Sexual Health Model (Robinson, Bockting, Rosser, Miner, & Coleman, 2002) and using logistic regression, we found that CSB, as measured by the Compulsive Sexual Behavior Inventory (CSBI; Coleman et al., 2001; Miner et al., 2007) had a substantial direct effect on unprotected sero-discordant anal intercourse (Miner, Peterson, Welles, Jacoby, & Rosser, 2009). Then, in a study of 1,026 Latino MSM, we found that those with high scores on the CSBI had significantly more sexual partners in the last 3 months and engaged in significantly more unprotected anal intercourse in the last 3 months (Miner et al., 2007). In another study of 2,716 MSM, we found a significant relationship between CSBI scores and risk for engaging in unprotected anal intercourse (Coleman et al., 2010). Finally, we found that low income African American women scoring high on the CSBI were 4.16 times more likely to have multiple partners and 1.84 times more likely to engage in inconsistent condom use (Robinson, Uhl et al., 2002).

The above studies indicate that CSB is associated with different dimensions of unsafe sexual behavior, including sero-discordant unprotected anal intercourse, unprotected vaginal intercourse, unprotected anal intercourse, or having multiple partners. CSB is associated with risky sexual behavior in samples of HIV-positive MSM, Latino MSM, general samples of MSM, and low income African American women. In addition, a rather high percentage of individuals diagnosed with CSB was found to have contracted at least one sexually transmitted illness (27.5%) in the recently completed field trial for the proposed Hypersexual Disorder (Reid et al., 2012). These results indicate that CSB is highly correlated with risky sexual behavior and an important risk factor in the transmission of HIV disease and other STIs.

CSB as a Function of Impulsivity, Compulsivity, Affect Regulation or Addictive Processes?

Though the underlying hypothesized mechanisms somehow seem competing, there are some common dimensions or factors that cross the various conceptual formulations. Variations in these factors, sexual arousal, sexual inhibition, behavioral activation and cognitive control such as conflict monitoring, inhibitory control, and delayed discounting, provide insight into the underlying mechanisms responsible for CSB and the mechanisms by which CSB confers increased risk for HIV transmission.
Bancroft, Graham, Janssen, and Sanders (2009) describe two underlying factors, sexual inhibition and sexual arousability, both of which may lead to CSB. Deficits in inhibition would indicate a more impulsive disorder, while arousability might be more consistent with the addiction and compulsive conceptualizations. Krueger et al. (2002) describe an underlying externalizing dimension that explains many types of impulsive behaviors and can be characterized by deficits in cognitive control that he thought might be responsible for CSB. Thus, CSB might be related to more general behavioral inhibitory or activation functions. Additionally, Marlatt and Gordon (1985) describe an underlying indulgence to explain excessive or problematic sexual behavior, substance use, and eating disorder. Indulgence is defined in terms of attending to immediate consequences in decision-making and failure to attend to changing behavioral paradigm.

Bancroft and colleagues (2003a, 2003b) found that in the majority of heterosexual and gay men, sexual interest decreased when depressed or anxious; however, a minority (15–25%) reported an increase in interest that was somewhat higher for anxiety than depression. Explanations for increased sexual interest with depression can be related to either an increased need for sex or a need for personal contact or validation, which appears consistent with the need for affiliation and comfort described by Carnes (1991). However, with anxiety, the increased sexual interest appears to indicate that sex is used as a means to achieve a reduction in anxiety (Bancroft & Vukadinovic, 2004), which seems consistent with CSB as described by Coleman (1990, 1991). Parsons et al. (2008), in a qualitative study of 146 MSM who scored 24 or above on the SCS, found that hypersexual MSM use sex to cope with negative affect (e.g., depression, stress) and that they gain a sense of affirmation and validation through sexual behavior that they could not get from social relationships, which again supports either the CSB or addiction nosology. The notion of using sex to cope with difficult or unpleasant affective states or as a way of reducing stress is also part of the proposed criteria for hypersexual disorder.

We also conducted a pilot study that was the first multi-method investigation of how multiple aspects of impulsivity and emotional regulation are associated with hypersexual behavior (Miner, Raymond, Mueller, Lloyd, & Lim, 2009). Participants were 8 men who were in treatment for compulsive sexual behavior (Coleman, 1991, 1995; Coleman, Raymond, & McBean, 2003) and 8 non-disordered age-matched male controls. All participants were screened for major psychiatric disorders using the Structured Clinical Interview for the DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1995) and the CSB diagnosis was confirmed using a SCID-type section designed to assess Coleman’s criteria (Coleman, Gratzer, Nesvacil, & Raymond, 2000). This multi-method study included a neurocognitive assessment (go/no-go procedure) and psychometric testing (Barrett Impulsivity Scale, Multidimensional Personality Questionnaire). The procedures and methods for the data
TABLE 1 Comparison of CSB and non-CSB men on the Go/no-go Procedure

<table>
<thead>
<tr>
<th></th>
<th>CSB Mean (SD)</th>
<th>SC Mean (SD)</th>
<th>Comparison</th>
<th>p</th>
<th>Effect Size (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1-Errors Target Frequent</td>
<td>8.6 (3.9)</td>
<td>3.0 (3.4)</td>
<td>0.008</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Commission</td>
<td>11.5 (9.4)</td>
<td>2.0 (3.3)</td>
<td>0.018</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Task 2-Errors Target In-Frequent</td>
<td>0.75 (1.0)</td>
<td>0.50 (0.8)</td>
<td>0.59</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>Commission</td>
<td>0.12 (0.4)</td>
<td>0.00 (0.0)</td>
<td>0.33</td>
<td>0.6</td>
<td></td>
</tr>
</tbody>
</table>

Note. These data were previously published in Miner, Raymond, Mueller, Lloyd, M., & Lim (2009). Preliminary investigation of the impulsive and neuroanatomical characteristics of compulsive sexual behavior. Psychiatry Research: Neuroimaging, 174, 146–151.

discussed here have been fully described in a previous publication (Miner, Raymond, et al., 2009).

