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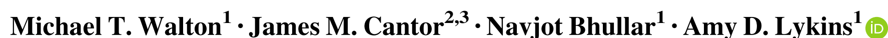
TARGET ARTICLE

Hypersexuality: A Critical Review and Introduction to the "Sexhavior Cycle"

Michael T. Walton[1] · **James M. Cantor**[2,3] · **Navjot Bhullar**[1] · **Amy D. Lykins**[1]

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Abstract An empirical review of hypersexuality is timely as "compulsive sexual behavior" is being considered as an impulse control disorder for inclusion in the forthcoming *International Classification of Diseases, 11th ed*. Specifically, hypersexuality has been conceptualized in the literature as the inability to regulate one's sexual behavior that is a source of significant personal distress. Various theoretical models have been posited in an attempt to understand the occurrence of hypersexuality, although disagreement about these divergent conceptualizations of the condition has made assessment and treatment of hypersexual clients more challenging. Theories of sexual compulsivity, sexual impulsivity, dual control (sexual inhibition/excitation), and sex addiction are critically examined, as are the diagnostic criteria for clinically assessing hypersexuality as a sexual disorder. Our discussion of hypersexuality covers a diversity of research and clinical perspectives. We also address various challenges associated with reliably defining, psychometrically measuring, and diagnosing hypersexuality. Furthermore, literature is reviewed that expresses concerns regarding whether hypersexuality (conceptualized as a disorder) exists, whether it is simply normophilic behavior at the extreme end of sexual functioning, or alternatively is a presenting problem that requires treatment rather than a clinical diagnosis. Following our literature review, we developed the "sexhavior cycle of hypersexuality" to potentially explain the neuropsychology and maintenance cycle of hypersexuality. The sexhavior cycle suggests that, for some hypersexual persons, high sexual arousal may temporarily and adversely impact cognitive processing (cognitive abeyance) and explain a repeated pattern of psychological distress when interpreting one's sexual behavior (sexual incongruence). We also suggest that further research is required to validate whether hypersexuality is a behavioral disorder (such as gambling), although some presentations of the condition appear to be symptomatic of a heterogeneous psychological problem that requires treatment.

Keywords Dual control model · Hypersexuality · Sex addiction · Sexhavior cycle · Sexual compulsivity · Sexual impulsivity · DSM-5 · ICD-11

✉ Amy D. Lykins
alykins@une.edu.au

[1] School of Behavioural, Cognitive and Social Sciences, University of New England, Armidale, NSW 2351, Australia

[2] Campbell Family Mental Health Research Institute, Centre for Addiction and Mental Health, Toronto, ON, Canada

[3] Department of Psychiatry, University of Toronto Faculty of Medicine, Toronto, ON, Canada

Introduction

A central tenet of psychologists' clinical and ethical practice is their use of professional training and skills to assist people to learn how to cope more effectively with various life issues and mental health problems (American Psychological Association, 2016). Regarding hypersexuality and psychology, for decades some clients have requested psychologists' help to better regulate their sexual behavior, whether that is variously described as hypersexuality, sex addiction, sexual compulsivity, sexual impulsivity, dysregulated sexual behavior, out-of-control sexual behavior, or a symptom of a mental disorder. As a discipline, clinical psychology has wrestled with understanding clients' heartfelt accounts that their sexual behavior is out-of-control, either continuously or episodically.

Perhaps the aspect of hypersexuality that health professionals most agree on is that, for various reasons, some clients continue to report difficulty with controlling their sexual behavior, which at times cause them and/or their families to experience significant levels of psychological and relationship distress (Reid, Car-

penter, Draper, & Manning, 2010; Spenhoff, Kruger, Hartmann, & Kobs, 2013). Notwithstanding the ongoing debate regarding the legitimate existence of hypersexuality as a clinical disorder, as a profession, psychology has a continuing responsibility to scientifically develop a body of empirical evidence and best-practice assessment methods and treatments to help persons presenting with hypersexuality-type complaints. It is due to the diverse understandings of hypersexuality and also upholding a central principle of psychology—to actively help our clients—that the following review of hypersexuality arose.

Literature Search

We searched a comprehensive range of psychology, psychiatry, and medical databases for papers which potentially informed health professionals and researchers about clinical presentations of hypersexuality. Search terms included "hypersexual," "hypersexuality," "sex addiction," "sexual impulsivity," "sexual compulsivity," and "out-of-control sexual behavior." We sought articles that involved research and literature reviews of hypersexuality, as well as related clinical commentary, case reports, secondary references, textbooks, and textbook chapters on the condition. The literature search was completed in September 2015, although additional references have been included since this date.

Hypersexuality

Hypersexuality has been described as a pattern of recurrent, intense, and excessive preoccupation with sexual fantasies, urges, and behavior that individuals struggle to control (Kafka, 2010; Kafka & Hennen, 2003; Reid, Garos, & Carpenter, 2011b). Additionally, hypersexuality as a clinical condition includes observable symptoms (i.e., high frequency of sexual activity), subjective symptoms (e.g., perceiving that one's sexual fantasies, urges, and behavior are uncontrollable), adverse life consequences associated with out-of-control sexual behavior, and significant psychological distress or impairment about one's hypersexuality itself (Hook, Hook, Davis, Worthington, & Penberthy, 2010). However, hypersexual-related behavior, fantasies, or urges may not be personally distressing or clinically relevant for everyone (i.e., non-hypersexuals) and, as such, not count as hypersexuality according to our definition.

The consequences of hypersexuality may be personally injurious and include sexually transmitted infections (STIs, including HIV) and unplanned pregnancies (Kalichman & Cain, 2004; Långström & Hanson, 2006; McBride, Reece, & Sanders, 2008). In addition, other detrimental consequences associated with hypersexuality may include relationship conflict and dissolution, social isolation, diminished self-esteem, loss of employment, financial indebtedness (e.g., if paying for escorts), and legal violations (e.g., if engaging in sex offending) (Hall, 2013; Parsons, Kelly, Bimbi, Muench, & Morgenstern, 2007; Reid et al., 2010; Reid, Carpenter, & Lloyd, 2009a).

Adverse consequences arising from hypersexuality may also cause significant psychological distress, impairment in daily functioning, and diminished life satisfaction that is perhaps experienced as secondary to (or follows) repeated and problematic patterns or incidents of sexual behavior (Dhuffar, Pontes, & Griffiths, 2015). Consequently, hypersexuality is commonly associated with depressed mood and anxiety (Black, Kehrberg, Flumerfelt, & Schlosser, 1997; Kafka & Hennen, 2002; Kuzma & Black, 2008; Nair, Pawar, Kalra, & Shah, 2013; Schultz, Hook, Davis, Penberthy, & Reid, 2014).

Prevalence

Hypersexuality is estimated to affect between 2 and 6% of individuals (Coleman, 1992; Kuzma & Black, 2008; Odlaug et al., 2013), although the rate of hypersexuality is much higher in males and potentially select populations such as sex offenders and homosexual men (Carnes, 1991; Hanson & Morton-Bourgon, 2005; Kafka, 1997; Kingston & Bradford, 2013; Kuzma & Black, 2008). More broadly, the prevalence of hypersexuality in the general population varies appreciably depending on how hypersexuality is defined and measured (Reid, 2013). Research estimates that at least 24 self-report instruments currently exist to measure various conceptualizations of hypersexuality (Womack, Hook, Ramos, Davis, & Penberthy, 2013). Furthermore, in the absence of a generally accepted diagnostic measure of hypersexuality, as well as a generally accepted definition of hypersexuality, there continues to be clinical disagreement on how to reliably measure this condition, which may account for the wide variation in its estimated prevalence (Moser, 2011; Winters, 2010).

Considering Hypersexuality as a Disorder

Hypersexuality was considered for inclusion as a psychiatric disorder within the Sexual Dysfunctions section of the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5) (American Psychiatric Association, 2013; Kafka, 2010; Reid et al., 2012a). Diagnostic criteria for hypersexual disorder (HD) recommended by the DSM-5 Work Group on Sexual and Gender Identity Disorders are detailed in Table 1. Specifically, for clinicians to diagnose a client with HD, a total of four out of five behavioral criteria must have been met over a period of at least 6-month duration, in addition to a client meeting points B, C, and D of the proposed criteria. Taken together, HD was intended to be atheoretical—that is a criterion-based categorization of the condition (Kafka, 2010).

HD was primarily conceptualized by the DSM-5 Work Group as a non-paraphilic sexual desire disorder that is driven in part by impulsivity, although hypersexuality is also recognized to sometimes include paraphilic sexual behavior (Kafka, 2001; Klein, Rettenberger, & Briken, 2014; Krueger & Kaplan,

Table 1 Proposed DSM-5 diagnostic criteria for Hypersexual Disorder

A. Over a period of at least 6 months, recurrent and intense sexual fantasies, sexual urges, and sexual behavior in association with four or more of the following five criteria:

1. Excessive time is consumed by sexual fantasies and urges, and by planning for and engaging in sexual behavior
2. Repetitively engaging in these sexual fantasies, urges, and behavior in response to dysphoric mood states (e.g., anxiety, depression, boredom, and irritability)
3. Repetitively engaging in sexual fantasies, urges, and behavior in response to stressful life events
4. Repetitive but unsuccessful efforts to control or significantly reduce these sexual fantasies, urges, and behavior
5. Repetitively engaging in sexual behavior 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, and behavior

C. These sexual fantasies, urges, and behavior are not due to direct physiological effects of exogenous substances (e.g., drugs of abuse or medications), a co-occurring general medical condition, or to manic episodes

D. The person is at least 18 years of age

Specify if the subtype of hypersexual behavior is related to masturbation, pornography, sexual behavior with consenting adults, cybersex, telephone sex, and strip clubs

2001; Morgenstern et al., 2011). Conventional or non-paraphilic sexual behaviors may include consensual sex, masturbation, or pornography use. Unconventional or paraphilic behaviors may include sexual masochism, voyeurism, or exhibitionism, and in some cases, these types of behaviors in their most extreme form are recognized in DSM-5 as various paraphilic disorders. Specifically, paraphilic sexual behaviors characterize any intense, persistent, and preferential sexual interest that does not involve copulatory or precopulatory behavior with phenotypically normal and consenting adult human partners between the ages of physical maturity and physical decline (Cantor, Blanchard, & Barbaree, 2009).

On a dimensional continuum of sexual functioning, HD is considered by some to be the polar opposite to hyposexual desire disorder (Kafka, 2010). That is, HD may be indicative of excessive sexual desire, arousal, and sexual activity frequency. In contrast, hyposexual desire disorder and asexuality are considered indicative of low sexual desire, arousal, and sexual activity frequency, and in some cases indicative of a complete absence of any of the above (Bogaert, 2004; Brotto, Knudson, Inskip, Rhodes, & Erskine, 2010; Prause & Graham, 2007). The DSM-5 currently defines hyposexuality as the persistently absent (or reduced) interest or arousal in sexual activity, which also causes clinically significant levels of personal distress (American Psychiatric Association, 2013).

A field trial was conducted by the DSM-5 Work Group to examine formally the criteria proposed to clinically diagnose HD. Trial results indicated the diagnostic criteria demonstrated strong reliability and validity when applied to outpatients in a clinical setting (Reid et al., 2012a). However, despite promising results arising from the clinical field trial, the Board of Trustees of the APA declined to include HD in DSM-5 and notably did not allow its inclusion even in the Emerging Measures and Models (Conditions for Further Study) section of the diagnostic manual. Kafka (2014) suggested the two primary reasons for not including HD in DSM-5 were: (1) insufficient scientific evidence that the proposed diagnostic criteria represented a distinct clinical disorder, and (2) potential misuse of HD in legal settings.

Notwithstanding the exclusion of HD from DSM-5, there continues to be substantial literature, as well as anecdotal feedback from clinicians and clients, that supports the existence of some form of clinical presentation consistent with various conceptualizations of hypersexuality and, as such, warrants further investigation. Indeed, HD is currently under consideration for inclusion in the *International Classification of Diseases, 11th ed.* (ICD-11), a diagnostic classification standard used for clinical and research purposes by multidisciplinary health professionals in over 100 countries (World Health Organization, 1992, 2016). The ICD-11 Working Group on Obsessive–Compulsive and Related Disorders recommended inclusion of "compulsive sexual behavior" in the ICD-11, specifically within the grouping category known as impulse control disorders (Grant et al., 2014).

Clinical Concerns About Conceptualizing Hypersexuality as a Disorder

Three primary and overlapping themes emerge in the literature with regard to recognizing hypersexuality as a clinical disorder: scientific, normophilic, and forensic. Furthermore, to date, research of hypersexuality has mostly utilized correlational designs to establish relationships between numerous variables and hypersexuality and, as such, causation cannot be reasonably implied. This point is worthy of consideration when interpreting the research findings contained in this review of hypersexuality.

Scientific

The scientific argument has consistently raised concern that hypersexuality rests on loosely defined constructs (such as "loss of control") which lack diagnostic consensus, and also reliability

and validity in its measurement (Halpern, 2011; Klein, 2003; Ley, Prause, & Finn, 2014; Marshall & Briken, 2010; Moser, 2011, 2013; Rinehart & McCabe, 1997; Winters, 2010; Winters, Christoff, & Gorzalka, 2010). For example, debate continues about whether hypersexuality is indicative of high sexual desire or related to psychological distress that arises from an inability to control one's sexual thoughts, urges, and behavior (Carvalho, Stulhofer, Vieira, & Jurin, 2015b; Winters et al., 2010).

Research findings are mixed on the question of whether hypersexuality is simply a marker of high sexual desire or indicative of other related or unrelated processes. Winters et al. (2010) conducted a large online study of 6458 males and 7938 females that found "sexual dysregulation" (or hypersexuality) was associated with increased sexual desire and, moreover, these two variables may be considered indistinguishable constructs. However, Carvalho et al. (2015b) conducted a large online sample involving 4597 males and females and, in contrast to Winters et al. (2010), found that hypersexuality and high sexual desire/activity were two distinct constructs. In a further study, Muise, Milhausen, Cole, and Graham (2013) found in a non-clinical sample involving 1301 heterosexual married adults that higher arousability scores were associated with higher levels of sexual compulsivity for both males and females.

In addition, emerging research suggests that hypersexuality may be symptomatic of another clinical disorder(s) or an underlying psychological problem(s) that requires targeted treatment rather than clients receiving a clinical diagnosis of hypersexual disorder (Hughes, 2011; Klein, 2003; Winters, 2010). Research also suggests that hypersexuality may frequently be comorbid with other mental disorders (e.g., substance-related addiction) (Brunk, 2014; Carnes, 1991; Hagedorn, 2009; Kaplan & Krueger, 2010; Schneider, 1991, 2005). To date, research has tended to assume that hypersexuality derives from an underlying disorder from which a "one-size-fits-all" approach to clinical treatment may be successfully applied (Cantor et al., 2013; Reid, 2013; Sutton, Stratton, Pytyck, Kolla, & Cantor, 2014). However, perhaps hypersexuality is not homogeneous in its etiology and clinical presentation may take various forms—for example avoidant masturbation or chronic adultery (Cantor et al., 2013).

