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## Citation Details

Sun, C. J., Tobin, K., Spikes, P., & Latkin, C. (2019). Correlates of same-sex behavior disclosure to health care providers among Black MSM in the United States: implications for HIV prevention. *AIDS Care*, 31(8), 1011–1018.

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Published in final edited form as:

*AIDS Care*. 2019 August ; 31(8): 1011–1018. doi:10.1080/09540121.2018.1548753.

## Correlates of same-sex behavior disclosure to health care providers among Black MSM in the United States: Implications for HIV prevention

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### Abstract

Disclosure of same-sex behavior to health care providers (HCPs) by men who have sex with men (MSM) has been argued to be an important aspect of HIV prevention. However, Black MSM are less likely to disclose compared to white MSM. This analysis of data collected in the United States from 2006-2009 identified individual and social network characteristics of Black MSM (n=226) that are associated with disclosure that may be leveraged to increase disclosure. Over two-thirds (68.1%) of the sample had ever disclosed to HCPs. Part-time employment (AOR=0.32, 95% CI=0.11-0.95), bisexual identity (AOR=0.29, 95% CI=0.12-0.70), and meeting criteria for alcohol use disorders (AOR=0.32, 95% CI=0.14-0.75) were negatively associated with disclosure. Disclosers were more likely to self-report being HIV-positive (AOR=4.47, 95% CI=1.54-12.98), having more frequent network socialization (AOR=2.15, 95% CI=1.24-3.73), and having a social network where all members knew the participant had sex with men (AOR=4.94, 95% CI=2.06-11.86). These associations did not significantly differ by self-reported HIV status. Future interventions to help MSM identify social network members to safely disclose their same-sex behavior may also help disclosure of same-sex behavior to HCPs among Black MSM.

### Keywords

HIV; men who have sex with men; health care providers; disclosure

### Introduction

HIV testing is an important aspect of HIV prevention. Awareness of HIV infection is associated with lower risks of transmission (Marks, Crapez, Senterfitt, & Janssen, 2005) and

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a precursor to reduced viral load (i.e., treatment as prevention; Cohen et al., 2011; Das et al., 2010; Montaner et al., 2010). HIV testing is also necessary to safely use pre-exposure prophylaxis (PrEP) to prevent HIV (Centers for Disease Control and Prevention [CDC], 2014).

Despite positive public health outcomes associated with HIV testing, a 20-city behavioral surveillance study reported that 25% of gay, bisexual, and other men who have sex with men (MSM) were unaware of their infection (CDC, 2016). Black or African American (hereafter referred to as Black) MSM were most likely to be unaware of their infection (33%) compared to white MSM (10%) and Latino MSM (25%). The prevalence of unrecognized HIV infection among Black MSM who resided in Baltimore was 77%, representing a persistently higher rate than the national average (German et al., 2011).

Encouraging disclosure of same-sex behaviors to health care providers (HCPs), who can offer comprehensive evaluations and recommend appropriate screenings, is one possible method to increase HIV testing (Petroll & Mosack, 2011). Disclosure has been positively associated with MSM testing for HIV and sexually transmitted infections (STIs), and receiving hepatitis A or hepatitis B vaccines (Joseph et al., 2014; Lo, Turabelidze, Lin, & Friedberg, 2012; Metheny & Stephenson, 2016; Ng et al., 2014; Petroll & Mosack, 2011). Not disclosing sexual identity to HCPs was a risk factor for HIV infection among Black MSM (Dorell et al., 2011), who may be less likely to disclose compared to white MSM (Bernstein et al., 2008; Millett, Flores, Peterson, & Bakeman, 2007; Petroll & Mosack, 2011).

Previous research has focused mostly on individual-level characteristics, including sociodemographics, sexual history, and drug-using behaviors, and some social environment factors associated with same-sex behavior disclosure. Additional factors such as perceived stigma about and discrimination against same-sex behaviors and social and cultural factors unique to Black MSM (e.g., racially-motivated violence, internalized racism and homophobia, and vernacular conceptions regarding HIV/AIDS) may present further barriers and explain the lower rates of disclosure by Black MSM (Bird & Voisin, 2013; CDC, 2003; Kennamer, Honnold, Bradford, & Hendricks, 2000; Mays, Cochran, & Zamudio, 2004; Stokes & Peterson, 1998).