Results from Go/no-go Procedure

We found significant differences between the CSB men and the control men. As shown in Table 1, in the response frequent condition (Task 1), CSB subjects showed significantly more errors of commission and omission. The errors of commission were indicative of an inability to inhibit responses, thus an indication of impulsivity. However, the errors of omission, which would be indications of inattentiveness in the response-infrequent condition, were likely more associated with perseveration in the response-frequent condition, which may be consistent with obsessive/compulsive features (Chamberlain et al., 2007).

Results from Psychometric Testing

The results reported in Table 2 indicate that hypersexual behavior is related to impulsivity and poor emotional control. That is, the hypersexual sample

TABLE 2 Comparison of sexual compulsive vs. non-disordered groups on Self-rating Scales

<table>
<thead>
<tr>
<th>Variable</th>
<th>CSB Mean (SD)</th>
<th>Non-Disordered Mean (SD)</th>
<th>p</th>
<th>Effect Size (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrett Impulsiveness Scale</td>
<td>61 (12.9)</td>
<td>48 (5.1)</td>
<td>0.019</td>
<td>1.4</td>
</tr>
<tr>
<td>Multidimensional Personality Questionnaire</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>–Constraint Factor</td>
<td>38 (9.7)</td>
<td>50 (10.5)</td>
<td>0.026</td>
<td>1.2</td>
</tr>
<tr>
<td>–Negative Emotionality Factor</td>
<td>50 (8.7)</td>
<td>38 (6.2)</td>
<td>0.007</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Note. These data were previously published in Miner, Raymond, Mueller, Lloyd, and Lim (2009). Preliminary investigation of the impulsive and neuroanatomical characteristics of compulsive sexual behavior. Psychiatry Research: Neuroimaging, 174, 146–151.
had significantly higher scores on the Barrett Impulsivity Scale, a measure of behavioral impulsivity, than the controls, and significantly lower scores on the Constraint Factor of the MPQ, which indicates problems with behavioral constraint, a construct similar to behavioral inhibition, than the controls. Finally, we found CSB was significantly related to higher negative emotionality, which is a measure of emotional arousal and poor emotional control. All of the differences had large effect sizes.

This small pilot study and other studies that have been reviewed offer support for the notion that CSB is a robust risk factor for unsafe sexual behavior. CSB is significantly related to multiple unsafe sexual behaviors, including increased levels of unprotected anal intercourse, unprotected vaginal intercourse, and having multiple partners. Additionally, the research described previously indicates that CSB is characterized by deficits in response inhibition, motor and cognitive impulsivity, and difficulties with emotional regulation.

**IMPLICATIONS FOR UNDERLYING MECHANISMS FOR HIV SEXUAL RISK**

These findings indicate that CSB may confer increased risk for unsafe sexual behavior through at least three mechanisms: CSB may inhibit the use of condoms or other barrier methods because MSM with CSB do not experience sexual inhibition when faced with the threat of HIV transmission; MSM with CSB may engage in more frequent sex with multiple partners because of increased sexual arousal in the presence of negative mood states and the use of sexual behavior to cope with those mood states; and certain cognitive factors, such as poor cognitive control and belief that sexual behavior provides validation and affirmation, may lead to failure to use condoms and/or to inhibit sexual behavior (see Figure 1).

Bancroft et al. (2003c) found that unprotected anal intercourse and high risk oral sex were associated with deficits in inhibition of sexual re-

![FIGURE 1 Proposed Model of Mechanisms Underlying SC and Unsafe Sexual Behavior](image-url)
Compulsive Sexual Behavior and Risky Sexual Behavior

sponse due to “threat of performance consequences.” In contrast the num-
ber of casual partners and frequent cruising was associated with increased
sexual interest when depressed and an overall high propensity for sexual
excitation.

Figure 1 presents the expected association, where compulsive sexual
behavior is related to both sexual arousal in the presence of negative emo-
tions and poor sexual inhibition, and unsafe sex is related to the height-
ened sexual arousal and poor cognitive control of behavior resulting from
CSB.

Implications for HIV Prevention

Future behavioral prevention efforts will be advanced as we learn more about
the mechanisms that underlie sexual risk decisions. Interventions based on
Theory of Reasoned Action (Fishbein & Ajzen, 1975) and Theory of Planned
Behavior (Ajzen, 1985, 1988) rely on intact cognitive control and do not
account for the influence of sexual arousal or emotional arousability. That
is, both of these theories describe a process by which the decision about
sexual behavior is driven by an evaluation of the characteristics of the be-
havior, the possible outcomes of the behavior, and the relative attractiveness
of the outcomes of either performing or failing to perform the behavior.
The impaired inhibitory mechanisms implied by our findings and the ex-
tant literature directly influence the evaluative processes required to practice
safer sex. Additionally, emotional arousability and the impact of negative
emotional states on sexual arousal influence the environment within which
sexual behavior decisions are made.

