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## Hypersexual, sexually compulsive, or just highly sexually active? Investigating three distinct groups of gay and bisexual men and their profiles of HIV-related sexual risk

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Investigating three distinct groups of gay and bisexual men  
and their profiles of HIV-related sexual risk

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## Abstract

Emerging research supports the notion that sexual compulsivity (SC) and hypersexual disorder (HD) among gay and bisexual men (GBM) might be conceptualized as comprising three groups—*Neither SC nor HD*; *SC only*, and *Both SC and HD*—that capture distinct levels of severity across the SC/HD continuum. We examined data from 370 highly sexually active GBM to assess how the three groups compare across a range of risk factors for HIV infection. Comparisons focused on psychosexual measures—temptation for condomless anal sex (CAS), self-efficacy for avoiding CAS, sexual excitation and inhibition—as well as reports of actual sexual behavior. Nearly half (48.9%) of this highly sexually active sample was classified as *Neither SC nor HD*, 30% as *SC Only*, and 21.1% as *Both SC and HD*. While we found no significant differences between the three groups on reported number of male partners, anal sex acts, or anal sex acts with serodiscordant partners, the *Both SC and HD* group reported higher numbers of CAS acts and CAS acts with serodiscordant partners and also had a higher proportion of their anal sex acts without condoms compared to the *SC Only* group. Our findings support the validity of a three-group classification system of SC/HD severity in differentiating psychosexual and HIV-related sexual risk behavior outcomes in a sample of GBM who report similar high levels of sexual activity. Notwithstanding the need for sex positive HIV prevention programs, interventions that attempt to help *Both SC and HD* men deal with distress and address their psychosexual needs specifically may derive HIV prevention benefits.

*Keywords:* gay and bisexual men; sexual compulsivity; hypersexuality; condomless anal sex; HIV

## Introduction

Sexual compulsivity (SC) has received considerable attention, given evidence about its association with sexual risk behavior<sup>1-3</sup> and its potential role as a syndemic factor in working synergistically with other syndemic conditions to increase both sexual risk behavior and risk of HIV infection among gay and bisexual men (GBM).<sup>4</sup> Characterized as sexually-oriented fantasies and behaviors that increase in frequency and intensity to the point of interfering significantly with personal, interpersonal, and vocational pursuits,<sup>3, 5-8</sup> a number of conceptual frameworks exist to capture its fundamental features and several terms have been used to describe its symptoms, including sexual addiction, out of control sexual behavior, excessive sexual drive, sexual impulsivity, compulsive sexual behavior, and hypersexuality.<sup>8-13</sup> Most recently, hypersexual disorder (HD), defined as a “sexual desire disorder characterized by an increased frequency and intensity of sexually motivated fantasies, arousal, urges, and enacted behavior” associated with adverse consequences<sup>11</sup> (p. 385), was proposed to synthesize the disparate perspectives and to provide a clinical tool, the Hypersexual Disorder Screening Inventory (HDSI) for screening purposes.<sup>11, 14-16</sup> Additionally, several measures are available to assess symptoms of SC,<sup>17</sup> including the Sexual Compulsivity Scale (SCS) which is among the most commonly used among GBM.<sup>18-21</sup>

A growing body of research supports an association between SC and multiple indicators of sexual risk, including reports of the number of casual sex partners and likelihood of condomless anal sex (CAS), transactional sex, sex while under the influence of drugs or alcohol, having been diagnosed with a sexually transmitted infection (STI) and HIV.<sup>2, 8, 20-28</sup> Studies have established this association in a diverse range of samples, including heterosexual men and women,<sup>1</sup> lesbian and bisexual women,<sup>29</sup> young men who have sex with men (MSM),<sup>24, 28</sup> Latino

MSM,<sup>30</sup> male escorts living in NYC,<sup>31</sup> and rural men living in the Midwestern United States,<sup>32</sup> and persons living with HIV.<sup>21, 27, 33</sup> In a community sample of GBM, researchers found that SC was positively associated with serodiscordant CAS, number of sexual partners, intentions to engage in CAS, having sex under the influence of club drugs, and being HIV positive.<sup>3</sup>

Multiple mechanisms have been proposed for explaining the association between SC and sexual risk behaviors. One potential factor is the dysregulation of sexual excitation and inhibition.<sup>11, 34, 35</sup> According to the “dual process model” proposed by Bancroft and Jensen,<sup>36</sup> individuals are inclined to feel sexual excitation and sexual inhibition, and these inclinations are often adaptive. However, when an individual is extremely high on sexual excitation or low on sexual inhibition, they may be at increased risk of problematic sexual behavior, including increased sexual risk behaviors.<sup>11, 34</sup> Dysregulated low levels of sexual inhibition have been associated with low levels of inhibition in relation to potential consequences of engaging in risky sexual behavior, such as HIV infection, whereas dysregulated high levels of sexual excitation have been associated with an increased number of sexual partners.<sup>37, 38</sup> A second underlying factor may be the influence of SC in reducing self-efficacy for controlling sexual thoughts and behaviors, including avoiding risky sexual behaviors and engaging in protective sexual behaviors, and it has been shown that among highly sexually active GBM, decreased self-efficacy is a potential underlying mechanism that may lead to SC.<sup>39</sup> Further, evidence suggests that in addition to reduced self-efficacy in controlling sexual impulses, SC negatively influences self-efficacy for condom usage.<sup>27</sup> To summarize, SC may contribute to sexual risk behaviors through an increase in sexual interest, while simultaneously reducing an individual’s ability to control sexual impulses and engage in protective sexual behaviors such as condom use.