Furthermore, recently published research by Walton, Cantor, and Lykins (2017c) raises concern about whether self-report measures of hypersexuality are adequate to reliably assess the condition, particularly within a non-clinical general population. Walton et al. surveyed an international sample of 510 heterosexual, bisexual, and homosexual men and women, with results indicating that 18.4% of participants exhibited clinically significant hypersexuality. More recently, Walton, Cantor, Bhullar, and Lykins (2017a) surveyed a diversely recruited international sample of 1559 male, female, transgender, and intersex persons and found that 17.9% of participants reported clinically relevant hypersexuality on the instrument used to measure it. Similarly, Reid, Harper, and Anderson (2009b) found a prevalence rate for self-reported hypersexuality of 18% in a small sample of college males ($N = 73$). Notwithstanding that Walton et al. (2017a, 2017c) in part sought participants who were likely to identify with hypersexuality, the rate of self-reported hypersexuality found in these studies is most likely significantly higher than the objectively assessed prevalence rate found in the general population.

It is unclear whether such high rates of hypersexuality represent true prevalence rates, may be reflective of invalid psychometric instruments or poor sampling, and/or may reflect researchers inadequately controlling for confounds known to be associated with hypersexuality (e.g., ADHD) (Reid, 2016). Additionally, high prevalence of hypersexuality found by Walton et al. (2017a, 2017c) may call into question whether the condition (as currently measured by various self-report instruments) is a valid construct. That is, such research findings raise the question—Is hypersexuality a valid disorder if approximately 20% of a sample population are identified with apparently clinically relevant hypersexuality? Indeed, it is possible that existing self-report measures of hypersexuality are tapping into a range of psychological problems.

Because personal beliefs or perceptions regarding either the appropriateness of one's sexual behavior or level of sex addiction are sometimes misplaced, in such circumstances, scores on self-report measures of hypersexuality (such as the Hypersexual Behavior Inventory; Reid et al., 2011b) are likely to be a subjective assessment and an inaccurate measurement of the condition (Womack et al., 2013). For some hypersexual persons, the source of their psychological distress may be incorrectly believing that their sexual behavior is excessive or sexual thoughts are inappropriate, as opposed to their current level of sexual behavior being quantitatively "out-of-control" (Grubbs, Exline, Pargament, Hook, & Carlisle, 2015a; Kwee, Dominguez, & Ferrell, 2007; Walton, Lykins, & Bhullar, 2016). Indeed, new research suggests that a person's perceived addiction to online pornography uniquely predicts their psychological distress, whereas neither their level of pornography use nor their personality features did (Grubbs, Stauner, Exline, Pargament, & Lindberg, 2015b).

Grubbs et al. (2015b) also found that religiosity and moral disapproval of pornography were strong predictors of individuals perceiving their addiction to online pornography. In line with these findings, religious persons reported higher levels of perceived addiction to Internet pornography and hypersexuality when compared to non-religious persons (Bradley, Grubbs, Uzdavines, Exline, & Pargament, 2016; Karaga, Davis, Choe, & Hook, 2016; Wilt, Cooper, Grubbs, Exline, & Pargament, 2016). In addition, Carvalho et al. (2015b) reported that hypersexuality was associated with a perceived inability to control one's sexuality and moralistic/traditional attitudes to sex.

In contrast, Reid, Carpenter, and Hook (2016) found in a sample of males assessed for HD that religiosity was unrelated to self-reported levels of hypersexuality. Reid et al. also found that religious males ($N = 52$) and non-religious males ($N = 105$) reported similar levels of sexual activity frequency, such as problematic pornography use and masturbation. Similarly, Dhuffar and Griffiths (2014) surveyed the hypersexuality of 102

female participants and found no evidence that religious affiliation and/or religious beliefs influenced levels of the condition. Furthermore, Bradley et al. (2016) found that perceived addiction may be a mild risk factor for increased psychological distress, irrespective of whether persons self-identified as either religious or non-religious.

A further challenge of scientifically measuring clinically relevant hypersexuality in a general population is that some persons may hold misplaced perceptions that their sexual behavior is out-of-control, when these persons may at times simply struggle with maintaining sexual monogamy in their committed relationships (Cantor et al., 2013). Indeed, casual sexual encounters are increasingly engrained in social culture, notwithstanding that a stigma continues to exist surrounding extradyadic sex outside of committed relationships (Conley, Moors, Matsick, & Ziegler, 2013; Garcia, Reiber, Massey, & Merriweather, 2012).

It is possible that sexual monogamy is a cultural expectation for which some individuals at times struggle to achieve. Indeed, Cooper, Delmonico, and Burg (2000) undertook a large study ($N = 7738$) to examine the prevalence of cybersex compulsivity. The majority of persons who identified with Internet sex addiction were heterosexual males living in either a marital or committed relationship. In addition, research has also found that college women who reported higher levels of hypersexuality were more likely to engage in sex with partners outside of their relationship (Stupiansky, Reece, Middlestadt, Finn, & Sherwood-Laughlin, 2009).

Normophilic

The normophilic argument raises concern that to clinically diagnose hypersexuality risks pathologizing and exploiting personal fears that one's sexual behavior is out-of-control when such practices may simply differ from social norms, be considered less conventional, or be less sanctioned expressions of sexuality (Klein, 2003; Levine & Troiden, 1988; Ley et al., 2014; Reay, Attwood, & Gooder, 2013; Winters, 2010). Some researchers suggest that to clinically diagnose sexual behavior as hypersexual is problematic because sexual behavior is uniquely individual, situational, value laden and occurs within a cultural context that may be open to political exploitation and social control (Klein, 2003; Ley et al., 2014; Reay, Attwood, & Gooder, 2013). Indeed, we are mindful that clinicians do not incorrectly diagnose "non-conforming" sexual behavior as a clinical disorder, as occurred when homosexuality was formerly included as a disorder in DSM. It has also been argued that hypersexuality may be simply a learned pattern of behavior used to alleviate uncomfortable emotions (Levine & Troiden, 1988).

In addition, should hypersexuality be officially recognized as a clinical disorder at sometime in the future, some researchers reasonably question where on the sexual functioning continuum does sexual behavior become excessive and problematic (Rinehart & McCabe, 1997). To date, research has struggled to define or agree upon clinical cutoff points which reliably discriminate between hypersexuality and non-hypersexuality (Orford, 1978; Winters, 2010). Consequently, pathologizing hypersexuality risks stigmatizing and incorrectly diagnosing some people's sexual behavior, which is potentially risky when health professionals continue to be unclear about what constitutes excessive levels of sexual desire and activity (Kaplan & Krueger, 2010; Moser, 2013, Rinehart & McCabe, 1997, Winters, 2010; Winters et al., 2010). Indeed, we have found that some non-hypersexual persons exhibit high levels of sexual behavior similar to the levels of sexual behavior reported by hypersexual persons, but about which non-hypersexual persons are not clinically distressed (Walton et al., 2016). As such, Walters, Knight, and Långström (2011) suggested that a dimensional measurement of sexual activity should be included to reliably diagnose hypersexuality.

Furthermore, considerable research suggests that males experience stronger sexual arousal, sex drive, and greater engagement in sexual activity than females, although gender differences in sexual activity frequency vary widely across the various sexual behaviors measured, ranging in estimate from small-to-large effect sizes (Baumeister, Cantanese, & Vohs, 2001; Dawson, Bannerman, & Lalumiere, 2016; Peplau, 2003; Petersen & Hyde, 2011). Notwithstanding the variability found to exist in the sexual activity frequency between men and women, the observed gender difference does not disappear nor is it reversed between the sexes.

It has been suggested that males experience a stronger sexual arousal and drive compared to females and are much more likely to identify as hypersexual arousal and drive compared with females because they are socialized to be sexually dominant and behaviorally experimental (Coleman, 1992). Alternatively, patterns of sexual behavior and arousal in men could result from evolved predispositions toward a greater interest in sexual variety, frequency, and casual sex, compared to females (Baumeister et al., 2001; Långström & Hanson, 2006; Schmitt, 2005). Indeed, a representative survey examining the sexual practices of 3432 adults in the U.S. found that males, in comparison with females, fantasize about sex more often, want sex more often, and are more likely to engage in solo masturbation when sexually aroused (Laumann, Gagnon, Michael, & Michaels, 1994).

Forensic

The forensic argument raises concerns that clinically diagnosing hypersexuality may undermine individuals' responsibility and accountability for their sexual behavior (Goodman, 2001; Halpern, 2011). However, persons with a recognized mental disorder are not necessarily deemed sufficiently psychologically impaired or incapacitated to avoid legal responsibility for their actions. Although substance and addictive disorders (e.g., alcohol) have historically been used by some lawyers as a legal defense of their clients' behavior (Pressman & Caudill, 2013), being

under the influence of alcohol or substances does not normally diminish or absolve persons of their legal responsibility when a crime such as sexual assault has been committed (Blaszczynski & Silove, 1996; Blume, 1988).

It has also been argued that most hypersexual persons do not have a paraphilic disorder, neither are they likely to be sex offenders nor sexually violent predators that appear before the legal system. Therefore, the forensic argument against recognizing hypersexuality as a clinical disorder is suggested by some researchers to be somewhat moot (Kafka, 2014; Krueger & Kaplan, 2001). More recently, there is recognition that sex offenders may engage in non-paraphilic as well as paraphilic hypersexuality (Kingston, 2016; Långström & Hanson, 2006), with paraphilic hypersexuality being associated with offenses against both adults and children (Gwee, Lim, & Woo, 2002; Kingston & Bradford, 2013; Marshall & Briken, 2010), and high rates of recidivism related to sexual preoccupation and self-regulation problems (Hanson & Morton-Bourgon, 2005).

Other Theoretical Approaches

In addition to conceptualizing hypersexuality as a clinical disorder, various theoretical approaches have previously been suggested to describe the condition, including sexual compulsivity, sexual impulsivity, the dual control model (sexual inhibition/excitation), and sex addiction (Finlayson, Sealy, & Martin, 2001; Kafka, 2010). Furthermore, although in its infancy, research has recently recognized the possible relationship between neurological systems (e.g., mesolimbic dopamine pathway), executive functioning (e.g., context specific cognitive deficits when sexually aroused), brain pathology (e.g., emotion regulation deficits), and hypersexuality (Kor, Fogel, Reid, & Potenza, 2013; Reid, 2013).

Sexual Compulsivity

The sexual compulsivity model originally conceptualized hypersexuality as an obsessive–compulsive type of disorder (Coleman, 1990, 1992; Quadland, 1985). Broadly, compulsions are repetitive behaviors or mental acts, the purpose of which is to prevent or reduce personal anxiety or distress, rather than to provide pleasure or gratification (American Psychiatric Association, 2013). In contrast, obsessions refer to recurrent and persistent thoughts, urges, or images that are experienced as intrusive and unwanted, and cause considerable personal anxiety or distress (American Psychiatric Association, 2013).

The sexual compulsivity model conceptualizes hypersexuality as being motivated by an expected relief from anxiety or distress that arises because of obsessive sexual thoughts, impulses, or fantasies (Bancroft, Janssen, Strong, & Vukadinovic, 2003b; Black et al., 1997; Reid et al., 2009a). Therefore, sexual compulsions may become habitual and strengthened by the process of negative reinforcement (Miltenberger, 2008). That is, sexual fantasies, urges, and behavior are negatively reinforced when these sexual behaviors become paired with either the removal or decrease of an aversive stimulus (e.g., distress). Alternatively, Bancroft and Vukadinovic (2004) suggested that for some hypersexual persons, increased sexual arousal becomes a conditioned response to certain types of high arousal negative mood rather than sexual behavior primarily occurring to regulate mood.

Research suggests that obsessive–compulsive presentations of hypersexuality are rare in clinical practice, with few such persons meeting criteria for obsessive–compulsive disorder (Giugliano, 2008; Kafka, 2010; Kor et al., 2013; Reid, 2007; Reid, Berlin, & Kingston, 2015). Such findings raise the question—Is sexual compulsivity a reliable model or metaphor to predict hypersexuality? For some persons, their hypersexuality may more accurately exhibit various obsessive–compulsive features which generally do not meet diagnostic criteria for obsessive–compulsive disorder. Indeed, some hypersexual persons may repeatedly engage in sexual behavior in response to persistent sexual thoughts, urges, and images. However, such persons generally do not also engage in sexual behavior that is rule-based and must be rigidly followed, which is an inherent criterion to diagnose obsessive–compulsive disorder. More broadly, perhaps hypersexual persons repeatedly use sexual activity to "self-soothe," aiding in the relief of dysphoric mood states, including their management of stress (Bancroft & Vukadinovic, 2004; Raymond, Coleman, & Miner, 2003; Reid & Carpenter, 2009; Reid, Carpenter, Spackman, & Willes, 2008).

Research also suggests that sexual compulsivity may be a trauma- and stress-related disorder, such as post-traumatic stress disorder, and in some circumstances is a reenactment of child trauma and neglect (including sexual abuse) that may affect the ability of some people to regulate their sexual arousal, desire, and behavior, and to successfully engage in intimate relationships (Blain, Muench, Morgenstern, & Parsons, 2012; Griffin-Shelley, 2014; Kafka & Hennen, 1999; Schwartz, 1992, 2008; Schwartz & Galperin, 2002; Selvi, Ozdemir, Atli, & Kiran, 2011). However, evidence of child abuse as a predictor of hypersexuality is mixed, with some studies reporting no significant relationship between the two variables (Chaney & Burns-Wortham, 2014; McPherson, Clayton, Wood, Hiskey, & Andrews, 2013; Parsons, Grov, & Golub, 2012; Todesco & Bola, 1997).

Conceptualization of sexual compulsivity as a trauma- and stress-related disorder suggests that hypersexual persons engage in compulsive and repetitive sexual behaviors to cope with stress and escape emotionally from painful memories, such as rape and sexual abuse, war and combat, or death of a close family member (Howard, 2007). More broadly, various behaviors, not just hypersexual activity, may be used as maladaptive coping responses to either trauma or stress (e.g., drug and alcohol use, gambling, eating, and self-harm). Although DSM-5 has recognized some out-of-control behaviors as mental disorders (e.g., gambling),

other behaviors such as hypersexuality are not currently recognized as clinically pathological.

Sexual Impulsivity

The sexual impulsivity model conceptualizes hypersexuality as an impulse control disorder rather than a disorder of inflated sexual desire. Specifically, sexual impulsivity conceptualizes hypersexuality as an inability to resist an impulse, drive, or temptation to perform a sexual act that may be personally harmful. Sexual impulsivity also involves acting suddenly on a sexual urge and often with little forethought. As such, these types of impulsive sexual behaviors may become dysfunctional and problematic (Reid et al., 2015; Wetterneck, Burgess, Short, Smith, & Cervantes, 2012).

Theoretically, the primary motivation or reward behind sexual impulsions (fantasies, urges, or behavior) is believed to be a personal need to experience pleasure and gratification (Giugliano, 2008, 2009). However, poor impulse control and faulty regulation of sexual motivations or desires is also very much associated with hypersexuality (Barth & Kinder, 1987; Kaplan, 1995). Indeed, low impulse control and the pressing need for sexual pleasure and gratification reinforce the repetitive nature of hypersexuality. Consequently, sexual impulsions may be conceptualized as operant behaviors which are strengthened by the process of positive reinforcement (Montaldi, 2002). That is, sexual fantasies, urges, and behavior are positively reinforced by the experience of pleasure.

Research suggests that sexual impulsivity does not adequately explain all presentations of hypersexuality (Walton et al., 2017c). Indeed, Reid et al. (2015) found that approximately 50% of hypersexual patients exhibited significantly high levels of generalized impulsivity, which suggests that other taxa may also explain hypersexuality. In addition, some research conceptualizes sexual impulsivity and sexual compulsivity not as polar opposites which lie at either end of a dimensional continuum, but rather as orthogonal factors which characterize hypersexuality as varying levels of impulsivity and compulsivity, or vice versa (Fuste, Garcia, & Saldana, 2015; Hollander, Poskar, & Gerard, 2012).

