PSYCHOMETRICS

Investigating Clinically and Scientifically Useful Cut Points on the Compulsive Sexual Behavior Inventory

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ABSTRACT

Introduction: One of the major obstacles to conducting epidemiologic research and determining the incidence and prevalence of compulsive sexual behavior (CSB) has been the lack of relevant empirically derived cut points on the various instruments that have been used to measure the concept.

Aim: To further develop the Compulsive Sexual Behavior Inventory (CSBI) through exploring predictive validity and developing an empirically determined and clinically useful cut point for defining CSB.

Methods: A sample of 242 men who have sex with men was recruited from various sites in a moderate-size Midwestern city. Participants were assigned to a CSB group or a control group using an interview for the diagnosis that was patterned after the Structured Clinical Interview for the *Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition.* The 22-item CSBI was administered as part of a larger battery of self-report inventories.

Main Outcome Measures: Receiver operating characteristic analyses were used to compute area-under-the-curve measurements to ascertain the predictive validity of the total scale, the control subscale, and the violence subscale. Cut points were determined through consensus of experts balancing sensitivity and specificity as determined by receiver operating characteristic curves.

Results: Analyses indicated that the 22-item CSBI was a good predictor of group membership, as was the 13-item control subscale. The violence subscale added little to the predictive accuracy of the instrument; thus, it likely measures something other than CSB. Two relevant cut points were found, one that minimized false negatives and another, more conservative cut point that minimized false positives.

Conclusion: The CSBI as currently configured measures two different constructions and only the control subscale is helpful in diagnosing CSB. Therefore, we decided to eliminate the violence subscale and move forward with a 13-item scale that we have named the CSBI-13. Two cut points were developed from this revised scale, one that is useful as a clinical screening tool and the other, more conservative measurement that is useful for etiologic and epidemiologic research. **Miner MH, Raymond N, Coleman E, Swinburne Romine R. Investigating Clinically and Scientifically Useful Cut Points on the Compulsive Sexual Behavior Inventory. J Sex Med 2017;14:715—720.**

INTRODUCTION

Different scales have been developed during the past 50 years to assess compulsive sexual behavior (CSB), often referred to as sexual addiction. The three most commonly used scales in the

scientific literature are the Sexual Compulsivity Scale (SCS),[1] the Compulsive Sexual Behavior Inventory (CSBI),[2] and the recently developed Hypersexual Behavior Inventory (HBI).[3] Although there are several additional tools,[4,5] these three appear most prominently in studies of HIV risk, sexually transmitted infection risk, and investigations of hypersexuality (ie, CSB).

Despite the widespread use of the SCS and CSBI in research, there are currently no empirically derived cut points for either scale that distinguishes those with from those without CSB. Benotsch et al[6,7] used the 85th percentile of SCS scores (which was approximately 24) to divide male participants into high and low sexual compulsivity. This process was adopted by other researchers studying the association between sexual compulsivity

and HIV risk behaviors.[8,9] However, there has never been an investigation of the extent to which this cut point adequately discriminates those with CSB from those without the constellation of symptoms that characterize this proposed disorder. Similarly, there is no empirically derived cut point for the HBI, although the researchers proposed a cutoff score of 53.1, which is based on the mean and SD of scores for control subjects in a study that compared men with and without "hypersexual behavior," in which the hypersexual group was defined as men who sought treatment for sexual addiction.[10]

Clearly, the lack of an empirically derived cut point on the most scientifically sound self-report instruments for CSB hinders the epidemiologic study of CSB, impedes the ability to estimate population-level incidence and prevalence, and limits the clinical utility of these instruments. This article is based on data collected as part of a larger study designed to explore the psychological and cognitive factors that explain hypersexuality and HIV risk in men who have sex with men. The study involved different behavioral tasks, self-report measurements, and psychophysiologic assessments. This article is limited to exploring the CSBI and the extent to which it is a useful tool for screening for CSB.

The CSBI is composed of two subscales, control and violence.[11] Although factor analysis[2] and confirmatory factor analysis[11] have confirmed this two-factor structure, researchers have argued that the violence subscale does not measure the core features of CSB.[4] Thus, before exploring empirical cut points, we will investigate, using receiver operating curve (ROC) analyses, the predictive utility of the CSBI total scale and the two subscales to determine whether the control and violence subscales contribute to the prediction of CSB.

METHODS

Participants

Participants were 242 men (Table 1) who were recruited using print and social media materials (eg, Facebook, Craigslist) posted at and around the university campus and in gay, lesbian, bisexual, transgender and HIV service organizations, bars, and sexual health clinics. Participants had to be men, 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 before 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

Compulsive Sexual Behavior Inventory

The CSBI[11] is a 22-item scale that was developed to screen for CSB. The individual items are listed in Table 2. Items are rated on a five-point scale (1 = never, 2 = rarely, 3 = occasionally, 4 = frequently, 5 = very frequently). 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 (Table 2).

The original scale was developed by a team of expert clinicians and consisted of items related to sexual control and items measuring various characteristics associated with CSB. Forty-two items were developed and the instrument was further refined through testing its factor structure and its ability to discriminate those with CSB from those with other sexual dysfunctions,[2] resulting in an instrument with three subscales: control, abuse, and violence. The scale was further refined using confirmatory factor analysis,[11] which resulted in the 22-item scale used in this study.

CSB Group Assignment

Participants were assigned to the CSB group (n = 93) or the non-CSB group (n = 149) based on an interview that was patterned after the Structured Clinical Interview for the *Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition* (SCID; the interview schedule can be obtained by contacting the first author) that operationalizes CSB as follows: (i) experiencing during a period of at least 6 months recurrent intense sexual arousing fantasies, sexual urges, or behaviors involving at least one of the following: compulsive cruising and multiple partners; compulsive masturbation, including use of internet pornography and cybersex; and/or compulsive sex within a relationship; (ii) fantasies, sexual urges, or behaviors cause clinically significant distress or impairment in social, occupational, or other important areas of functioning; and (iii) CSB not caused by 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,

Table 1. Area-under-the-curve scores for CSBI total scale and subscales

Test result variable(s)	Area	SE	Asymptotic significance	Asymptotic 95% CI	
				Lower bound	Upper bound
CSBI total scale	0.836	0.028	0.000	0.782	0.890
CSBI control subscale	0.823	0.028	0.000	0.767	0.879
CSBI violence subscale	0.640	0.037	0.000	0.567	0.713

CSBI = Compulsive Sexual Behavior Inventory; SE = standard error.