Typically, research on SC has classified GBM as SC or non-SC and some evidence suggests that compared to non-SC GBM who report similar numbers of sexual partners and sexual frequency, SC GBM differ significantly on indicators of sexual risk.<sup>23, 39</sup> Differentiating across the SC/hypersexual continuum could have advantages in gaining a more nuanced understanding of factors that place GBM at greater risk for HIV infection. [REDACTED]

[REDACTED] established the diagnostic precision of the HDSI and the correspondence between the SCS and the HDSI and suggested the potential utility of classifying highly sexually active GBM into three distinctive groups: negative on both (non-HD/non-SC); positive on the SCS only (at risk); and positive on both the SCS and the HDSI (SC/HD).<sup>40, 41</sup> Yet, evidence is needed about the utility of this 3-group classification system in predicting sexual risk behavior and risk of HIV infection among GBM. The aims of the current study are to estimate the prevalence of each group using the SCS and the HDSI to screen highly sexually active GBM for both problematic SC and hypersexuality (HD), and to examine differences in factors that potentially explain the association between SC/HD and sexual risk (i.e., sexual excitation/inhibition) and other sexually-relevant measures (i.e., temptation for CAS), as well as differences in sexual frequency and risk (i.e., number of CAS acts).

## **Method**

Analyses for this paper were conducted using baseline data from a longitudinal study that focused on issues related to SC and HD among highly sexually active GBM in New York City. The primary goal of the study was to enroll GBM who were similar with regard to the amount of sexual behavior in which they were engaging but different in the extent to which these behaviors were causing problems in their lives that were consistent with SC and/or HD. Although the follow-up portions of the study are ongoing, baseline enrollment has completed and data for

these analyses were taken from the full sample of 376 men enrolled in the current project. Two individuals had incomplete data for the baseline survey and four individuals had inconsistent data on the SCS and HDSI (see below), and thus the present analyses focus on an analytic sample of 370 men.

## **Participants and Procedures**

Beginning in February of 2011 we began enrolling participants utilizing a combination of recruitment strategies: (1) respondent-driven sampling; (2) internet-based advertisements on social and sexual networking websites; (3) email blasts through New York City gay sex party listservs; and (4), active recruitment in New York City venues such as gay bars/clubs, concentrated gay neighborhoods, and ongoing gay community events. All participants completed a brief, phone-based screening interview to confirm eligibility, which was defined as: (1) at least 18 years of age; (2) biologically male and self-identified as male; (3) a minimum of 9 different male sexual partners in the prior 90 days; (4) self-identification as gay, bisexual, or some other non-heterosexual identity (e.g., queer); (5) able to complete assessment in English, and (6) daily access to the internet in order to complete internet-based portions of the study. For the purposes of this project, we operationalized highly sexually active as having at least 9 sexual partners in the 90 days prior to enrollment based on prior research,<sup>3, 31, 42</sup> including a probability-based sample of urban MSM<sup>43, 44</sup> that found that 9 partners was 2 to 3 times the average number of sexual partners among sexually active gay and bisexual men. Sexual partners were those with whom the participant engaged in any sexual contact that could lead to an orgasm. All eligibility criteria were confirmed at the baseline appointment, with sex criteria being confirmed using the timeline follow-back (TLFB) interview in which a calendar is used to recall one's daily sexual behavior.<sup>45</sup>

Participants were excluded from the project if they demonstrated evidence of serious cognitive or psychiatric impairment that would interfere with their participation or limit their ability to provide informed consent, as indicated by a score of 23 or lower on the Mini-Mental Status Examination (MMSE)<sup>46</sup> or evidence of active and unmanaged symptoms on the psychotic symptoms or suicidality sections of the Structured Clinical Interview for the DSM-IV-IR (SCID).<sup>47</sup>

Participation in the study involved both at-home (internet-based) and in-office assessments. After a member of the research staff confirmed participants' eligibility over the phone, participants were sent a link to complete an internet-based survey at home prior to their first in-office appointment that took approximately one hour to complete. Informed consent was obtained for both online and in-person portions of the study. All procedures were reviewed and approved by the Institutional Review Board of the [REDACTED]

## **Measures**

Quantitative measures used for these analyses were completed as part of one of two components of the study: (1) the at-home survey prior to the baseline appointment and (2) the TLFB interview. After providing online consent to continue with the survey, participants completed measures of SC, HD, and demographics. All later survey measures were grouped into thematic blocks (e.g., stigma, sexuality, mental health) and the order of blocks within the survey and the order of measures within blocks were both randomized in order to evenly distribute the order effects that can result from serial positioning and priming.

**Demographics.** Participants were asked to self-report several demographic characteristics including sexual identity, age, race/ethnicity, educational background, and relationship status. Participants self-reported their HIV status in the Internet survey. Men who

reported being HIV-positive were asked to provide proof of their HIV status during their in person baseline appointment, and men who reported being HIV-negative or unsure of their HIV status received a free, confidential, rapid HIV test as part of their baseline appointment.

**Sexual compulsivity.** Participants completed the Sexual Compulsivity Scale (SCS),<sup>20, 21</sup> the most widely used measure of sexual compulsivity in studies with GBM.<sup>17</sup> The SCS consists of ten items rated on a Likert-type scale from 1 (*not at all like me*) to 4 (*very much like me*) that were summed to get an overall score ranging from 10 to 40. The SCS has been shown to have high reliability and validity across multiple studies<sup>17, 41</sup> and had strong internal consistency in this sample ( $\alpha = 0.91$ ). A score of 24 has been shown to correspond to roughly the 80<sup>th</sup> to 85<sup>th</sup> percentile in samples of GBM and is often used as a cutoff indicative of experiencing problematic levels of SC.<sup>3, 22, 23, 48</sup>

**Problematic hypersexuality.** Participants completed the Hypersexual Disorder Screening Inventory (HDSI), proposed by the American Psychiatric Association's *DSM-5* workgroup on Sexual and Gender Identity Disorders.<sup>11, 14, 15, 41</sup> The scale consists seven items split into two sections (A and B) measuring criteria met within the prior six months. Section A consists of five items measuring recurrent and intense sexual fantasies, urges, and behaviors and Section B contains two items measuring distress and impairment as a result of these fantasies, urges, and behaviors. Responses tapped into frequency of each symptom and ranged from 0 (*Never true*) to 4 (*Almost always true*); responses of 3 or 4 were treated as indicative of a present symptom. Polytomous scoring criteria suggest that a participant who experiences four of the five symptoms from Section A and at least one of the two symptoms from Section B be considered to have screened positive for HD. Prior research has found the scale to have strong reliability<sup>40</sup> and internal consistency was strong in this sample ( $\alpha = 0.90$ ).

**Sexual compulsivity/hypersexual disorder group.** To investigate the utility of combining information from both the SCS and HDSI measures as has been suggested in prior research,<sup>41</sup> we utilized the cutoff for the SCS and the polytomous scoring criteria for the HDSI to create a grouping variable whereby participants were classified as 0 (*Neither SC nor HD*) if they scored below both thresholds, 1 (*SC only*) if they scored above the SCS threshold but below the HDSI threshold, or 2 (*Both SC and HD*) if they scored above both thresholds. Only four participants scored below the threshold on the SCS and above the threshold on the HDSI; as mentioned previously, these four individuals were excluded from analyses.

**Temptation for engaging in condomless anal sex.** Participants completed a measure assessing the extent to which they would feel tempted to have anal sex without a condom across 13 different situations (e.g., “when you really want sex,” “when you feel depressed,” “when you are drunk or high on drugs”).<sup>3, 49</sup> Response options ranged from 1 (*not at all tempted*) to 5 (*extremely tempted*) and responses were summed to form an overall index ranging from 13 to 65 ( $\alpha = 0.95$ ).

**Self-efficacy for avoiding condomless anal sex.** Participants completed a measure asking about their confidence in avoiding having anal sex without condoms across the same 13 situations as the temptations scale.<sup>49</sup> Like the temptations scale, responses options ranged from 1 (*not at all tempted*) to 5 (*extremely tempted*) and responses were summed to form an overall index ranging from 13 to 65 ( $\alpha = 0.97$ ).

**Sexual inhibition and excitation.** Participants completed the 14-item Sexual Inhibition Scale/Sexual Excitation Scales (SIS/SES).<sup>34</sup> Participants responded to statements across three subscales—six items assessing sexual excitation (e.g., “when an attractive person flirts with me, I easily become sexually aroused”), four items assessing sexual inhibition I, measuring inhibition

due to threat of performance failure (e.g., “once I have an erection, I want to start intercourse right away before I lose my erection”), and four items assessing sexual inhibition II, measuring inhibition due to threat of performance consequences (e.g., “if I can be seen by others while having sex, I am unlikely to stay sexually aroused”). Participants responded on a Likert-type scale from 1 (*strongly disagree*) to 4 (*strongly agree*) and responses were averaged to produce comparable scores across the three subscales (SES  $\alpha = 0.83$ , SISI  $\alpha = 0.76$ , SISII  $\alpha = 0.72$ ).

**Sexual behavior.** Utilizing the event-level data collected during the TLFB interview, we computed several sexual behavior indices: (1) total number of male sex partners; (2) total number of anal sex acts; (3) total number of condomless anal sex (CAS) acts; (4) number of serodiscordant male sex partners; and (5) the proportion of all anal sex acts that were CAS acts. The final variable, which required a denominator (i.e., total number of anal sex acts) greater than zero, was calculated only for those who had anal sex during the 42-day calendar period. As such, 33 men (8.9%) who reported only non-anal forms of sex were excluded from the analysis using this variable.

### **Statistical Analyses**

We began by examining demographic differences between the three SC/HD groups utilizing chi-square statistics for sexual identity, race/ethnicity, educational background, and relationship status and analysis of variance for age. We further investigated significant omnibus group differences in the chi-square analyses utilizing post-hoc analyses with Bonferonni adjustment. We next utilized analysis of covariance to examine differences between the three groups in the five sexually relevant scale scores—temptation for CAS, self-efficacy for avoiding CAS, sexual excitation, and both forms of sexual inhibition—adjusting for significant demographic differences identified in the first set of analyses. All scale scores were normalized

using *z*-scores in order to allow for comparison across scales. Significant omnibus results of the ANOVA were further investigated utilizing LSD-adjusted post-hoc analyses. Finally, we conducted negative binomial regression for each of the four sexual behavior count outcomes and a grouped logistic regression for the proportion of anal sex acts that were CAS (with number of CAS acts as the number of events and number of anal sex acts as the number of trials); each model was adjusted for previously identified demographic differences. We utilized Helmert contrast coding to allow for a comparison of the *Both SC and HD* group with the *SC Only* group (i.e., do the two groups that were previously combined differ from one another?) as well as a comparison of the *Neither SC nor HD* group with the average of the other two groups (i.e., what differences would be found using the common two-group approach?).<sup>50</sup>

## Results

As can be seen in Table 1, nearly half (48.9%) of this highly sexually active sample was classified as *Neither SC nor HD*, 30.0% were classified as *SC Only*, and 21.1% were classified as *Both SC and HD*. As mentioned previously, there were four individuals whose scores on the SCS did not meet the threshold but they did meet the polythetic scoring criteria for the HDSI. Because this was so rare and potentially calls into question the validity of their data, these four participants were excluded from this manuscript. Table 1 also displays the demographic characteristics of the sample and demographic differences by SC/HD Group. We found significant SC/HD Group differences by race/ethnicity, HIV status, and educational attainment. Post-hoc tests revealed that, among Black men, a significantly higher proportion were *Both SC and HD* than were *Neither SC nor HD* and, among White men, a significantly higher proportion were *Neither SC nor HD* than were *SC Only* or *Both SC and HD*; no other racial/ethnic differences emerged. With regard to HIV status we found that a significantly lower proportion of

HIV-negative men and a significantly higher proportion of HIV-positive men were *Both SC and HD* than were *SC Only* and *Neither SC nor HD*. Finally, with regard to education we found that a significantly lower proportion of those with less than a 4-year degree and a significantly higher proportion of those with a graduate degree were classified as *Neither SC nor HD* than *SC Only* or *Both SC and HD*. Based on these results, all later models were adjusted for dichotomous indicators of race (White versus Non-White), HIV status (HIV-negative versus HIV-positive), and education (less than a 4-year college degree versus a 4-year college degree or more).

We next examined SC/HD Group differences in the five sexually relevant scales, adjusting for the demographic differences identified in the previous set of analyses. The results are reported in Table 2 and, as can be seen, we found significant main effects for temptation for CAS, sexual excitation, and sexual inhibition I (inhibition due to threat of performance failure), as well as marginally significant differences on sexual inhibition II (inhibition due to threat of consequences). The post-hoc analyses revealed that all three groups differed significantly, with the *Neither SC nor HD* group being lowest and the *Both SC and HD* group being highest, on temptations, sexual excitation, and sexual inhibition I. Examining the marginal means on the z-scores of each variable, the *Both SC and HD* group was, on average, more than half a standard deviation higher than the *Neither SC nor HD* group, with the *SC Only* group commonly falling somewhere near the midpoint between the other two groups. A different trend was found for the marginally significant difference in sexual inhibition II—the *Neither SC nor HD* group did not differ from either group while the *SC Only* group was approximately one-third of a standard deviation lower on sexual inhibition II than the *Both SC and HD* group.

The results of the regression analyses are presented in Table 3, and the marginal means for the SC/HD Groups based on these models can be found in Figure 1—all results were adjusted

for previously identified demographic differences. As can be seen in the table, neither contrast comparing the SC/HD Groups produced significant results with regard to variables measuring sexual frequency—that is, the groups did not differentiate between the *amount* of sex that men reported. Conversely, in each of the models predicting sexual risk, the contrast comparing the *SC Only* and *Both SC and HD* groups produced significant results—as can be seen in Figure 1, the *Both SC and HD* group was significantly higher on number of CAS acts, number of CAS acts with serodiscordant partners, and proportion of anal sex acts that were condomless, even after adjusting for known demographic differences. Moreover, the second contrast comparing the *Neither SC nor HD* group to the average of the other two groups did not reach statistical significance in any models—that is, were the SCS cutoff used alone, it would not have distinguished the level of *risk* these highly sexually active men were engaging in, though the split between *SC Only* and *Both SC and HD* did produce significantly different risk profiles. Moreover, as can be seen in the figure, the *SC Only* group, on average, tended to have the lowest levels of both sexual frequency and sexual risk, even when compared to the *Neither SC nor HD* group (though these were not statistically significant).

