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Grant Schleifer

Date

Coming Out to Healthcare Providers: Factors Associated with Same-Sex Disclosure from the
2016 American Men's Internet Survey

By

Grant Schleifer
Master of Public Health

Behavioral Sciences and Health Education

Patrick Sullivan, DVM, PhD
Thesis Co-Chair

Elizabeth Walker, MAT, MPH, PhD
Thesis Co-Chair

Colleen McBride, PhD
Department Chair

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Bachelor of Science
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Thesis Committee Co-Chairs:
Patrick Sullivan, DVM, PhD
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Rollins School of Public Health of Emory University
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Abstract

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Background: Patient disclosure of same-sex activity cues healthcare providers to implement recommended screenings for conditions common among gay, bisexual, and other men who have sex with men (GBMSM). However, not all GBMSM disclose their sexual behaviors to their providers, which may hinder the provision of appropriate care. The goal of the current research was to assess whether experiencing antigay stigma in the past year and lifetime levels of disclosure predict the likelihood of GBMSM disclosing same-sex behavior to their healthcare providers.

Methods: Participants (n=8917) were men ≥ 15 years old, residing in the United States, and reporting having oral or anal sex with \geq one man ever. Recruitment occurred predominantly via banner advertisements on mobile applications for GBMSM sexual networking, which linked to an online survey. Survey questions assessed participant demographics, sexual history and behavior, interactions with healthcare providers, disclosure to others, and experience of antigay stigma.

Results: Nearly 72% of participants in the sample reported ever disclosing their same-sex behavior to a healthcare provider. Two exploratory analyses were conducted. In the first analysis, higher rates of antigay stigma were found to be significantly associated with disclosure to a provider (aOR= 1.09, CI₉₅: 1.0-1.2). In the second, same-sex disclosure to non-LGB friends (aOR= 2.0, CI₉₅: 1.6-2.5) and to employer (aOR= 3.5, CI₉₅: 3.0-4.1) were significantly associated with disclosure to a provider.

Discussion: Both experience of antigay stigma and disclosure to others were found to be significantly associated with disclosure to healthcare providers. Future studies should examine the utility of measuring antigay stigma as a predictor, and/or potential outcome, of same-sex disclosure to providers, as well as explore the possibility of increasing provider competence for collecting sexual orientation from patients.

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My work rests on the contributions of several influential people in my life: my partner, Peter, whose love has sustained me through the writing of this thesis, my friends, Sally West and Daniel Pollock, who have shared everything with me since welcoming me to their home, and my father, Steven, who taught me to be versatile and to persevere. This thesis is dedicated to my mother, whose untimely death reinvigorated my interest in the care of society's vulnerable and underserved individuals.

The personal and professional support from the Department of Behavioral Sciences and Health Education at Rollins School of Public Health has helped me feel at home over the past two years. By uniting the frameworks I have gathered in this department with my own underlying interest in LGBTQ health, I hope to contribute to the growing study of gender and sexuality within medicine.

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Introduction

Health disparities affecting gay, bisexual, and other men who have sex with men (GBMSM) call attention to the need for healthcare providers to conduct additional screenings among this population.¹ GBMSM experience higher rates of mental health disorders, notably depression and substance use, compared to heterosexual men.² Also, disparities are particularly marked in sexual health: the already disproportionately high incidence of HIV and other STIs continues to increase in some groups of GBMSM despite the introduction of antiretroviral therapy.^{3,4} For providers to address the needs of GBMSM relies on patient disclosure of same-sex activity. When GBMSM disclose their sexual risks, this might prompt providers to conduct these needed additional health screenings. Indeed, disclosing male-male sex is strongly associated with GBMSM's likelihood of being offered HIV^{5,6} and STI testing.⁷ Without patient disclosure of sexual orientation, however, providers may fail to implement the differential interventions required to address the burden of disease risk in GBMSM.

Most heterosexual and sexual minority individuals agree that it is important for healthcare providers to inquire about sexual orientation and gender identity.⁸ Yet over a quarter of GBMSM report that their primary care providers assumed they were heterosexual.⁹ The two most common reasons that GBMSM give for not disclosing their sexual orientation are a lack of inquiry on the part of the provider and the patient belief that such information is too personal.¹⁰ Most providers expect that patients would refuse disclosing their sexual orientation if asked, which precludes inquiry in many cases.¹¹ Because as many as 62% of providers are reported to not inquire about sexual orientation, disclosure generally depends on the inclination of the patient to volunteer this detail.¹² These data illustrate the obstacles to overcome to improve patient-provider communication regarding issues of sexual identity.

Disclosure of male-male sex to healthcare providers has been associated with HIV testing^{5,13} and syphilis and gonorrhea testing.⁷ Patients who perceive their primary care provider to have high communication skills are both more likely to raise GBMSM-related health issues and disclose their sexual orientation, but the typical order of these events has not been studied.⁹ Much of the previous research on this topic has either come from local or international samples or has emphasized the disclosure of male-male sex as an exposure rather than an outcome. Thus, we studied disclosure of male-male sex as an outcome in the US using a large, national sample of GBMSM to assess both the prevalence and factors associated with disclosure of same-sex behavior to healthcare providers.

