

# Relations between sexually transmitted infection diagnosis and sexual compulsivity in a community-based sample of men who have sex with men

B Dodge, M Reece, D Herbenick, C Fisher, S Satinsky, N Stupiansky

Center for Sexual Health Promotion, Indiana University, Bloomington, Indiana, USA

Correspondence to:  
Dr B Dodge, Center for Sexual Health Promotion, HPER 116, 1025 East Seventh Street, Indiana University, Bloomington, IN 47405, USA;  
[bmdodge@indiana.edu](mailto:bmdodge@indiana.edu)

Accepted 12 December 2007

## ABSTRACT

**Objective:** To assess relations between sexual compulsivity and a history of sexually transmitted infection (STI) diagnosis and testing among a community-based sample of men who have sex with men (MSM) in a mid-size urban area of the midwestern United States.

**Methods:** Sexual health data were collected from 504 MSM in the metropolitan area of Indianapolis, Indiana, using a community-based participatory research approach. Sexual compulsivity scores were assessed using the Sexual Compulsivity Scale (SCS).

**Results:** The reliability and construct validity of the SCS were determined to be high in the total study sample. Men who scored high on the SCS reported higher levels of sexual risk behaviour with both male and female partners and were significantly more likely to have been diagnosed with STI (including chlamydia, gonorrhoea, both hepatitis A and B, and syphilis) than other men. Men who scored high on the SCS were not more likely than other men to have been tested for STI, despite higher levels of sexual risk.

**Conclusions:** The SCS may be useful as a supplemental instrument in public health programmes and healthcare settings that encourage men to assess their sexual behaviours and make decisions to pursue STI or HIV screening. For those already diagnosed with an STI, the SCS may help providers to identify the cognitive and affective components of sexual behaviours that increase the likelihood that an STI will be transmitted to a sexual partner.

Relations between sexual compulsivity and participation in behaviours that have a high risk of HIV infection have been well documented.<sup>1–11</sup> Sexual compulsivity has been defined as “an insistent, repetitive, intrusive, and unwanted urge to perform specific acts often in ritualised or routinised fashions”.<sup>6</sup> Sexual compulsivity has been studied and measured across a range of disciplines,<sup>12</sup> frequently using the Sexual Compulsivity Scale (SCS)<sup>6</sup> (see table 1). The SCS has demonstrated reliability and construct validity, and is predictive of HIV-related risk behaviours.<sup>1–11 13–17</sup> Little work has, however, explored relations between sexual compulsivity and sexually transmitted infections (STI) other than HIV.

A comprehensive assessment of sexual health among men who have sex with men (MSM) was conducted in Indianapolis, Indiana, which in 2006 had among the highest rates of syphilis and other STI in the United States<sup>18 19</sup> Most US studies have focused on HIV and other STI-related issues among MSM in large urban areas on the east coast

(New York, Philadelphia and Baltimore) or the west coast (Los Angeles and San Francisco). Little previous research has explored the lives of MSM in mid-size midwestern cities such as Indianapolis. This study sought to assess relations between sexual compulsivity and a history of STI testing and diagnosis among MSM in this community.

## METHODS

### Background

Using a community-based participatory research framework,<sup>20 21</sup> researchers from Indiana University, Bloomington, and several Indianapolis-based entities (eg health clinics and community-based organisations) collaboratively determined research questions, developed study instruments, designed strategies for participant recruitment, and collected data.

### Participant recruitment and data collection

Recruitment and data collection included both venue and Internet-based strategies. Venue-based sampling yielded the highest number of participants ( $n = 385$ ). Researchers and community members administered the survey to men in four predominantly gay bars ( $n = 259$ ), two all-male bathhouses ( $n = 97$ ), and a “House Ball” event ( $n = 29$ ). Each participant received a US\$10 retail gift card upon completing the survey. Using the Internet, community partners recruited 119 participants in local MSM-oriented chat rooms, who completed the study instrument via the Internet and were eligible to win one of 10 US\$100 retail gift cards.

### Classification of “high” versus “low” compulsivity

Consistent with previous studies,<sup>13 15 22</sup> participants who scored higher than one standard deviation above the mean were classified as high in sexual compulsivity; those falling at or below one standard deviation above the mean were classified as low in sexual compulsivity.

### Statistical analyses

Using version 14.0 of the Statistical Package for the Social Sciences (SPSS Inc, Chicago, Illinois, USA), univariate and bivariate analyses were conducted to describe the sample and characterise relations between SCS scores and participant characteristics.