## **Discussion**

Previous research suggested that SC/HD might best be viewed utilizing three distinct groups with regard to severity, and the current analyses sought to examine the utility and validity of such an approach with regards to examining the impact of HD on sexual risk. In a sample of men who all had similarly above average number of sexual partners, we found that approximately half nonetheless experienced no problematic symptoms of hypersexuality, while slightly less than one-third experienced symptomology of SC only, suggesting they may be at risk for developing HD, and only slightly more than one-fifth demonstrated symptoms of both

SC and HD. We examined five psychosexual variables of relevance to SC/HD and sexual risk and found that the three groups meaningfully differed on four of the five, with the *Both SC and HD* group experiencing the most problematic levels and the *Neither SC nor HD* group experiencing the least problematic levels of each. With regard to sexual behavior, we found that these three groups did not meaningfully distinguish the *amount* of sexual behavior men reported. In comparing sexual risk behavior utilizing the commonly used 2-group approach to classify GBM as SC or non-SC, we unexpectedly found that the *Neither SC nor HD* group did not differ from the other groups with regard to risk. On the other hand, the *SC Only* and *Both SC and HD* groups did differ significantly, with the *Both SC and HD* group reporting the highest levels of risk.

We identified several demographic differences with regard to these newly developed groups. With regard to race/ethnicity, we found that Black men were disproportionately overrepresented among the *Both SC and HD* group while White men were overrepresented among the *Neither SC nor HD* group. Similarly, as has been found in previous research on SC, a higher than expected proportion of HIV-positive men was found to be in the *Both SC and HD* group whereas the reverse was true for HIV-negative men. Finally, we identified educational differences; while those with less than a college degree were disproportionately underrepresented in the *Neither SC nor HD* group, those with a graduate degree were disproportionately overrepresented in that group. Overall, these findings highlight differences in SC/HD that may predispose Black GBM and those with less education to HIV risk. HD seems to increase HIV vulnerability and may play a crucial role as a syndemic factor in HIV infection.<sup>4</sup>

The validity of this three-group classification system of SC/HD severity was supported by the findings suggesting that the groups were meaningfully different with regard to

psychosexual functioning. Specifically, the *Both SC and HD* group experienced the most problematic levels of temptations for CAS, sexual excitation, and sexual inhibition due to threat of performance failure, while the *Neither SC nor HD* group experienced the least problematic levels and the *SC Only* group fell somewhere between the other two. In contrast, with regard to sexual inhibition due to threat of consequences, the *Both SC and HD* group experienced the most problematic levels while the *SC only* group experienced the least problematic levels, and the *Neither SC nor HD* group fell between them. However, this comparison was only marginally significant. The three groups did not differ significantly with regard to self-efficacy for condom use.

Finally, the three SC/HD groups differed in consistently meaningful ways with regards to sexual behavior and risk-taking. Examining sexual frequency, we found no significant differences between the three groups in terms of number of male partners, number of anal sex acts, or number of anal sex acts with serodiscordant partners. That is, among this behaviorally similar sample of men who met a minimum threshold of sexual activity (i.e., reports of 9 or more sexual partners in 90 days), we did not find the typical association between SC/HD and sexual frequency. Although criticisms of HD<sup>35, 51-53</sup> have focused on the extent to which it might simply capture those with high levels of arousal, sex drive or activity, these findings suggest that this is not the case. Rather, these data suggest that any such association between HD and sexual frequency may be a methodological artifact of sampling rather than a characteristic of hypersexuality itself.

In contrast to the findings regarding sexual frequency, the analyses focused on sexual risk produced unexpected and consistent findings. Specifically, though we expected the *Neither SC nor HD* group to differ from the other two groups (i.e., using a contrast that is comparable to the

typical dichotomous grouping of non-SC versus SC), we found that the groups did not differ significantly. This suggests that in this sample of highly sexually active GBM, a simple split between those at or above and those below 24 on the SCS would have revealed no differences in risk based on SC alone. On the other hand, the second contrast comparing those in the *Both SC and HD* group with those in the *SC Only* group revealed sexual risk behavior distinctions. These differences many not have been detected when averaging across groups, as been typically done in previous research using only the two-category classification. Results revealed that the group experiencing *Both SC and HD* reported the highest number of CAS acts and CAS acts with serodiscordant partners and also had a higher proportion of their anal sex acts without condoms when compared with the *SC Only* group. Moreover, though only a trend, the data revealed that the *SC Only* group even reported slightly lower levels of sexual risk behavior than the *Neither SC nor HD* group.