We are currently conducting an NIMH-funded study to explicate the
characteristics of CSB and explain how sexual arousal in the presence of
negative affect, behavioral activation, and inhibitory control make individ-
uals resistant to HIV prevention efforts. Further, this study will provide
empirical data to explain the underlying cognitive mechanisms, such as
impairment in abilities to change reinforcement contingencies and delay
gratification, which lead to unsafe sexual behavior in those with compulsive
sexual behavior.

Individuals with identified traits of CSB comprise a small but important
subgroup of MSM to consider as a vector for HIV transmission. Existing
HIV risk reduction programs for MSM focus on behavioral skills building
and changing community norms, but these strategies may not be helpful to
individuals who score high on measures of CSB given the dynamics and
complex nature of CSB. Psychoeducational approaches could be helpful, as
could alerting people with CSB to seek more comprehensive assessment and
treatment.

If this is a clinical syndrome (and this is still being debated), access
There is certainly a danger of possible overpathologization but lack of recognition of this type of problem could be just as serious. Because CSB has also been shown to be associated with other psychiatric problems, these issues need to be addressed in HIV prevention as well (Black et al. 1997; Raymond et al., 2003).

It is likely that the syndrome of CSB has a variety of different and overlapping underlying mechanisms and etiologies. That is why the term impulsive/compulsive sexual behavior (ICSB) might be better suited to describe this syndrome (Coleman, 2011). At this point and because of its descriptive nature, this term leaves open the possibility of multiple pathological pathways and treatments. In previous research, we have found that some individuals have more problems with impulse control rather than obsessive-compulsive mechanisms (Raymond et al., 2003). As suggested in this review, affect regulation and addictive processes may be involved as well. Some individuals may have more problems with impulsive control, others anxiety-reduction mechanisms, others affect regulation, and still others may have more sensation-seeking dysregulation. A number of people suffering from CSB may have a number of overlapping mechanisms driving their behavior.

Certainly addressing CSB should be considered a part of HIV-prevention efforts strategy for MSM because of the well-known correlation. We are also seeing an increase in HIV infection among MSM (Prejean et al., 2011). There are a number of HIV-prevention interventions for MSM that are endorsed by the CDC (2008; Choi et al., 1996; Dilley et al., 2002; Kegeles, Hays, & Coates, 1996; Kelly et al., 1991; Kelly, St. Lawrence, Hood & Brasfield, 1989; The Explore Study Team, 2004; Valdiserri et al., 1989; Wolitski, Gomez, & Parsons, 2005). All of these efforts focus on behavioral “states” rather than “traits.” Because CSB is, by definition, a description of longer-term sexual behavior patterns experienced as outside of voluntary control, addressing CSB among MSM—especially with those experiencing symptoms of CSB must be considered even though there is continued debate about the clinical nature and the underlying mechanisms. Hopefully, we will better understand this phenomenon with further research and develop more focused and effective treatments—matching the treatment to the underlying mechanisms.

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A Review of Pharmacological Treatments for Hypersexual Disorder

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Based upon a variety of neurobiological conceptualizations, a limited number of studies have been performed to assess the response of hypersexual behavior to psychopharmacologic therapy. In the present article, we conducted a review of empirical studies that evaluated a psychopharmacologic treatment for hypersexual behavior. Study characteristics reviewed include the participants, research designs, pharmacologic agent(s) examined and dosage(s), medication side effects, comorbid psychiatric illness, assessment of hypersexual behavior, and outcomes. Several studies report significant attenuation of hypersexual symptoms with pharmacologic treatment. However, significant methodological limitations narrow the rigor of these findings. Considerations for comorbidity and recommendations for enhancement of future outcome research are provided.

Following longstanding historical descriptions of excessive and maladaptive sexual behavior, recent research has sought to better characterize this behavior and its potential treatments, as well as rationalize its classification within the diagnostic nomenclature. Primarily distinguished from the paraphilias by a deviation from societal norms in the former (Kafka & Prentky, 1992), nonparaphilic excessive sexual behaviors have been attributed to a number of pathophysiologic models, including a dysregulation of sexual interest and desire (Kafka, 1991), behavioral addiction (Carnes, 1983; Goodman,
H. Naficy et al.

1997), obsessive-compulsive spectrum disorder (Black, 1998; Coleman, 1987; Quadland, 1985), and impulse control spectrum disorder (Barth & Kinder, 1987; Mick & Hollander, 2006). Acknowledging several of the theorized etiologic elements, Hypersexual Disorder (HD) has been proposed (Kafka, 2010). Within this proposal, HD is characterized as the experience of recurrent and intense sexual fantasies, urges, or behaviors over a period of at least 6 months, resulting in significant personal distress or impairment in social, occupational, or other areas of functioning. Associated criteria include engaging in sexual fantasies, urges, or behaviors in response to dysphoric mood states or stressful life events while disregarding risk for physical or emotional harm, and making repeated but unsuccessful efforts to control or reduce these activities (Kafka, 2010).

A growing body of evidence suggests HD is associated with clinically significant distress and adverse consequences in a number of domains, including increased risk of sexually transmitted diseases (Kalichman & Cain, 2004; Reid, Garos, & Fong, 2012) and unintended pregnancy (Henshaw, 1998), as well as partnered-relationship conflicts, excessive financial expenses, and occupational or educational impairment (Kafka, 2010; Reid, Garos, & Fong, 2012). Several rating instruments have been used to assess these behavioral and psychosocial consequences, as well the presence of HD in males (Hook et al., 2010), however these vary widely in reliability, validity, and clinical applicability, and few have embodied the specific diagnostic criteria proposed for HD. Of note, the Hypersexual Behavior Inventory (HBI; Reid, Garos, & Carpenter, 2011) has been designed to assess hypersexual behavior, and a recent field trial for HD demonstrated the adequate reliability and validity of a structured diagnostic interview to assess HD symptoms when conducted by trained clinicians (Reid et al., 2012).