## RESULTS

### Participant characteristics

Participants included 504 men, 80% of whom ( $n = 400$ ) identified as homosexual, with an

**Table 1** The SCS:<sup>6</sup> reliability in the sample

Item	Item-total correlation
1. My sexual appetite has gotten in the way of my relationships	0.61
2. My sexual thoughts and behaviours are causing problems in my life	0.71
3. My desires to have sex have disrupted my daily life	0.75
4. I sometimes fail to meet my commitments and responsibilities because of my sexual behaviours	0.63
5. I sometimes get so horny I could lose control	0.68
6. I find myself thinking about sex while at work	0.50
7. I feel that sexual thoughts and feelings are stronger than I am	0.76
8. I have to struggle to control my sexual thoughts and behaviour	0.75
9. I think about sex more than I would like to	0.68
10. It has been difficult for me to find sex partners who desire having sex as much as I want to	0.59

SCS, Sexual Compulsivity Scale.

Alpha = 0.90.

additional 16% (n = 80) identifying as bisexual. The mean age of the sample was 34.7 years (SD 10.6). Seventy-nine per cent of the sample identified as white (n = 400), 14% as black (n = 68), and the remainder as other ethnicities (7%, n = 36). The majority of participants (52%) identified themselves as single (n = 268). Twenty-eight per cent were in a partnered relationship (n = 147), 10% were divorced (n = 51), 5% were married (n = 28), 2% were widowers (n = 11), and the remaining 3% indicated they were in other types of relationships (n = 13). In terms of education, 82% had at least attended college (n = 409), 49% had at least earned a bachelor's degree (n = 243), and 19% reported achieving a postgraduate degree (n = 93).

### SCS reliability

The reliability of the SCS was determined to be high in the total study sample. All item-total correlations were 0.50 or higher (see table 1).

### SCS and participant characteristics

Participants with higher compulsivity scores were more likely than those with lower scores to report that they were in a sexual relationship with more than one person, or were sexually active outside the context of a relationship,  $\chi^2$  (3, N = 504) = 22.382,  $p < 0.001$ . No other demographic variables including ethnicity, education, or income, were related to sexual compulsivity scores.

### SCS and venue use

Mean SCS scores did not differ according to the venue in which participants were recruited. Logistic regression analyses were conducted to assess whether a participant's use of specific venues for meeting sexual partners was predictive of a high sexual compulsivity classification (table 2). Men who reported meeting sexual partners on phone chat lines and cruising spots had significantly higher odds of scoring highly on the SCS

**Table 2** Odds ratio of high sexual compulsivity by venue

Use of venue	Odds ratio	p Value
Phone chat line	4.51	0.003
Cruising spot	4.46	<0.001
Bath house or sex club	2.81	<0.001
Internet	2.5	0.001
Gay bar	1.25	0.003

measure, although these scores were elevated for men across all venues.

### SCS and sexual risk

The SCS demonstrated construct validity in this sample in relation to numbers of sexual risk behaviours and sexual encounters. Men who scored high on the SCS were more likely to have engaged in unprotected insertive anal sex with other men than those with low SCS scores ( $\chi^2$  (1, 503) = 9.522;  $p = 0.002$ ). In addition, these men were also more likely to have engaged in unprotected insertive vaginal sex with female partners than those with low SCS scores ( $\chi^2$  (1, 502) = 4.808;  $p = 0.028$ ).

### SCS and HIV diagnosis

Of the total sample, 9.5% (n = 48) reported having been diagnosed with HIV. There were no significant differences in the mean scores of SCS in relation to HIV diagnosis.

### SCS and STI diagnosis

Men who scored high on the SCS were significantly more likely to have been diagnosed with STI than other men (see table 3). These infections included chlamydia, gonorrhoea, both hepatitis A and B, and (marginally) syphilis.

### SCS and previous STI testing

In terms of testing in the overall sample, a total of 154 men reported being tested in the past year. The majority of these (n = 66, 43%) were in a hospital setting, followed by private doctor (n = 32, 21%), clinic (n = 10, 15%), and other sites (including health department, MSM venues, and jail).

Of note is the fact that men who scored high on the SCS were no more likely than other men to have been tested. Of those who scored low on the SCS, 55% (n = 243) had been tested for STI in the past year, whereas 50% (n = 31) of those who scored high had been tested for STI in the past year.

## DISCUSSION

This study offers unique contributions to the sexual health literature as it documents strong associations between sexual compulsivity and the likelihood that one has received an actual STI diagnosis. The vast majority of previous research in this area has only considered relations between sexual compulsivity and sexual behaviours, most often among HIV-related clinical samples, without the benefit of data related to STI diagnosis and screening.