In light of previous research on the sexual behavior patterns of GBM showing variability in reports of GBM's number of sex partners, sexual frequency, and HIV risk behavior,<sup>54-60</sup> our results challenge assumptions about what constitutes a fulfilling and healthy sexual lifestyle. Among our sample of highly sexually active GBM who reported similarly high levels of sexual activity, half of them reported experiencing lower levels of problematic symptoms of hypersexuality, exhibited lower levels of problematic psychosexual functioning, and reported lower sexual risk-taking. Although other studies tend to include fewer numbers of highly sexually active GBM in their samples (fewer than a third of the sample),<sup>54</sup> typically as a function of convenience sampling, and recent trends indicate a decline in the number of sex partners among GBM overall<sup>56</sup>, our findings point to the importance of examining variability among highly sexually active GBM, particularly in understanding HIV-related risk behavior and the

impact that HD or SC has on risk-taking. While an overwhelming number of empirical studies in the literature on GBM focus on sexual health problems and concerns, there is a need for recognition that this unbalanced perspective, although rooted in scientific public health research, can serve to further stigmatize GBM and pathologize normative sexual behaviors and practices that have otherwise been found to have health benefits.<sup>61-65</sup> It is important to highlight that the majority of the GBM in this sample did not experience a great deal of distress about their sexual thoughts and behaviors and seemed to be engaging in efforts to reduce their risk of HIV and other STIs, despite their high levels of sexual activity and high number of male sex partners, relative to other GBM. However, this is not to diminish the importance of HIV prevention efforts and sexual health promotion overall. GBM in the *Both SC and HD* group reported the greatest risk across multiple indicators, including CAS with serodiscordant partners, and are therefore, in greatest need for HIV prevention efforts particularly ones that are sex positive and tailored to help men deal with the distress and other symptoms they may be experiencing as a consequence of their sexual thoughts and behavior.

## **Limitations**

The results of this study should be considered in light of its limitations. Although we consider the recruitment of a sample of highly sexually active GBM to examine sexual risk across the SC/HD continuum to be a strength of this study, it also limits the extent to which this three-group classification system can be assumed to generalize to other samples of GBM. As such, future research is needed to examine the extent to which this three-group classification might be similarly or less meaningful for GBM in general. Moreover, the associations between hypersexuality, psychosexual variables, and sexual behavior were all examined cross-sectionally and though we made assumptions that hypersexuality operates to influence sexual risk-taking, a

reverse causal pathway cannot be ruled out without longitudinal data. Future research is also needed to examine whether those in the *SC Only* group are in a transitional phase toward or away from symptomology characteristic of the *Both SC and HD* group or whether they constitute a unique group with a distinct set of characteristics and prevention needs. These data were collected utilizing self-report with the exception of HIV status (which was verified), and are thus limited by the biases inherent in relying on individuals' reports of themselves and their behaviors. Finally, the data were collected among NYC men who identified as gay or bisexual, and thus are unlikely to generalize to other populations such as non-urban or straight-identified MSM.

## **Conclusions**

Taken together, these findings provide initial validation for a three-category classification of hypersexuality that takes into account information from both the SCS and the HDSI. Across our analyses, we found that these three groups of HSA GBM did *not* differ with regards to their levels of sexual activity. On psychosexual variables, all three groups tended to differ from one another, suggesting that each group has meaningfully unique profiles of psychosexual functioning, with the *Both SC and HD* group reporting the highest levels of problematic functioning. Examining sexual risk behavior, we found differences only between the *SC Only* and *Both SC and HD* groups, suggesting that in previous studies, in which these two groups may have been treated as a monolithic group, different profiles of risk may have been averaged across them rather than seen as distinct in important ways. The current results highlight the need for further research on the measurement and conceptualization of hypersexuality and HD, including research with broader community-based and more narrowly specified at-risk and clinical samples. Finally, practitioners might do well to incorporate the three-group classification to

screen patients, as the current study suggests the potential that *SC Only* and *Both SC and HD* men may have unique HIV prevention needs.

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Table 1  
*Demographic Characteristics of the Sample and Differences by SC/HD Group*

	Full Sample ( <i>N</i> = 370)		Neither SC nor HD ( <i>n</i> = 181)		SC Only ( <i>n</i> = 111)		Both SC and HD ( <i>n</i> = 78)		$\chi^2(df)$
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Race/Ethnicity									22.22 (6), <i>p</i> = .001
Black	75	20.3	31 <sup>a</sup>	17.1	20 <sup>a,b</sup>	18.0	24 <sup>b</sup>	30.8	
Latino	50	13.5	18 <sup>a</sup>	9.9	18 <sup>a</sup>	16.2	14 <sup>a</sup>	17.9	
White	187	50.5	111 <sup>a</sup>	61.3	50 <sup>b</sup>	45.0	26 <sup>b</sup>	33.3	
Other/Multiracial	58	15.7	21 <sup>a</sup>	11.6	23 <sup>a</sup>	20.7	14 <sup>a</sup>	17.9	
HIV Status									19.26 (2), <i>p</i> < .001
Negative	206	55.7	116 <sup>a</sup>	64.1	63 <sup>a</sup>	56.8	27 <sup>b</sup>	34.6	
Positive	164	44.3	65 <sup>a</sup>	35.9	48 <sup>a</sup>	43.2	51 <sup>b</sup>	65.4	
Sexual Orientation									3.88 (2), <i>ns</i>
Gay	325	87.8	164	90.6	92	82.9	69	88.5	
Bisexual	45	12.2	17	9.4	19	17.1	9	11.5	
Employment Status									7.12 (4), <i>ns</i>
Full-time	118	31.9	65	35.9	36	32.4	17	21.8	
Part-time	93	25.1	46	25.4	29	26.1	18	23.1	
Unemployed (including FT students)	159	43.0	70	38.7	46	41.4	43	55.1	
Highest Educational Attainment									26.79 (4), <i>p</i> < .001
Less than 4-year college degree	158	42.7	57 <sup>a</sup>	31.5	52 <sup>b</sup>	46.8	49 <sup>b</sup>	62.8	
Bachelor's or other 4-year degree	123	33.2	65 <sup>a</sup>	35.9	39 <sup>a</sup>	35.1	19 <sup>a</sup>	24.4	
Graduate degree	89	24.1	59 <sup>a</sup>	32.6	20 <sup>b</sup>	18.0	10 <sup>b</sup>	12.8	
Relationship Status									1.50 (2), <i>ns</i>
Single	296	80.0	145	80.1	92	82.9	59	75.6	
Partnered	74	20.0	36	19.9	19	17.1	19	24.4	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F(df)</i>
Age ( <i>Median</i> = 35.0, Range: 18-73)	36.8	11.4	37.2	12.0	36.2	10.5	36.8	11.0	0.26 (2), <i>ns</i>