The purpose of this study is to determine the factors that predict disclosure of male-male sex to healthcare providers. Using a large, online sample of GBMSM in the US, this study builds upon similar research conducted exclusively in urban, rural, regional, or non-US contexts. Akin to Coleman's adaptation of the Behavioral Model of Health Services Use,⁹ our theoretical framework includes demographic (e.g. age, education, marital status, race), social (healthcare discrimination, stigma, outness), and behavioral (sex with men and/or women, HIV and STI testing) factors that either promote or hinder GBMSM disclosure of same-sex behavior to providers. Based on previous literature on this topic, we hypothesized that experience of healthcare discrimination and stigma would be associated with lower rates of disclosure while outness, discussion of HIV prevention, and gay sexual identity would be associated with higher disclosure.

Literature Review

Health disparities are well-documented between gay, bisexual, and other men who have sex with men (GBMSM) and the general population of men. This group is at significantly higher risk for HIV infection⁴ in addition to a range of sexually transmitted infections.^{3,14,15} GBMSM also experience more longstanding psychological conditions and are more likely to report poorer overall health.^{2,16} Increasing recognition of disparities in GBMSM health has prompted a range of clinical interventions that depend upon accurate and effective patient-provider communication. Patient nondisclosure of same-sex behavior to healthcare providers is a barrier to GBMSM.¹⁷ Disclosure, by contrast, is consistently associated with better self-rated health.¹⁸

The social dynamics that influence whether a patient discloses same-sex behavior to healthcare providers have been explored from several theoretical perspectives. Sociologists developed reciprocity theory in the 1980s to explain the value of trust, in contrast to negotiation, in exchanges that occur between individuals in interpersonal relationships.¹⁹ Applied to healthcare settings, reciprocity theory focuses on the reciprocal exchange of patient information for valuable healthcare resources from a provider. Disclosure of same-sex behavior, according to this theory, is contingent upon patients' previous healthcare experiences, which moderate their own evaluation of what types of information are appropriate to disclose to healthcare providers.²⁰ Gay, bisexual, and other men who have sex with men (GBMSM) may feel reluctant to disclose their sexual behaviors to healthcare providers if they have perceived judgment or discrimination for sharing such information in the past, which these patients frequently report.^{10,21,22,23,24,25} In spite of these risks, GBMSM have expressed increased willingness to disclose same-sex behavior in order to procure HIV pre-exposure prophylaxis (PrEP), which reinforces the

reciprocity theory notion that patient disclosure could be leveraged as a strategy to obtain valuable health resources.²²

The potential for same-sex stigma to negatively impact quality of care has been documented in several contexts including mental healthcare, where psychotherapists have been found to overlook the idiosyncratic characteristics of gay and bisexual men and instead emphasize their stereotypical attributes.²⁶ Even in the absence of overt anti-LGB attitudes from therapists, provider bias can predispose inaccurate patient assessment leading to poorer quality care. In the primary care context, sexual minority individuals report 50% more unfavorable experiences than heterosexual people when controlling for sociodemographic characteristics and health status.¹⁶ To the extent that patients perceive their poor healthcare experiences to result from same-sex disclosure, they may feel disinclined to disclose their sexual identities in other healthcare settings. From a reciprocal exchange perspective, experience of healthcare discrimination may prompt patients to conceal their same-sex behaviors from healthcare providers and therefore should be studied as a potential factor in disclosure.

Other models of disclosure address a variety of factors to help elucidate the decision-making mechanisms involved in disclosure of same-sex behavior in healthcare settings. In 2000, Omarzu proposed the disclosure decision model (DDM), which posits that disclosure is a strategic social behavior used in the identity development of the individual.²⁷ Researchers originally applied this model to disclosure of sexual orientation²⁸ and HIV status.²⁹ Evidence from previous studies supports the notion that sexual identity (e.g. gay vs. bisexual) is related to disclosure of same-sex behavior to providers. For instance, GBMSM who identify as gay and report feeling connected to the LGBT community are more likely to disclose same-sex behaviors to healthcare providers than bisexual men.^{6,30,31} Men who have sex with both men and women

(MSMW), moreover, are less likely to disclose same-sex behavior to providers than men who have sex with men only.³² The DDM suggests that among individuals who have established a public sexual minority identity, either through same-sex marriage or coming out to others, disclosure of same-sex behavior to a healthcare provider may serve to reinforce their self-concept. In more recent studies, GBMSM in same-sex marriages and those who report a high degree of ‘outness’ to friends and family were, indeed, more likely to disclose same-sex behavior to healthcare providers than single and closeted men.^{9,33} The DDM, in addition to evidence from recent literature, therefore justifies the inclusion of marital status, sexual identity, and degree of outness as potential predictors of disclosure of same-sex behavior to one’s healthcare provider.