Sexual Excitation/Inhibition

The dual control model suggests that sexual arousal depends upon a control mechanism in the central nervous system that regulates sexual excitatory and inhibitory systems (Bancroft, 1999; Bancroft & Janssen, 2000). These two distinct neurophysiological systems of sexual activation and suppression are considered independent of one another and differ between individuals (Janssen, Vorst, Finn, & Bancroft, 2002a, 2002b). Whether these neurophysiological systems exist (and differ by gender) remain to be demonstrated, as neuroscience is in the early stages of understanding why the propensity for sexual excitation and inhibition differs between individuals (Bancroft, Graham, Janssen, & Sanders, 2009; Janssen & Bancroft, 2007).

Most likely our sexual responses are controlled by multiple excitatory and inhibitory neurophysiological processes that involve extremely complex interactions (Janssen & Bancroft, 2007). Sexual excitation processes may include norepinephrine activation of arousal, disinhibition of dopaminergic systems, and testosterone-dependent systems (Bancroft, 1999). Sexual inhibition processes are thought to involve multiple pathways, for example neuropeptidergic and serotonergic processes, and centers in the brain stem and lateral hypothalamus (Bancroft, 1999).

The dual control model was originally developed to explore males' propensity for sexual excitation and inhibition and led to the development and validation of the Sexual Inhibition and Sexual Excitation Scales (SIS/SES) (Janssen et al., 2002a). Research of the SIS/SES identified a single sexual excitation factor and two types of sexual inhibition: sexual inhibition due to a threat of performance failure and sexual inhibition due to a threat of performance consequences, and these factors are said to predict an individual's propensity for sexual arousal (Janssen et al., 2002a, 2002b). Sexual inhibition due to a threat of performance failure refers to those factors which may impede sexual functioning (e.g., distractions), whereas sexual inhibition due to the threat of performance consequences refers to those factors which may impede individuals choosing to engage in sexual behavior (e.g., unwanted pregnancy).

Research supporting the dual control model has shown that hypersexual individuals (particularly men) are prone to higher sexual excitation, higher sexual inhibition due to a threat of performance failure, and lower sexual inhibition due to a threat of performance consequences compared to the general population (Bancroft et al., 2003a, 2004; Kafka, 2003; Rettenberger, Klein, & Briken, 2016; Walton et al., 2017c). Specifically, Winters et al. (2010) surveyed online 14,396 males and females, some of whom had sought treatment for hypersexuality. Results found that persons who had sought treatment for hypersexuality scored higher on sexual excitation and lower on sexual inhibition due to a threat of performance consequences than non-treatment groups. Research has also found that women score lower on sexual excitation and higher on sexual inhibition compared to men, although substantial variability was found in the respective scores of both sexes (Carpenter, Janssen, Graham, Vorst, & Wicherts, 2008). Indeed, Janssen and Bancroft (2007) suggest that sexual excitation/arousal and inhibition are inherently stable traits and individual variation may be partially explained by genetics.

Sex Addiction

Possibly, the most widely discussed model of hypersexuality conceptualizes sexual behavior as a behavioral addiction (Carnes, 1991; Hall, 2013; Kingston & Firestone, 2008). The sex addiction

model initially conceptualized hypersexuality as stemming from deep emotional pain typically associated with child abuse and trauma, comorbid mental health problems, and a family history of addiction (Birchard, 2011; Carnes, 1993, 1983/2001; Ragan & Martin, 2000; Schneider, 2000). "Classic" sex addiction is also conceptualized as being driven by disordered attachment, impaired impulse control, shame-based cognitions, and mood disorders (Riemersma & Sytsma, 2013).

Contemporary models of sex addiction suggest that hypersexuality is driven by early and chronic exposure to graphic cybersexual content (Riemersma & Sytsma, 2013; White & Kimball, 2009). Indeed, comprehensive research undertaken in 2009–2010 confirms the worldwide popularity of viewing cyberpornography, with an estimated 13% of online searches related to erotic content (Ogas & Gaddam, 2011). Furthermore, a significant proportion of sexually explicit cyber content reportedly target and are frequently viewed by men who have sex with men (MSM) (Downing, Antebi, & Schrimshaw, 2014; Stein, Silvera, Hagerty, & Marmor (2012). However, an observed behavioral pattern by some MSM who repeatedly view cyberpornography could simply occur because male androphilia is a low frequency trait. Indeed, for gay or bisexual men, their ability to find an appropriate relationship or sexual partner may be problematic in those cultures where homosexuality is criminalized and socially marginalized or in remote and regional communities where compatible same-sex partners are few in numbers.

When further considering a contemporary understanding of sex addiction, we suggest that many adults regularly access online pornography while masturbating, although such behavior is experienced as problematic only by a minority of people, similar to alcohol use and gambling. Indeed, some research suggests that early exposure to Internet pornography may not be a significant risk factor predictive of sexual compulsivity in adulthood (Stulhofer, Jelovica, & Ruzic, 2008). However, for some hypersexual persons, access to free, anonymous, and unrestricted sex chat and pornography Web sites may establish repetitive patterns of sexual behavior that are perceived as problematic to control (Putnam, 2000).

Sex addiction is thought to be maintained by a cycle of cognitive preoccupation, obsession and fantasy, sexual triggers and rituals, compulsive sexual behavior, and emotional despair consistent with a wounded sense of self (Carnes, 1983/2001). In addition, although not confirmed by research, it has been suggested that for some persons, the cycle of sex addiction may become imprinted neurologically and is psychologically difficult to change. Indeed, Reid and Woolley (2006) suggested that hypersexual persons may become psychologically dependent upon euphoria related to "feel-good" neurochemicals activated when sexually aroused.

Theoretically, the sex addiction model attributes hypersexuality to the production of pleasure and reduction of painful affects in a pattern that is characterized by two key features: (1) recurrent failure to control sexual behavior, and (2) continuation of sexual behavior despite substantial harmful consequences (Goodman, 2001). Specifically, addictive sexual behavior resembles compulsive behavior, the function of which is to reduce painful affects/internal states, but differs from compulsive behavior in its capacity to also stimulate pleasure. Addictive sexual behavior also resembles impulsive behavior that produces pleasure or gratification, but differs from impulsive behavior in its capacity to also reduce painful affects. Taken together, the sex addiction model is said to encompass both pleasure-seeking impulsive behavior, which is motivated by positive reinforcement, and compulsive behavior to reduce dysphoric affects, which is primarily motivated by negative reinforcement (Goodman, 2001).

Sex addiction is often conceptualized as an impulse control disorder or behavioral addiction because sex is typically a pleasurable behavior that when performed repetitively, excessively, and/or compulsively may personally disrupt one's life (Holden, 2001). Indeed, for hypersexual persons, their sexual desire is theoretically considered to be so intense that it may induce emotional states of sexual craving and psychological/physiological dependence (Grant, Potenza, Weinstein, & Gorelick, 2010; Kingston & Firestone, 2008). However, the conceptualization of sexual behavior as an addiction has long been criticized, as research has failed to substantiate physiological conditions of tolerance and withdrawal. We note that tolerance and withdrawal (although listed as diagnostic criteria in DSM-5) are not specifically required to clinically diagnose substance-related and addictive disorders (Goodman, 2001; Kafka, 2010).

Goodman (2008) suggested that the addictive process (including sex addiction) involves impaired interaction in three (normally) functional neurobiological systems: motivation–reward, affect regulation, and behavioral inhibition. Carnes (2003) also suggested that when hypersexual persons engage in sexual activity, various types of neurobiological impairment are likely to predispose and reinforce addictive sexual behavior and also increase objectification, depersonalization, and destructive relational bonding.

Katehakis (2009) suggested that for some hypersexual persons, the experience of emotional disengagement during childhood can profoundly impact upon their neuropsychobiological development, in particular affecting the central nervous system (CNS), automatic central nervous system (ANS), and hypothalamic–pituitary–adrenal system (HPA axis). Consequently, Katehakis (2009) suggests that sex addiction occurs because neurobiological deficits may develop in such persons during early childhood, which can adversely impact their emotional and intellectual development and contribute toward the onset of sex addiction during adolescence and adulthood.

To date, the neurobiology of sex addiction has been difficult to empirically research and validate. For example, ethically, how do researchers explore the neurobiology of hypersexual persons when they are at peak levels of sexual arousal? In addition, it is unclear whether a repeated pattern of hypersexuality, for such individuals, is associated with neurological changes to the

motivation–reward system and/or whether preexisting reward sensitivity predisposes these individuals to poorly regulate their sexual behavior. Furthermore, for people who develop various neurological deficits or impairments in childhood, most such individuals do not develop a sex addiction as an adult.

Neurobiology

Neuroscience is frequently overlooked when attempting to understand hypersexuality; however, recent advances in neurobiological research suggest the aforementioned models of hypersexuality may be partly explained by imbalances in brain systems/chemistry. For example, drug-taking behavior in some persons is associated with drug-induced sensitization to the brain's mesocorticolimbic systems (e.g., increased dopamine activity), which attributes incentive salience (drug wanting) to reward-associated stimuli (Robinson & Berridge, 2000, 2001, 2008). Theoretically, long-term neurological adaptations in the brain systems of hypersexual persons may have highly sensitized their motivation and reward for sex and sex-related stimuli, in contrast to non-hypersexual persons for which this has not occurred. Therefore, neurologically, hypersexual persons may develop a pathological wanting rather than liking for sex and understandably feel unable to control their sexual behavior.

In addition, Phillips, Hajela, and Hilton (2015) suggested that hypersexuality is a chronic condition not only of brain reward and motivation systems, but also of memory and related circuitry which manifests biologically, psychologically, and socially. Research also suggests that dysfunction within a person's frontal cortical systems—believed responsible for regulating decision making and inhibitory control over sexual functioning—may lead to impaired judgment and impulsivity regarding sexual behavior (Robinson & Berridge, 2003; Vitale et al., 2011).

Recent research of sexual-cue reactivity has found variations in neural functioning between hypersexual persons and healthy controls (Mechelmans et al., 2014; Voon et al., 2014). This research found that hypersexual persons exhibit greater sexual desire when presented with sexually explicit images in comparison with non-hypersexual persons. Specifically, increased sexual arousal for hypersexual persons has been found associated with activation of the dorsal anterior cingulate, ventral striatum, and amygdala regions of the brain, and HPA axis dysregulation (Chatzittofis et al., 2016; Voon et al., 2014).

Steele, Staley, Fong, and Prause (2013) conducted research involving a sample of 52 participants that reported difficulty regulating their viewing of visual sexual stimuli. The researchers found that neural reactivity and sexual reward sensitivity to viewing sexual stimuli was best predicted by self-reported sexual desire rather than self-reported hypersexuality. Moholy, Prause, Proudfit, Rahman, and Fong (2015) recruited undergraduate males and females ($N = 116$) who watched a series of 20-s neutral and sexual films. These researchers found that higher sex desire predicted participants' failures to down-regulate their sexual arousal, whereas self-reported hypersexuality scores were unrelated.

Hypersexuality, in some medical patients, has been associated with neurodegenerative conditions [e.g., Parkinson's disease (PD)], neurocognitive disorders (e.g., dementia), traumatic brain injury and at times is a related side effect of prescribed medication. For example, hypersexuality may be symptomatic of PD, particularly in patients who receive long-term dopaminergic replacement therapy (Callesen, Scheel-Kruger, Kringelbach, & Meller, 2013; Cooper et al., 2009; Evans, Stratfella, Weintraub, & Stacy, 2009; Weintraub et al., 2006, 2010). Furthermore, Politis et al. (2013) found that dopaminergic treatment may decrease sexual inhibition in the cerebral cortex, increase motivational impetus for seeking sexual stimuli, and contribute to hypersexuality.

Neurocognitive disorders such as dementia may also be associated with sexual disinhibition and hypersexuality (Cipriani, Ulivi, Danti, Lucetti, & Nuti, 2016). Research indicates that hypersexuality may be associated with frontotemporal dementia in some patients because of cognitive impairment/disinhibition to the frontal lobe that has increased sexual drive (Mendez & Shapira, 2013). Hypersexuality may also result from head injuries sustained because of road accidents or physical assaults (Eghwrudjakpor & Essien, 2008). Specifically, damage to orbital areas of the frontal lobe is thought to trigger hypersexuality in some patients, possibly because of diminished cognitive reasoning, judgment, and sexual inhibition, although hypersexuality can also occur from temporal lobe seizures (Cao, Zhu, Wang, Wang, & Zhao, 2010; Zencius, Wesolowski, Burke, & Hough, 1990).

Hypersexuality has also been identified as a potential adverse symptom of drug therapy for a range of neurological conditions. For example, prescribed patient use of selegiline, pramipexole, and pergolide to treat PD, and lamotrigine and levetiracetam to treat epilepsy has been linked to the onset of pathological hypersexuality (Calabro, 2013; Grabowska-Grzyb, Naganska, & Wolanczyk, 2006; Kataoka, Shinkai, Inoue, & Satoski, 2009; Metin, Ozmen, Ozkara, & Ozmen, 2013; Munhoz, Fabiani, Becker, Helio, & Teive, 2009; Shapiro, Chang, Munson, Okun, & Fernandez, 2006). For some persons, these drugs appear to alter the brain's excitatory transmission (sex drive and arousal) by unbalancing the dopamine/serotonin ratio in the CNS (Calabro, 2013). Indeed, future research of the dopaminergic pathway may help to explain some presentations of hypersexuality. More broadly, although medication may induce hypersexuality for small numbers of patients, generally drug regimens involving antiandrogens, estrogens, gonadotropin-releasing hormone analogues (GnRH), and serotonergic medications have been found to moderate hypersexual and paraphilic-related behavior and are frequently prescribed by clinicians to treat sexual dysregulation (Levitsky & Owens, 1999; Safarinejad, 2009; Winder et al., 2014).

Neurobiological research of hypersexuality is in the early developmental stages, and our knowledge is incomplete regarding the neurocircuitry, neurotransmitters, and neuromodulators which dynamically interact to mediate complex pleasure responses to sexual behavior (Mechelmans et al., 2014; Schmitz, 2005; Steele et al., 2013; Voon et al., 2014). Indeed, further clinical studies of hypersexuality would be useful to reliably identify associated brain activity and common neurotransmitter systems (should they exist) and also understand whether these neural pathways are similar to other clinically recognized behavioral addictions such as gambling or substance addictive disorders (Kafka, 2010, 2013; Kraus, Voon, & Potenza, 2016).

Associated Features of Hypersexuality

Personality Factors

Research has investigated the relationships among general personality domains and hypersexuality. These investigations have consistently linked hypersexuality to general personality factors which include high neuroticism, low agreeableness, and low conscientiousness (Fagan et al., 1991; Pinto, Carvalho, & Nobre, 2013; Reid et al., 2008; Reid, Stein, & Carpenter, 2011c; Rettenberger et al., 2016; Walton et al., 2017c).

Regarding low agreeableness as a predictor of hypersexuality, increased anger arousal and psychoticism (i.e., interpersonal hostility) has been found to predict sexual compulsivity in two non-clinical samples (Carvalho, Guerra, Neves, & Nobre, 2015a; Jerome, Woods, Moskowitz, & Carrico, 2016). Studies have also found that the personality variable of sensation seeking is associated with risky sexual behaviors (e.g., unprotected sex and promiscuity), which is a consistent aspect of some hypersexual presentations (Gullette & Lyons, 2005; Schmitt, 2004; Skakoon-Sparling, Cramer, & Shuper, 2016; Turchik, Garske, Probst, & Irvin, 2010).