*Note:* Columns within the same row that have different superscripts differed significantly in post-hoc analyses at *p* < .05.

Table 2  
*Group differences in sexually relevant psychosocial characteristics*

	Neither SC nor HD ( <i>n</i> = 181)		SC Only ( <i>n</i> = 111)		Both SC and HD ( <i>n</i> = 78)		<i>F</i> (2, 364)
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
Temptation for CAS	-0.13 <sup>a</sup>	0.07	0.18 <sup>b</sup>	0.08	0.36 <sup>c</sup>	0.10	9.42, <i>p</i> < .001
Self-efficacy for avoiding CAS	0.07	0.07	-0.15	0.09	-0.13	0.11	2.24, <i>ns</i>
Sexual excitation	-0.29 <sup>a</sup>	0.08	0.13 <sup>b</sup>	0.09	0.46 <sup>c</sup>	0.11	16.31, <i>p</i> < .001
Sexual inhibition I	-0.13 <sup>a</sup>	0.08	0.10 <sup>b</sup>	0.09	0.30 <sup>c</sup>	0.11	5.27, <i>p</i> = .006
Sexual inhibition II	0.02 <sup>a,b</sup>	0.08	-0.16 <sup>a</sup>	0.09	0.18 <sup>b</sup>	0.11	2.73, <i>p</i> = .07

*Note:* Means presented were estimated marginal means from the ANCOVA for the *z*-scored version of the variable holding constant the dichotomous factors for race, HIV status, and educational attainment. Marginal means with different superscripts differ significantly at *p* < .05.

Table 3.  
*SC/HD Group Differences in Sexual Behavior Outcomes*

	Sexual Frequency Variables								
	Model 1: Number of Male Sexual Partners			Model 2: Number of Anal Sex Acts			Model 3: Number of Anal Sex Acts with Serodiscordant Partners		
	B	Adj. RR	95%CI	B	Adj. RR	95%CI	B	Adj. RR	95%CI
Intercept	2.52	12.38***	10.72, 14.30	2.38	10.81***	8.68, 13.47	1.49	4.45	3.29, 6.00
HIV-positive (vs. negative)	0.07	1.07	0.93, 1.23	0.35	1.42**	1.14, 1.77	0.74	2.10***	1.56, 2.83
White race (vs. men of color)	0.14	1.14	0.99, 1.32	-0.10	0.91	0.73, 1.13	-0.09	0.91	0.67, 1.24
4-year degree (vs. less)	-0.11	0.90	0.77, 1.04	-0.21	0.81	0.65, 1.01	-0.37	0.69*	0.51, 0.94
SC/HD Group 1 vs. 2	-0.14	0.87	0.72, 1.05	-0.18	0.83	0.62, 1.12	-0.24	0.79	0.53, 1.17
SC/HD Group 0 vs. 1 and 2	-0.03	0.97	0.84, 1.11	0.02	1.02	0.83, 1.26	-0.13	0.88	0.66, 1.17
Dispersion Parameter	0.34			0.88			1.66		
$\chi^2(df=5)$	8.07			26.99***			46.22***		
	Sexual Risk Variables								
	Model 4: Number of Condomless Anal Sex Acts			Model 5: Number of Condomless Anal Sex Acts with Serodiscordant Partners			Model 6: Proportion of Anal Sex Acts that were Condomless <sup>a</sup>		
	B	Adj. RR	95%CI	B	Adj. RR	95%CI	B	Adj. RR	95%CI
Intercept	0.89	2.44***	1.73, 3.44	-0.30	0.74	0.46, 1.21	-1.31	0.27***	0.25, 0.29
HIV-positive (vs. negative)	1.39	4.02***	2.89, 5.59	1.92	6.81***	4.29, 10.81	0.96	2.62***	2.42, 2.83
White race (vs. men of color)	0.06	1.06	0.76, 1.48	0.08	1.08	0.68, 1.73	0.09	1.10**	1.04, 1.16
4-year degree (vs. less)	0.08	1.09	0.77, 1.53	-0.06	0.94	0.58, 1.54	0.06	1.07*	1.01, 1.13
SC/HD Group 1 vs. 2	-0.47	0.63*	0.41, 0.96	-0.63	0.54*	0.30, 0.96	-0.08	0.93*	0.87, 0.99
SC/HD Group 0 vs. 1 and 2	-0.12	0.89	0.65, 1.22	-0.08	0.92	0.60, 1.42	-0.02	0.98	0.94, 1.03
Dispersion Parameter	1.9			3.37			N/A		
$\chi^2(df=5)$	78.25***			71.75***			922.68***		