Research about the role of social networks and disclosure is emerging. Social networks have been described as influential on the health of Black MSM and critical to understand for improving the population's HIV-related health outcomes (Mays et al., 2004; Millet et al., 2007; Wilson et al., 2016). Social networks convey norms about health behaviors, including health care utilization, treatment adherence, and substance use, and provide support, buffering individuals from stressors (Berkman, Glass, Brissette, & Seeman, 2000). These functions may be associated with disclosure to HCPs. Research on social networks has found that individuals who disclosed more to relatives and coworkers were more likely to disclose to their HCP (Meckler, Elliott, Kanouse, Beals, & Schuster, 2006; Steele, Timmouth, & Lu, 2006; van Dam, Koh, & Dibble, 2001). This analysis seeks to add to the literature by identifying individual and social network characteristics associated with disclosure of same-

sex behavior to HCPs by Black MSM. Findings can be used to address possible factors to promote disclosure of same-sex behaviors to HCPs by Black MSM.

## Methods

Procedures were approved by Johns Hopkins University and CDC Institutional Review Boards. Baseline data (collected 2006-2009) from primary and secondary participants in the Unity iN Diversity (UND), a pilot social network HIV risk-reduction intervention for Black MSM conducted in Baltimore, MD, were analyzed. Primary participants were recruited through venue-based outreach, print advertisement, referrals from agencies, and websites. Their inclusion criteria were at least 18 years old, identify as Black, have at least 2 sex partners in the past 90 days (at least one of whom was male), have condomless anal sex with a male partner in the past 90 days, and be willing to take an HIV test. Primary participants recruited individuals from their social networks (i.e., secondary participants). For this analysis, all participants who were male, Black, and had sex with at least one man in the past 90 days were included (187 primary and 39 secondary participants). More details of the study and recruitment are published elsewhere (Tobin et al., 2013). After completing informed consent procedures, participants were surveyed about their demographics, sexual risk, and drug risk. Participants described their social networks using a modified inventory based on the Arizona Social Support Interview Schedule (Barrera, 1980; Barrera, Sandler, & Ramsay, 1981; Latkin et al., 2011).

## Measures

**Sociodemographic characteristics**—Participants reported their age, education, income, employment, incarceration history, sexual identity, health insurance, whether they had a usual HCP who provided medical care, number of visits to an HCP in the past year, and location used for medical care.

**HIV status**—Participants reported their last HIV test result (i.e., positive, negative, indeterminate). Participants who reported indeterminate or had never been tested for HIV were classified as unknown. Self-reported HIV status was used as it reflected perceived status.

**Sexual history**—Participants reported whether they had a STI other than HIV, the number of male sex partners, and if they had sex with women in the past 3 months.

**Alcohol consumption**—The AUDIT-C (Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998), a validated 3-item screening test, assessed whether participants met criteria for alcohol use disorders (i.e., either abuse or dependence). Using a cutoff score of 4, which reflects the best combined sensitivity and specificity (Dawson, Grant, Stinson, & Zhou, 2005), participants were dichotomized as meeting the criteria for alcohol use disorders or not.

**Substance use**—Participants reported the frequency they used various substances (marijuana, amyl nitrate, heroin, crack) in the past 3 months. Results were dichotomized by each substance to represent either use or no use.

**MSM discrimination scale**—This 11-item scale (Diaz, Ayala, Bein, Henne, & Marin, 2001) measured frequency of experiencing MSM-based discrimination while growing up and as an adult. Individuals reported on a 4-point scale (never, once or twice, a few times, many times) how often various discriminatory incidences occurred (this analysis' Cronbach's alpha = .80). A sample item is "As an adult, how often have you lost a job or career opportunity because others thought you were homosexual?". To make the variable more interpretable and identify participants who experienced multiple types of discrimination frequently, it was dichotomized such that those who had experienced discrimination at least "a few times" on at least 6 items were classified as experiencing high discrimination.

**Medical distrust scale**—Participants were asked how much they can trust HCPs using an abbreviated version of the Group-Based Medical Mistrust Scale (Thompson, Valdimarsdottir, Winkel, Jandorf, & Reed, 2004). Participants rated their agreement to 9 statements on a 5-point scale from strongly agree to strongly disagree (this analysis' Cronbach's alpha = .83). A sample item is "People of my ethnic group cannot trust doctors and healthcare workers." Those who strongly agreed or agreed to all items were categorized as high medical distrust.