The disclosure processes model (DPM) views disclosure as an ongoing process that may take place over an extended period of time.³⁴ In healthcare settings, patients may “test the waters” by introducing the topic of same-sex behavior in roundabout or indirect ways and then return to the topic once they determined that their healthcare providers would react positively.^{35,36} As the DPM suggests, one of the strongest predictors of disclosing sexual orientation to a physician was having discussed sex or sexual health in the clinical context.³⁷ Still, the majority of sexual minority adolescents and young adults report that discussions of sex and sexual health with healthcare providers are infrequent and need improvement.³⁸ Talking about sexual health with a provider may indicate the need for HIV and STI testing, both of which have been repeatedly associated with disclosure of same-sex behavior to providers.^{5,7,13,39,40,41} Insofar as broaching the topic of sexual health may lead to disclosure, the DPM provides a theoretical basis for including HIV and STI testing as predictors of same-sex disclosure to healthcare providers.

The constructs identified above were organized according to the Behavioral Model of Health Services Use, which Anderson first proposed in 1968. This model predicts healthcare utilization according to predisposing factors, enabling factors and need factors.⁴² Since its introduction, this model has gone through several iterative revisions that have resulted in the inclusion of health behavior and health status.⁴³ Altogether, the organization of these concepts in the Behavioral Model served as a theoretical background for the present study.

A literature review revealed a range of predominantly demographic factors also associated with patient disclosure of same-sex behavior to providers. Identification as white or Latino,^{6,37,39} increasing age,³¹ higher education levels,^{31,44} and higher income³⁹ are all associated with disclosure. We used reciprocity theory, the DDM, and the DPM to inform novel factors that might predict GBMSM disclosure to healthcare providers, and these factors were incorporated into the theoretical framework provided by the Behavioral Model of Health Services Use. The novel factors that our study highlighted include stigma, outness, and identity. By surveying the variables noted above, our study aims to identify the factors that are most strongly associated with disclosure of same-sex behavior to healthcare providers. Such information will help tailor clinical interventions to GBMSM.

Methods

Study Design and Recruitment

The American Men's Internet Survey (AMIS) is a cross-sectional study of MSM in the United States using an online, self-administered questionnaire. Details on AMIS study methodology have been described comprehensively elsewhere.^{45,46} Study procedures in AMIS-2016 were largely unchanged from previous published manuscripts unless stated otherwise below.

Participants were recruited via convenience sampling from a variety of websites using banner advertisements or email blasts. After clicking on ads, those interested in participating were directed to a SurveyGizmo site where they were assessed for eligibility based on inclusion criteria: 15 years of age or older, identified as male, live in the United States, and self-reported oral or anal sex with a male (ever). Those who reported being < 15 years of age and those who refused to enter an age were exited from the survey with no further questions. Eligible participants were directed to begin the survey immediately after providing consent. The full questionnaire for AMIS-2016 is available in Appendix 1.

AMIS-2016 recruitment activities ran from September 2016 until November 2016, resulting in 146,586 persons clicking on ads that directed them to the study recruitment page. The majority of clicks (83,507/146,586, 56.97%) came from ads on GPS-enabled smartphone applications used for sexual networking. Study ads were also posted on non-sexual social networking websites as well as gay social networking and general gay interest sites. The study was approved by the Emory University Institutional Review Board.

Measures and Analyses

Analyses of participant characteristics and behavior were conducted on data from eligible participants who provided consent. Participants completed an online survey that assessed: demographic characteristics such as age, income, education level, marital status, and race; sexual behavior with men and women in both lifetime and in past 12 months, including specific questions on what types of sex; receipt of HIV and STI testing in both lifetime and in past 12 months; history of HIV and STI diagnoses; and disclosure of same-sex behaviors. To measure discussion of sex, participants were asked, “Did your doctor or healthcare provider talk to you about sex (gay or straight) or sexual health?”

Age was categorized into five preset intervals (15-24, 25-34, 35-44, 45-54, ≥ 55), and annual income was categorized into four preset intervals ($< \$20,000$, $\$20,000-\$39,999$, $\$40,000-\$74,999$, and $> \$75,000$). Participant marital status was classified as single, married to man, or married to woman. To measure disclosure, the survey asked, “Which of the following people have you told that you are attracted to or have sex with men?” Answer choices included LGB and non-LGB friends, family members, healthcare providers, and fellow employees. Participant disclosure to these individuals was dichotomized as ‘Yes’ or ‘No’. To measure stigma over the past 12 months, participants were asked, “Have any of the following things happened to you because someone knew or assumes you were attracted to men: you were called names, you received poorer services, you were treated unfairly at work or school, you were denied or given lower quality healthcare, you were physically attacked or injured.