Note: <sup>a</sup>This model was estimated as a grouped logistic model using the events out of trials format. For the SC/HD Group variable, 0 = Neither SC nor HD, 1 = SC Only, and 2 = Both SC and HD.

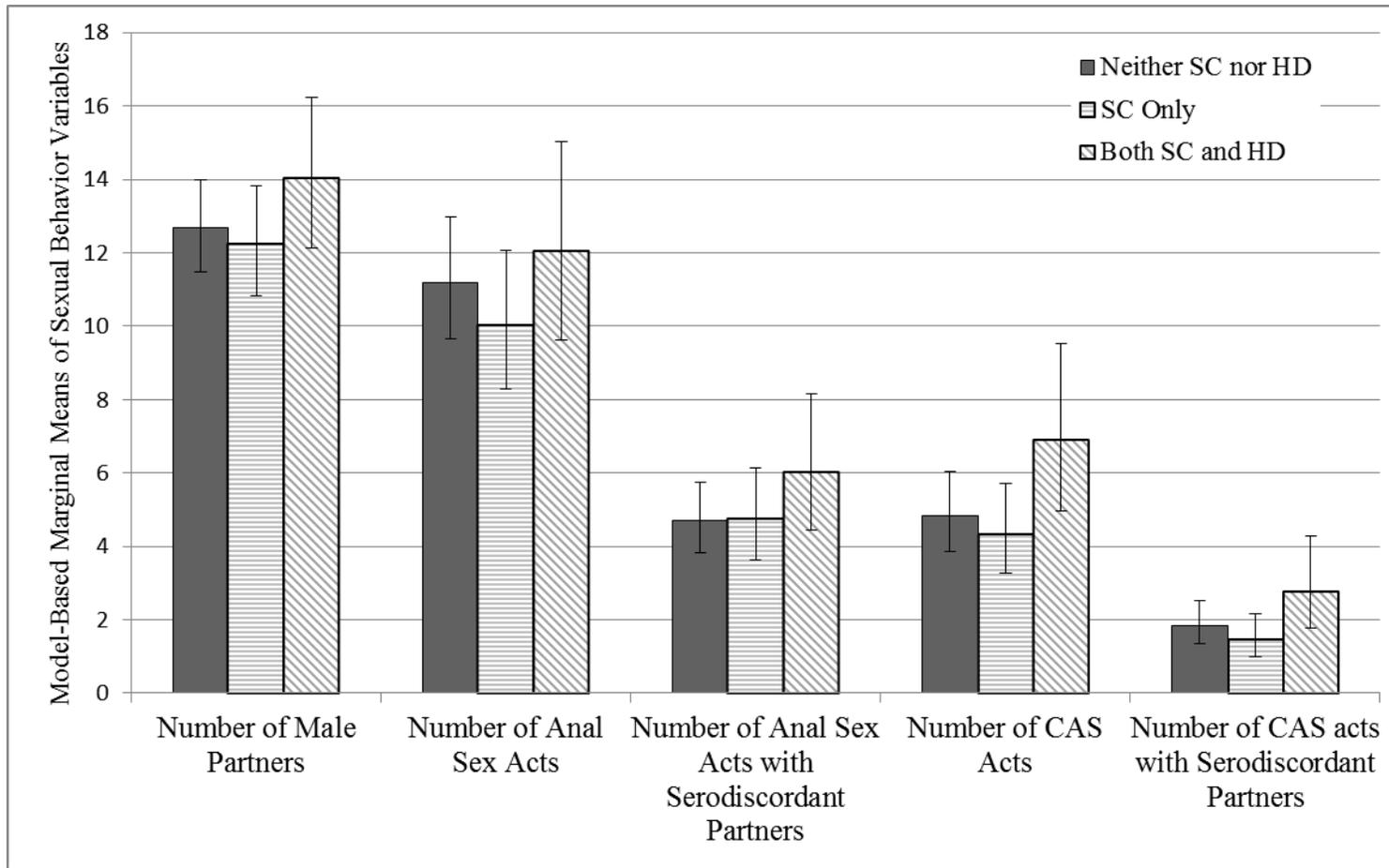


Figure 1. The figure above displays the marginal means from the five negative binomial models presented within Table 3. All marginal means were adjusted for demographic covariates, and error bars represent the 95% confidence interval surrounding the marginal mean.