**Table 3** SCS classification and previous STI diagnosis

Diagnosis	% High SCS	% Low SCS	$\chi^2$
Chlamydia	16.95 (n = 10; N = 59)	6.67 (n = 28; N = 420)	7.950; p = 0.019
Genital warts/human papillomavirus	6.78 (n = 4; N = 59)	5.85 (n = 23; N = 419)	0.577; p = 0.749
Gonorrhoea	18.03 (n = 11; N = 61)	8.08 (n = 35; N = 433)	6.732; p = 0.035
Hepatitis A	8.19 (n = 5; N = 61)	2.33 (n = 10; N = 429)	7.098; p = 0.029
Hepatitis B	12.9 (n = 8; N = 62)	2.33 (n = 10; N = 429)	17.863; p < 0.001
Herpes	4.92 (n = 3; N = 61)	3.26 (n = 14; N = 430)	0.857; p = 0.651
Syphilis	6.56 (n = 4; N = 61)	2.09 (n = 9; N = 430)	4.658; p = 0.097

SCS, Sexual Compulsivity Scale; STI, sexually transmitted infection.

Consistent with previous studies, men in this sample who scored high on the measure of sexual compulsivity were also those whose behaviours posed the highest potential for STI exposure or transmission. In addition, men with high sexual compulsivity scores were also those with actual reports of a previous STI diagnosis.

Several study limitations must be acknowledged. Venue-based convenience sampling was used to recruit the participants and, as the choices of venues for meeting sexual partners in this community were limited, may have affected the compulsivity scores observed. This study was also conducted in order to assess these issues within the context of a specific and understudied geographical area; generalisability to other MSM communities may therefore be limited. A cross-sectional survey method also limits the capture of complex associations between sexual behaviour and actual risk. In addition, we did not assess behaviours that included the use of condoms or other barrier devices. Future studies should include such measures of protective as well as risk behaviours.

Although our findings indicate that those with high sexual compulsivity scores were those with a higher likelihood of diagnoses of some STI, it is important to note that sexual compulsivity was not associated with the likelihood that one had sought STI screening in the past year. It was hypothesised that men in the high sexual compulsivity category would be more likely to report STI diagnoses, but perhaps this would be a result of higher rates of routine STI screening by these men. This was,

however, not the case in our sample. These findings highlight the need for healthcare workers and public health interventionists specifically to address the behaviours and cognitions of those men who report elevated levels of sexual compulsivity.

The findings of this study also suggest that the SCS might be useful as a supplemental tool in healthcare settings and public health programmes that encourage men to assess their sexual behaviours and make decisions to pursue STI or HIV screening. Practitioners in clinics in which men have already received a diagnosis of an STI may also find the SCS helpful as a tool for the identification of the cognitive and affective components of sexual behaviours that increase the likelihood of STI transmission.

**Competing interests:** None declared.

**Contributions:** BD led the writing of the paper and conducted the statistical analyses presented. MR and DH designed the study, managed all study protocols and contributed to the writing of the paper. CF, SS, and NS served as study coordinators during the project, supervised data management, and contributed to the paper.