Some hypersexual persons may be at a higher risk of comorbid personality disorders such as narcissistic, antisocial, and obsessive–compulsive personality disorders (Carpenter, Reid, Garos, & Najavits, 2013). Furthermore, hypersexuality has also been found to be positively related to personality traits of impulsivity, negative self-image, affective instability, and persistent dysphoric mood (Carvalho et al., 2015b; Chaney & Burns-Wortham, 2015; Kalichman & Rompa, 1995; Lloyd, Raymond, Miner, & Coleman, 2007; Reid, Bramen, Anderson, & Cohen, 2013; Reid, Carpenter, Gilliland, & Karim, 2011). Recent research has also found a negative relationship between hypersexuality and sexual self-esteem, which was observed to strengthen among persons who perceived their sexual values and behaviors as mutually incongruent (Griffin et al., 2016).

Research suggests that hypersexuality may be positively correlated with the trait of perfectionism, in particular regarding a personal concern of making mistakes and associated with low levels of self-forgiveness (Hook et al., 2015; Reid, Cooper, Prause, Li, & Fong, 2012). Furthermore, some hypersexual persons may experience difficulty coping with stress and exhibit social-relational sensitivity, which can precipitate and perpetuate the onset and repeated pattern of their hypersexuality (Reid, Dhuffar, Parhami, & Fong, 2012c).

Cognitions and Emotions

Many hypersexual people report difficulty controlling their sexual thoughts, think they behave sexually in ways that are either reckless or wrong, and believe that their predisposing sexual thoughts adversely impact daily life, social relationships, and work activities (Kalichman et al., 1994; Kalichman & Rompa, 1995; Reid et al., 2011b). Paunovic and Hallberg (2014) suggested that hypersexuality may be related to a cluster of negative and distorted beliefs and interpretations about one's sexual fantasies, urges, and behavior. For example, hypersexual individuals may conclude that "I can't control my sexual behavior" and therefore "I am a bad person." Previous research has suggested that hypersexuality for some gay and bisexual males may be associated with internalized homophobia. For example, some hypersexual gay and bisexual men may have internalized some of society's negative attitudes about same-sex orientation that stigmatize gay males and are adverse to personal self-esteem (e.g., gay relationships are unstable) (Dew & Chaney, 2005; Martin, Dean, Garcia, & Hall, 1989; McVinney, 1998).

Hypersexual persons are also known to hold maladaptive sexual cognitions regarding magnifying their perceived need for sex, minimizing self-efficacy for controlling one's sexual behavior, and also discounting the benefits of sex (Kraus, Rosenberg, & Tompsett, 2015; Pachankis, Redina, Ventuneac, Grov, & Parsons, 2014). In addition, hypersexual persons are likely to exhibit patterns of rumination and cognitive rigidity about their inability to change their sexual behavior, thereby reinforcing a sense of failure, self-hostility, and personal inadequacy (Reid, 2010; Reid, Temko, Moghaddam, & Fong, 2014).

Research has found that hypersexual persons generally exhibit poor affect regulation (Reid et al., 2008). These individuals may experience boredom, dissociation and social isolation; fear, distress and anxiety; as well as guilt, shame and grief, either as triggers or consequences of their ongoing hypersexuality (Bancroft & Vukadinovic, 2004; Chaney & Chang, 2005; Gilliland, South, Carpenter, & Hardy, 2011; Jerome et al., 2016; Paunovic & Hallberg, 2014; Spenhoff et al., 2013). Specifically, research suggests that compulsive pornography use is associated with avoidance, the purpose of which is to escape, distract from, or reduce dysphoric mood and associated thoughts, emotions, and painful memories (Kwee et al., 2007; Wetterneck et al., 2012). However, for some people, hypersexuality provides only temporary improvement to one's psychological or emotional well-being because guilt and shame, withdrawal and self-directed anger/criticism, and low self-esteem may follow sexual activity

(Carnes, 1983/2001; Coleman, 1992; Dhuffar et al., 2015; Dhuffar & Griffiths, 2014; Gilliland et al., 2011; Reid et al., 2009b).

Relationships: Attachment and Satisfaction

Bowlby (1973) originally suggested that children aged approximately between 6 and 30 months form emotional attachments to their family caregivers, from which distinct attachment styles are said to develop. Bowlby proposed that the quality of these attachments contributes to emotional and personality development, as well as shaping individuals' social-relational behavior later in life. Furthermore, attachment styles formed during childhood are considered enduring styles of attachment exhibited throughout adulthood, with some hypersexual individuals reporting insecure (as opposed to secure) forms of relationship attachment. Specifically, hypersexual persons have been found more likely to endorse three distinct types of insecure attachment styles (i.e., preoccupied, fearful, and dismissive) in preference to a secure relationship attachment, and these insecure forms of attachment are characterized by various interpersonal, self-image, and intimacy difficulties (Gilliland, Blue Star, Hansen, & Carpenter, 2015; Zapf, Greiner, & Carroll, 2008).

Indeed, Zapf et al. (2008) described the aforementioned predisposing relationship attachment styles as follows. *Secure attachment* represents an attachment style characterized by relationship intimacy and self-acceptance of oneself and others. *Preoccupied attachment* style is characterized by individuals who maintain a negative self-image and a positive evaluation of others and also typically strive for external acceptance to feel loved. *Fearful attachment* describes a relationship style where individuals are fearful of relationship intimacy and are typically socially avoidant. These persons are said to exhibit low self-esteem and expect rejection in their personal relationships, because they view themselves as unlovable and distrust others to meet their expectations of being loved. *Dismissive attachment* style describes individuals who have a positive self-image, but hold a negative view of others. Such persons maintain their independence from others to protect themselves from relationship disappointment.

Additionally, hypersexuality has been found to be related to anxiety and avoidance in intimate relationships (men and women; $N = 621$; Faisandier, Taylor, & Salisbury, 2012) and (men; $N = 52$; Zapf et al., 2008). Indeed, Ferreira, Carvalho, Santos, Peralta, and Carvalho (2008) found in a study of 187 sexually active adult males and females that individuals who endorsed preoccupied and fearful attachment styles reported higher sexual compulsivity in comparison with the sample surveyed, whereas adults who endorsed dismissive attachment styles reported more short-term relationships and a greater number of sexual partners. Faisandier et al. (2012) also found that out-of-control sexual behavior (OCSB) predicted higher insecure adult attachment (preoccupied, fearful, and dismissive) and lower secure attachment than non-OCSB. Similarly, Gilliland et al. (2015) found that hypersexuality was predicted by insecure attachment that also included a mixed cluster of fearful and dismissive attachment styles.

Given that hypersexuality is associated with relationship insecurity, it is understandable that some hypersexual individuals tend either to avoid or experience difficulty bonding or connecting with others. Specifically, social connectedness represents a subjective assessment of one's interpersonal closeness with their social world. Broadly, persons with low social connectedness are reported to be aloof, distant, and avoid interpersonal closeness (Baker & Baker, 1987). Regarding social connectedness and hypersexuality, some hypersexual persons struggle to engage in meaningful and reciprocal intimate relationships (Turner, 2009). For example, MSM who reported Internet sexual addiction were found to have diminished social connections and social support and were distrusting of others, vulnerable to social withdrawal and isolation, and secretive about their online sexual activities (Baptie, 2012; Chaney & Chang, 2005; Hughes, 2010). Therefore, it is unsurprising that some hypersexual persons may use compulsive sexual behavior to reduce their feelings of loneliness (Chaney & Burns-Wortham, 2015; Dhuffar et al., 2015; Torres & Gore-Felton, 2007).

Other hypersexual persons may experience lower satisfaction in their interpersonal relationships. Indeed, Starks, Grov, and Parsons (2013) surveyed 172 gay male couples ($N = 344$ individuals) and found that sexual compulsivity was negatively related to relationship satisfaction and sexual communication. The researchers also found that couples who each individually recorded high sexual compulsivity scores were more likely to engage in unprotected anal intercourse with a greater number of male partners outside of their relationship. Additionally, research suggests that for hypersexual males, high levels of personal masturbation were related to decreased satisfaction with one's sex life and these individuals tended to self-report problems in current adult romantic relationships, whereas hypersexual females tended to self-report relationship instability (Långström & Hanson, 2006).

Theoretical Conceptualizations Reviewed

The aforementioned research suggests that multiple etiologies have clinical value (and perhaps variously coexist) to explain heterogeneous presentations of hypersexuality (Finlayson, Sealy, & Martin, 2001; Kafka, 2010; Walton et al., 2017c; Winters et al., 2010). However, these theoretical conceptualizations of hypersexuality, on their own, are unlikely to provide a complete description to reliably understand the various presentations and experiences of the condition. Following our literature review, we suggest that predispositions toward hypersexuality are diverse, complex and most likely relate to a range of risk factors that may be variously present across individuals.

For some hypersexual persons, high sexual arousal may relate to impulsive sexual behavior that is typically motivated by plea-

sure (Barth & Kinder, 1987; Giugliano, 2008, 2009; Kaplan, 1995). For other hypersexual persons, their sexual behavior is repeatedly used to regulate dysphoric mood and manage life stress (Bancroft & Vukadinovic, 2004; Raymond et al., 2003; Reid & Carpenter, 2009; Reid et al., 2008). For yet other hypersexual persons, hypersexuality may stem from childhood and is related to insecure attachment, child abuse and trauma and associated with shame-based cognitions and mood disorders (Carnes, 1983/2001, 1993; Riemersma & Sytsma, 2013). In addition, although as yet not reliably validated, some researchers suggest that hypersexuality may be a combination of impulsive–compulsive behaviors which are neurologically reinforced and result in a cycle of sex addiction (Goodman, 2001; Grant et al., 2010; Hollander et al., 2012; Kingston & Firestone, 2008).

Despite the heterogeneous nature of hypersexuality, hypersexual persons generally appear to experience high sexual arousal and may be neurologically and behaviorally predisposed to react sexually to specific cues/triggers which they feel unable to control (Goodman, 2008; Hall, 2013; Katehakis, 2009; Mechelmans et al., 2014; Phillips et al., 2015; Robinson & Berridge, 2003; Vitale et al., 2011; Voon et al., 2014). Other presentations of hypersexuality may also be explained by imbalances in brain systems and chemistry. For example, hypersexuality may arise as a symptom of exogenous substances (e.g., drugs of abuse or medications), a general medical condition or psychological disorder (e.g., bipolar manic episodes), or various neurocognitive disorders (e.g., PD) (American Psychiatric Association, 2013; Calabro, 2013; Cipriani et al., 2016; Kafka, 2010, 2014; Politis et al., 2013; Weintraub et al., 2006, 2010).

The aforementioned research findings and diverse understandings of hypersexuality led us to ask whether an alternate conceptualization may better explain the heterogeneous nature of the condition. Indeed, although research has identified a diverse range of variables that variously predict hypersexuality, such variables are not found exclusively within the domain of this condition. For example, it is likely that everyone experiences depressed mood, boredom, and/or loneliness at some time in their lives; however, most people do not excessively use sexual activity to try to manage or alleviate these experiences. Second, some hypersexual persons perceive their sexual behavior is out-of-control when it exists within normal levels of functioning (Walton et al., 2016). Furthermore, irrespective of their relationship status, some non-hypersexual persons are easily sexual aroused and exhibit high sexual activity (similar to hypersexual persons), which they do not perceive as out-of-control.

An Introduction to the "Sexhavior" Cycle of Hypersexuality

Research suggests that high sexual arousal (and desire) may be associated with some presentations of hypersexuality (Mechelmans et al., 2014; Muise et al., 2013; Voon et al., 2014; Winters et al., 2010). Research also suggests that sexual arousal can adversely impact decision making to engage in sexual behavior that persons may otherwise avoid when sexual arousal is low (Ariely & Loewenstein, 2006). Indeed, perhaps hypersexuality is associated with a high state of sexual arousal which can temporarily impact logical cognitive processing, feelings, and behavioral intentions. Furthermore, during high states of sexual arousal, diminished cognitive processing by hypersexual persons may explain why they repetitively engage in sexual behavior, regardless of whether these behaviors may cause personal distress and adverse consequences.

To date, a sexual behavior model has not been developed to explore whether a cycle of hypersexuality exists or understand the cognitive–emotional processes that may occur at each stage of the sexual cycle. We suggest that hypersexuality may be better understood within the context of a newly proposed cycle of sexual behavior, which we are calling the "sexhavior cycle of hypersexuality." Indeed, for some hypersexual persons, the sexhavior cycle may help to explain their unique and repeated pattern or cycle of sexual activity (see Fig. 1). Specifically, the sexhavior cycle suggests that the cycle of sexual behavior comprises four distinct and sequential stages described as sexual urge, sexual behavior, sexual satiation, and post-sexual satiation.

Sexual urge refers to a motivational state, biological drive, and psychological or emotional desire (or need) to engage in sexual behavior. When sexual urges occur, a person's sexual arousal increases and translates into sexual activity, unless the urge is sometimes resisted, suppressed, or dissipates because daily circumstances or inhibition disrupts sexual arousal. Although inhibition may restrain one's sexual behavior, Walton et al. (2017a) have previously found hypersexual persons tend to exhibit a high propensity for sexual excitation/arousal which may account for their repeated experience of sexual urges upon which they often sexually act. *Sexual behavior* refers to the type of sexual activity undertaken. *Sexual satiation* occurs when an individual's sexual urge is either satisfied or represents the point at which it begins to dissipate and one's internal motivation for continued sexual activity begins to decline. *Post-sexual satiation* describes the biopsychological process that follows sexual satiation. Specifically, post-sexual satiation is the process by which a person's sexual arousal declines and gradually returns to a state of non-sexual arousal or sexual neutrality.

The sexhavior cycle also suggests that sexual behavior occurs within a repeated pattern of frequency and intensity of sexual arousal. Indeed, we suggest that a person's pattern of sexual arousal is individually unique and may change over a person's developmental life cycle, as well as in response to daily life, hassles, and stressors. The sexhavior cycle is deemed to be complete when an individual has returned to a state of non-sexual arousal. We further suggest that although emotions of guilt and shame may temporarily inhibit some hypersexual persons' sexual behavior in the short term, those adverse consequences associated with hypersexuality are likely to be quickly discounted and sexual inhibition is less likely. As such,

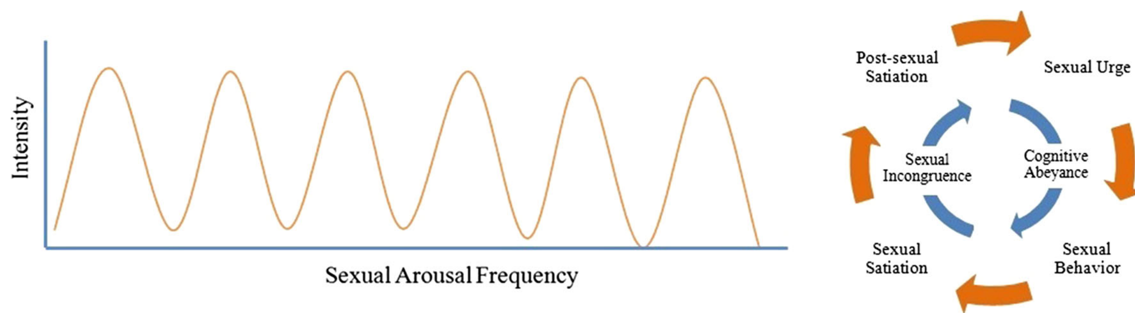

Fig. 1 Sexhavior cycle of hypersexuality (Walton, 2017)

the sexhavior cycle recommences when an individual experiences a new sexual urge that intensifies as one's sexual arousal increases, unless an individual's sexual arousal dissipates on those occasions when their sexual urge is successfully resisted or suppressed.