Univariate, bivariate, and logistic regressions were conducted to ascertain whether participants who disclosed their male-male sexual behavior to healthcare providers differed significantly on several categorical variables from those who did not disclose. All variables were

analyzed as categorical except experience of stigma, which was analyzed as a continuous variable. Logistic regression modeling was used to assess the associations between predictors and patient disclosure to healthcare providers. We examined bivariate associations between participant characteristics and disclosure of same-sex behavior to healthcare providers. Then, we used multivariate logistic regression to test the hypothesis that certain demographic and behavioral characteristics predict disclosure. Several variables were excluded from the regression model after failing to meet significance level thresholds (95% confidence) in the bivariate tests, including race, income level, disclosure of same-sex behavior to LGB friends, and receipt of chlamydia testing in the past twelve months. We added five interaction terms to the model to account for their effects on predicting disclosure to healthcare providers; they include: HIV status by outness to family, healthcare provider talked about sexual health by age, receipt of gonorrhea test by receipt of syphilis test, offered an HIV test by tested for syphilis, and outness to fellow employees by age. We first ran the adjusted model and then the multivariate model with interaction terms next. To be included in multivariable analysis, a minimum cell count of 5 was required. Results from these tests are presented as crude and adjusted odds ratios with 95% confidence intervals to show whether each subgroup differs significantly from the referent group. Analyses were conducted in SAS software version 9.4.

Results

Nearly half of men in the sample were younger than 35 years, and the majority identified as white, non-Hispanic. Additionally, most participants had at least some college education or higher. Sexual identity was predominantly homosexual or gay, followed by bisexual, and 18.3% of men were married to either a male (15.0%) or a female (3.3%). The majority of participants reported an annual income of \$40,000 or higher. Sample characteristics are described in Table 1.

Overall, 71.9% (n=6414) of men reported telling a healthcare provider that they are attracted to or have sex with men. The prevalence of disclosure to others was similarly high: 97.2% (n=8667) disclosed to lesbian, gay, or bisexual (LGB) friends, 91.5% (n=8158) disclosed to non-LGB friends, 81.2% (n=7240) disclosed to family members, 48.4% (n=4317) disclosed to an employer, and 69.4% (n=6190) disclosed to fellow employees. Participants scored low on the stigma scale, with an average of between zero and one experiences of homophobic discrimination.

In the 12 months prior to completing the survey, just over one-third of participants reported being tested for chlamydia (35.0%), gonorrhea (36.3%), and syphilis (37.2%), and 42.7% were offered an HIV test from a healthcare provider. About 39% of the men in the survey also reported that their healthcare provider talked to them about sexual health – either gay or straight. Nearly 14% of the sample indicated a positive HIV status.

Table 1 shows that disclosure of same-sex behavior and/or feelings of same-sex attraction to healthcare providers is positively associated with higher age, increasing education levels, and increasing income levels. HCP disclosure was also positively associated with identifying as African American/black (OR=1.20 [1.02-1.43]), having a positive HIV status (OR=7.63 [5.73-10.15]), and having an HCP who discussed sexual health (OR= 7.40 [6.48-8.45]). HCP

disclosure was negatively associated with identifying as bisexual (OR=0.32 [0.29-0.37]) and being married to a female (OR=0.29 [0.24-0.35]) Table 1 also shows that, among all disclosure variables, HCP disclosure was most positively associated with disclosure to employer (OR=5.48 [4.92-6.11]), followed by disclosure to family members (OR=4.80 [4.29-5.37]), disclosure to non-LGB friends (OR=4.52 [3.88-5.27]), disclosure to fellow employees (OR=3.95 [3.58-4.36]), and disclosure to LGB friends (OR=3.63 [2.81-4.69]). HCP disclosure was also associated with increasing experience of homosexual stigma (OR=1.05 [1.00-1.10]).

The final multivariate model (Table 2) includes demographic (age, level of education, marital status, HIV status), social (sexual identity, anti-gay stigma, discussion with healthcare provider about sexual health, disclosure of same-sex behavior to non-LGB friends, family, employer, and fellow employees), and healthcare-related factors (HIV status, offered HIV test, tested for syphilis, chlamydia, gonorrhea in the past year). Table 2 shows that participants with at least a high school education were significantly more likely to disclose same-sex behavior to a healthcare provider. Men with male spouses were about twice as likely (adjusted OR=2.1 [1.6-2.8]) to disclose to healthcare providers, and those with female spouses were half as likely to disclose (adjusted OR=0.5 [0.4-0.6]). Also, men who disclosed same-sex behavior to non-LGB friends were twice as likely (adjusted OR=2.0 [1.6-2.5]) to disclose to healthcare providers, while those who disclosed to an employer were over three times as likely (adjusted OR=3.5 [3.0-4.1]) to disclose. The association between stigma and HCP disclosure was strengthened (adjusted OR=1.09 [1.0-1.2]) in the multivariable model.