**Social network characteristics**—Participants named individuals who could provide social support, they socialized with, and they had sex with in the past 3 months (i.e., egocentric social network). After all the names were generated, participants were asked to describe their network members, including how much they trusted each person (rated from 1 = "don't trust at all" to 10 = "trust with my life"), how often they socialized (everyday, at least once a week, a few times a month, about once a month, a few times a year or less), and whether each person knew the participant had sex with men. The mean network size, network trust, and network socialization, and percent of network members who knew the participant had sex with men were calculated to characterize each participants' egocentric network size, composition, and structure. A high percentage of participants had told all of their social network members that they had sex with them; therefore, a dichotomous variable was created to characterize networks in which all network members knew the participant had sex with men.

**Disclosure of same-sex behavior to HCP**—The outcome was measured with the question "Have you told your main health care provider that you have sex with men?".

### Analysis plan

Logistic regression with generalized estimating equations (GEE) to account for correlated data (Liang & Zeger, 1986), the interdependence among the secondary participants and that primary participants could have recruited multiple network members (i.e., secondary participants), was utilized. After controlling for having a usual HCP and number of visits to an HCP in the last year, the multivariate model was fit by entering all independent variables that were statistically significant ( $p < .20$ ) into a backwards selection (criteria to remove  $p < .10$ ) logistic regression model with GEE given the exploratory nature of this research (Hosmer & Lemeshow, 1989). Moderation analyses were conducted to examine whether the

factors associated with disclosure differed by self-reported HIV status. Analyses were conducted using Stata 12.

## Results

### Sample characteristics

A sample of 226 Black MSM was surveyed with a mean age of 37.9 years (see Table 1). Slightly more than half (52.7%) had an annual income of less than \$10,000. Homosexual or gay was the most reported sexual identity (58.4%). About two-fifths (44.3%) were MSM with HIV. Half (50.9%) reported using marijuana, the most commonly used drug, in the past 3 months. A high proportion of the sample (60.2%) met the criteria for alcohol use disorders.

The mean social network consisted of 8.3 individuals (range: 1-35). Nearly three-quarters (73.9%) of participants had disclosed same-sex behavior to all of their social network (excluding male sex partners).

Two-thirds (68.1%) of the sample had ever disclosed same-sex behavior to their HCP. Over 90% of MSM with HIV had ever disclosed same-sex behavior to their HCP.

### Significant bivariate associations

MSM who were employed part-time, identified as bisexual and heterosexual, met criteria for alcohol use disorders, and had sex with women were significantly less likely to disclose (see Table 1). MSM with HIV, with greater network socialization, and whose entire social network knew he had sex with men were more likely to have disclosed to their HCP.

### Multivariate model

Men who were employed part-time, identified as bisexual, and met criteria for alcohol use disorders were less likely to disclose, while men with HIV were more likely to disclose (see Table 2). Among the network-level variables, a social network in which all network members knew the participant had sex with men and more frequent network socialization were positively associated with disclosure. HIV status did not moderate the relationship between these variables and disclosure.

## Discussion

The current analysis focused on individual and social network characteristics associated with disclosing same-sex behavior to HCPs by Black MSM. Disclosure occurred by 68.1% of participants. The characteristics negatively associated with disclosure were part-time employment, bisexual identity, and meeting the criteria for alcohol use disorders, while HIV infection, frequency of network socialization, and having a social network where all members knew the participant had sex with men were positively associated with disclosure.

The proportion of disclosure in this sample was higher than other studies (about 40%; Bernstein et al., 2008; Petroll & Mosack, 2011). This discrepancy may be due to the

operationalization of disclosure; researchers have measured disclosure of sexual orientation, attraction to, or having sex with men.

Only one individual-level variable was positively associated with disclosure: HIV infection. Perhaps this association exists because participants viewed disclosure of same-sex behaviors and HIV status to be intimately linked (Cohen, 1999; Greene, Derlega, Yep, & Petronio, 2003). Another possible reason is HIV-infected MSM saw their HCP most frequently compared to Black MSM who were HIV negative or unsure of their HIV status (6.7, 3.4, and 2.6 visits in the past 12 months, respectively). Low rates of disclosure by Black MSM who were HIV negative or unsure suggest that HCPs are missing important opportunities to engage with them about HIV prevention, including PrEP and HIV testing. These men could be potential candidates for PrEP, and without disclosure, providers cannot properly assess their candidacy. Further encouragement of disclosure, in addition to increasing access, could increase PrEP use among populations who may benefit the most (CDC, 2018).