We suggest that sexual satiation does not always represent a state of complete sexual satisfaction or fulfillment following engagement in hypersexuality. Indeed, some sexual experiences are physically, emotionally, and psychologically more satisfying than other sexual experiences. Specifically, we suggest that sexual satiation occurs neurologically in the brain, when following a period of sexual activity, a person's sexual urge begins to dissipate and returns to a state of sexual neutrality. The tipping point at which sexual satiation occurs is individually unique and is likely to follow an orgasm or multiple orgasms achieved in various contexts.

Although most persons can resist or suppress a sexual urge when the contextual setting and time is inappropriate to engage in sexual activity, hypersexual persons may struggle to suppress these urges and tend to act out sexually following the onset and buildup of a sexual urge. In addition, the experience of sexual satiation for hypersexual persons appears to be of considerably reduced time duration compared to non-hypersexual persons. Temporary (or short-term) sexual satiation for hypersexual persons may help to explain why hypersexual persons generally exhibit higher levels of sexual activity compared to non-hypersexual persons.

Walton, Cantor, Bhullar, and Lykins (2017b) are currently conducting online a study to explore the validity of the sexhavior cycle and hypersexuality. The study specifically relates to self-identified "sex addicts" aged 18 years and older. An 18-year-old, single, heterosexual, male participant in this study remarked that "I can't concentrate or focus on anything but my own satisfaction. Also, I can't do anything with friends because I just have to interrupt a lot of stuff I'm doing with them just to climax." Indeed, hypersexual persons, unless those who perhaps identify as being "in recovery" from their hypersexuality, appear to consistently have a need to chase sexually generated emotional highs, for which sexual satiation is transient. Furthermore, post-sexual satiation, hypersexual persons are likely to personally criticize and regret their earlier sexual conduct (Reid et al., 2009b)

Cognitive Abeyance

Research has found that some hypersexual persons, when in high states of sexual arousal, struggle to appropriately consider their sexual behavior, are cognitively dissociated from their sexual behavior, and experience difficulty identifying their feelings (Bancroft & Vukadinovic, 2004; Carnes, 1983/2001, 1991; Reid et al., 2008). In addition, Phillips et al. (2015) suggested that hypersexuality interrupts memory and related circuitry, which may help to explain why hypersexual persons continue to engage in sexual behavior that they later find personally distressing.

Hypersexual persons may have difficulty moderating their hypersexuality when in a heightened state of sexual arousal because of what we have termed "cognitive abeyance." Cognitive abeyance describes a state of inactivity, deferment, suspension, or diminution of logical cognitive processing. We suggest that during heightened states of sexual arousal, hypersexual persons frequently misappraise, dismiss, or fail to appropriately consider the risks, rewards, and consequences of their sexual behavior, either past or present. Indeed, when hypersexual persons are in a state of cognitive abeyance, they are likely to operate from a euphoric or highly excited disposition, and their sexual inhibitions are substantially reduced. As such, some hypersexual persons when highly sexually aroused may feel unable to "put the brakes on" to stop their sexual activity and frequently act on a sexual urge.

Carnes (1983/2001) suggested that hypersexual persons, when sexually aroused, typically enter a cognitive "trance-like" state in which their thinking about sex and planning on how to achieve an orgasm becomes absolute, and may last in duration from minutes to hours. Bancroft and Vukadinovic (2004) found that 14 out of 31 self-defined sex addicts described a dissociative state of mind when sexually acting out. Furthermore, the first author has spoken with hypersexual males who report episodic engagement in "sex benders" undertaken in what appears to be a dissociated-related cognitive state. These self-described sex benders typically involved multiple casual sexual encounters and continue until the individual's sexual arousal dissipates. In contrast, it is important to recognize that cognitive dissociation is also a

symptom of some personality disorders, which in turn may include hypersexuality as a symptom (e.g., borderline personality disorder).

We also suggest that during heightened states of sexual arousal, hypersexual persons are likely to unrealistically exhibit "pollyannaism" or positivity bias (Boucher & Osgood, 1969) toward their anticipated sexual behavior. That is, when in high states of sexual arousal, hypersexual persons are likely to optimistically view their anticipated sexual behavior and may fail to consider prior (or possible) negative consequences associated with their sexual activity. Furthermore, when sexually aroused, hypersexual persons are unlikely to reasonably reflect on how their anticipated sexual behavior may be personally viewed as incongruent with their beliefs and values, particularly before engaging in hypersexuality. For example, a hypersexual person in a heightened state of sexual arousal may consider that anonymous sex is highly desirable, but subsequently view their sexual behavior with considerable guilt and shame when their sexual arousal has dissipated.

Cognitive abeyance may occur at the onset and buildup stage of a sexual urge and also during the time period when engaging in hypersexuality (prior to achieving sexual satiation). Therefore, within the sexhavior cycle, sexual satiation represents the psychological point at which cognitive abeyance declines and more logical cognitive processing resumes. Research suggests that hypersexual persons may have difficulty being cognizant and mindful when uncomfortable and stressful experiences arise, and during these situations turn to sexual behavior for comfort (Reid et al., 2013). Furthermore, cognitive difficulty experienced by some hypersexual persons when feeling stressed may be accentuated during high states of sexual arousal.

Sexual Incongruence

Hypersexual persons may routinely engage in sexually incongruent behavior because they experience high sexual arousal (Bancroft et al., 2003a; Winters, 2010) which may override personal cognitive concern and inhibition about their repeated pattern of hypersexuality. A distinctive feature of hypersexuality is that individuals regularly engage in sexual behavior that post-satiation is perceived as incompatible with personal beliefs, values, and aspired goals (Reid & Woolley, 2006). For some hypersexual persons, the source of psychological distress is that their sexual experiences are frequently perceived as incongruent with personal beliefs and values. For example, if a person holds a primary belief that being a loving partner does not involve regularly masturbating alone when covertly viewing pornography online, then regularly engaging in such sexual behavior may be psychologically distressing.

For other hypersexual persons, their sexual incongruence is reinforced when one's sexual behavior becomes overtly known to others (e.g., by a spouse or partner, family, friends and colleagues, or the public). Research suggests that society has defined attitudes about what constitutes morally appropriate sexual behavior (Brewer, 2014; Treas & Giesen, 2000). For example, hypersexuality such as engaging in anonymous sex at a bathhouse may be publicly considered an inappropriate sexual activity, irrespective of whether persons making such judgments have either engaged in or fantasized about a similar activity.

Professional golfer Tiger Woods is a high profile example of sexual incongruence. Indeed, during his 5-year marriage, Woods is reported to have engaged in multiple casual sexual encounters involving approximately 120 women (HuffPost Sports, 2011; Wilson, 2010). However, prior to his casual sexual encounters becoming known to the public, Woods may have privately experienced sexual incongruence following occurrences of hypersexuality. Indeed, when his sexual infidelity came to the attention and scrutiny of the international media (and his wife), Woods was remorseful of his conduct and is reported to have checked himself into an exclusive private clinic for treatment of his sexual addiction. In contrast, perhaps Wood's casual sexual encounters were not generally associated with inherent distress, but only become "problematic" when social condemnation arose. This highlights an important point: Should hypersexuality be validly considered a mental disorder in circumstances where the condition may merely reflect a moral conflict between the individual and society?

In reality, Tiger Woods may not have been sex addicted, but may have coexisted in a marital relationship in which he was sexually (or more broadly) dissatisfied and for which he did not have the psychological tools or understanding to discuss or resolve with his spouse. Woods may also have liked the company of multiple female sexual partners, for which his actions have been strongly judged, and subsequently caused considerable personal distress to him and his family. In addition, Woods may have had more opportunities than the average male to participate in casual sexual encounters with very attractive females. Alternatively, Woods may frequently experience high sexual arousal that he felt unable to control and experienced sexual incongruence following his extradyadic encounters.

Conclusion

A review of the extant literature suggests that multiple etiologies and theoretical conceptualizations variously exist to predict hypersexuality. Hypersexuality may also arise from imbalances or natural variation associated with brain circuitry and chemistry, as well as high sexual arousal, although our understanding of how neurobiology relates to the condition is in its infancy. Future research of hypersexuality could include neuroimaging studies to evaluate whether the brain functioning of hypersexual persons is behaviorally more sensitized to sex when compared to non-hypersexual persons. We also propose the sexhavior cycle of hypersexuality, including introducing theoretical concepts of cognitive abeyance and sexual incongruence, to further understand the neuropsychology and cycle of hypersexuality.

We acknowledge an ongoing challenge to validate whether hypersexuality is a distinct clinical disorder, which is perhaps further complicated because the condition is unlikely to be a unitary construct. However, notwithstanding described concerns about the existence and measurement of hypersexuality, a large body of research suggests that some persons struggle to control their sexual behavior and continued investigation may assist clinicians to treat these individuals to better regulate their sexual behavior. Further investigation of hypersexuality is warranted to better understand why some persons experience their sexual behavior as out-of-control, and determine when (or if) hypersexuality is a distinct clinical disorder, symptomatic of either a medical or psychological condition, or an independent psychological problem that requires treatment rather than a clinical diagnosis.

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References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Press.

American Psychological Association. (2016). *What do practicing psychologists do?* Retrieved from http://www.apa.org/helpcenter/about-psychologists.aspx.

Ariely, D., & Loewenstein, G. (2006). The heat of the moment. The effect of sexual arousal on sexual decision making. *Journal of Behavioral Decision Making, 19,* 87–98. doi:10.1002/bdm.501.

Baker, H. S., & Baker, M. N. (1987). Heinz Kohut's self psychology: An overview. *American Journal of Psychiatry, 144,* 1–9. doi:10.1176/ajp.144.1.1.

Bancroft, J. (1999). Central inhibition of sexual response in the male: A theoretical perspective. *Neuroscience and Biobehavioral Reviews, 23,* 763–784. doi:10.1016/S0149-7634(99)00019-6.

Bancroft, J., Graham, C. A., Janssen, E., & Sanders, S. A. (2009). The dual control model: Current status and future directions. *Journal of Sex Research, 46,* 121–142. doi:10.1080/00224490902747222.

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

Bancroft, J., Janssen, E., Carnes, L., Goodrich, D., Strong, D., & Long, J. S. (2004). Sexual activity and risk-taking in young heterosexual men: The relevance of sexual arousability, mood, and sensation seeking. *Journal of Sex Research, 41,* 181–192. doi:10.1080/00224490409552226.

Bancroft, J., Janssen, E., Strong, D., Carnes, L., Vukadinovic, Z., & Long, J. S. (2003a). Sexual risk-taking in gay men: The relevance of sexual arousability, mood and sensation seeking. *Archives of Sexual Behavior, 32,* 555–572. doi:10.1023/A:1026041628364.

Bancroft, J., Janssen, E., Strong, D., & Vukadinovic, Z. (2003b). The relation between mood and sexuality in gay men. *Archives of Sexual Behavior, 32,* 231–242. doi:10.1023/A:1023461500810.

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

Baptie, C. A. (2012). *The relationship between online sexual compulsivity and shame, guilt, internalized homonegativity, depression, and perceived social support in men who have sex with men* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Databases (UMI No. 3537114).

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

Baumeister, R. F., Cantanese, K. R., & Vohs, K. D. (2001). Is there a gender difference in strength of sex drive? Theoretical views, conceptual distinctions, and a review of relevant evidence. *Personality and Social Psychology Review, 5,* 242–273. doi:10.1207/S15327957PSPR0503_5.

Birchard, T. (2011). Sexual addiction and the paraphilias. *Sexual Addiction & Compulsivity, 18,* 157–187. doi:10.1080/10720162.2011.606674.

Black, D. W., Kehrberg, L. L. D., Flumerfelt, D. L., & Schlosser, S. S. (1997). Characteristics of 36 subjects reporting compulsive sexual behavior. *American Journal of Psychiatry, 154,* 243–249.

Blain, L. M., Muench, F., Morgenstern, J., & Parsons, J. T. (2012). Exploring the role of child sexual abuse and posttraumatic stress disorder symptoms in gay and bisexual men reporting compulsive sexual behavior. *Child Abuse and Neglect, 36,* 413–422. doi:10.1016/j.chiabu.2012.03.003.

Blaszczynski, A., & Silove, D. (1996). Pathological gambling: Forensic issues. *Australian and New Zealand Journal of Psychiatry, 30,* 358–369. doi:10.3109/00048679609065000.

Blume, S. B. (1988). Compulsive gambling and the medical model. *Journal of Gambling Behavior, 3,* 237–247. doi:10.1007/BF01019883.

Bogaert, A. F. (2004). Asexuality: Prevalence and associated factors in a national probability sample. *Journal of Sex Research, 41,* 279–287. doi:10.1080/00224490409552235.

Boucher, J., & Osgood, C. E. (1969). The pollyanna hypothesis. *Journal of Verbal Learning and Verbal Behavior, 8,* 1–8. doi:10.1016/S0022-5371(69)80002-2.

Bowlby, J. (1973). *Attachment and loss: Separation anxiety and anger* (Vol. 2). New York, NY: Basic Books.

Bradley, D. F., Grubbs, J. B., Uzdavines, A., Exline, J. J., & Pargament, K. I. (2016). Perceived addiction to internet pornography among religious believers and nonbelievers. *Sexual Addiction & Compulsivity, 23,* 225–243. doi:10.1080/10720162.2016.1162237.

Brewer, G. (2014). Heterosexual and homosexual infidelity. The importance of attitudes towards homosexuality. *Personality and Individual Differences, 64,* 98–100. doi:10.1016/j.paid.2014.02.025.

Brotto, L. A., Knudson, G., Inskip, J., Rhodes, K., & Erskine, Y. (2010). Asexuality: A mixed-methods approach. *Archives of Sexual Behavior, 39,* 599–618. doi:10.1007/s10508-008-9434-x.

Brunk, D. (2014). Axis I ailments common in men with hypersexual disorder. *Clinical Psychiatry News, 42,* 1.

Calabro, R. S. (2013). Levetiracetam-induced sexual disorders. *Seizure, 22,* 329. doi:10.1016/j.seizure.2013.01.003.

Callesen, M. B., Scheel-Kruger, J., Kringelbach, M. L., & Meller, A. (2013). A systematic review of impulse control disorders in Parkinson's disease. *Journal of Parkinson's Disease, 3,* 105–138. doi:10.3233/JPD-120165.

Cantor, J. M., Blanchard, R., & Barbaree, H. (2009). Sexual disorders. In P. H. Blaney & T. Millon (Eds.), *Oxford textbook of psychopathology* (2nd ed., pp. 527–548). New York: Oxford.

Cantor, J. M., Klein, C., Lykins, A. D., Rullo, J. E., Thaler, L., & Walling, B. R. (2013). A treatment-orientated typology of self-identified hypersexuality referrals. *Archives of Sexual Behavior, 42,* 883–893. doi:10.1007/s10508-013-0085-1.

Cao, Y., Zhu, Z., Wang, R., Wang, S., & Zhao, J. (2010). Hypersexuality from resection of left occipital arteriovenous malformation. *Neurosurgical Review, 33,* 107–114. doi:10.1007/s10143-009-0232-2.

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

Carnes, P. J. (1993). When the issue is sex addiction with Dr. Patrick Carnes/Interviewer: Richard L. Peck. *Addiction and Recovery, 13,* 14.