Table 1. Participant Characteristics and MSM Disclosure to Healthcare Providers (N = 8917), American Men'sSchleifer 12
Internet Survey, 2016

	Disclosers (n=6414; 71.9%) n (%)	Non-disclosers (n=2503; 28.0%) n (%)	Crude OR (95% CI)
Age			
15-24	1248 (52.6)	1123 (47.4)	<i>Ref</i>
25-34	1827 (79.2)	480 (20.8)	3.4 (3.0-3.9)
35-44	827 (80.1)	206 (19.9)	3.6 (3.0-4.3)
45-54	1186 (79.9)	299 (20.1)	3.6 (3.1-4.2)
≥55	1326 (77.1)	395 (23.0)	3.0 (2.6-3.5)
Race			
White (non-Hispanic)	4726 (71.7)	1865 (28.3)	<i>Ref</i>
African American/Black (non-Hispanic)	601 (75.3)	197 (24.7)	1.2 (1.0-1.4)
Hispanic	821 (71.4)	329 (28.6)	1.0 (0.9-1.1)
Other/unknown	266 (70.4)	112 (29.6)	0.9 (0.8-1.2)
Annual income			
<\$20,000	738 (67.0)	364 (33.0)	<i>Ref</i>
\$20,000-\$39,999	1075 (72.6)	406 (27.4)	1.3 (1.1-1.6)
\$40,000-\$74,999	1517 (73.9)	537 (26.1)	1.4 (1.2-1.6)
>\$75,000	2024 (76.4)	625 (23.6)	1.6 (1.4-1.9)
Missing	1060 (65.0)	571 (35.0)	0.9 (0.8-1.1)
Highest level of education			
Some high school or less/other	124 (39.7)	188 (60.3)	<i>Ref</i>
High school or GED	501 (58.1)	361 (41.9)	2.1 (1.6-2.7)
Some college/technical school	2030 (69.5)	892 (30.5)	3.5 (2.7-4.4)
College, postgraduate, or professional school	3691 (78.5)	1013 (21.5)	5.5 (4.5-7.0)
Missing	68 (58.1)	49 (41.9)	2.1 (1.4-3.2)
Marital status			
Unmarried	5241 (71.1)	2127 (28.9)	<i>Ref</i>
Married to Male	964 (92.1)	83 (7.9)	4.7 (3.8-5.9)
Married to Female	209 (41.6)	293 (58.4)	0.3 (0.2-0.4)
Sexual identity			
Homosexual or gay	5043 (76.2)	1576 (23.8)	<i>Ref</i>
Heterosexual or straight	9 (30.0)	21 (70.0)	0.1 (0.1-0.3)
Bisexual	624 (50.9)	602 (49.1)	0.3 (0.3-0.4)
Prefer not to answer/other	738 (70.8)	304 (29.2)	0.8 (0.7-0.9)
HCP talked about sex			
Yes	3163 (91.6)	291 (8.4)	7.4 (6.5-8.5)
No	3251 (59.5)	2212 (40.5)	<i>Ref</i>
HCP Offered HIV test in past 12 months			
Yes	3377 (88.8)	428 (11.3)	5.4 (4.8-6.1)
No	3037 (59.4)	2075 (40.6)	<i>Ref</i>
Tested for Chlamydia in past 12 months			
Yes	2706 (86.7)	414 (13.3)	3.7 (3.3-4.1)
No	3708 (64.0)	2089 (36.0)	<i>Ref</i>
Tested for Gonorrhea in past 12 months			
Yes	2813 (87.0)	419 (13.0)	3.9 (3.5-4.4)
No	3601 (63.3)	2084 (36.7)	<i>Ref</i>
Tested for Syphilis in past 12 months			
Yes	2913 (87.8)	404 (12.2)	4.3 (3.8-4.9)
No	3501 (62.5)	2099 (37.5)	<i>Ref</i>
HIV Status			
Positive	878 (94.5)	51 (5.5)	7.6 (5.7-10.2)
Negative	5536 (69.3)	2452 (30.7)	<i>Ref</i>
Disclosed same-sex behavior to:			
LGB friends	6308 (72.8)	2359 (27.2)	3.6 (2.8-4.7)
Non-LGB friends	6112 (74.9)	2046 (25.1)	4.5 (3.9-5.3)
Family members	5688 (78.6)	1552 (21.4)	4.8 (4.3-5.4)
Employer	3794 (87.9)	523 (12.1)	5.5 (4.9-6.1)
Fellow employees	5005 (80.9)	1185 (19.1)	4.0 (3.6-4.4)
Anti-gay stigma in past 12 months			
Per 1 unit increase	Range: 0-5	Mean: 0.7 (SD: 1.0)	1.05 (1.0-1.1)

Table 2. Multivariable Model of MSM Disclosure to Healthcare Providers (N = 8917), American Men's Internet Survey 2013