Three individual-level variables, employed part-time, identifying as bisexual, and meeting criteria for alcohol use disorders, were negatively associated with same-sex behavior disclosure to HCPs. The negative association between identity and disclosure is similar to previous findings about MSM with female sexual partners and bisexual men (Bernstein et al., 2008; Durso & Meyer, 2013; Johnson, Mimiaga, Reisner, Tetu, & Cranston, 2009). Factors to explain non-disclosure include internalized homophobia, lack of connectedness to the LGBT community, and individual characteristics (Durso & Meyer, 2013).

It is not clear why part-time employment and meeting the criteria for alcohol use disorders were associated with less disclosure. Alcohol use can disrupt relationships, employment, and threaten financial stability (Ostrow & Stall, 2008). Men who reported more alcohol use may have also experienced more internalized homophobia (Hequembourg & Dearing, 2013; Meyer, 2003), which has been associated with less disclosure (Durso & Meyer, 2013; Herek, Cogan, Gillis, & Glunt, 1997). However, in our post-hoc tests, no association between alcohol use and employment or internalized homophobia were found. As alcohol is a risk factor for HIV (Shuper et al., 2010) and strongly correlated with mortality among HIV-infected individuals (Bica et al., 2001; Cohen et al., 2002; Salmon-Ceron et al., 2005), these findings further support the need to address alcohol as part of HIV prevention strategies.

Other individual-level factors identified from previous research (i.e., age, ever tested for HIV, number of male and female sex partners, income, and education; Bernstein et al., 2008; Petroll & Mosack, 2011; Wall, Khosropour, & Sullivan, 2010) were not significantly associated in these results. This analysis modeled the influence of social network characteristics, which other research had not done. Perhaps social network characteristics influence disclosure differently or more strongly than individual characteristics previously described and if this is the case, then addressing the social network and social environment of these men will be critical for improving disclosure. It also appears that this sample is quite different from other previously described samples (e.g., older, more impoverished, completed less education). The factors that influence disclosure may be different for more disadvantaged urban populations.

Among the social network characteristics, having a network in which everyone knows the participant has sex with men and more frequent network socialization were positively associated with disclosure. Some participants may be more comfortable disclosing their personal information in general. Or, these social networks could represent supportive environments that encourage disclosure, as suggested by other researchers (Nadarzynski et al., 2015). These positive disclosure experiences to social network members could have encouraged disclosure to HCPs.

Future research should continue to study the disclosure of same-sex behavior to HCPs among Black MSM. There may be reasons specific for disclosure to HCPs, such as information and social support seeking, and other important barriers. The functions that social networks provide in this context may be different than others, including norms around disclosure of private information.

There are several limitations of this analysis. This analysis relied on self-reported information. To minimize this bias, interviewers were carefully trained to build rapport with participants and participants answered sensitive questions in a private room using audio computer-assisted self-interview. It is not possible to infer causality and the findings may not be generalizable. This study did not measure other culturally specific factors and examine how the degree of substance use was associated with disclosure. However, the analysis is one of the first focused on Black MSM and disclosure of same-sex behavior to their HCPs and was able to identify important individual and social network characteristics to consider for intervention. Additionally, the data collection period may have influenced these findings. The acceptance of same-sex marriage, a proxy for attitudes towards homosexuality has increased nationally since data collection, but this change has not been as large among Black adults (Pew Research Center, 2017). Additionally, this increase in cultural tolerance towards homosexuality is experienced more by lighter-skinned sexual minorities than their darker-skinned peers (Couzens, Mahoney, & Wilkinson, 2017), and Black MSM continue to report experiencing sexual orientation stigma from HCPs (Eaton et al., 2015). It is possible that increasingly positive general attitudes about homosexuality have influenced patient-provider interactions, such that this rate of disclosure may be an underestimate; however, the correlates of disclosure are not anticipated to have changed. Another factor influencing patient-provider communication is the training HCPs receive in order to provide appropriate care and work effectively with sexual minorities, which has not changed substantially in the last decade. Although there are programs to increase HCPs' cultural competence (e.g., National LGBT Health Education Center) and most HCPs have reported an interest, the majority have not received appropriate training to work with sexual minorities (Felsenstein, 2018; Khalili, Leung, & Diamant, 2015; Unger, 2015).