Although HD has been proposed as a distinct entity, Several Axis I disorders have been observed to co-occur with hypersexual behavior. In particular, mood disorders, anxiety disorders, attention deficit hyperactivity disorders, and psychoactive substance abuse disorders have been reported to be prevalent in males with HD (Black, Kehrberg, Flumerfelt, & Schlosser, 1997; Kafka, 2010; Kafka & Hennen, 2002; Raymond, Coleman, & Miner; 2003; Reid, 2007). Indeed, many proposed pathophysiologic models allude to associations of anxiety, depressed mood, irritability, and boredom with the occurrence of hypersexual behavior, as well as risk-taking and sensation seeking. Although a decrease in sexual interest or behavior is classically associated with major depression, increased sexual behavior has been observed in association with depressive disorders as well (Bancroft et al., 2003; Mathew & Weinman, 1982). These Axis I comorbidities represent a significant consideration for the management and study of pharmacological treatments for HD.

Although several treatment approaches for hypersexual behavior have been proposed, including cognitive-behavioral therapy, group therapy,
12-Step programs, and couples therapy, there have been few empirical studies of pharmacological treatments (Kafka, 2000; Krueger & Kaplan, 2002). Further, most investigation of pharmacological therapy has been methodologically constrained, obscuring an understanding of the effectiveness of this approach. In this article, we reviewed the empirical studies that evaluated a psychopharmacological treatment for hypersexual behavior, and described study characteristics, including the participants, research designs, pharmacologic agent(s) examined and dosage(s), medication side effects, comorbid psychiatric illness, assessment of hypersexual behavior, and outcomes. We provide considerations for psychiatric comorbidity and recommendations for future outcome research.

It is important to note that at this time, there is no FDA-approved treatment for hypersexual behavior. The drug classes presented in this review are being used off-label by healthcare providers. Furthermore, while the classes of drugs presented here demonstrate preliminary efficacy in helping individuals with hypersexual behavior, current scientific evidence does not exist yet on whether these drugs are helpful due to direct effects on sexual thoughts, fantasies, urges and/or behaviors or due to indirect effects through either side effects, such as sexual dysfunction, or the treatment of associated features of hypersexual behavior, such as depression and/or anxiety. Figure 1 outlines the possible mechanisms by which pharmacology may impact hypersexual behaviors.

**METHODS**

**Inclusion Criteria**

Outcome studies that evaluated a pharmacological treatment for hypersexual behavior were reviewed using the following inclusion/exclusion criteria for selection: the study empirically examined a treatment for hypersexual behavior; included a measure of hypersexual behavior; and did not focus exclusively on the treatment of paraphilias. We excluded studies that...
exclusively focused on paraphilias because HD is theorized to be diagnostically distinct from paraphilias (Kafka, 2010).

Literature Search

A literature review search was conducted using multiple computer databases, manually searching the references of previous reviews, and contacting relevant researchers for file-drawer studies. Studies were first identified by searching the PsychINFO and Medline databases through August 1, 2012. The search paired the terms (psycho)pharmacologic(al), pharmacotherapy, and treatment with the following key terms: hypersexuality, sexual addiction, sexual compulsivity, and sexual impulsivity. Previous reviews of the literature were used (Kafka, 2000; Kaplan & Krueger, 2010; Krueger & Kaplan, 2002; Kingston & Firestone, 2008; Stein, 2008) to identify additional relevant studies.

PHARMACOLOGICAL TREATMENTS

SSRIs

Based on an early conceptualization that HD symptoms, observed to have been associated with depression, compulsion, and impulsivity, signified potential central serotonin dysregulation, Kafka & Prentky evaluated a single group of 20 men for symptom improvement in an open trial of the SSRI fluoxetine (Kafka & Prentky, 1992). The sample was composed of 20 men with an average age of 36 years who had HD symptoms and comorbid dysthymia or Major Depressive Disorder (MDD). Participants received fluoxetine pharmacotherapy for a 12-week period starting at 20 mg/day and titrated every 4 weeks to a maximum of 60 mg/day, with an average dosage at outcome of 39.37 mg/day. Symptoms were reassessed every 4 weeks and outcome was assessed at 12 weeks using the Sexual Outlet Inventory, a clinician rating scale of behaviors associated with HD (SOI; Kafka, 1991). A number of participants were undergoing concurrent psychotherapy during the trial, introducing an important confounding variable. Medication side effects were not reported, nor were any noncompliance issues that might have been attributable to side effect occurrence. At end point, a significant reduction was observed in all measures of behaviors associated with HD, while conventional sexual interest and associated behaviors, defined as “reflect[ing] the culturally normative concept of reciprocal affectionate sexual activity” were unaffected (Kafka & Prentky, 1992).