Carnes, P. J. (2001). *Out of the shadows: Understanding sexual addiction* (3rd ed.). Center City, MN: Hazelden Publishing. (Originally published 1983)

Carnes, P. J. (2003). Understanding sexual addiction. *Siecus Report, 31,* 5–7.

Carpenter, D., Janssen, E., Graham, C., Vorst, H., & Wicherts, J. (2008). Women's scores on the Sexual Inhibition/Sexual Excitation Scales (SIS/SES): Gender similarities and differences. *Journal of Sex Research, 45,* 36–48. doi:10.1080/00224490701808076.

Carpenter, B. N., Reid, R. C., Garos, S., & Najavits, L. M. (2013). Personality disorder comorbidity in treatment-seeking men with hypersexual disorder. *Sexual Addiction & Compulsivity, 20,* 79–90.

Carvalho, J., Guerra, L., Neves, S., & Nobre, P. J. (2015a). Psychopathological predictors characterizing sexual compulsivity in a nonclinical sample of women. *Journal of Sex and Marital Therapy, 41,* 467–480. doi:10.1080/0092623X.2014.920755.

Carvalho, J., Stulhofer, A., Vieira, A. L., & Jurin, T. (2015b). Hypersexuality and high sexual desire: Exploring the structure of problematic sexuality. *Journal of Sexual Medicine, 12,* 1356–1367. doi:10.1111/jsm.12865.

Chaney, M. P., & Burns-Wortham, C. M. (2014). The relationship between online sexual compulsivity, dissociation, and past child abuse among men who have sex with men. *Journal of LGBT Issues in Counselling, 8,* 146–163. doi:10.1080/15538605.2014.895663.

Chaney, M. P., & Burns-Wortham, C. M. (2015). Examining coming out, loneliness, and self-esteem as predictors of sexual compulsivity in gay and bisexual men. *Sexual Addiction & Compulsivity, 22,* 71–88. doi:10.1080/10720162.2014.1001543.

Chaney, M. P., & Chang, C. (2005). A trio of turmoil for internet sexually addicted men who have sex with men: Boredom proneness, social connectedness, and dissociation. *Sexual Addiction & Compulsivity, 12,* 3–18. doi:10.1080/10720160590933671.

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

Cipriani, G., Ulivi, M., Danti, S., Lucetti, C., & Nuti, A. (2016). Sexual disinhibition and dementia. *Psychogeriatrics, 16,* 145–153. doi:10.1111/psyg.12143.

Coleman, E. (1990). The obsessive–compulsive model for describing compulsive sexual behavior. *American Journal of Preventive Psychiatry and Neurology, 2,* 9–14.

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

Conley, T. D., Moors, A. C., Matsick, J. L., & Ziegler, A. (2013). The fewer the merrier? Assessing stigma surrounding consensually non-monogamous romantic relationships. *Analyses of Social Issues and Public Policy, 13,* 1–30. doi:10.1111/j.1530-2415.2012.01286.x.

Cooper, A. L., Delmonico, D. L., & Burg, R. (2000). Cybersex users, abusers, and compulsives: New findings and implications. *Sexual Addiction & Compulsivity, 7,* 5–29. doi:10.1080/10720160008400205.

Cooper, C. A., Jadidian, A., Paggi, M., Romrell, J., Okun, M. S., Rodriguez, R. L., & Fernandez, H. H. (2009). Prevalence of hypersexual behavior in Parkinson's disease patients. Not restricted to males and dopamine agonist use. *International Journal of General Medicine, 2,* 57–61. doi:10.2147/IJGM.S4674.

Dawson, S. J., Bannerman, B. A., & Lalumiere, M. L. (2016). Paraphilic interests: An examination of sex differences in a nonclinical sample. *Sex Abuse: A Journal of Research and Treatment, 28,* 20–45. doi:10.1177/1079063214525645.

Dew, B. J., & Chaney, M. P. (2005). The relationship among sexual compulsivity, internalized homophobia, and HIV at-risk sexual behavior in gay and bisexual male users of internet chat rooms. *Sexual Addiction & Compulsivity, 12,* 259–273. doi:10.1080/10720160500362306.

Dhuffar, M. K., & Griffiths, M. D. (2014). Understanding the role of shame and its consequences in female hypersexual behaviours: A pilot study. *Journal of Behavioral Addictions, 3,* 231–237. doi:10.1556/JBA.3.2014.4.4.

Dhuffar, M. K., Pontes, H. M., & Griffiths, M. D. (2015). The role of negative mood states and consequences of hypersexual behaviours in predicting hypersexuality among university students. *Journal of Behavioral Addictions, 4,* 181–188. doi:10.1556/2006.4.2015.030.

Downing, M. J., Jr., Antebi, N., & Schrimshaw, E. W. (2014). Compulsive use of internet-based sexually explicit media: Adaptation and validation of the compulsive internet use scale (CIUS). *Addictive Behaviors, 39,* 1126–1130. doi:10.1016/j.addbeh.2014.03.007.

Eghwrudjakpor, P. O., & Essien, A. A. (2008). Hypersexual behavior following craniocerebral trauma: An experience with five cases. *Libyan Journal of Medicine, 3,* 192–194. doi:10.4176/080908.

Evans, A. H., Stratfella, A. P., Weintraub, D., & Stacy, M. (2009). Impulsive and compulsive behaviors in Parkinson's disease. *Movement Disorders, 24,* 1561–1579. doi:10.1002/mds.22505.

Fagan, P. J., Wise, T. N., Schmidt, C. W., Jr., Ponticas, Y., Marshall, R. D., & Costa, P. T., Jr. (1991). A comparison of five-factor personality dimensions in males with sexual dysfunction and males with paraphilia. *Journal of Personality Assessment, 57,* 434–448. doi:10.1207/s15327752jpa5703_4.

Faisandier, K. M., Taylor, J. E., & Salisbury, R. M. (2012). What does attachment have to do with out-of-control sexual behavior? *New Zealand Journal of Psychology, 41,* 19–29.

Ferreira, V., Carvalho, E., Santos, R., Peralta, P., & Carvalho, M. (2008). Attachment and sexual compulsivity in sexually active adults: Associations with age of first intercourse, number of partners and short term relations. *Sexologies, 17,* S99. doi:10.1016/S1158-1360(08)72787-7.

Finlayson, R. A. J., Sealy, J., & Martin, P. R. (2001). The differential diagnosis of problematic hypersexuality. *Sexual Addiction & Compulsivity, 8,* 241–251. doi:10.1080/107201601753459946.

Fuste, R. J., Garcia, E., & Saldana, C. (2015). *Hypersexuality, sexual impulsivity, sexual compulsivity or sexual addiction? Which is right?* Poster session presented at the fourth International Consultation of Sexual Medicine, Madrid, Spain.

Garcia, J. R., Reiber, C., Massey, S. G., & Merriweather, A. M. (2012). Sexual hookup culture: A review. *Review of General Psychology, 16,* 161–176. doi:10.1037/a0027911.

Gilliland, R., Blue Star, J., Hansen, B., & Carpenter, B. (2015). Relationship attachment styles in a sample of hypersexual patients. *Journal of Sex and Marital Therapy, 41,* 581–592. doi:10.1080/0092623X.2014.958787.

Gilliland, R., South, M., Carpenter, B. N., & Hardy, S. A. (2011). The roles of shame and guilt in hypersexual behavior. *Sexual Addiction & Compulsivity, 18,* 12–29. doi:10.1080/10720162.2011.551182.

Giugliano, J. R. (2008). Sexual impulsivity, compulsivity or dependence: An investigative inquiry. *Sexual Addiction & Compulsivity, 15,* 139–157. doi:10.1080/10720160802035600.

Giugliano, J. R. (2009). Sexual addiction: Diagnostic problems. *International Journal of Mental Health Addiction, 7,* 283–294. doi:10.1007/s11469-009-9195-3.

Goodman, A. (2001). What's in a name? Terminology for designating a syndrome of driven sexual behavior. *Sexual Addiction & Compulsivity, 8,* 191–213. doi:10.1080/107201601753459919.

Goodman, A. (2008). Neurobiology of addiction. An integrative review. *Biochemical Pharmacology, 75,* 266–322. doi:10.1016/j.bcp.2007.07.030.

Grabowska-Grzyb, A., Naganska, E., & Wolanczyk, T. (2006). Hypersexuality in two patients with epilepsy treated with lamotrigine. *Epilepsy & Behavior, 8,* 663–665. doi:10.1016/j.yebeh.2006.01.005.

Grant, J. E., Atmaca, M., Fineberg, N. A., Fontenelle L. F., Matsunaga, H., Janardhan Reddy, Y. C., … Stein, D. J. (2014). Impulse control disorders and "behavioural addictions" in the ICD-11. *World Psychiatry*, *13*, 125–127. doi:10.1002/wps.20115.

Grant, J. E., Potenza, M. N., Weinstein, A., & Gorelick, D. A. (2010). Introduction to behavioral addictions. *American Journal of Drug and Alcohol Abuse, 36,* 233–241. doi:10.3109/00952990.2010.491884.

Griffin, B. J., Worthington, E. L., Jr., Leach, J. D., Hook, J. N., Grubbs, J. B., Exline, J. J., & Davis, D. E. (2016). Sexual congruence moderates the

associations of hypersexual behavior with spiritual struggle and sexual self-concept. *Sexual Addiction & Compulsivity, 23,* 279–295. doi:10.1080/10720162.2016.1150924.

Griffin-Shelley, E. (2014). Sex and love addicts, who sexually offend: Two case of online use of child pornography (Child sexual abuse images). *Sexual Addiction & Compulsivity, 21,* 322–341. doi:10.1080/10720162.2014.966936.

Grubbs, J. B., Exline, J. J., Pargament, K. I., Hook, J. N., & Carlisle, R. D. (2015a). Transgression as addiction: Religiosity and moral disapproval as predictors of perceived addiction to pornography. *Archives of Sexual Behavior, 44,* 125–136. doi:10.1007/s10508-013-0257-z.

Grubbs, J. B., Stauner, N., Exline, J. J., Pargament, K. I., & Lindberg, M. J. (2015b). Perceived addiction to internet pornography and psychological distress: Examining relationships concurrently over time. *Psychology of Addictive Behaviors, 29,* 1056–1067. doi:10.1037/adb0000114.

Gullette, D. L., & Lyons, M. A. (2005). Sexual sensation seeking, compulsivity, and HIV risk behaviors in college students. *Journal of Community Health Nursing, 22,* 47–60. doi:10.1207/s15327655jchn2201_5.

Gwee, K. P., Lim, L. E. C., & Woo, M. (2002). The sexual profile of rapists in Singapore. *Medicine, Science and the Law, 42,* 51–57.

Hagedorn, W. B. (2009). Sexual addiction counseling competencies: Empirically-based tools for preparing clinicians to recognize, assess, and treat sexual addiction. *Sexual Addiction & Compulsivity, 16,* 190–209. doi:10.1080/10720160903202604.

Hall, P. (2013). *Understanding and treating sex addiction: A comprehensive guide for people who struggle with sex addiction and those who want to help them.* New York, NY: Routledge.

Halpern, A. L. (2011). The proposed diagnosis of hypersexual disorder for inclusion in DSM-5: Unnecessary and harmful [Letter to the Editor]. *Archives of Sexual Behavior, 40,* 487–488. doi:10.1007/s10508-011-9727-3.

Hanson, R. K., & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: A meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology, 73,* 1154–1163. doi:10.1037/0022-006X.73.6.1154.

Holden, C. (2001). ''Behavioral'' addictions: Do they exist? *Science, 294,* 980–982. doi:10.1126/science.294.5544.980.

Hollander, E., Poskar, S., & Gerard, A. (2012). Subtypes and spectrum issues. In J. Zohar (Ed.), *Obsessive-compulsive disorder: Current science and clinical practice* (pp. 135–157). Chichester: Wiley.

Hook, J. N., Farrell, J. E., Davis, D. E., Van Tongeren, D. R., Griffin, B. J., Grubbs, J. B., … Bedics, J. D. (2015). Self-forgiveness and hypersexual behavior. *Sexual Addiction & Compulsivity*, *22*, 59–70. doi:10.1080/10720162.2014.1001542.

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

Howard, M. D. (2007). Escaping the pain: Examining the use of sexually compulsive behavior to avoid the traumatic memories of combat. *Sexual Addiction & Compulsivity, 14,* 77–94. doi:10.1080/10720160701310443.

HuffPost Sports. (2011). Tiger Woods had sex with 121 women: 'National Enquirer'. *HuffingtonPost.com*. Retrieved from http://www.huffingtonpost.com/2010/04/29/tiger-woods-had-sex-with_n_556948.html.

Hughes, B. (2010). Understanding 'sexual addiction' in clinical practice. *Procedia Social and Behavioral Sciences, 5,* 915–919. doi:10.1016/j.sbspro.2010.07.210.

Hughes, B. (2011). *'Sexual addiction': Diagnosis and treatment in clinical practice*. Poster session presented at the International Conference for Healthcare and Medical Students, Dublin, Ireland.

Janssen, E., & Bancroft, J. (2007). The dual control model: The role of sexual inhibition and excitation in sexual arousal and behavior. In E. Janssen (Ed.), *The psychophysiology of sex* (pp. 197–222). Bloomington, IN: Indiana University Press.

Janssen, E., Vorst, H., Finn, P., & Bancroft, J. (2002a). The Sexual Inhibition (SIS) and Sexual Excitation (SES) Scales: I. Measuring sexual inhibition and excitation proneness in men. *Journal of Sex Research, 39,* 114–126. doi:10.1080/00224490209552130.

Janssen, E., Vorst, H., Finn, P., & Bancroft, J. (2002b). The Sexual Inhibition (SIS) and Sexual Excitation (SES) Scales: II. Predicting psychophysiological response patterns. *Journal of Sex Research, 39,* 127–132. doi:10.1080/00224490209552131.

Jerome, R. C., Woods, W. J., Moskowitz, J. T., & Carrico, A. W. (2016). The psychological context of sexual compulsivity among men who have sex with men. *AIDS and Behavior, 20,* 273–280. doi:10.1007/s10461-015-1083-1.

Kafka, M. P. (1997). Hypersexual desire in males: An operational definition and clinical implications for males with paraphilias and paraphilia-related disorders. *Archives of Sexual Behavior, 26,* 505–526. doi:10.1023/A:1024507922470.

Kafka, M. P. (2001). The paraphilia-related disorders: A proposal for a united classification of nonparaphilic hypersexuality disorders. *Sexual Addiction & Compulsivity, 8,* 227–239. doi:10.1080/107201601753459937.

Kafka, M. P. (2003). Sex offending and sexual appetite: The clinical and theoretical relevance of hypersexual desire. *International Journal of Offender Therapy and Comparative Criminology, 47,* 439–451. doi:10.1177/0306624X03253845.

Kafka, M. P. (2010). Hypersexual disorder: A proposed diagnosis for DSM-V. *Archives of Sexual Behavior, 39,* 377–400. doi:10.1007/s10508-009-9574-7.

Kafka, M. P. (2013). The development and evolution of the criteria for a newly proposed diagnosis for DSM-5: Hypersexual disorder. *Archives of Sexual Behavior, 20,* 19–26.

Kafka, M. P. (2014). What happened to hypersexual disorder? [Commentary]. *Archives of Sexual Behavior, 43,* 1259–1261. doi:10.1007/s10508-014-0326-y.

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

Kafka, M. P., & Hennen, J. (2002). A DSM-IV Axis I comorbidity study of males (n = 120) with paraphilias and paraphilia-related disorders. *Sexual Abuse A Journal of Research and Treatment, 14,* 349–366. doi:10.1023/A:1020007004436.