Variable	Disclosers (n=6414; 71.9%) n (%)	Non-disclosers (n=2503; 28.0%) n (%)	Crude OR (95% CI)	Adjusted OR (95% CI)
Highest level of education				
Some high school or less/other	124 (39.7)	188 (60.3)	<i>Ref</i>	<i>Ref</i>
High school or GED	501 (58.1)	361 (41.9)	2.1 (1.6-2.7)	1.1 (0.8-1.6)
Some college/technical school	2030 (69.5)	892 (30.5)	3.5 (2.7-4.4)	1.4 (1.0-2.0)
College, postgraduate, or professional school	3691 (78.5)	1013 (21.5)	5.5 (4.5-7.0)	1.8 (1.3-2.5)
Missing	68 (58.1)	49 (41.9)	2.1 (1.4-3.2)	1.4 (0.8-2.5)
Marital status				
Unmarried	5241 (71.1)	2127 (28.9)	<i>Ref</i>	<i>Ref</i>
Married to Male	964 (92.1)	83 (7.9)	4.7 (3.8-5.9)	2.1 (1.6-2.8)
Married to Female	209 (41.6)	293 (58.4)	0.3 (0.2-0.4)	0.5 (0.4-0.6)
Sexual identity				
Homosexual or gay	5043 (76.2)	1576 (23.8)	<i>Ref</i>	<i>Ref</i>
Heterosexual or straight	9 (30.0)	21 (70.0)	0.1 (0.1-0.3)	0.7 (0.3-1.7)
Bisexual	624 (50.9)	602 (49.1)	0.3 (0.3-0.4)	0.9 (0.7-1.1)
Prefer not to answer/other	738 (70.8)	304 (29.2)	0.8 (0.7-0.9)	2.1 (1.7-2.5)
Disclosed same-sex behavior to non-LGB friends				
Yes	6112 (74.9)	2046 (25.1)	4.5 (3.9-5.3)	2.0 (1.6-2.5)
No	302 (39.8)	457 (60.2)	<i>Ref</i>	<i>Ref</i>
Disclosed same-sex behavior to employer				
Yes	3794 (87.9)	523 (12.1)	5.5 (4.9-6.1)	3.5 (3.0-4.1)
No	2620 (57.0)	1980 (43.0)	<i>Ref</i>	<i>Ref</i>
Anti-gay stigma in past 12 months				
Per 1 unit increase	Range: 0-5	Mean: 0.7 (SD: 1.0)	1.05 (1.0-1.1)	1.09 (1.0-1.2)
HIV Status				
Positive	878 (94.5)	51 (5.5)	7.6 (5.7-10.2)	See interaction
Negative	5536 (69.3)	2452 (30.7)	<i>Ref</i>	See interaction
Disclosed same-sex behavior to family				
Yes	5688 (78.6)	1552 (21.4)	4.8 (4.3-5.4)	See interaction
No	726 (43.3)	951 (56.7)	<i>Ref</i>	See interaction
Interaction				
Disclosed same-sex to family				
HIV-positive	800 (97.9)	17 (2.1)	14.8 (9.1-24.0)	6.4 (3.9-10.7)
HIV-negative	4888 (76.1)	1535 (23.9)	<i>Ref</i>	<i>Ref</i>
Did not disclose to family				
HIV-positive	78 (69.6)	34 (30.4)	3.3 (2.1-4.9)	1.5 (0.9-2.4)
HIV-negative	648 (41.4)	917 (58.6)	<i>Ref</i>	<i>Ref</i>
HCP talked about sex				
Yes	3163 (91.6)	291 (8.4)	7.4 (6.5-8.5)	See interaction
No	3251 (59.5)	2212 (40.5)	<i>Ref</i>	See interaction
Age				
15-24	1248 (52.6)	1123 (47.4)	<i>Ref</i>	See interaction
25-34	1827 (79.2)	480 (20.8)	3.4 (3.0-3.9)	See interaction
35-44	827 (80.1)	206 (19.9)	3.6 (3.0-4.3)	See interaction
45-54	1186 (79.9)	299 (20.1)	3.6 (3.1-4.2)	See interaction
≥55	1326 (77.1)	395 (23.0)	3.0 (2.6-3.5)	See interaction
Interaction				
Age: 15-24				
HCP talked about sex	695 (82.2)	151 (17.9)	8.1 (6.6-9.9)	6.0 (4.7-7.7)
HCP did not talk about sex	553 (33.3)	972 (63.7)	<i>Ref</i>	<i>Ref</i>
Age: 25-34				
HCP talked about sex	951 (96.3)	37 (3.7)	13.0 (9.2-18.4)	7.2 (4.9-10.5)
HCP did not talk about sex	876 (66.4)	443 (33.6)	<i>Ref</i>	<i>Ref</i>
Age: 35-44				
HCP talked about sex	428 (93.3)	31 (6.8)	6.1 (4.0-9.1)	3.5 (2.2-5.7)
HCP did not talk about sex	399 (69.5)	175 (30.5)	<i>Ref</i>	<i>Ref</i>
Age: 45-54				
HCP talked about sex	533 (92.1)	46 (7.9)	4.5 (3.2-6.3)	2.5 (1.7-3.7)
HCP did not talk about sex	653 (72.1)	253 (27.9)	<i>Ref</i>	<i>Ref</i>
Age: ≥55				
HCP talked about sex	556 (95.5)	26 (4.5)	10.3 (6.8-15.5)	6.9 (4.3-11.0)
HCP did not talk about sex	770 (67.6)	369 (32.4)	<i>Ref</i>	<i>Ref</i>

Table 2. (continued) Multivariable Model of MSM Disclosure to Healthcare Providers (N = 8917), American Men's Internet Survey, 2016

