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Proposing a Tentative Cut Point for the Compulsive Sexual Behavior Inventory

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Abstract

Bivariate analyses were utilized in order to identify the relations between scores on the Compulsive Sexual Behavior Inventory (CSBI) and self-report of risky sexual behavior and drug abuse among 482 racially and ethnically diverse men and women. CSBI scores were associated with both risky sexual behavior and drug abuse among a diverse non-clinical sample, thereby providing evidence of criterion-related validity. The variables that demonstrated a high association with the CSBI were subsequently entered into a multiple regression model. Four variables (number of sexual partners in the last 30 days, self-report of trading drugs for sex, having paid for sex, and perceived chance of acquiring HIV) were retained as variables with good model fit. Receiver operating characteristic (ROC) curve analyses were conducted in order to determine the optimal tentative cut point for the CSBI. The four variables retained in the multiple regression model were utilized as exploratory gold standards in order to construct ROC curves. The ROC curves were then compared to one another in order to determine the point that maximized both sensitivity and specificity in the identification of compulsive sexual behavior with the CSBI scale. The current findings suggest that a tentative cut point of 40 may prove clinically useful in

discriminating between persons who exhibit compulsive sexual behavior and those who do not. Because of the association between compulsive sexual behavior and HIV, STIs, and drug abuse, it is paramount that a psychometrically sound measure of compulsive sexual behavior is made available to all healthcare professionals working in disease prevention and other areas.

Keywords

Compulsive sexual behavior; Sexual risk; HIV; STI; Drug abuse

Introduction

Compulsive sexual behavior has been defined as a clinical syndrome characterized by the experience of sexual urges, fantasies, and behaviors that are recurrent, intense, and cause a distressful interference in one's daily functioning (Coleman, 1987; Coleman, Raymond, & McBean, 2003). Currently, most researchers would agree that compulsive sexual behavior is neither a question of aberrant behavior nor mere quantity (Kafka, 2010). Rather, compulsive sexual behavior is identified when the behavior presents a disturbance in the individual's normative daily functioning. For the purposes of the current study, compulsive sexual behavior was operationally defined as a clinical phenomenon characterized by sexual fantasies and behaviors that increase in both frequency and intensity to the extent that the individual's sexual behavior interferes with their personal, interpersonal, and/or vocational pursuits (Muench & Parsons, 2004).

Although compulsive sexual behavior is not currently formally accepted as a psychiatric disorder, Kafka (2010) advocates for the inclusion of its synonym, "hypersexual disorder," in the DSM-5. Previously, there have been several attempts to design a measure for the assessment of compulsive sexual behavior. Past studies have found compulsive sexual behavior to be highly related to number of sexual partners, sexual risk-taking, self-report of substance use, having paid for sex, and being resistant to HIV risk reduction (Carnes, 1991; Coleman et al., 2003; Kafka, 2010; Kalichman & Rompa, 1995). Because of the associations found between these behavioral health risks and compulsive sexual behavior, it is paramount that a diagnostic tool be developed in order to accurately assess compulsive sexual behavior. Recently, the Compulsive Sexual Behavior Inventory (CSBI; Coleman, Miner, Ohlerking, & Raymond, 2001) has gained in popularity among researchers and clinicians because of its focus on the detriments caused to the individual's daily functioning, rather than on strict quantifications of sexual partners or orgasms, as some of the preceding diagnostic measures have done. The CSBI is currently the only published scale that is purported to measure all major components of compulsive sexual behavior (Coleman et al., 2001). That is to say, the CSBI measures a constellation of sexual behaviors defined as being extreme in both number and intrusiveness, engaged in as a moderator of emotional issues, and involving a significant disruption in normal interpersonal functioning (Miner, Coleman, Center, Ross, & Rosser, 2007).

If the CSBI is to be used as a clinical tool for determining the need for intervention or treatment of compulsive sexual behavior, then the lack of an empirically derived cut point at

which the scale discriminates between sexually compulsive persons and non-sexually compulsive persons is detrimental to clinicians' ability to appropriately identify patients. The current study utilized receiver operating characteristic (ROC) curve analyses in order to determine a tentative cut point that may prove clinically useful for the CSBI. These analyses simultaneously provide the CSBI with much needed evidence of both construct and criterion-related validity.

The purpose of the current analysis was as follows: (1) to ascertain which behavioral-health variables, shown by previous researchers to be related to compulsive behavior, had the highest association with the CSBI in order to utilize such variables as exploratory gold standards, and (2) to determine a tentative cut-point on the CSBI by finding the score that maximized both sensitivity and specificity in the assessment of those behaviors most associated with compulsive sexual behavior.