Citing evidence suggesting a particular SSRI for a given clinical situation may be more effective than other drugs within the same class (Brown & Harrison, 1992), another study was performed examining the response of individuals with HD symptoms to sertraline pharmacotherapy (Kafka, 1994).
In an open trial, a sample of 24 men with HD symptoms and an average age of 39 years were treated with sertraline and assessed at variable outcome points using the SOI as the primary outcome measure. While other medical or neurological diagnoses were among the exclusion criteria, some participants did meet criteria for MDD ($n = 3$) or had depressive symptoms. Sertraline was administered for a $M$ duration of 17.4 weeks at an average dosage of 99.0 mg/day, with 4 participants receiving antidepressant augmentation with methylphenidate, trazodone, or lithium. Sertraline treatment was limited by side effects in 11 men, who experienced gastrointestinal distress ($n = 3$), sexual dysfunction ($n = 3$), fatigue ($n = 2$), increased depression ($n = 2$), and headache ($n = 1$) as summarized in Figure 1. Fluoxetine pharmacotherapy was administered to nine men who had an unsatisfactory response to sertraline. Fluoxetine treatment was conducted for a $M$ duration of 30.5 weeks at an average dosage of 51.1 mg/day with three participants receiving adjunctive methylphenidate. At outcome, 70.8% ($n = 17$) of participants who received treatment with one or both SSRIs for at least 4 weeks experienced a significant reduction in HD symptoms. Although men who initiated new psychotherapy during the clinical trial were excluded, a number had already been involved in and continued with concurrent psychotherapy.

In another open trial, Kafka and Hennen evaluated 26 men ($M$ age = 37.7 years) with HD symptoms who were treated with fluoxetine ($M$ dose = 49 mg/day), sertraline ($M$ dose = 110 mg/day), paroxetine ($M$ dose = 35 mg/day), or fluvoxamine ($M$ dose = 100 mg/day) for a $M$ duration of 38.1 weeks (Kafka & Hennen, 2000). Outcome, assessed using the SOI at a variable end point, revealed a substantial and significant reduction in behaviors associated with HD. A significant number of subjects had a lifetime mood disorder ($n = 21$; 81%) or met retrospective diagnostic criteria for attention-deficit/hyperactivity disorder (ADHD; $n = 17$; 65.4%); all other Axis I diagnoses ascertained were not reported. Additionally, this study sought to assess the efficacy of psychostimulant augmentation during SRRI treatment, based upon evidence that some men with HD symptoms meet retrospective criteria for ADHD (Kafka & Prentky, 1998) and that psychostimulant medication may effectively counteract SSRI tolerance (Mischoulon, Fava, & Rosenbaum, 1999) or reduce potential SSRI-induced sexual dysfunction (Bartlik, Kaplan, & Kaplan, 1995). Following clinical indications, methylphenidate sustained-release ($M$ dose = 40 mg/day) or dextroamphetamine (dosage unreported) was given to all participants beginning at the above outcome point, with target symptoms reassessed at a second variable outcome point constituting at least 8 weeks of combination SSRI/psychostimulant therapy. After a second $M$ treatment duration of 9.6 months (completing a total treatment duration of 18.7 months), further significant reductions in HD-associated behaviors were observed. Side effects of SSRI treatment were not reported and effects potentially attributable to psychotherapy were not adequately controlled.
In a double-blind, placebo-controlled study of citalopram, Wainberg et al. evaluated 28 men with HD symptoms over a 12-week trial (Wainberg et al., 2006). The participants (\(M = 36.8\) years) scored at least moderately ill on the Clinical Global Impressions Scale modified for Compulsive Sexual Behavior (CGI-CSB; Wainberg et al., 2006) for inclusion in the study, and were excluded on the basis of “severe psychiatric disorder” including MDD, bipolar disorder, or severe alcohol or drug dependence (Wainberg et al. 2006). No assessment of concurrent ADHD was conducted. Citalopram was administered starting at 20 mg/day and flexibly titrated every 14 days to a maximum dosage of 60 mg/day, with a \(M\) dosage at outcome of 43.36 mg/day. Outcome was assessed at 12 weeks with the Yale-Brown Obsessive Compulsive Scale- Compulsive Sexual Behavior (YBOCS-CSB; Wainberg et al., 2006) as the primary outcome measure, with the Compulsive Sexual Behavior Inventory (CSBI; Coleman, Miner, Ohlerking, & Raymond, 2001) conducted as a measure of concurrent validity; the CGI-CSB was used to monitor global improvement over the course of the study. Participants in both the treatment and placebo group exhibited decreased HD symptoms over the course of the trial. While citalopram was found to significantly reduce three specific secondary outcome variables, secondary analysis revealed two of these three to be attributable to sexual side effects of pharmacotherapy, with reduction only in the “sexual desire/drive” component remaining significant. Delayed ejaculation was significantly greater in the treatment arm. However, other side effects and specifically consequent noncompliance were not reported, nor was concurrent psychotherapy.

Other Antidepressants / Mood Stabilizers

In reference to observations of frequent affective disorder comorbidity in individuals with HD symptoms (Kafka, 1989), 10 men with HD symptoms and one or more comorbid mood disorders were evaluated for response to treatment with the SSRI fluoxetine, the tricyclic antidepressant imipramine, or the mood stabilizer lithium in an open trial (Kafka, 1991). The participants (\(M = 34.8\) years) were administered individualized pharmacotherapy (see Table 1 for average dosages) and weekly supportive psychotherapy for 12 weeks, at which point outcome was measured using the SOI with a positive response defined as at least a 50% reduction in HD symptoms relative to baseline. Two participants were treated with two medications concomitantly, one receiving lithium 600 mg/day in conjunction with imipramine 225 mg/day, one receiving the serotonin antagonist and reuptake inhibitor (SARI) trazodone 150 mg/day in conjunction with fluoxetine 60 mg/day. Nine of the 10 participants experienced substantial reduction in HD symptoms. The sole non-responder experienced partial improvement and anorgasmia upon initial treatment with imipramine 200 mg/day, then relapsed twice.
TABLE 1 Pharmacological Treatment Studies of Hypersexual Behavior