Variable	Disclosers (n=6414; 71.9%) n (%)	Non-Disclosers (n=2503; 28.0%) n (%)	Crude OR (95% CI)	Adjusted OR (95% CI)
Tested for Gonorrhea in past year				
Yes	2813 (87.0)	419 (13.0)	3.9 (3.5-4.4)	See interaction
No	3601 (63.3)	2084 (36.7)	<i>Ref</i>	See interaction
Tested for Syphilis in past year				
Yes	2913 (87.8)	404 (12.2)	4.3 (3.8-4.9)	See interaction
No	3501 (62.5)	2099 (37.5)	<i>Ref</i>	See interaction
Interaction				
Did test for Syphilis in past year				
Did test for Gonorrhea in past year	2428 (87.4)	349 (12.6)	0.8 (0.6-1.1)	0.9 (0.6-1.2)
Did not test for Gonorrhea in past year	485 (89.8)	55 (10.2)	<i>Ref</i>	<i>Ref</i>
Did not test for Syphilis in past year				
Did test for Gonorrhea in past year	385 (84.6)	70 (15.4)	3.6 (2.8-4.7)	2.2 (1.6-2.9)
Did not test for Gonorrhea in past year	3116 (60.6)	2029 (39.4)	<i>Ref</i>	<i>Ref</i>
HCP offered an HIV test				
Yes	3377 (88.8)	428 (11.3)	5.4 (4.8-6.1)	See interaction
No	3037 (59.4)	2075 (40.6)	<i>Ref</i>	See interaction
Tested for Syphilis in past year				
Yes	2913 (87.8)	404 (12.2)	4.3 (3.8-4.9)	See interaction
No	3501 (62.5)	2099 (37.5)	<i>Ref</i>	See interaction
Interaction				
Did test for Syphilis in past year				
HCP offered an HIV test	2030 (91.5)	188 (8.5)	2.6 (2.1-3.3)	1.5 (1.1-1.9)
HCP did not offer an HIV test	883 (80.4)	216 (19.7)	<i>Ref</i>	<i>Ref</i>
Did not test for Syphilis in past year				
HCP offered an HIV test	1347 (84.9)	240 (15.1)	4.8 (4.2-5.6)	2.6 (2.1-3.1)
HCP did not offer an HIV test	2154 (53.7)	1859 (46.3)	<i>Ref</i>	<i>Ref</i>
Disclosed same-sex behavior to fellow employees				
Yes	5005 (80.9)	1185 (19.1)	4.0 (3.6-4.4)	See interaction
No	1409 (51.7)	1318 (48.3)	<i>Ref</i>	See interaction
Age				
15-24	1248 (52.6)	1123 (47.4)	<i>Ref</i>	See interaction
25-34	1827 (79.2)	480 (20.8)	3.4 (3.0-3.9)	See interaction
35-44	827 (80.1)	206 (19.9)	3.6 (3.0-4.3)	See interaction
45-54	1186 (79.9)	299 (20.1)	3.6 (3.1-4.2)	See interaction
≥55	1326 (77.1)	395 (23.0)	3.0 (2.6-3.5)	See interaction
Interaction				
Age: 15-24				
Disclosed same-sex to fellow employees	959 (62.7)	570 (37.3)	3.2 (2.7-3.8)	1.2 (0.9-1.5)
Did not disclose to fellow employees	289 (34.3)	553 (65.7)	<i>Ref</i>	<i>Ref</i>
Age: 25-34				
Disclosed same-sex to fellow employees	1508 (82.5)	320 (17.5)	2.4 (1.9-3.0)	0.8 (0.6-1.1)
Did not disclose to fellow employees	319 (66.6)	160 (33.4)	<i>Ref</i>	<i>Ref</i>
Age: 35-44				
Disclosed same-sex to fellow employees	698 (87.6)	99 (12.4)	5.9 (4.2-8.2)	1.6 (1.1-2.5)
Did not disclose to fellow employees	129 (54.7)	107 (45.3)	<i>Ref</i>	<i>Ref</i>
Age: 45-54				
Disclosed same-sex to fellow employees	896 (90.5)	94 (9.5)	6.7 (5.1-8.9)	1.9 (1.3-2.6)
Did not disclose to fellow employees	290 (58.6)	205 (41.4)	<i>Ref</i>	<i>Ref</i>
Age: ≥55				
Disclosed same-sex to fellow employees	944 (90.3)	102 (9.8)	7.1 (5.5-9.2)	1.7 (1.2-2.3)
Did not disclose to fellow employees	382 (56.6)	293 (43.4)	<i>Ref</i>	<i>Ref</i>

Notes: MSM, men who have sex with men; GED, general equivalency degree; CI, confidence interval; OR, odds ratio. Participants who identified as Asian, American Indian, Alaska Native, Native Hawaiian, and Pacific Islander, or who did not select an identity were grouped into the "Other" racial category.