Method

Participants

Measures were administered to a convenience sample of 482 non-clinical participants, 115 of which were women and 367 of which were men, during one of the three active programs at the Center for Behavioral Research and Services (CBRS): the Multiple Morbidities Testing Program (MMTP), Counseling and Food Bank Program, and Project Gay Respect. The overall participation rate was 98.4% of the original sample. Participants were eligible for participation in MMTP if they could be classified into any of the following behavioral risk groups: injection drug users, men who have sex with men, men who have sex with men and women, or women who have multiple sex partners. Participants were eligible for participation through the Counseling and Food Bank program if they had used illicit drugs during the past 30 days or if they drank alcohol during at least 15 of the past 30 days. Finally, all gay and bisexual men from the Gay Respect program were eligible for participation.

A substantial portion of those participants who were sampled via the Counseling and Food Bank Program at CBRS reported limited reading and writing capabilities. To adjust for this limitation, all measures were verbally administered when the participant's literacy was in question. Participants in the current study were either given \$15 in noncash incentives for their participation in the MMTP or food bank programs or \$20 in noncash incentives for their participation in the Gay Respect program. In addition, participants were offered food through the food bank upon completion of interview.

Table 1 shows the sociodemographic breakdown of participants according to the program from which they were recruited. Twenty-four percent ($n = 118$) of the sample lived in a shelter, on the streets, or in a hotel, while the rest of the sample lived in their own house or apartment or someone else's. Thirty-three percent considered themselves to be homeless. Nineteen percent of the participants had less than a high school education. Twenty-six percent had attended some college and 27% were college graduates.

Measures

CSBI—The 22-item CSBI assesses difficulty controlling sexuality, feeling emotionally distant during sex, experiences with physical and sexual aggression in dating relationships, experience giving or receiving pain for sexual pleasure, and legal, financial, or relationship problems stemming from sexual behavior. Items also assess the tendency to use sex to cope with guilt, shame, secretiveness, or other problems surrounding sexual behavior. Participants rated how frequently they have engaged in each of the items, with response ranging from (1) never to (5) very frequently. Items were then totaled allowing participants to have an absolute score, ranging from 22 to 110. The mean score, for the current sample, on the CSBI was 39.81 (SD = 14.24) and the median score was 38.

Items on the CSBI were previously administered to 1,026 Latino men who have sex with men (MSM; Miner et al., 2007). Two factors emerged from the factor analysis conducted by Miner et al.: 13-item *control* with a Cronbach's alpha of 0.96 and 9-item *violence* with a Cronbach's alpha of 0.88, thus providing evidence of good internal consistency reliability. Examples of *control* items include: Have you felt unable to control your sexual behavior?, How often have you concealed or hidden you're your sexual behavior from others?, and How often have your sexual activities caused financial problems for you? Examples of *violence* items include: Have you been arrested or legally apprehended for your sexual behavior?, and Have you forced anyone against his or her will to have sex? Although these two factors appear to be measuring different dimensions of compulsive sexual behavior, Miner et al. suggest that both dimensions of the CSBI make independent and significant contributions to the associations with compulsive sexual behavior and unsafe sex practices (Coleman et al., 2009). Therefore, the current analysis continues to assess compulsive sexual behavior according to the composite score of all items. Accordingly, a participant can be assessed as suffering from compulsive sexual behavior by scoring high on either dimension separately or through a combination of items on both dimensions. Further, this administration of the CSBI was highly correlated with a pilot study of 29 Latino MSM that was administered 7–10 days prior, demonstrating good test–retest reliability ($r = .86, p < .001$).

The construct validity of the CSBI was also explored in the previous study by using a variety of self-report items that tap the salient theoretical features of compulsive sexual behavior (Coleman et al., 2003). These items included lifetime number of male sexual partners, number of male sexual partners during the last 3 months, number of unprotected anal intercourse (UAI) partners in the last 3 months, being drunk or high during recent sexual encounters, feeling lonely or depressed during recent sex, and feeling that “I needed sex so badly that nothing else mattered” (Miner et al., 2007). As predicted, Latino MSM who scored high on the CSBI also had significantly more lifetime sexual partners, more sexual partners in the last 3 months, and significantly more UAI in the last 3 months than those Latino MSM who scored low on the CSBI. Being high, drunk, depressed, or feeling the uncontrollable urge to engage in sex the last time one had sex were all significantly higher among those Latino MSM who scored higher on the CSBI, providing further evidence of convergent validity.