<table>
<thead>
<tr>
<th>Study</th>
<th>Design</th>
<th>N</th>
<th>N Female</th>
<th>M Age</th>
<th>Ddx SD NOS</th>
<th>HD Inclusion Criteria</th>
<th>Primary Pharmacologic Agent</th>
<th>M Dosage (mg/d)</th>
<th>M Length of Treatment (weeks)</th>
<th>Outcome Assessment</th>
<th>HD Measure Instrument</th>
<th>Concurrent Psychotherapy</th>
<th>Primary Drug Side Effects (N Participants)</th>
<th>N Participants with Non-PA Psychiatric Comorbidities</th>
<th>Non-compliant Side Effects</th>
<th>Outcome Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coleman et al. (2000)</td>
<td>R</td>
<td>14</td>
<td>0</td>
<td>45.0</td>
<td>NOS</td>
<td>Dx SD NOS</td>
<td>Nefazodone (SNRI / 5-HT Antagonist)</td>
<td>200</td>
<td>58.1</td>
<td>NA</td>
<td>Physician rating</td>
<td>Yes</td>
<td>9 Headache(2) Bloating(2)</td>
<td>11 of 14 participants reported good control or remission of HD symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kafka (1991)</td>
<td>SG</td>
<td>10</td>
<td>0</td>
<td>34.8</td>
<td>PRD</td>
<td>Dx Pa, PRD</td>
<td>Fluoxetine (SSRI) Imipramine (TCA) Lithium (Elemental) Trazodone (SARI)</td>
<td>Fl:41.4 Im:175 Li:1050 Tr:150</td>
<td>12</td>
<td>Prewk1 Post:wk12</td>
<td>SOI</td>
<td>Yes</td>
<td>10 NR</td>
<td>NR</td>
<td>9 of 10 participants reported sustained improvement of HD symptoms</td>
<td></td>
</tr>
<tr>
<td>Kafka (1994)</td>
<td>SG</td>
<td>24</td>
<td>0</td>
<td>39.0</td>
<td>PRD</td>
<td>Dx Pa, PRD</td>
<td>Sertraline (SSRI) Fluoxetine (SSRI)</td>
<td>Se:99.0 Fl:51.1</td>
<td>Se:17.4 Fl:30.5</td>
<td>Prewk1 Post-varied</td>
<td>SOI</td>
<td>Yes</td>
<td>3 Sertraline GIDistress(3) Sexual dysfunction(3) Fatigue(2) Depression(2) Headache(1) Fluoxetine NR</td>
<td>Participants reported a reduction in HD symptoms over time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kafka &amp; Hennen (2000)</td>
<td>SG</td>
<td>26</td>
<td>0</td>
<td>37.7</td>
<td>PRD</td>
<td>Dx Pa, PRD</td>
<td>Fluoxetine (SSRI) Sertraline (SSRI) Paroxetine (SSRI) Fluvoxamine (SSRI)</td>
<td>Fluo-i9 Se:110 Pa 35 Fluv:100</td>
<td>38.1</td>
<td>Prewk1 Post-varied</td>
<td>SOI</td>
<td>Yes</td>
<td>21 NR</td>
<td>NR</td>
<td>Participants reported a reduction in HD symptoms over time</td>
<td></td>
</tr>
</tbody>
</table>

(Continued on next page)
TABLE 1  Pharmacological Treatment Studies of Hypersexual Behavior (Continued)

<table>
<thead>
<tr>
<th>Study</th>
<th>Design</th>
<th>N</th>
<th>Female</th>
<th>N</th>
<th>M</th>
<th>HD Inclusion Criteria</th>
<th>Primary Pharmacologic Agent</th>
<th>M Dosage (mg/d)</th>
<th>M Length of Treatment (weeks)</th>
<th>Outcome Assessment</th>
<th>HD Measure Instrument</th>
<th>Concurrent Psychotherapy</th>
<th>N Participants with Non-PA Psychiatric Comorbidities</th>
<th>Primary Drug Side Effects (N Due to Non-compliant participants)</th>
<th>N Non-compliant Due to Side Effects</th>
<th>Outcome Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kafka &amp; Prensky (1992)</td>
<td>SG</td>
<td>20</td>
<td>0</td>
<td>36.0</td>
<td>Dx PA, PRD</td>
<td>Fluoxetine (SSRI)</td>
<td>39.37</td>
<td>12</td>
<td>Pre:wk1 Post:wk12</td>
<td>SOI</td>
<td>Yes</td>
<td>20</td>
<td>NR</td>
<td>NR</td>
<td>Participants reported a reduction in HD symptoms over time</td>
<td></td>
</tr>
<tr>
<td>Raymond &amp; Grant (2010)</td>
<td>R</td>
<td>19</td>
<td>0</td>
<td>44.1</td>
<td>Dx PCSB NPCSB</td>
<td>Naltrexone (Opiate Antagonist)</td>
<td>104</td>
<td>52</td>
<td>NA</td>
<td>Clinician rating</td>
<td>Yes</td>
<td>18</td>
<td>Sedation(3) Insomnia(1) Parasthesia(1)</td>
<td>3</td>
<td>17 of 19 participants reported reduction of HD symptoms</td>
<td></td>
</tr>
<tr>
<td>Wainberg et al. (2006)</td>
<td>C</td>
<td>28</td>
<td>0</td>
<td>36.8</td>
<td>&quot;Moderate&quot; threshold on CGI-CSB scale</td>
<td>Citalopram (SSRI)</td>
<td>43.36</td>
<td>12</td>
<td>Pre:wk1 YBOCS-CSB; Post:wk12 CGI-CSB</td>
<td>NR</td>
<td>NR</td>
<td>Delayed ejaculation (significantly greater in treatment arm; N NR)</td>
<td>NR</td>
<td>Participants in treatment arm did not report greater improvement in HD symptoms than control arm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. HD = hypersexual disorder; NR = not reported; R = retrospective; SG = single group; C = comparative; SD NOS = sexual disorder not otherwise specified; PA = paraphilia; PRD = paraphilia-related disorder; SARI = serotonin antagonist and reuptake inhibitor; TCA = tricyclic antidepressant; SNRI = serotonergic noradrenergic reuptake inhibitor; SSRI = selective serotonin reuptake inhibitor; SOI = Sexual Outlet Inventory (Kafka, 1991); YBOCS-CSB = Yale-Brown Obsessive Compulsive Scale-Compulsive Sexual Behavior (Wainberg et al., 2006); CSBI = Compulsive Sexual Behavior Inventory (Coleman et al., 2001); CGI-CSB = Clinical Global Impressions Scale modified for Compulsive Sexual Behavior (Wainberg et al., 2006).
following subsequent treatment with fluoxetine 40 mg/day and 60 mg/day, respectively. No other side effects were reported in the sample.

In a retrospective study, Coleman et al. reviewed the records of 14 men with HD symptoms who were previously treated in an outpatient clinic with the SNRI/5-HT Antagonist nefazodone (Coleman, Gratzer, Nesvacil, & Raymond, 2000). All participants (M age = 45 years) had previously been treated with 2 or more SSRIs and were switched to nefazodone due to sexual side effects, failure of symptom remission, or gastrointestinal side effects associated with SSRI treatment. Nine of the 14 participants had a comorbid mood disorder, anxiety disorder, or substance abuse disorder, and all were undergoing concurrent psychotherapy during the time period examined. Three subjects discontinued nefazodone therapy, two of which were attributed to side effects (headache, bloating). Participants remained on nefazodone therapy for a M duration of 58.1 weeks, receiving a M dosage of 200 mg/day. On the primary outcome measure, which constituted a physician rating scale of efficacy ranging from one to four, the 11 patients who remained on nefazodone therapy reported a good response, with six individuals receiving a three, reflecting “good control” and five subjects receiving a rating of four, signifying “remission” of symptoms (Coleman et al., 2000). None of the 11 participants remaining on nefazodone reported sexual side effects, headache, sedation, or abdominal discomfort.

Opiate Antagonists

In a retrospective study, Raymond and Grant reviewed the records of 19 male patients with HD symptoms who were treated with the opiate antagonist naltrexone in an outpatient clinic, citing evidence of its effectiveness in treating other addictive behaviors and disorders that include a strong urge component (Raymond & Grant, 2010). The 19 men (M age = 44.1 years) were retrospectively given a clinician-rated CGI score at baseline and upon review of each medication management appointment. Naltrexone was started at 25–50 mg/day, increased to 100 mg/day after 1–2 weeks if indicated, then increased further as needed to a maximum dosage of 200 mg/day. Due to a “black box” warning of hepatotoxicity associated with naltrexone doses exceeding 50 mg/day, which is speculated to be precipitated by concurrent administration of nonsteroidal anti-inflammatory drugs (NSAIDs), patients were instructed not to use over-the-counter analgesics while taking doses above 50 mg/day (Kalyanaraman & Remmel, 2003). Liver function tests (LFTs) taken at baseline and throughout treatment were never elevated for any of the subjects. All but one patient in this sample had a concurrent psychiatric diagnosis, 16 of 19 patients (84%) were taking psychiatric drugs other than naltrexone, and all were undergoing concurrent psychotherapy. Seventeen of 19 patients reviewed had a significant reduction in HD symptoms with naltrexone pharmacotherapy (M effective dose = 104 mg/day),
corresponding to a CGI score of 1 (very much improved) or 2 (much improved). Responders were treated with naltrexone for an average duration of 52 weeks. Five responders (26%) discontinued medication despite improvement, 2 (11%) citing sedation and 1 (5%) citing insomnia and extremity paraesthesia/anesthesia. Of the 2 (11%) of patients who did not respond, one also reported experiencing sedation.

**DISCUSSION**

Limited research has been done to discern the potential role and efficacy of psychopharmacologic treatments for hypersexual behavior, and that which has been conducted maintains significant methodological limitations. Further, the frequency of Axis I comorbidity with hypersexual behavior, considered with the current lack of understanding of psychiatric disorder pathogenesis, obscures the isolation of hypersexual behavior as a singular entity, if one is to occur, and thus limits the conclusions that can be drawn from the clinical study of its treatments.

The outcome studies reviewed examining psychopharmacologic treatments for hypersexual behavior had generally compromised methodologies. Although there is significant ambiguity of the precise epidemiology of hypersexual behavior, the studies had limited cultural and gender representation, as all participants were male and largely white. In addition, sample sizes were small, further impairing the ability to extrapolate results to a larger population. Symptom and phenomenologic consistency was also limited across studies, as inclusion criteria were quite varied and included self-identification requirements in some reports.