## REFERENCES

- Dodge B, Reece M, Cole SL, *et al.* Sexual compulsivity among heterosexual college students. *J Sex Res* 2004;**41**:343–50.
- Reece M, Plate PL, Daughtry M. HIV prevention and sexual compulsivity: the need for an integrated strategy of public health and mental health. *Sexual Addiction Compulsivity* 2001;**8**:157–67.
- Abel GG, Kalichman SC, Greenberg J. HIV-seropositive men who engage in high-risk sexual behaviour: psychological characteristics and implications for prevention. *AIDS Care* 1997;**9**:441–50.
- Benotsch EG, Kalichman SC, Kelly JA. Sexual compulsivity and substance use in HIV-seropositive men who have sex with men: prevalence and predictors of high-risk behaviors. *Addict Behav* 1999;**24**:857–68.
- Kalichman SC, Johnson JR, Adair V, *et al.* Sexual sensation seeking: scale development and predicting AIDS-risk behavior among homosexually active men. *J Pers Assess* 1994;**62**:385–97.
- Kalichman SC, Rompa D. Sexual sensation seeking and sexual compulsivity scales: reliability, validity, and predicting HIV risk behavior. *J Pers Assess* 1995;**65**:586–601.
- Kalichman SC, Rompa D. The sexual compulsivity scale: further development and use with HIV-positive persons. *J Pers Assess* 2001;**76**:379–95.
- O'Leary A, Purcell DW, Remien RH, *et al.* Characteristics of bisexually active men in the Seropositive Urban Mens' Study (SUMS). *AIDS Care* 2007;**19**:940–6.
- Grov C, DeBusk JA, Bimbi DS, *et al.* Barebacking, the Internet, and harm reduction: an intercept survey with gay and bisexual men in Los Angeles and New York City. *AIDS Behav* 2007;**11**:527–36.
- Parsons JT, Kelly BC, Bimbi DS, *et al.* Accounting for the social triggers of sexual compulsivity. *J Addict Dis* 2007;**26**:5–16.
- Sample SJ, Zians J, Grant I, *et al.* Sexual compulsivity in a sample of HIV-positive methamphetamine using gay and bisexual men. *AIDS Behav* 2006;**10**:587–98.
- Carnes PJ, Adams KM, eds. *The clinical management of sex addiction*. New York: Brunner-Routledge, 2002.
- Reece M. Sexual compulsivity and HIV serostatus disclosure among men who have sex with men. *Sexual Addiction Compulsivity* 2003;**10**:1–11.
- Halkitis PN, Wilton L, Parsons JT, *et al.* Correlates of sexual risk-taking behaviour among HIV seropositive gay men in concordant primary partner relationships. *Psychol Health Med* 2004;**9**:99–113.
- Benotsch EG, Kalichman SC, Kelly JA. Sexual compulsivity and substance use in HIV-seropositive men who have sex with men: prevalence and predictors of high-risk behaviors. *Addict Behav* 1999;**24**:857–68.
- Benotsch EG, Kalichman SC, Pinkerton SD. Sexual compulsivity in HIV-positive men and women: prevalence, predictors, and consequences of high-risk behaviors. *Sexual Addiction Compulsivity* 2001;**8**:83–99.

## Key messages

- ▶ Although elevated scores on measures of sexual compulsivity have been predictive of HIV-related risk behaviours, little work has explored potential relations between sexual compulsivity and STI other than HIV.
- ▶ In this community-based assessment of MSM in a mid-size urban area of the midwestern United States, participants who scored high on a measure of sexual compulsivity were significantly more likely to have been diagnosed with STI than other men.
- ▶ Despite higher levels of sexual risk and higher levels of STI diagnosis, participants who scored high on the measure of sexual compulsivity were no more likely to have been tested for STI than other men.
- ▶ Measures of sexual compulsivity may be useful as supplemental tools in healthcare settings and public health programmes for helping to identify individuals who may be at higher behavioural risk of STI and who may benefit from STI testing.

17. **Kalichman SC**, Greenberg J, Abel GG. HIV-seropositive men who emerge in high-risk sexual behavior: psychological characteristics and implications for prevention. *AIDS Care* 1997;**9**:441–50.
18. **Indiana State Department of Health**. Spotlight on HIV/STD/Hepatitis: Indiana semi-annual report. <http://www.in.gov/isdh/programs/hivstd/spotlight/2006/June%202006/index.htm> (accessed 25 Sept 2007).
19. **Indiana State Department of Health**. Primary and secondary syphilis. [http://www.in.gov/isdh/dataandstats/epidem/epi\\_news\\_archive/1999/9909/syphilis.htm](http://www.in.gov/isdh/dataandstats/epidem/epi_news_archive/1999/9909/syphilis.htm) (accessed 25 Sept 2007).
20. **Reece M**, Dodge B. A study in sexual health applying the principles of community-based participatory research. *Arch Sex Behav* 2004;**33**:235–47.
21. **Israel B**, Schulz AJ, Parker EA, *et al.* Review of community-based research: Assessing partnership approaches to improve public health. *Annu Rev Public Health* 1998;**19**:173–202.
22. **Kalichman SC**, Cain D. The relationship between indicators of sexual compulsivity and high risk sexual practices among men and women receiving services from a sexually transmitted infection clinic. *J Sex Res* 2004; **41**:235–41.

#### Abstracts from the BASHH–ASTDA 3<sup>rd</sup> Joint Conference 2008

The abstracts from the BASHH–ASTDA 3<sup>rd</sup> Joint Conference 2008 held in New York in May are available as ePages in this issue of the journal at [http://sti.bmj.com/content/vol84/issue4/#ELECTRONIC\\_PAGES](http://sti.bmj.com/content/vol84/issue4/#ELECTRONIC_PAGES).