Risk Behavior Assessment (RBA)—The RBA was designed by the Community Research Branch of the National Institute on Drug Abuse (NIDA) in collaboration with grantees of the AIDS Community-Based Outreach/Intervention Research Cooperative Agreement Program. Designed to assess risk for HIV infection, the RBA is an 80-item, 30-min structured assessment of participants' demographic information, sexual risk behavior, drug use, time spent in jail, and history of HIV testing, among other variables that assess participants' HIV and STI risk. Each item on the RBA is scored independently with some items requiring dichotomous (e.g., yes/no) responses and other items requiring continuous (e.g., number of times) responses. The RBA was not designed to be an omnibus risk assessment schedule. Rather, participant risk in each domain (e.g., sexual risk behavior, drug use behavior, HIV/STI testing behavior) can be assessed independently from the other items. This type of assessment was ideal for the current analyses in that specific domains found to be highly associated with scores on the CSBI could be identified for their use in the ROC analyses. The reliability and the 48-h validity of the RBA has previously been published and found to meet the 0.70 criterion suggested by Dowling-Guyer et al. (1994; see also Edwards, Fisher, Johnson, Reynolds, & Redpath, 2007).

Data Analysis

Although ROC curves were originally designed for electronic signal detection theory, they are now widely used in the biomedical field in order to determine the accuracy of diagnostic tools (Pepe, 2000; Zweig & Campbell, 1993). ROC curves plot true positives on the Y-axis and false positives on the X-axis for all possible scores of a diagnostic measure. Accurate measures maximize sensitivity or a test result that indicates the presence of a disease when the disease is present. At the same time that an accurate test must maximize sensitivity, it must also maximize specificity or a test result that indicates no disease when no disease is present. When all possible scores on a diagnostic measure are plotted on the ROC curve, the measure is deemed to increase in accuracy as the resulting curve approaches the coordinate (0, 1), maximizing the area under the curve (AUC). Therefore, a perfectly accurate diagnostic measure would have an AUC of 1.0 (Bewick, Cheek, & Ball, 2004).

In the current analysis, correlation and *t*-test analyses were first utilized in order to identify statistically significant associations between scores on the CSBI and the self-report of risky sexual behavior and drug abuse. In order to control for the capitalization of chance among multiple comparisons in this analysis, a more conservative *p*-value of .01 was used in order to identify significant correlates. Table 2 illustrates that CSBI scores were found to be associated with both risky sexual behavior and drug abuse, thereby providing additional evidence of criterion-related validity. The variables that demonstrated a high association with the CSBI were then entered into a multiple regression model. Four variables (number of sexual partners in the last 30 days, having traded drugs for sex, having paid for sex, and perceived chance of acquiring HIV) were retained as variables with good model fit. The variables retained in the multiple regression model were utilized as exploratory gold standards in constructing four ROC curves. Finally, the ROC curves were compared to one another in order to determine the best tentative cut point for assessing compulsive sexual behavior with the CSBI scale.

Results

Drug Use and Drugs with Sex

Sixty-five percent of the participants used alcohol for a mean of 11.20 days out of the last 30 prior to the interview. About one-fourth (24%) of the sample used crack-cocaine for a mean of 11.45 days during the 30 days prior to interview. Nine percent used cocaine for a mean of 4.81 days in the last 30 days. Amphetamine was used by 19% of the participants for a mean of 9.81 days over the last 30 days. Finally, 4% of the participants used heroin for a mean number of 10.25 days over the last 30 days. Thirty-nine percent used alcohol, 16% used crack, and 12% used amphetamine immediately before or during sex in the past 30 days.

Sexual Behavior and STIs

Sixty-six percent reported having sex in the past 30 days prior to interview. Of those who reported having sex, the mean number of days that participants engaged in sex was 8.12 out of the past 30 days. Thirty-two percent of the sample reported having more than one sex partner over the last 30 days. For those who had more than one, the mean number of sex partners was 4.6. Gonorrhea, chlamydia, and syphilis were the most frequently-reported STIs, with 98 (20%), 58 (12%), and 44 (9%) of the participants having reported being previously told by a health care professional that they tested positive for the STI, respectively.