Encouraging disclosure of same-sex behavior may be an important strategy to address HIV disparities and improve HIV prevention. In light of these findings that suggest vulnerable participants may require more support disclosing to their HCPs, future interventions should target providers to encourage their incorporation of cultural humility and asking about sexual behaviors in a non-judgmental and non-punitive way. Providers should then be prepared to make recommendations based on this information, including HIV and STI testing and vaccinations (CDC, 2015). Increasing HCP recommendations based on sexual



behavior may increase patients' perceived relevancy of such disclosure. Low perceived relevancy between sexual behaviors and health among MSM has been found to be associated with non-disclosure (Qiao, Zhou, & Li, 2018). As the strongest factor associated with disclosure of same-sex behavior to HCPs was whether a participant's entire network knew he has sex with men, creating environments where disclosure can occur to social networks is important. Community-based stigma reducing interventions or interventions to help MSM identify social network members to whom they can safely disclose their same-sex behavior could help increase same-sex behavior disclosure to HCPs.

## Acknowledgements:

This work was supported by the Centers for Disease Control and Prevention under Grant UR6PS000355; the National Institutes of Health under Grant R01DA031030-02S1 and 1P30AI094189; and the Agency for Healthcare Research and Quality under Grant K12HS022981. The findings and conclusions in this article are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention, National Institutes of Health, and Agency for Healthcare Research and Quality.

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**Table 1.**

Description of sample and characteristics associated with ever disclosing same-sex behavior to health care provider

	Total sample (n=226)	Non-disclosers (n=72)	Disclosers (n=154)	OR (95% CI)
n (%) or M±SD				
Age	37.9±10.6	37.8±11.5	37.9±10.2	1.00 (0.97, 1.03)
Education				Referent
Less than HS	48 (21.2)	20 (27.8)	28 (18.2)	
Diploma/GED	82 (36.3)	27 (37.5)	55 (35.7)	1.46 (0.68, 3.09)
Some college or higher	96 (42.5)	25 (34.7)	71 (46.1)	2.03 (0.95, 4.33) <sup>†</sup>
Income				Referent
<\$10,000	119 (52.7)	40 (55.6)	79 (51.3)	
\$10,000-\$29,999	75 (33.2)	24 (33.3)	51 (33.1)	1.08 (0.58, 2.00)
\$30,000+	32 (14.2)	8 (11.1)	24 (15.6)	1.52 (0.62, 3.70)
Employment				Referent
Full-time	35 (15.5)	11 (15.3)	24 (15.6)	
Part-time	27 (12.0)	15 (20.8)	12 (7.8)	0.37 (0.14, 0.99) <sup>*</sup>
Not working	98 (43.4)	32 (44.4)	66 (42.9)	0.95 (0.41, 2.16)
On disability	66 (29.2)	14 (19.4)	52 (33.8)	1.70 (0.67, 4.33)
Recent incarceration <sup>1</sup>	34 (15.0)	10 (13.9)	24 (15.6)	1.14 (0.50, 2.62)
Sexual identity				Referent
Homosexual, gay	132 (58.4)	28 (38.9)	104 (67.5)	
Bisexual	73 (32.3)	35 (48.6)	38 (24.7)	0.29 (0.15, 0.55) <sup>***</sup>
Heterosexual or other	21 (9.3)	9 (12.5)	12 (7.8)	0.36 (0.14, 0.90) <sup>*</sup>
Has health insurance	155 (68.6)	45 (62.5)	110 (71.4)	1.50 (0.81, 2.79)
Has usual HCP	159 (70.4)	40 (55.6)	119 (77.3)	2.72 (1.47, 5.04) <sup>**</sup>
Visits to HCP <sup>2</sup>	4.66±5.28	3.35±5.18	5.28±5.23	1.10 (0.98, 1.25) <sup>‡</sup>
Medical care location				Referent
Medical doctor's office	85 (37.6)	27 (37.5)	58 (37.7)	
Emergency room	80 (35.4)	29 (40.3)	51 (33.1)	0.82 (0.43, 1.56)
Community/free clinic	49 (21.7)	11 (15.3)	38 (24.7)	1.61 (0.70, 3.70)
Other	7 (3.1)	3 (4.2)	2 (1.3)	0.31 (0.05, 1.95)
Nowhere	5 (2.2)	2 (2.8)	5 (3.3)	1.16 (0.21, 6.41)
HIV status				