Kafka, M. P., & Hennen, J. (2003). Hypersexual desire in males. Are males with paraphilias different from males with paraphilia-related disorders? *Sexual Abuse A Journal of Research and Treatment, 15,* 307–321. doi:10.1023/A:1025000227956.

Kalichman, S. C., & Cain, D. (2004). The relationship between indicators of sexual compulsivity and high risk sexual practices among men and women receiving services from a sexually transmitted infection clinic. *Journal of Sex Research, 41,* 235–241. doi:10.1080/00224490409552231.

Kalichman, S. C., Johnson, J. R., Adair, V., Rompa, D., Multhauf, K., & Kelly, J. A. (1994). Sexual sensation seeking: Scale development and predicting AIDS-risk behavior among homosexually active men. *Journal of Personality Assessment, 62,* 385–397. doi:10.1207/s15327752jpa6203_1.

Kalichman, S. C., & Rompa, D. (1995). Sexual sensation seeking and sexual compulsivity scales: Reliability, validity, and predicting HIV risk behavior. *Journal of Personality Assessment, 65,* 586–601. doi:10.1207/s15327752jpa6503_16.

Kaplan, H. S. (1995). *The sexual desire disorders: Dysfunctional regulation of sexual motivation*. New York, NY: Brunner/Mazel Publishers.

Kaplan, M. S., & Krueger, R. B. (2010). Diagnosis, assessment, and treatment of hypersexuality. *Journal of Sex Research, 47,* 181–198. doi:10.1080/00224491003592863.

Karaga, S., Davis, D. E., Choe, E., & Hook, J. N. (2016). Hypersexuality and religion/spirituality: A qualitative review. *Sexual Addiction & Compulsivity, 23,* 167–181. doi:10.1080/10720162.2016.1144116.

Kataoka, H., Shinkai, T., Inoue, M., & Satoski, U. (2009). Increased medial temporal blood flow in Parkinson's disease with pathological hypersexuality. *Movement Disorders, 24,* 471–473. doi:10.1002/mds.22373.

Katehakis, A. (2009). Affective neuroscience and the treatment of sexual addiction. *Sexual Addiction & Compulsivity, 16,* 1–31. doi:10.1080/10720160802708966.

Kingston, D. A. (2016). Hypersexuality disorders and sexual offending. In A. Phenix & H. M. Hoberman (Eds.), *Sexual offending: Predisposing antecedents, assessments and management* (pp. 103–118). New York: Springer.

Kingston, D. A., & Bradford, J. M. (2013). Hypersexuality and recidivism among sexual offenders. *Sexual Addiction & Compulsivity, 20,* 91–105. doi:10.1080/10720162.2013.768131.

Kingston, D. A., & Firestone, P. (2008). Problematic hypersexuality: A review of conceptualization and diagnosis. *Sexual Addiction & Compulsivity, 15,* 284–310. doi:10.1080/10720160802289249.

Klein, M. (2003). Sex addiction: A dangerous clinical concept. *Siecus report, 31,* 8–11.

Klein, V., Rettenberger, M., & Briken, P. (2014). Self-reported indicators of hypersexuality and its correlates in a female online sample. *Journal of Sexual Medicine, 11,* 1974–1981. doi:10.1111/jsm.12602.

Kor, A., Fogel, Y. A., Reid, R. C., & Potenza, M. N. (2013). Should hypersexual disorder be classified as an addiction. *Sexual Addiction & Compulsivity, 20,* 27–47.

Kraus, S. W., Rosenberg, H., & Tompsett, C. J. (2015). Assessment of self-efficacy to employ self-initiated pornography use-reduction strategies. *Addictive Behaviors, 40,* 115–118. doi:10.1016/j.addbeh.2014.09.012.

Kraus, S. W., Voon, V., & Potenza, M. N. (2016). Should compulsive sexual behavior be considered an addition? *Addiction, 111,* 2097–2106. doi:10.1111/add.13297.

Krueger, R. B., & Kaplan, M. S. (2001). The paraphilic and hypersexual disorders: An overview. *Journal of Psychiatric Practice, 7,* 391–403. doi:10.1097/00131746-200111000-00005.

Kuzma, J. M., & Black, D. W. (2008). Epidemiology, prevalence, and natural history of compulsive sexual behavior. *Psychiatric Clinics of North America, 31,* 603–611. doi:10.1016/j.psc.2008.06.005.

Kwee, A. W., Dominguez, A. W., & Ferrell, D. (2007). Sexual addiction and Christian college men: Conceptual, assessment, and treatment challenges. *Journal of Psychology and Christianity, 26,* 3–13.

Långström, N., & Hanson, K. R. (2006). High rates of sexual behavior in the general population: Correlates and predictors. *Archives of Sexual Behavior, 35,* 37–52. doi:10.1007/s10508-006-8993-y.

Laumann, E. O., Gagnon, J. H., Michael, R. T., & Michaels, S. (1994). *The social organization of sexuality: Sexual practices in the United States*. Chicago, IL: University of Chicago Press.

Levine, M. P., & Troiden, R. R. (1988). The myth of sexual compulsivity. *Journal of Sex Research, 25,* 347–363. doi:10.1080/00224498809551467.

Levitsky, A. M., & Owens, N. J. (1999). Pharmacologic treatment of hypersexuality and paraphilias in nursing home residents. *Journal of the American Geriatrics Society, 47,* 231–234. doi:10.1111/j.1532-5415.1999.tb04583.x.

Ley, D., Prause, N., & Finn, P. (2014). The emperor has no clothes: A review of the 'pornography addiction' model. *Current Sexual Health Reports, 6,* 94–105. doi:10.1007/s11930-014-0016-8.

Lloyd, M., Raymond, N. C., Miner, M. H., & Coleman, E. (2007). Borderline personality traits in individuals with compulsive sexual behavior. *Sexual Addiction & Compulsivity, 14,* 187–206. doi:10.1080/10720160701480337.

Marshall, L. E., & Briken, P. (2010). Assessment, diagnosis, and management of hypersexual disorders. *Current Opinion in Psychiatry, 23,* 570–573. doi:10.1097/YCO.0b013e32833d15d1.

Martin, J. L., Dean, L., Garcia, M., & Hall, W. (1989). The impact of AIDS on a gay community: Changes in sexual behavior, substance use, and mental health. *American Journal of Community Psychology, 17,* 269–293. doi:10.1007/BF00931037.

McBride, K. R., Reece, M., & Sanders, S. (2008). Using the Sexual Compulsivity Scale to predict outcomes of sexual behavior in young adults. *Sexual Addiction & Compulsivity, 15,* 97–115. doi:10.1080/10720160802035816.

McPherson, S., Clayton, S., Wood, H., Hiskey, S., & Andrews, L. (2013). The role of childhood experiences in the development of sexual compulsivity. *Sexual Addiction & Compulsivity, 20,* 259–278. doi:10.1080/10720162.2013.803213.

McVinney, L. D. (1998). Social work practice with gay male couples. In G. P. Mallon (Ed.), *Foundations of social work practice with lesbian and gay persons* (pp. 209–228). Binghamton, NY: Harrington Park Press.

Mechelmans, D. J., Irvine, M., Banca, P., Porter, L., Mitchell, S., Mole, T. B., … Voon, V. (2014). Enhanced attentional bias towards sexually explicit cues in individuals with and without compulsive sexual behaviours. *PLoS ONE*, *9*, 1–7. doi:10.1371/journal.pone.0105476.

Mendez, M. F., & Shapira, J. S. (2013). Hypersexual behavior in frontotemporal dementia. A comparison with early-onset Alzheimer's disease. *Archives of Sexual Behavior, 42,* 501–509. doi:10.1007/s10508-012-0042-4.

Metin, S. Z., Ozmen, M., Ozkara, C., & Ozmen, E. (2013). Hypersexuality in a patient with epilepsy during treatment of levetiracetam. *Seizure, 22,* 151–152. doi:10.1016/j.seizure.2012.11.002.

Miltenberger, R. G. (2008). *Behavior modification: Principles and procedures* (4th ed.). Belmont, CA: Thomson.

Moholy, M., Prause, N., Proudfit, G. H., Rahman, A. S., & Fong, T. (2015). Sexual desire, not hypersexuality, predicts self-regulation of sexual arousal. *Cognition and Emotion, 29,* 1505–1516. doi:10.1080/02699931.2014.993595.

Montaldi, D. F. (2002). Understanding hypersexuality with an Axis II model. *Journal of Psychology & Human Sexuality, 14,* 1–23. doi:10.1300/J056v14n04_01.

Morgenstern, J., Muench, F., O'Leary, A., Wainberg, M., Parsons, J. T., Hollander, E., … Irwin, T. (2011). Non-paraphilic compulsive sexual behavior and psychiatric comorbidities in gay and bisexual men. *Sexual Addiction & Compulsivity*, *18*, 114–134. doi:10.1080/10720162.2011.593420.

Moser, C. (2011). Hypersexual disorder: Just more muddled thinking [Letter to the Editor]. *Archives of Sexual Behavior, 40,* 227–229. doi:10.1007/s10508-010-9690-4.

Moser, C. (2013). Hypersexual disorder: Searching for clarity. *Sexual Addiction & Compulsivity, 20,* 48–58.

Muise, A., Milhausen, R. R., Cole, S. L., & Graham, C. (2013). Sexual compulsivity in heterosexual married adults: The role of sexual excitation and sexual inhibition in individuals not considered "high risk". *Sexual Addiction & Compulsivity, 20,* 192–209. doi:10.1080/10720162.2013.786661.

Munhoz, R. P., Fabiani, G., Becker, N., Helio, A. G., & Teive, H. A. G. (2009). Increased frequency and range of sexual behavior in a patient with Parkinson's disease after use of pramipexole. A case report. *Journal of Sexual Medicine, 6,* 1177–1180. doi:10.1111/j.1743-6109.2008.00861.x.

Nair, D., Pawar, A., Kalra, G., & Shah, N. (2013). An Indian study of hypersexual disorder in patients with anxiety and mood disorders. *Sexual Addiction & Compulsivity, 20,* 292–305. doi:10.1080/10720162.2013.814094.

Odlaug, B. L., Lust, K., Schrelber, L. R. N., Christenson, G., Derbyshire, K., Harvanko, A., … Grant, J. E. (2013). Compulsive sexual behavior in young adults. *Annals of Clinical Psychiatry*, *25*, 193–200.

Ogas, O., & Gaddam, S. (2011). *A billion wicked thoughts: What the world's largest experiment reveals about human desire*. New York, NY: Dutton.

Orford, J. (1978). Hypersexuality: Implications for a theory of dependence. *British Journal of Addiction, 73,* 299–310. doi:10.1111/j.1360-0443.1978.tb00157.x.

Pachankis, J. E., Redina, H. J., Ventuneac, A., Grov, C., & Parsons, J. T. (2014). The role of maladaptive cognitions in hypersexuality among highly sexually active gay and bisexual men. *Archives of Sexual Behavior, 43,* 669–683. doi:10.1007/s10508-014-0261-y.

Parsons, J. T., Grov, C., & Golub, S. A. (2012). Sexual compulsivity, co-occurring psychosocial health problems, and HIV risk among gay and bisexual men: Further evidence of a syndemic. *American Journal of Public Health, 102,* 156–162. doi:10.2105/AJPH.2011.300284.

Parsons, J. T., Kelly, B. C., Bimbi, D. S., Muench, F., & Morgenstern, J. (2007). Accounting for the social triggers of sexual compulsivity. *Journal of Addictive Diseases, 26,* 5–16. doi:10.1300/J069v26n03_02.

Paunovic, N., & Hallberg, J. (2014). Conceptualization of hypersexual disorder with the behavioral-cognitive inhibition theory. *Psychology, 5,* 151–159. doi:10.4236/psych.2014.52024.

Peplau, L. A. (2003). Human sexuality: How do men and women differ? *Current Directions in Psychological Science, 12,* 37–40. doi:10.1111/1467-8721.01221.

Petersen, J. L., & Hyde, J. S. (2011). Gender differences in sexual attitudes and behaviors: A review of meta-analytic results and large datasets. *Journal of Sex Research, 48,* 149–165. doi:10.1080/00224499.2011.551851.

Phillips, B., Hajela, R., & Hilton, D. L., Jr. (2015). Sex addiction as a disease: Evidence for assessment, diagnosis, and response to critics. *Sexual Addiction & Compulsivity, 22,* 167–192. doi:10.1080/10720162.2015.1036184.

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

Politis, M., Loane, C., Wu, K., O'Sullivan, S. S., Woodhead, Z., Kiferie, L., … Piccini, P. (2013). Neural response to visual sexual cues in dopamine treatment-linked hypersexuality in Parkinson's disease. *Brain*, *136*, 400–411. doi:10.1093/brain/aws326.

Prause, N., & Graham, C. A. (2007). Asexuality: Classification and characterization. *Archives of Sexual Behavior, 36,* 341–356. doi:10.1007/s10508-006-9142-3.

Pressman, M. R., & Caudill, D. S. (2013). Alcohol-induced blackout as a criminal defense or mitigating factor: An evidence-based review and admissibility as scientific evidence. *Journal of Forensic Sciences, 58,* 932–940. doi:10.1111/1556-4029.12134.

Putnam, D. E. (2000). Initiation and maintenance of online sexual compulsivity: Implications for assessment and treatment. *CyberPsychology & Behavior, 3,* 553–563. doi:10.1089/109493100420160.

Quadland, M. C. (1985). Compulsive sexual behavior: Definition of a problem and an approach to treatment. *Journal of Sex and Marital Therapy, 11,* 121–132. doi:10.1080/00926238508406078.

Ragan, P. W., & Martin, P. R. (2000). The psychobiology of sexual addiction. *Sexual Addiction & Compulsivity, 7,* 161–175. doi:10.1080/10720160008400216.

Raymond, N. C., Coleman, E., & Miner, M. H. (2003). Psychiatric comorbidity and compulsive/impulsive traits in compulsive sexual behavior. *Comprehensive Psychiatry, 44,* 370–380. doi:10.1016/S0010-440X(03)00110-X.

Reay, B., Attwood, N., & Gooder, C. (2013). Inventing sex: The short history of sex addiction. *Sexuality and Culture, 17,* 1–19. doi:10.1007/s12119-012-9136-3.

Reid, R. C. (2007). Assessing readiness to change among clients seeking help for hypersexual behavior. *Sexual Addiction & Compulsivity, 14,* 167–186. doi:10.1080/10720160701480204.

Reid, R. C. (2010). Differentiating emotions in a sample of men in treatment for hypersexual behavior. *Journal of Social Work Practice in the Addictions, 10,* 197–213. doi:10.1080/15332561003769369.

Reid, R. C. (2013). Personal perspectives on hypersexual disorder. *Sexual Addiction & Compulsivity, 20,* 4–18. doi:10.1080/10720162.2013.772876.

Reid, R. C. (2016). Additional challenges and issues in classifying compulsive sexual behavior as an addiction. *Addiction, 111,* 2111–2113. doi:10.1111/add.13370.

Reid, R. C., Berlin, H. A., & Kingston, D. A. (2015). Sexual impulsivity in hypersexual men. *Current Behavioral Neuroscience Reports, 2,* 1–8. doi:10.1007/s40473-015-0034-5.

Reid, R. C., Bramen, J. E., Anderson, A., & Cohen, M. S. (2013). Mindfulness, emotional dysregulation, impulsivity, and stress proneness among hypersexual patients. *Journal of Clinical Psychology, 70,* 313–321. doi:10.1002/jclp.22027.