HIV and Perceived Risk

Thirty-five (7.3%) of the participants reported an HIV positive status. This prevalence rate was much higher than the overall prevalence rate (0.6%) for Los Angeles County (Los Angeles County HIV Epidemiology Program, 2008), underscoring the elevated risk of this diverse sample. When participants were asked about their perceived chances of contracting HIV/AIDS, 91 (19%) thought that they had “no chance.” A total of 249 (52%) thought that they had “some chance,” while 67 (14%) thought they had a “half chance.” The remaining 57 (12%) thought that they had a “high chance” or “sure chance” of contracting HIV/AIDS.

Criterion-Related Validity

Participants' scores on the CSBI were most highly associated with trading sex for drugs, trading drugs for sex, trading sex for money, having previously been diagnosed with gonorrhea or syphilis, their perceived chance of becoming infected with HIV/AIDS, and having previously paid for sex. The number of times that the participant was diagnosed with gonorrhea and the number of sex partners the participant had in the past 30 days were also moderately associated with CSBI scores. However, it is interesting to note that the frequencies of specific sexual acts (i.e., insertive anal, receptive oral, etc.) were not significantly correlated with participants' scores on the CSBI.

The variables that were associated with the CSBI were then entered into a simultaneous multiple regression model using both the *R*-square selection method and the forward selection method. A model was then selected in order to maximize the value of *R*-square and minimize the amount of total squared error while ensuring that all variables selected in the model had a unique predictive value of at least an alpha level of 0.05. Number of sexual

partners, self-report of trading drugs for sex, having paid for sex, and perceived chance of acquiring HIV were found to be significant predictors of CSBI scores in models produced using either method.

Table 3 presents the resulting regression model, which accounted for 22.8% of the variance in CSBI scores, $F(3,461) = 23.75, p < .0001$. Most notably, having previously traded drugs for sex and number of partners were associated with a 8.46 and a 6.12 increase in CSBI scores, respectively. All variables in the model were found to be significant at $p < .0001$.

Exploratory Gold Standards

In order to define tentative cut points from which the CSBI accurately discriminates between those who are sexually compulsive and those who are not, exploratory gold standards had to be selected in order to differentiate the number of true positives from false positives. Because the current researchers did not have access to a perfect gold standard or a clinical sample of persons who had been previously diagnosed with compulsive sexual behavior, the four variables that were retained in the multiple regression model were utilized as exploratory gold standards from which to compare CSBI scores. Because gold standards must be dichotomous in order to separate those who exhibit compulsive sexual behavior from those who do not, the number of sex partners in the last 30 days variable was dichotomized with a median split (high = compulsive sexual behavior, low = no compulsive sexual behavior) and perceived chance of acquiring HIV was dichotomized where report of a high or sure chance of acquiring HIV signified the presence of compulsive sexual behavior and all other responses signified that compulsive sexual behavior was not present.

The highest AUC of 0.70 was produced when self-report of having traded drugs for sex was used as the gold standard. Figure 1 presents this ROC curve. The AUC is considered the percent of the time that the CSBI correctly discriminates those who exhibit compulsive sexual behavior from those who do not. In the current study, when the gold standard with the highest AUC was utilized (having traded drugs for sex), the CSBI correctly identified 70% of participants and incorrectly identified 30%. The ability of the CSBI to correctly discern those with compulsive sexual behavior from those without was then further explored by constructing an ROC on the gold standard with the second highest AUC (0.68), number of sex partners one had sex with in the last 30 days (Fig. 2). When number of sex partners was used as the gold standard from which to identify compulsive sexual behavior, the CSBI was shown to correctly discriminate between those with compulsive sexual behavior and those without 68% of the time. The ROC curves for having paid for sex and perceived chance of getting HIV yielded similar results, discriminating correctly 65% and 64% of the time, respectively.

Determining a Tentative Cut Point for the CSBI

In the absence of a true gold standard, the optimal tentative cut point for the CSBI among the total sample was determined by the point that maximized both sensitivity and specificity among the four exploratory gold standards when plotting all possible scores on the CSBI. To further discern the optimal tentative cut point for the CSBI among the total sample, a SAS macro was used in order to create a single graph that simultaneously displayed the

sensitivity, specificity, data density, and total accuracy for each of the exploratory gold standards that were determined a priori (Lambert, Lilly, & Lipkovich, 2008). As Figs. 1 and 2 demonstrate, the diagnostic sensitivity and specificity of the CSBI were both maximized (intersect) at a score of 40. The point of intersection remained at 40 for the other two gold standards and therefore figures are not provided. This consistency across exploratory gold standards indicates that the best tentative cut point for assessing compulsive sexual behavior with the CSBI was found at a score of 40.

Discussion

Consistent with the previous literature on compulsive sexual behavior, overall scores on the CSBI were found to be associated with behavioral health risks (Cooper, Scherer, Boies, & Gordon, 1999). The highest scores on the CSBI were found among participants who indicated that they had previously traded drugs for sex, sex for drugs, sex for money, had a greater number of sex partners, having paid for sex, or those who perceived their chance of getting HIV as high. It is important to note that persons who engaged in these behaviors because of economic necessity or possible substance addiction may experience distress resulting from their behavior and subsequently score higher on the CSBI.

Relating participants' scores on a given measure to their level of engagement in a given behavior is a form of validity evidence that is in line with American Psychological Association standards (AERA, APA, & NCME, 1999). In the current analysis, the CSBI was shown to be correlated with several negative health outcomes, such as HIV-positive status and the number of times individuals tested positive for gonorrhea and syphilis. Previous research has posited that these negative health outcomes have a high likelihood of being the byproduct of compulsive sexual behavior and therefore provide additional validity evidence for the CSBI (Bancroft & Vukadinovic, 2004; Gullette & Lyons, 2005; Kalichman & Cain, 2004). Scores on the CSBI were also shown to be associated with drug use and experience in a drug treatment program. Much of the literature on compulsive sexual behavior supports the frequency of concurrent disorders. Co-occurring disorders often lead to a severe impact on an individual's ability to function in society and the correlation between the CSBI and the experience of homelessness and income from welfare may be evidence of the downward spiral of compulsive behaviors in general. Similarly, the higher the CSBI score, the less likely the participant was to have a paid job or salary.

The multiple regression model (Table 3) predicting CSBI scores consisted of four of the most salient bivariate variables. In the past, the CSBI has been typically used in populations where the basic needs of food and shelter had been met and where expendable income had been available for resources such as counseling and treatment services in order to address compulsive sexual behavior. However, the current study would suggest that the CSBI shows promise as an indicator of problem sexual behavior in high-risk populations as well. This has been demonstrated by both the bivariate analysis of behavioral and health outcomes associated with CSBI score and the inclusion of participants' perceived chance of acquiring HIV/AIDS, trading drugs for sex, having paid for sex, and number of sex partners in the last 30 days in the multiple regression model predicting CSBI scores.

Finally, the four behavioral health variables that were retained in the multiple regression model were dichotomized to assess participants “true status” of compulsive sexual behavior in order to conduct ROC curve analyses. The results indicated that when the above mentioned variables were used as exploratory gold standards, the likelihood of sensitively and specifically identifying compulsive sexual behavior among this high risk population with the CSBI was quite good, with an overall accuracy rate of 67%. This finding provides the much-needed evidence for the ability of the CSBI to accurately assess compulsive sexual behavior among a diverse sample. Accordingly, we suggest that a score of 40 on the CSBI is the most accurate tentative cut point from which to identify compulsive sexual behavior when working with a combined sample of males and females with diverse sexual orientations and racial-ethnic backgrounds.

It is important to note that the tentative cut point of 40 suggested by this analysis is based on the assumption that the assessor wishes to maximize both the sensitivity and the specificity of the CSBI in assessing compulsive sexual behavior. This point may need to be adjusted according to the way the measure is being used and the specific objectives of the assessor. For example, in conducting an expensive intervention a clinician may view false positives as highly costly and may prefer to increase the cut point in order to maximize specificity.

While the authors currently suggest this tentative cut point would be useful for clinicians who wish to use the CSBI in order to assess compulsive sexual behavior among their clients, it is important to consider the possible consequences of acquiring the label of “sexually compulsive.” One may argue that having high specificity may be valued over high sensitivity and therefore the cut point would need to be adjusted accordingly. While the diagnostic utility of the CSBI was found to accurately discriminate 70% of individuals according to the variable with the highest AUC (trading drugs for sex), it is important that future efforts assess clinical samples in an effort to increase the overall classification accuracy of this measure.

The most salient limitation of the current analysis was the difference in inclusion criteria for heterosexual males, bi/homosexual males, and females. Because the three programs at CBRs from which participants were recruited all had different requirements for eligibility, incentives for participation, and administration procedures, random sampling was not possible. Further, because not all measures used in the current analysis were administered in all programs at all times, sample sizes varied among the various instruments. Therefore, future analyses of the CSBI should seek to randomly sample participants from a more generalizable sample based on one set of criteria in order to further validate the measure.