	Total sample (n=226)	Non-disclosers (n=72)	Disclosers (n=154)	OR (95% CI)
Negative	104 (46.0)	49 (68.1)	55 (35.7)	Referent
Positive	94 (41.6)	9 (12.5)	85 (55.2)	8.41 (3.78, 18.73) ***
Unknown	28 (12.4)	14 (19.4)	14 (9.1)	0.89 (0.38, 2.10)
Recent STI <sup>1</sup>	15 (6.6)	4 (5.6)	11 (7.1)	1.31 (0.39, 4.33)
Male sex partners <sup>1</sup>	4.6±4.9	4.7±6.0	4.5±4.2	0.99 (0.93, 1.05)
Sex with women <sup>1</sup>	73 (32.3)	38 (52.8)	35 (22.7)	0.26 (0.14, 0.48) ***
Met criteria for alcohol use disorders <sup>1</sup>	136 (60.2)	51 (70.8)	85 (55.2)	0.51 (0.27, 0.96) *
Marijuana use <sup>1</sup>	115 (50.9)	36 (50.0)	79 (51.3)	1.05 (0.60, 1.85)
Amyl nitrate use <sup>1</sup>	21 (9.3)	3 (4.2)	18 (11.7)	3.04 (0.85, 10.95) <sup>†</sup>
Heroin use <sup>1</sup>	42 (18.6)	18 (25.0)	24 (15.6)	0.55 (0.28, 1.10) <sup>‡</sup>
Crack use <sup>1</sup>	82 (36.3)	29 (40.3)	53 (34.4)	0.78 (0.44, 1.37)
High MSM discrimination	143 (63.3)	39 (54.2)	104 (67.5)	1.76 (0.99, 3.12) <sup>‡</sup>
High medical distrust	87 (38.5)	30 (41.7)	57 (37.0)	0.82 (0.46, 1.46)
Network size	8.3±4.2	7.9±3.5	8.6±4.5	1.04 (0.98, 1.12)
Network trust	7.2±1.9	7.0±1.9	7.3±1.9	1.09 (0.94, 1.26)
Network socialization	3.7±0.7	3.5±0.7	3.8±0.7	1.56 (1.01, 2.42) *
Entire network knows participant has sex with men	167 (73.9)	36 (50.0)	131 (85.1)	5.70 (3.01, 10.79) ***

M = Mean. SD = Standard Deviation.

<sup>1</sup>In the past 3 months.

<sup>2</sup>In the past year.

<sup>‡</sup> $p < .20$ .

<sup>†</sup> $p < .10$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

**Table 2.**

Individual and social network characteristics associated with ever disclosing same-sex behavior to health care provider

	AOR <sup>1</sup> (95% CI)
Employment	
Full-time	Referent
Part-time	0.32 (0.11, 0.95) <sup>*</sup>
Not working	1.02 (0.40, 2.59)
On disability	2.07 (0.62, 6.98)
Sexual identity	
Homosexual, gay	Referent
Bisexual	0.29 (0.12, 0.70) <sup>**</sup>
Heterosexual or other	0.43 (0.12, 1.59)
HIV status	
Negative	Referent
Positive	4.47 (1.54, 12.98) <sup>**</sup>
Unknown	0.44 (0.17, 1.14) <sup>†</sup>
Met criteria for alcohol use disorders <sup>2</sup>	0.32 (0.14, 0.75) <sup>**</sup>
Amyl nitrate use <sup>2</sup>	3.45 (0.83, 14.39) <sup>†</sup>
Network socialization	2.15 (1.24, 3.73) <sup>**</sup>
Entire network knows participant has sex with men	4.94 (2.06, 11.86) <sup>***</sup>

<sup>1</sup>. Controlling for having a usual health care provider and number of visits to health care providers in the past 12 months.

<sup>2</sup>. In the past 3 months.

<sup>†</sup>  $p < .10$ .

<sup>\*</sup>  $p < .05$ .

<sup>\*\*</sup>  $p < .01$ .

<sup>\*\*\*</sup>  $p < .001$ .