Reid, R. C., & Carpenter, B. N. (2009). Exploring relationships of psychopathology in hypersexual patients using the MMPI-2. *Journal of Sex and Marital Therapy, 35,* 294–310. doi:10.1080/00926230902851298.

Reid, R. C., Carpenter, B. N., Draper, E. D., & Manning, J. C. (2010). Exploring psychopathology, personality traits, and marital distress among women married to hypersexual men. *Journal of Couple & Relationship Therapy, 9,* 203–222. doi:10.1080/15332691.2010.491782.

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

Reid, R. C., Carpenter, B. N., & Hook, J. N. (2016). Investigating the correlates of hypersexual behavior in religious patients. *Sexual Addiction & Compulsivity, 23,* 296–312. doi:10.1080/10720162.2015.1130002.

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

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

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

Reid, R. C., Cooper, E. B., Prause, N., Li, D. S., & Fong, T. W. (2012b). Facets of perfectionism in a sample of hypersexual patients. *Journal of Nervous and Mental Disease, 200,* 990–995. doi:10.1097/NMD.0b013e3182718d67.

Reid, R. C., Dhuffar, M. K., Parhami, I., & Fong, T. W. (2012c). Exploring facets of personality in a patient sample of hypersexual women compared with hypersexual men. *Journal of Psychiatric Practice, 18,* 262–268. doi:10.1097/01.pra.0000416016.37968.eb.

Reid, R. C., Garos, S., & Carpenter, B. N. (2011b). Reliability, validity, and psychometric development of the Hypersexual Behavior Inventory in an outpatient sample of men. *Sexual Addiction & Compulsivity, 18,* 30–51. doi:10.1080/10720162.2011.555709.

Reid, R. C., Harper, J. M., & Anderson, E. H. (2009b). Coping strategies used by hypersexual patients to defend against the painful effects of shame. *Clinical Psychology and Psychotherapy, 16,* 125–138. doi:10.1002/cpp.609.

Reid, R. C., Stein, J. A., & Carpenter, B. N. (2011c). Understanding the roles of shame and neuroticism in a patient sample of hypersexual men. *Journal of Nervous and Mental Disease, 199,* 263–267. doi:10.1097/NMD.0b013e3182125b96.

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

Reid, R. C., & Woolley, S. R. (2006). Using emotionally focused therapy for couples to resolve attachment ruptures created by hypersexual behavior. *Sexual Addiction & Compulsivity, 13,* 219–239. doi:10.1080/10720160600870786.

Rettenberger, M., Klein, V., & Briken, P. (2016). The relationship between hypersexual behavior, sexual excitation, sexual inhibition, and person-

ality traits. *Archives of Sexual Behavior, 45,* 219–233. doi:10.1007/s10508-014-0399-7.
Riemersma, J., & Sytsma, M. (2013). A new generation of sexual addiction. *Sexual Addiction & Compulsivity, 20,* 306–322. doi:10.1080/10720162.2013.843067.
Rinehart, N. J., & McCabe, M. P. (1997). Hypersexuality: Psychopathology or normal variant of sexuality? *Sexual and Marital Therapy, 12,* 45–60. doi:10.1080/02674659708408201.
Robinson, T. E., & Berridge, K. C. (2000). The psychology and neurobiology of addiction: An incentive-sensitization view. *Addiction, 95,* S91–S117. doi:10.1046/j.1360-0443.95.8s2.19.x.
Robinson, T. E., & Berridge, K. C. (2001). Incentive-sensitization and addiction. *Addiction, 96,* 103–114.
Robinson, T. E., & Berridge, K. C. (2003). Addiction. *Annual Review of Psychology, 54,* 25–53. doi:10.1146/annurev.psych.54.101601.145237.
Robinson, T. E., & Berridge, K. C. (2008). The incentive sensitization theory of addiction: Some current issues. *Philosophical Transactions B, 363,* 3137–3146. doi:10.1098/rstb.2008.0093.
Safarinejad, M. R. (2009). Treatment of nonparaphilic hypersexuality in men with a long-acting analog of gonadotropin-releasing hormone. *Journal of Sexual Medicine, 6,* 1151–1164. doi:10.1111/j.1743-6109.2008.01119.x.
Schmitt, D. P. (2004). The big five related to risky sexual behavior across 10 world regions: Differential personality associations of sexual promiscuity and relationship infidelity. *European Journal of Personality, 18,* 301–319. doi:10.1002/per.520.
Schmitt, D. P. (2005). Sociosexuality from Argentina to Zimbabwe: A 48-nation study of sex, culture, and strategies of human mating. *Behavioral and Brain Sciences, 28,* 247–311.
Schmitz, J. (2005). The interface between impulse-control disorders and addictions: Are pleasure pathway responses shared neurological substrates? *Sexual Addiction & Compulsivity, 12,* 149–168. doi:10.1080/10720160500203641.
Schneider, J. P. (1991). How to recognize the signs of sexual addiction. Asking the right questions may uncover serious problems. *Postgraduate Medicine, 90,* 171–182.
Schneider, J. P. (2000). Compulsive and addictive sexual disorders and the family. *CNS Spectrums, 5,* 53–62.
Schneider, J. P. (2005). Guidelines for psychiatrists working with patients with sexual addiction. *Psychiatric Times, 22,* 64–71.
Schultz, K., Hook, J. N., Davis, D. E., Penberthy, J. K., & Reid, R. C. (2014). Nonparaphilic hypersexual behavior and depressive symptoms: A meta-analytic review of the literature. *Journal of Sex and Marital Therapy, 40,* 477–487. doi:10.1080/0092623X.2013.772551.
Schwartz, M. F. (1992). Sexual compulsivity as post-traumatic stress disorder: Treatment perspectives. *Psychiatric Annals, 22,* 333–338. doi:10.3928/0048-5713-19920601-11.
Schwartz, M. F. (2008). Developmental psychopathological perspectives on sexually compulsive behavior. *Psychiatric Clinics of North America, 31,* 567–586. doi:10.1016/j.psc.2008.07.002.
Schwartz, M. F., & Galperin, L. (2002). Hyposexuality and hypersexuality secondary to childhood trauma and dissociation. *Journal of Trauma and Dissociation, 3,* 107–120. doi:10.1300/J229v03n04_06.
Selvi, Y., Ozdemir, P. G., Atli, A., & Kiran, S. G. (2011). Traumatic sexuality after intrafamilial sexual abuse: A case report with compulsive sexual behaviour. *Journal of Psychiatry and Neurological Sciences, 24,* 85–88. doi:10.5350/DAJPN2011240112.
Shapiro, M. A., Chang, Y. L., Munson, S. K., Okun, M. S., & Fernandez, H. H. (2006). Hypersexuality and paraphilia induced by selegiline in Parkinson's disease: Report of 2 cases. *Parkinsonism and Related Disorders, 12,* 392–395. doi:10.1016/j.parkreldis.2006.01.010.
Skakoon-Sparling, S., Cramer, K. M., & Shuper, P. A. (2016). The impact of sexual arousal on sexual risk-taking in men and women. *Archives of Sexual Behavior, 45,* 33–42. doi:10.1007/s10508-015-0589-y.
Spenhoff, M., Kruger, T. H. C., Hartmann, U., & Kobs, J. (2013). Hypersexual behavior in an online sample of males: Associations with personal distress and functional impairment. *Journal of Sexual Medicine, 10,* 2996–3005. doi:10.1111/jsm.12160.
Starks, T. J., Grov, C., & Parsons, J. T. (2013). Sexual compulsivity and interpersonal functioning: Sexual relationship quality and sexual health in gay relationships. *Health Psychology, 32,* 1047–1056. doi:10.1037/a0030648.
Steele, V. R., Staley, C., Fong, T., & Prause, N. (2013). Sexual desire, not hypersexuality is related to neurophysiological responses elicited by sexual images. *Socioaffective Neuroscience & Psychology, 3,* 20770. doi:10.3402/snp.v3i0.20770.
Stein, D. J., Silvera, R. J., Hagerty, R., & Marmor, M. (2012). Viewing pornography depicting unprotected anal intercourse: Are there implications for HIV prevention among men who have sex with men? *Archives of Sexual Behavior, 41,* 411–419. doi:10.1007/s10508-011-9789-2.
Stulhofer, A., Jelovica, V., & Ruzic, J. (2008). Is early exposure to pornography a risk factor for sexual compulsivity? Findings from an online survey among young heterosexual adults. *International Journal of Sexual Health, 20,* 270–280. doi:10.1080/19317610802411870.
Stupiansky, N. W., Reece, M., Middlestadt, S. E., Finn, P., & Sherwood-Laughlin, C. (2009). The role of sexual compulsivity in casual sexual partnerships among college women. *Sexual Addiction & Compulsivity, 16,* 241–252. doi:10.1080/10720160903202760.
Sutton, K. S., Stratton, N., Pytyck, J., Kolla, N. J., & Cantor, J. M. (2014). Patient characteristics by type of hypersexuality referral: A quantitative chart review of 115 consecutive male cases. *Journal of Sex and Marital Therapy, 17,* 1–18. doi:10.1080/0092623X.2014.935539.
Todesco, A., & Bola, J. R. (1997). A pilot study of the relationship between childhood sexual abuse and compulsive sexual behaviors in adults. *Sexual Addiction & Compulsivity, 4,* 147–157. doi:10.1080/10720169708400138.
Torres, H. L., & Gore-Felton, C. (2007). Compulsivity, substance use, and loneliness: The loneliness and sexual risk model (LRSM). *Sexual Addiction & Compulsivity, 14,* 63–75. doi:10.1080/10720160601150147.
Treas, J., & Giesen, D. (2000). Sexual infidelity among married and cohabiting Americans. *Journal of Marriage and Family, 62,* 48–60. doi:10.1111/j.1741-3737.2000.00048.x.
Turchik, J. A., Garske, J. P., Probst, D. R., & Irvin, C. R. (2010). Personality, sexuality, and substance use as predictors of sexual risk taking in college students. *Journal of Sex Research, 47,* 411–419. doi:10.1080/00224490903161621.
Turner, M. (2009). Uncovering and treating sex addiction in couples therapy. *Journal of Family Psychotherapy, 20,* 283–302. doi:10.1080/08975350902970279.
Vitale, C., Santangelo, G., Trojano, L., Verde, F., Rocco, M., Grossi, D., & Barone, P. (2011). Comparative neuropsychological profile of pathological gambling, hypersexuality, and compulsive eating in Parkinson's Disease. *Movement Disorders, 26,* 830–836. doi:10.1002/mds.23567.
Voon, V., Mole, T. B., Banca, P., Porter, L., Morris, L., Mitchell, S., … Irvine, M. (2014). Neural correlates of sexual cue reactivity in individuals with and without compulsive sexual behaviours. *PLoS ONE, 7,* 1–10. doi:10.1371/journal.pone.0102419.
Walters, G. D., Knight, R. A., & Långström, N. (2011). Is hypersexuality dimensional? Evidence for the DSM-5 from general population and clinical samples. *Archives of Sexual Behavior, 40,* 1309–1321. doi:10.1007/s10508-010-9719-8.
Walton, M. T. (2017). *Sexhavior cycle of hypersexuality* [*Theoretical model*]. School of Psychology, University of New England, Armidale, Australia.
Walton, M. T., Cantor, J. M., Bhullar, N., & Lykins, A. D. (2017a). *A latent profile analysis of self-reported hypersexuality*. Manuscript submitted for publication.
Walton, M. T., Cantor, J. M., Bhullar, N., & Lykins, A. D. (2017b). A participant's written response in an online study that pre-screens individuals for hypersexuality and explores the validity of the Sexhavior Cycle. Unpublished raw data related to the PhD Candidature of M. T. Walton at the School of Psychology, University of New England, Armidale, Australia.

Walton, M. T., Cantor, J. M., & Lykins, A. D. (2017c). An online assessment of personality, psychological, and sexuality variables associated with self-reported hypersexual behavior. *Archives of Sexual Behavior, 46,* 721–733. doi:10.1007/s10508-015-0606-1.

Walton, M. T., Lykins, A. D., & Bhullar, N. (2016). Sexual arousal and sexual activity frequency: Implications for understanding hypersexuality [Letter to the Editor]. *Archives of Sexual Behavior, 45,* 777–782. doi:10.1007/s10508-016-0727-1.

Weintraub, D., Koester, J., Potenza, M. N., Siderowf, A. D., Stacy, M., Voon, V., … Lang, A. E. (2010). Impulse control disorders in Parkinson disease: A cross-sectional study of 3090 patients. *Archives of Neurology*, *67*, 589–595. doi:10.1001/archneurol.2010.65.

Weintraub, D., Siderowf, A. D., Potenza, M. N., Goveas, J., Morales, K. H., Duda, J. E., … Stern, M. B. (2006). Dopamine agonist use is associated with impulse control disorders in Parkinson's disease. *Archives of Neurology*, *63*, 969–973. doi:10.1001/archneur.63.7.969.

Wetterneck, C. T., Burgess, A. J., Short, M. B., Smith, A. H., & Cervantes, M. E. (2012). The role of sexual compulsivity, impulsivity, and experiential avoidance in internet pornography use. *Psychological Record, 62,* 3–18.

White, M. A., & Kimball, T. G. (2009). Attributes of Christian couples with a sexual addiction to internet pornography. *Journal of Psychology and Christianity, 28,* 350–359.

Wilson, C. (2010). Sex legends: How many women have these celebs slept with, and who has bedded 35,000? *Mirror Online*. Retrieved from http://www.mirror.co.uk/3am/celebrity-news/sex-legends-how-many-women-221059.

Wilt, J. A., Cooper, E. B., Grubbs, J. B., Exline, J. J., & Pargament, K. I. (2016). Associations of perceived addiction to internet pornography with religious/spiritual and psychological functioning. *Sexual Addiction & Compulsivity, 23,* 260–278. doi:10.1080/10720162.2016.1140604.

Winder, B., Lievesley, R., Kaul, A., Elliott, H. J., Thorne, K., & Hocken, K. (2014). Preliminary evaluation of the use of pharmacological treatment with convicted sexual offenders experiencing high levels of sexual preoccupation, hypersexuality and/or sexual compulsivity. *Journal of Forensic Psychiatry & Psychology, 25,* 176–194. doi:10.1080/14789949.2014.903504.

Winters, J. (2010). Hypersexual disorder: A more cautious approach [Letter to the Editor]. *Archives of Sexual Behavior, 39,* 594–596. doi:10.1007/s10508-010-9607-2.

Winters, J., Christoff, K., & Gorzalka, B. B. (2010). Dysregulated sexuality and high sexual desire: Distinct constructs? *Archives of Sexual Behavior, 39,* 1029–1043. doi:10.1007/s10508-009-9591-6.

Womack, S. D., Hook, J. N., Ramos, M., Davis, D. E., & Penberthy, J. K. (2013). Measuring hypersexual behavior. *Sexual Addiction & Compulsivity, 20,* 65–78.

World Health Organization. (1992). *International statistical classification of diseases and related health problems (ICD-10)*. Geneva: Author.

World Health Organization. (2016). Classifications: ICD-11 revision. Retrieved from http://www.who.int/classifications/icd/en/.

Zapf, J. L., Greiner, J., & Carroll, J. (2008). Attachment styles and male sex addiction. *Sexual Addiction & Compulsivity, 15,* 158–175. doi:10.1080/10720160802035832.

Zencius, A., Wesolowski, M. D., Burke, W. H., & Hough, S. (1990). Managing hypersexual disorders in brain-injured clients. *Brain Injury, 4,* 175–181. doi:10.3109/02699059009026163.