In conclusion, the current study provides evidence of the validity of the CSBI as a diagnostic tool for assessing compulsive sexual behavior. The current study suggests that the CSBI is a good indicator of risk for acquiring HIV and/or another STI based on the association between compulsive sexual behavior and the four sexual risk factors utilized in this study. Accordingly, it is suggested that a cut point of 40 reflects the point at which this measure consistently distinguishes participants who are at high sexual risk and should therefore be employed as a tentative cut point for the CSBI until further analyses are conducted among a clinical sample.

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Fig. 1. ROC curve SAS macro plotting CSBI scores when having traded drugs for sex was used as the gold standard (AUC = .699)

Fig. 2.
ROC curve SAS macro plotting CSBI scores when the number of sex partners in last 30 days was used as the gold standard (AUC = .680)

Table 1

Sociodemographic characteristics by program ($N = 482$)

Variable	MMTP ($n = 276$)		CFBP ($n = 98$)		GRP ($n = 108$)	
	<i>M</i>	(SD)	<i>M</i>	(SD)	<i>M</i>	(SD)
Age	39.52	(11.87)	50.54	(7.61)	40.23	(10.48)
Gender	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
Female	87	(31.52)	28	(38.57)	0	(0.00)
Male	187	(68.48)	70	(71.43)	108	(100.00)
Race/ethnicity						
Latina (o)	68	(24.64)	10	(10.20)	27	(25.00)
Caucasian	104	(37.68)	22	(22.45)	49	(45.37)
African American	62	(22.46)	61	(62.25)	25	(23.15)
Asian	18	(6.52)	1	(1.02)	6	(5.56)
Other	24	(8.70)	4	(4.08)	1	(0.92)
Sexual orientation						
Heterosexual	155	(56.16)	70	(71.43)	5	(4.63)
Homosexual	83	(30.07)	5	(5.10)	84	(77.78)
Bisexual	38	(13.77)	23	(23.47)	19	(17.57)
Monthly income						
<\$500	97	(35.14)	61	(61.21)	22	(20.37)
\$500–999	50	(18.12)	26	(25.53)	27	(25.00)
\$1000–1999	37	(13.41)	9	(9.18)	23	(21.30)
\$2000–3999	36	(13.04)	2	(2.04)	22	(20.37)
>\$4000	56	(20.29)	2	(2.04)	14	(12.96)

MMTP Multiple Morbidities Testing Program, CFBP Counseling and Food Bank Program, GRP Gay Respect Program

Table 2

Behavioral and health outcomes versus total CSBI score

Variable	No/never		Yes/ever		t	
	n	M	n	SD		
Traded drugs for sex	387	37.1	95	48.0	16.2	6.61**
Traded sex for drugs	386	37.1	96	48.5	16.7	6.54**
Traded sex for money	417	37.3	65	47.2	16.1	5.54**
Previously had Gonorrhea	384	38.1	98	45.5	16.4	5.41**
Previously had Syphilis	438	38.6	44	49.7	18.1	5.12**
Paid for sex	395	37.8	87	45.6	15.4	4.81**
Been in drug treatment	378	37.0	104	42.0	15.1	3.69**
Income from paid job/salary	272	41.0	210	37.2	13.1	3.21*
Currently homeless	323	38.0	159	43.0	15.6	2.91*
Previously had Chlamydia	424	39.0	58	43.7	15.7	2.64*
HIV positive	447	39.7	35	45.2	16.5	2.23
Received income from welfare	386	38.7	96	42.1	15.4	2.11
Variable	n				r	
Perceived chance of getting HIV/AIDS (no-, some-, half-, sure-chance)	468				.25**	
Number of sex partners in last 30 days	482				.19**	
Number of sex partners likely to be drug injectors	320				.15*	
Days used crack-cocaine in the last 30	482				.13*	
Days had sex in the last 30	482				.12*	
Days used alcohol in the last 30	482				.12*	
Days used marijuana in the last 30	482				.12*	
Days used speedball in the last 30	482				.11	
Age of first alcohol use (M = 14.4 years)	478				-.11	
Days used methamphetamine in the last 30	482				.10	

100' > d
**
'10' > d
*

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Table 3

Multiple regression analysis predicting CSBI scores ($n = 465$)

Variable	<i>B</i>	SE <i>B</i>	β
Traded drugs for sex	8.46*	2.56	.24
Number of sex partners in the last 30 days	6.12*	2.13	.20
Paid for sex	3.47*	1.44	.11
Perceived chance of getting HIV/AIDS	2.34*	0.59	.19

* $p < .0001$