Study research designs also sustained a high potential for introducing confounds. The majority of studies were single group open trials or retrospective reviews, lacking control groups and randomization, thus limiting the determination of causality. The single comparative study, a double-blind placebo-controlled trial, was the only article of those reviewed reporting no significant reduction in HD symptoms (Wainberg et al., 2006), laying challenge to positive results achieved in uncontrolled examinations. Additionally, long-term follow-up was infrequent, obstructing potential insights into the sustainability of symptom improvement.

The treatments being examined also lacked consistency and were seldom isolated. At times patients were administered pharmacological treatment from a variety of drug classes or with varying drugs within the same class, while studies setting out to examine the effects of a single agent in particular often failed to control for concurrent or adjunctive pharmacotherapy. Drug dosages, similarly, were variable and often corresponded to variable outcome time points. More standardized dosage designs may have yielded very different dose-response effects than those reported, and would provide
a more consistent basis for extension of results across broader samples. Further, the effects of psychotherapy were not controlled, as patients were often undergoing concurrent psychotherapy or receiving unexamined supportive care during medication management and outcome sessions. Considering the frequent exposure to these concomitant treatments, it is very difficult to draw causal conclusions from achieved results.

In addition to treatment administration issues, there were significant inconsistencies among measurement instruments utilized. While some studies employed instruments with published psychometric properties, there was broad use of a variety of instruments that were lacking in empirical validity or reliability. With little consensus on methodologies for measurement of HD (Hook et al., 2010), identifying and defining measurement variables and their changes is difficult. The variety of instruments used and their lack of convergence across studies hinder the ability to weigh and compare treatment effects.

The potential consequences of medication side effects should also be acknowledged. While roughly half of the studies reviewed reported some side effect occurrence for the primary pharmacological agent under review, disclosure of side effects and descriptions of their nature were incomplete. Also, noncompliance issues were underreported, and their attribution to side effect occurrence less so. This constitutes a substantial gap in the significance of results, as medication intolerance holds important implications for both long-term efficacy and sustainability. It should also be noted that sexual dysfunction side effects, a common report with SSRI pharmacotherapy, represents an additional confound insofar as the desired effect in treating hypersexual behavior is a reduction in detrimental fantasies, urges, and activities while maintaining a functional physiologic capacity for healthy sexual engagement.

Finally, the frequent co-occurrence of several Axis I disorders with hypersexual behavior should be considered. As mood disorders, anxiety disorders, attention deficit hyperactivity disorders, and psychoactive substance abuse disorders have all been reported to be prevalent in males with HD (Kafka, 2010), the potential effectiveness and optimization of its psychopharmacologic management might be advanced by individualizing treatment in the instance of these comorbidities. Hypotheses of an HD etiology involving central serotonin dysregulation (Kafka & Prentky, 1992) and observations of a high frequency of affective disorder comorbidity with hypersexual behavior (Kafka, 1991) have formed the basis for the examination of SSRI efficacy in ameliorating HD symptoms. As noted above, the only double-blind placebo-controlled trial conducted, which evaluated the efficacy of citalopram in the treatment of hypersexual behavior, found no significant reduction in HD symptoms in the treatment group relative to placebo (Wainberg et al., 2006). For future studies of SSRI therapy for HD, distinguishing true reductions in disruptive sexual fantasies, urges, and behaviors versus potential sexual
dysfunction side effects will aid in establishing an evidence basis for this approach. The potential incidence of hypersexual aspects of bipolar mania should also be carefully considered in approaching SSRI treatment in order to avoid further activation of latent manic symptoms.

It has also been observed that ADHD may be quite prevalent among individuals with HD symptoms (Kafka & Prentky, 1998; Reid, Carpenter, Gilliland, & Karim, 2011). Pursuant to these findings, Kafka & Hennen (2000) examined the efficacy of psychostimulant augmentation of SSRI treatment for men with HD and comorbid ADHD. Although two different psychostimulants were used and administered at varying doses, an additional ameliorative effect was observed in participants receiving these pharmacotherapies. The extent to which psychostimulant treatment would be effective for HD in the absence of comorbid ADHD is undetermined.

Targeting hypersexual symptoms with aversive medications or, as has been used on some occasions, antiandrogens (Safarinejad, 2009), is likely ineffective inasmuch as maintenance of healthy sexual functioning is desired. Short of an obliteration of sexual drive or capacity, which runs counter to clinically restorative objectives, opiate antagonists have been used to treat hypersexual behavior in patients whose symptoms are thought to contain a strong urge component. Citing its efficacy in the treatment of other conditions like alcoholism, where urge is believed to play a central role (Anton et al., 1999), Raymond & Grant found naltrexone to be effective in reducing the symptoms of HD in the retrospective study reviewed. Acknowledgement of potential hepatotoxicity with naltrexone doses exceeding 50 mg/d as well as consideration of the other concurrent medications and psychotherapies administered in this study should be made. Prohibitive side effects of opiate antagonists, including sedation, should also be taken into account.

A psychopharmacologic approach for the treatment of hypersexual behavior should be conducted with prudence. Careful screening for underlying or pre-existing psychiatric disorders that may be the precipitant of hypersexual symptoms should be carried out prior to decisions for treatment or study inclusion. As discussed above, more rigorous outcome studies are necessary to assess the efficacy of all treatment modalities for patients suffering these symptoms, such that clinically meaningful results may be effectively translated to improved patient care.

REFERENCES


Kafka, M. P. & Hennen, J. (2000). Psychostimulant augmentation during treatment with selective serotonin reuptake inhibitors in men with paraphilias and...