Discussion

Assessing patients for the appropriateness of HIV screening, which is not part of routine medical care, relies upon GBMSM patients disclosing their same-sex behavior to healthcare providers. Many of the HIV prevention interventions that have previously taken place in the United States have focused on mass condom distribution, with condom use being the primary outcome for the majority of prevention studies.⁴⁷ The emergence of PrEP as a direct mechanism to prevent HIV has facilitated the medicalization of HIV prevention. In contrast to the anonymity of condom giveaways, biomedical interventions require GBMSM to work with a healthcare provider to obtain a prescription. Patient-provider discussion about sexual orientation and behavior, therefore, has become more important, and GBMSM have reported willingness to disclose same-sex behavior to obtain PrEP.²²

Our study found that the proportion of GBMSM who disclose their same-sex behavior to providers (71.9%) is slightly higher than in previous studies involving large, online samples of GBMSM in the United States and Canada.^{9,42} Compared to earlier research published in 2010, these studies show that the prevalence of disclosure in this population has increased substantially over the past decade.⁵ The increase in prevalence of disclosure to medical providers may be due, in part, to the medicalization of HIV prevention that took place during this same period. Still, it is possible that societal changes over the past decade may explain the upward trend in GBMSM coming out to their providers. The US Supreme Court decision to legalize same-sex marriage in 2015 explicitly aimed to normalize the LGB community, and higher rates of GBMSM disclosure, in general, could be a potential result.⁴⁸ That body's earlier decision to overturn sodomy laws in 2003 was an important step in the decriminalization of same-sex behavior and also may have helped reduce the fear associated with disclosure to providers.⁴⁹ Medical schools

in the United States and Canada now provide an average of 5.5 hours of LGBT-related content to their students, and most medical students report that their medical education has prepared them to care for sexual minority patients.^{50,51} Over a quarter of healthcare facilities now record sexual orientation data in print or in an electronic medical record, which, combined with growing inclusion of sexual minority content in medical education, may help explain the rise in patient disclosure of same-sex behavior.⁵²

As in previous studies, we found that gay identity,^{6,30,31} marriage to a man,⁹ higher income,⁴² and higher education level^{31,39,42} were strongly associated with disclosing same-sex behavior to providers. Stanton (2002) found that sexual minority adults report coming out to their providers either when their partner needed healthcare services or when jointly attending healthcare appointments.⁵³ Talking to a healthcare provider about sexual health and having a positive HIV status were the two strongest predictors of disclosure to a provider, suggesting that engaging with a provider about sexual health and HIV care may either encourage or result from disclosure. Meckler et al. (2006) conjectured that sometimes GBMSM may disclose same-sex behavior to providers after their provider started a conversation about sex, while other times providers may initiate a conversation about sexual health after their patients come out first. The association between disclosure and HIV status was stronger in our study than in previous research conducted among GBMSM in Canada, though both showed significantly higher levels of disclosure among HIV-positive men.⁹

Similar to other studies, we found that GBMSM disclosure was associated with higher likelihood that providers offered testing for gonorrhea,⁷ syphilis,⁷ and HIV.⁵ Our study is the first to show an association between disclosure and being tested for chlamydia in the past 12 months, but this association did not remain significant when controlling for other variables in the model.

Stupiansky et al (2017) found that disclosure of male-male sexual behaviors to providers is a strong mediator between demographic factors, such as age, marital status, and sexual identity, and outcomes like testing for HIV and STIs. With this conceptual model in mind, we hypothesize that GBMSM disclosure to providers may predict HIV and STI testing as opposed to the reverse relationship. The cross-sectional nature of our study design prevents us from making testing the temporal associations between disclosure and predictors of disclosure.

Experiences of antigay stigma can make GBMSM feel more vulnerable to discrimination, which exacerbates the inherent difficulty in coming out to a healthcare provider.⁵⁴ For that reason, we were surprised to find that men who report experiencing more antigay stigma are actually more likely to disclose same-sex behavior to physicians. Previous studies report that sexual minority individuals may experience stigma or rejection from their providers after coming out.^{10,24} We hypothesize, therefore, that the association between experiencing antigay stigma and GBMSM disclosure to providers may reflect a potential risk of coming out to a provider. Other studies have reported mixed results with regard to the relationship between race and GBMSM disclosure, with some studies reporting that white and Latino have higher rates of disclosure and others reporting no significant differences in disclosure between races.^{6,30,37,39,42} Although we found that African American GBMSM were more likely to disclose to providers than others, this result did not remain significant when controlling for other variables in the model. Similar to Stupiansky et al. (2017), our study found that the prevalence of GBMSM disclosure to providers was significantly associated with disclosure to friends and family. Moreover, our data are the first to show that GBMSM disclosure to providers is also significantly associated with disclosure to employer and fellow employees. The provision of health insurance and other benefits to same-

sex spouses may help to explain the association between disclosure to employers and healthcare providers.¹⁷

There are several limitations in the present study that should be noted. First, the main outcome variable in our study (disclosure) was measured using a single item on our survey and, therefore, does not reflect whether participants spontaneously disclosed or were asked by their providers about same-sex behavior. