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Understanding the Personality and Behavioral Mechanisms Defining Hypersexuality in Men Who Have Sex with Men

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Abstract

Objective—The purpose of this study was to investigate personality factors and behavioral mechanisms that are relevant to hypersexuality in men who have sex with men.

Method—A sample of 242 men who have sex with men were recruited from various sites in a moderate size mid-western city. Participants were assigned to hypersexuality or control group using a SCID-type interview. Self-report inventories were administered that measured the broad band personality constructs of positive emotionality, negative emotionality and constraint, and more narrow constructs related to sexual behavioral control, behavioral activation, behavioral inhibition, sexual excitation, sexual inhibition, impulsivity, ADHD, and sexual behavior. Hierarchical logistic regression was used to determine the relationship between these personality and behavioral variables and group membership.

Results—A hierarchical logistic regression, controlling for age, revealed a significant positive relationship between hypersexuality and negative emotionality and a negative relationship with constraint. None of the behavioral mechanism variables entered this equation. However, a hierarchical multiple regression predicting sexual behavioral control indicated that lack of such control was positively related to sexual excitation and sexual inhibition due to the threat of performance failure and negatively related to sexual inhibition due to the threat of performance consequences and general behavioral inhibition

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Conclusions—Hypersexuality was found to be related to two broad personality factors that are characterized by emotional reactivity, risk-taking, and impulsivity. The associated lack of sexual behavior control is influenced by both sexual excitatory and inhibitory mechanisms, but not general behavioral activation and inhibitory mechanisms.

Keywords

Hypersexuality; sexual compulsivity; sexual addiction; impulsivity

Introduction

High frequency and out of control sexual behavior, referred to in this paper as hypersexuality, has been conceptualized as sexual addiction (1), sexual compulsivity (2), compulsive sexual behavior (3, 4), sexual impulsivity (5), impulsive/compulsive sexual behavior (6); paraphilia-related disorders (7), and out of control sexual behavior (8). In the absence of strong empirical data in support of any specific conceptualization (9), a more general diagnosis of hypersexual disorder was proposed for the Diagnostic and Statistical Manual for Mental Disorders (DSM-5: 9). Although the diagnosis was rejected, in part due to the relative lack of scientific support for the proposed criteria, the continued need for basic and clinical research on this topic was recognized (10).

The current study aimed to improve our understanding of hypersexuality by examining whether the underlying phenomena are best explained by more general mechanisms, such as those relevant to reward processing and reward sensitivity (10 10), or by processes that are more specific to sexuality. Individual differences in reward processing and sensitivity have been studied using, for example, Tellegen's (11) personality theory, which distinguishes between the three higher-order personality factors of Positive Emotionality, Negative Emotionality, and Constraint. Skegg and colleagues (12) found that hypersexuality was related to higher scores on the Stress Reaction and lower scores on the Control subscales of Negative Emotionality and Constraint, respectively. In addition, hypersexuality has been found to be related to the "Big Five" (13) factors of Neuroticism, which is indicative of deficits in coping skills for stress and to vulnerability to depression and anxiety; and (negatively) to Agreeableness, which is indicative of individuals with a pattern of distrust, rudeness, manipulation, lack of cooperation, and lack of concern for others (14). Further, Neuroticism was found to be highly correlated with scores on the Sexual Compulsivity Scale (15), and to mediate the relationship between shame and hypersexuality (16). Studies relating Tellegen's personality structure to the five factor model indicate that Negative Emotionality is a higher order factor that encompasses Neuroticism and the inverse of Agreeableness (17). Thus the findings above are consistent and show that hypersexuality is positively associated with negative emotionality.

When it comes to mechanisms more directly relevant to sexuality, the dual control model (DCM) of sexual response provides a theoretical framework that has proven of value to our understanding of various aspects of sexual response and behavior, including sexual desire, sexual arousal and sexual risk taking (18). The model describes sexual arousal and related processes as controlled by two underlying factors, which reflect distinct neurophysiological

systems, sexual inhibition and sexual excitation (19). Individual differences in the propensity for sexual excitation reflect the tendency to experience motivation to engage in sexual behavior and heightened levels of sexual arousal when exposed to sexual cues. The sexual inhibitory system (SIS) is thought to suppress sexual response and behavior and to do this through two processes: inhibition due to threat of sexual performance failure and inhibition due to threat of outcomes of sexual behavior (20). Consistent with DCM, some initial support has been found for the idea that hypersexuality is more likely in individuals with a high propensity for sexual excitation and a low propensity for sexual inhibition (21). Deficits in inhibition could indicate a more impulsive disorder, while high sexual arousability would be more consistent with the notion that hypersexuality may reflect the high end of a sexual motivation or responsivity dimension (22, 23).

Recently, two studies compared the relevance and contribution of the DCM with that of Gray's (24) theory of behavioral activation and inhibition to the prediction of hypersexuality (25, 26). Gray's (24) behavioral activation system (BAS), a neurophysiological system sensitive to signals of reward, nonpunishment, and escape from punishment, is responsible for the activation of goal directed behavior and the experience of positive feelings when a person is exposed to cues of impending reward (27). In contrast, Gray's behavioral inhibition system (BIS), which is sensitive to signals of punishment, non-reward, and novelty, is considered to be responsible for the experience of negative affect, such as anxiety, fear, and frustration, in the presence of cues that a desired behavior may lead to punishment or lack of anticipated reward (24).

Van Lankveld and colleagues. (26) found significant contributions for the fear and anxiety subscales of BIS in the prediction of number of sexual partners. However, the addition of the SIS and SES scales improved the prediction, with SIS2, inhibition due to threat of outcomes of sexual behavior, most prominent. Rettenberger and colleagues. (25) found significant, (although small in magnitude) associations between measures of behavioral activation and behavioral inhibition and measures of sexual excitation and sexual inhibition. Further, they found that sexual excitation and sexual inhibition were more relevant in explaining hypersexual disorder than were the more general measures (25). In other words, while hypersexuality is associated with a lack of general behavioral inhibition, the more specifically sexual traits of sexual excitation and inhibition may be more important to our understanding of hypersexuality.

The current study builds on the existing literature and explores the associations between hypersexuality and behavioral activation/inhibition and sexual excitation/inhibition, while comparing their role to that of individual differences in negative and positive emotionality (12). Consistent with work by Parsons and colleagues, hypersexuality may be considered to be related, not specifically to the quantity or frequency of various sexual behaviors, but to the affective response to and effects of such behaviors (28). Relevant to this observation, Bancroft and colleagues (29) and Parsons and colleagues (30) have found a connection between negative affect (e.g., depression, stress) and hypersexuality. This connection is consistent with the broad personality factors discussed earlier, which relate to coping strategies and sensitivity to negative affect.

The current study also explores the dimensions of impulsivity, including possible involvement of attention deficit/hyperactive disorder, which has been implicated as a causal factor of hypersexuality in clinical observations (31). It has been argued that hypersexuality can best be conceptualized as an impulse control disorder (5). Our research indicates that individuals with hypersexuality differ from controls in general measures of impulsivity, including the Barrett Impulsivity Scale, used in this study, and a Go-noGo procedure (32, 33). Further, the negative association between the Constraint factor of the Multidimensional Personality Questionnaire (12) and hypersexuality supports this theory regarding impulsivity, as the Constraint factor is conceptualized as a personality factor characterized by planfulness, lack of risk-taking, and high behavioral control.

This study is designed to explore the broad personality factors that may characterize hypersexuality, but also to explore more specific elements of those factors, including measures of behavioral activation and inhibition and of sexual excitation and inhibition. Further, we include measures of substance abuse because research indicates high levels of such abuse in hypersexual individuals (34, 35, 36, 37), and substance abuse has also been associated with the factors explored in this study (38).

Methods

Participants

Participants were 242 men (see Table 1) who were recruited using print and social media materials (e.g., Facebook, Craigslist) posted at and around the university campus and in GLBT and HIV service organizations, bars, and sexual health clinics. Recruitment strategies were designed to oversample individuals who would meet criteria for hypersexuality in order to insure that the sample size was adequate for comparisons between those with and those without hypersexuality. Participants had to be male, at least 18 years old, to have had sex with other men, and to have been sexually active within the past 90 days. Participants provided written informed consent prior to beginning data collection procedures, and received, at the end of the session, a \$100 gift card. All procedures were approved by the university's Committee for the Protection of Human Subjects.

Instruments

Self-report measures were completed in the laboratory using either a laptop or desktop computer. Data were automatically stored on a secure server.

Multidimensional Personality Questionnaire-Brief Form (MPQ-BF) (39)—The MPQ-BF is a 156-item scale developed to investigate personality structure (11) and includes 11 primary personality scales. In this study, we used the three broad trait factors that encompass the primary personality scales: Negative Emotionality (NEM; $\alpha=.86$ in this sample), Positive Emotionality (PEM; $\alpha=.60$ in this sample), and Constraint (CON; $\alpha=.48$ in this sample).

Behavioral Inhibition/Behavioral Activation Scales (BIS/BAS) (27)—The BIS/BAS scales are short (20 items) and measure the distinction between a behavioral

activation system (BAS), which governs approach-related behaviors, and a behavioral inhibition system (BIS), which governs avoidance-related behaviors. BIS was modified with the deletion of two items, even if something happens to me, I rarely experience fear or nervousness and when good things happen to me, it affects me strongly, which showed poor item total correlations. The BIS scale showed adequate reliability ($\alpha=.65$ in this sample) after modification. BAS, which governs approach motivated behaviors, includes three subscales: Drive (BAS-D; $\alpha=.77$ in this sample), Fun seeking (BAS-F; $\alpha=.67$ in this sample), and Reward Responsiveness (BAS-RR; $\alpha=.59$ in this sample).

Sexual Inhibition/Sexual Excitation Scales (SIS/SES) (20)—SIS/SES is a 45-item instrument. SIS includes two subscales, SIS1, propensity for sexual inhibition due to the threat of performance failure ($\alpha=.86$ in this sample); and SIS2, propensity for sexual inhibition due to the threat of performance consequences ($\alpha=.86$ in this sample). The SES measures the propensity for sexual excitation ($\alpha=.60$ in this sample).

Compulsive Sexual Behavior Inventory (CSBI) (40)—The CSBI is a 22-item scale that was developed to screen for compulsive sexual behavior (CSB). High scores indicate more symptoms of CSB. It contains two subscales: Control, which indicates difficulty controlling one's sexual behavior, and Violence, which includes items indicating perpetrating or being the victim of sexual violence. In this paper, we only used the 13-item control subscale ($\alpha=.93$ in this sample).

Sexual Symptom Assessment Scale (SSAS) (41)—SSAS is a 12-item self-report scale that measures the current severity of hypersexuality symptoms ($\alpha=.94$ in this sample). SSAS includes frequency and intrusiveness of thoughts, urges, and behaviors, as well as attempts to control them.

Barratt Impulsivity Scales (BIS-11) (42)—BIS-11 is a 30-item self-report measure of self-control, ability to delay gratification, and other aspects of impulsivity. The BIS measures 3 aspects of impulsive behavior: Activation (BIS-A; $\alpha=.60$ in this sample), Motor (BIS-M; $\alpha=.67$ in this sample), and lack of planfulness (BIS-NoPlan; $\alpha=.61$ in this sample).

Adult ADHD Self-Report Scale (ASRS) (43)—The ASRS is an 18-item self-report measure of the clinical presentation of attention deficit hyperactivity disorder. It contains two 9-item subscales, ASRSptA, the inattention aspects of ADHD ($\alpha=.85$ in this sample) and ASRSptB, the hyperactivity and impulsivity aspects of ADHD ($\alpha=.80$ in this sample).

Drug Use Disorders Test (DUDIT) (44)—The DUDIT is an 11-item screening scale for drug dependence. It includes questions related to frequency, urges, attempts to control use, and negative impacts of use of drugs other than alcohol ($\alpha=.92$ in this sample).

Hypersexuality Group Assignment

Participants were assigned to either the Hypersexuality group ($n=93$) or non-Hypersexuality group ($n=149$) based on a SCID-type interview.¹ Hypersexuality criteria were operationalized as follows: (A) Over a period of at least 6 months, experiencing recurrent intense sexual arousing fantasies, sexual urges, or behaviors involving one or more of the

following: Compulsive cruising and multiple partners; compulsive masturbation, including use of internet pornography and cybersex, and/or compulsive sex within a relationship; (B) The fantasies, sexual urges or behaviors cause clinically significant distress, or impairment in social, occupational, or other important areas of functioning; and (C) Not due to another medical condition, such as substance abuse, or attributable to another psychiatric disorder such as mania, or a normal developmental stage. Interviews were conducted by two trained staff members, audio recorded, and reviewed by two other research staff members. Discrepancies were resolved in consultation with two co-authors (NR and EC). Group assignment showed good inter-rater reliability ($K = .79$). This definition of hypersexuality and the SCID-type interview used in this study is consistent with definitions and methods from our previous research (32, 33, 36, 41, 45, 46, 47, 48, 49).

Statistical Analysis

Group differences for categorical demographic variables were explored using chi-square analyses. Age and scale scores were explored using independent group t-tests. If the assumption of equality of variance, as indicated by a Levene's test, was not met, the degrees of freedom were adjusted to account for the unequivalence.

Hierarchical logistic analysis was used to examine the contribution of our independent variables to the prediction of hypersexuality. After controlling for age, which differed between hypersexual and non-hypersexual participants, in Step 1, our analyses were designed to first assess the effects of broad personality factors, before determining whether more specific aspects of behavioral control, reward processing, and reward sensitivity explained hypersexuality. Thus, the contributions of positive emotionality, negative emotionality, and constraint were tested next followed by impulsivity measures, and then either behavioral activation/inhibition or sexual excitation/inhibition. In order to examine in more detail the effects of general aspects of reward processing and reward sensitivity, we followed the initial analyses with two additional logistic regressions, one which entered the BIS/BAS scales after controlling for age and the other which entered the SIS/SES scales after controlling for age. These analyses allow us to ascertain whether the effects of the more specific personality-related processes were masked by the broad personality bands, which conceptually could account for the effects of the BIS/BAS and SIS/SES variables (which measure general reward processing and reward sensitivity and specifically sexual reward processes and sensitivity, respectively). Our initial analyses tested BIS/BAS and SIS/SES separately to determine whether either had first-order associations with hypersexuality. If first order associations are found for both sets of variables, we will conduct additional logistical analyses to determine the relative strength of the associations between the more general and more sexually specific variables.

Hypersexuality, as defined in this study, includes both a period of six months or more where an individual experienced their sexual behavior as excessive and out of control, as well as experiencing dysfunction or distress as a result of their behavior. However, a major concern in understanding hypersexuality is not just the conjunction between lack of control and

¹Interview schedule can be obtained by contacting the first author.

dysfunction/distress, but how to explain the associated lack of sexual behavioral control. To further explore the factors that might be associated with this lack of sexual behavior control, a multiple linear regression was used to explore the associations between BIS/BAS and SIS/SES and CSBI Control. A hierarchical analysis was used that controlled for age and DUDIT score, then entered BIS/BAS or SIS/SES. A significant second step was followed by entering the three broad personality factors, PEM, NEM, and CON.

Results

Table 2 presents the means and standard deviations of each independent variable and hypersexuality group membership. Group differences were found for NEM, CSBI Control, SSAS, BIS-M, BIS-No plan, DUDIT, and ASRS PtB. For all variables, the hypersexuality group had significantly higher scores than those not in the hypersexuality group. The logistic regression analyses revealed that two broad personality bands, Negative Emotionality (NEM) and Constraint (CON), were significantly related to hypersexuality group membership, $X^2=21.57$, $df=3$, $p<.001$, after controlling for age. Further hierarchical analyses indicated that the Barratt No Plan subscale significantly adds to the prediction and increased the -2 log likelihood by 2.96, $X^2=8.96$, $df=1$, $p=.003$. The addition of the BAS-D, BAS-F, and BAS-RR, and of BIS, did not make a significant contribution to the model. Similarly, the addition of SES, SIS1, and SIS2 did not add significantly to predicting group membership. After controlling for age, an association was found between hypersexuality group membership and the hyperactivity subscale of the ASRS (ASRSPtB), $OR=1.06$, $p=.045$. However, when NEM and CON were added to the equation, the contribution of ASRSPtB was no longer significant, $Wald=2.26$, $df=1$, $p=.133$. Table 3 shows the final model ($X^2=28.80$, $df=4$, $p<.001$), which accounted for about 15% of the variance in HD.

In order to better explore the lack of control that characterizes all conceptualizations of hypersexuality, we then conducted a multiple regression analysis to assess how sexual excitation and sexual inhibition were related to the CSBI Control scale. As we found an association between the CSBI Control scale and drug abuse ($r=0.31$, $p<.001$), we controlled for DUDIT scores. The resultant regression equation was significant, $F_{5, 236}=13.25$, $p<.001$, and accounted for 22% of the variance in CSBI Control scale score. Table 4 indicates that this deficit in sexual behavioral control is related to higher scores on SES and SIS1 and lower scores on SIS2. A similar analysis looking at the three BAS scales (BAS-A, BAS-F, and BAS-RR) and the BIS scale showed no significant contribution in predicting CSBI Control. Entering PEM, NEM, and CON into a regression analysis resulted in neither PEM nor CON entering, but that NEM is a significant predictor, $\beta=0.16$, $t=2.55$, $p<.012$ and the addition of NEM, after controlling for SIS1, SIS2, and SES, significantly adds to the variance in CSBI Control, $R^2=0.021$, $F_{1, 236}=6.48$, $p=.012$. Table 2 shows that higher NEM is related to less control.

Discussion

This study explored the underlying personality structures and mechanisms that characterize hypersexuality. Our findings show that hypersexuality is associated with two broad personality factors: negative emotionality and constraint. Negative emotionality can be

considered a higher-order factor that encompasses Neuroticism and the inverse of Agreeableness (17). Thus, our findings are consistent with Pinto et al. (14), who found that hypersexuality was associated with high Neuroticism and low Agreeableness. Thus, hypersexuality group membership is associated with a personality structure indicative of negative affect activation, susceptibility to negative emotional states, and motivation to avoid or escape such emotions. Additionally, consistent with Skegg and colleagues (12), we found hypersexuality to be associated with the Constraint factor, which indicates that hypersexuality is also characterized by impulsivity, risk-taking and a tendency not to adhere to traditional values (e.g., religion, academic or occupational achievement, etc.). This combination of findings is consistent with the notion of an underlying externalizing dimension, as described by Krueger and colleagues (50), and with bulimia (51) and borderline personality disorder (52).

It has been suggested that the connection between impulsivity and hypersexuality may be indicative of a co-morbid attention deficit-hyperactivity disorder (31). Our findings do not support this. Specifically, while we found a first order association between hypersexuality group membership and the hyperactivity subscale of the ASRS, this association became non-significant after we corrected for NEM and CON. Thus, it appears that rather than symptoms of ADHD accounting for the impulse-like symptoms observed in hypersexual individuals, the lack of planfulness, risk taking, and unconventional attitudes indicated by low CON scores account for what appear to be aspects of hyperactivity. However, it should be pointed out that we assessed ADHD using a self-report measure, not a clinical diagnosis.

Tellegen (11) related the CON factor to the behavioral inhibition system described by Gray (53). Thus, given that hypersexuality is associated with CON, we would expect that some combination of BIS and BAS scales would also be associated with hypersexuality. However, in contrast to previous findings (25, 26), we did not find an association between BIS/BAS. The previous research indicates that measures of sexual excitation (SES) and sexual inhibitory systems (SIS1, SIS2) have a stronger association with hypersexuality than the more general behavioral activation and behavioral inhibition systems (25). We, however, did not find significant associations between hypersexuality group membership and the SIS/SES scales.

The combined effects of NEM and CON lead to the conclusion that hypersexuality is related to excessive reactions to negative emotions and impulsive, risk-taking strategies to escape or avoid such emotions. It has been suggested that, in order to characterize hypersexuality, it is necessary to identify which internal functions are failing to operate and advance some theory implicating the mechanisms of action that lead to the dysfunction (10). Lack of sexual behavior control is a major defining aspect of hypersexuality (9) and a content analysis of the CSBI control scale indicates that it measures the individual's perception that their sexual behavior is out of control. Thus, the CSBI control scale may provide an operationalization of behavioral mechanisms influencing sexual behavior associated with high NEM and low CON. We found that CSBI control was positively associated with SES and SIS1 and negatively associated with SIS2. Further, we found no associations between CSBI control and the BIS/BAS scales. This would indicate that lack of sexual behavior control is related to specific sexual excitation and inhibitory mechanisms and not to more general behavioral

activation and inhibitory mechanisms. This would seem to support conceptualizing hypersexuality as a dysfunction of sexuality as proposed by Kafka (9). Further, it does not appear that hypersexuality is a manifestation of high sex drive (22, 23), but that it involves both high excitation and a lack of inhibitory control, at least with respect to inhibition due to expected negative outcomes.

Two possible biases may have affected our failure to find associations between hypersexual group membership and the SIS/SES scales. It is possible that the use of group assignment, and the resultant relatively small sample of hypersexual participants, instead of relying on dimensional, continuous measures of hypersexuality, negatively impacted our ability to uncover links between BIS/BAS and SIS/SES and hypersexuality. Additionally, the CSBI and the SIS/SES scales are self-report, questionnaire measures, while the data used for group assignment was collected in a face-to-face structured interview. Most of the previous research on hypersexuality has relied on self-report measures (25, 26, 54, 55). Thus, the possibility should be considered that the failure to find associations with group membership, but the significant associations with the CSBI control scale may, at least in part, be due to common method variance.

Hypersexuality was defined in this study using criteria for Compulsive Sexual Behavior used in our previous research (40, 46, 48). These criteria were derived from the criteria used for paraphilias in DSM IV, understanding that the sexual interests and behaviors involved were non-paraphilic. While these criteria are similar to those proposed for the DSM-5 (9), they are not exactly alike and our criteria require more clinical judgement than the proposed criteria used in the DSM-5 field trials (56). We have used the SCID-type interview in several studies, and we began this study prior to the completion of the DSM-5 field trials and decisions about inclusion of hypersexuality in the DSM-5. However, we asked questions in our structured interview that would allow us to replicate the field trial categorization. These data will be discussed in detail in another paper.

The most prominent limitation of this study is that it is a cross sectional study of a convenience sample of MSM. Thus, we cannot assume that the personality constructs and mechanisms identified are causal. Additionally, it is not clear to what extent our findings are generalizable to the broader MSM community or a more general population of individuals with hypersexuality. We assume that some of the observations would be similar in other male non-MSM populations but this would need to be tested in a larger and comparative study. One study that compared hypersexual men and women found that the only difference in personality structure was that women scored lower than men on the Big 5 conscientiousness facet and higher than men on the NEO excitement-seeking scale (56). Conscientiousness has been found to be a component of CON (17), which characterized hypersexuality in this study. However, it would be highly speculative to make any assumptions about the relationships between hypersexuality and the variables explored in this study among heterosexual women as there is such scant literature with this population.

Despite these limitations, this study represents one of the more extensive and in-depth explorations of the links between hypersexuality and more general and specifically sexual personality traits. Our findings suggest that the broader construct of hypersexuality is related

to personality factors indicating emotional reactivity, risk-taking, and impulsivity. Further, these personality factors are manifest, not in general behavioral control deficits, but specifically in deficits to sexual behavior control. Future research is needed to fine tune the construct of hypersexuality, which may be a manifestation of a number of etiological and mechanistic pathways, including impulse control, affect management, or compulsive behavior. Differences in clinical presentation have been found (57), which may provide useful sub-types for further investigation.

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Table 1
Sample Demographic Characteristics (N=242)

	Hypersexuality (n=93)	No Hypersexuality (n=149)
Mean Age (Sd) **	34.1 (12.8)	38.4 (10.1)
Race/Ethnicity		
White	74%	80%
African American	10%	7%
Native American	5%	3%
Asian/Pacific Islander	1%	3%
Latino	8%	3%
Other	2%	4%
Education		
Less than High School grad	2%	1%
High School Graduate	20%	22%
Some College	27%	30%
College Graduate	22%	22%
Graduate School	28%	24%
Missing	1%	1%
HIV Status ***		
Positive	48%	17%
Negative	47%	76%
Unknown	5%	7%

* groups different at $p < .05$;

** groups different at $p < .01$;

*** groups different at $p < .001$

Table 2
Means and Standard Deviations for Study Variables by Hypersexuality Group

Scale	Hypersexuality		Non-Hypersexuality		<i>t</i> (<i>df</i>)	<i>p</i>
	Mean	Sd	Mean	Sd		
PEM	33.9	6.7	34.0	6.2	--	NS
NEM	15.0	8.0	12.9	6.8	-2.19 (240)	.029
CON	45.1	6.3	46.5	4.2	--	NS
BIS	15.0	2.1	14.8	2.3	--	NS
BAS-D	8.4	2.4	8.6	2.3	--	NS
BAS-F	7.8	2.1	7.9	2.1	--	NS
BAS-RR	8.0	1.6	7.9	1.9	--	NS
SES	60.5	8.5	58.8	7.4	--	NS
SIS1	32.2	6.8	30.9	6.6	--	NS
SIS2	27.7	4.3	28.6	4.6	--	NS
CSBI Control	40.1	10.0	28.4	8.1	-9.96 (240)	<.001
SSAS	19.6	8.8	10.4	8.6	-8.05 (240)	<.001
BIS-A	19.5	3.3	19.0	3.6	--	NS
BIS-M	28.1	4.7	27.0	4.1	-1.95 (240)	.053
BIS-No plan	25.3	3.9	23.7	3.7	-3.29 (240)	.001
DUDIT	12.6	10.9	6.8	7.3	-4.53 (144.4) ^a	<.001
ASRS PtA	17.3	3.7	16.6	3.9	--	NS
ASRS PtB	33.2	7.6	31.2	6.1	-2.44 (164.1) ^a	.012

PEM=Positive Emotionality; NEM=Negative Emotionality; CON=Constraint; BIS=Behavioral Inhibition Scale; BAS-D=Behavioral Activation Scale-Drive; BAS-F=Behavioral Activation Scale-Fun Seeking; BAS-RR=Behavioral Activation Scale-Reward Responsiveness; SES=Sexual Excitation Scale; SIS1=Sexual Inhibition Scale 1; SIS2=Sexual Inhibition Scale 2; CSBI Control=Compulsive Sexual Behavior Inventory Control Subscale; SSAS=Sexual Symptom Assessment Scale; BIS-A=Barratt Impulsivity Scale-Attentional Subscale; BIS-M=Barratt Impulsivity Scale-Motor Subscale; BIS-No Plan=Barratt Impulsivity Scale- Lack of Planfulness Subscale; DUDIT=Drug Use Disorders Test; ASRS PtA=Adult ADHD Self-Report Scale, Inattention Subscale; ASRS PtB=Adult ADHD Self-Report Scale, Hyperactivity and Impulsivity Subscale

^aDegrees of freedom adjusted for unequal variance across groups

Table 3
Final Model: Hypersexuality Disorder Predicted by Personality Broad Bands and
Indications of Sexual Urges and Perceived Sexual Behavior Control

	B	S.E	Wald	Df	Sig	OR	95% CI
Age	.033	.012	7.92	1	.005	1.03	1.01, 1.06
NEM	.047	.020	5.50	1	.019	1.05	1.01, 1.09
CON	-.075	.029	6.79	1	.009	0.93	0.88, 0.98
BIS-No plan	.111	.038	8.47	1	.004	1.12	1.04, 1.20

NEM= Negative Emotionality; CON= Constraint; BIS-No plan=Barratt Impulsivity Scale Lack of Planfulness Subscale

Table 4
Final Model: Regressing Sexual Excitation, Sexual Inhibition, and Negative Emotionality
on Sexual Behavioral Control as Measured by CSBI Control Scale

	B	Std. Error	β	t	p
DUDIT	.188	.071	.166	2.667	.008
SES	.281	.081	.211	3.988	.001
SIS1	.302	.098	.191	3.091	.002
SIS2	-.468	.140	-.201	-3.353	.001
NEM	.230	.090	.159	2.546	.012

DUDIT=Drug Use Disorders Test; SES=Sexual Excitation Scale; SIS1=Sexual Inhibition Scale 1; SIS2=Sexual Inhibition Scale 2; NEM=Negative Emotionality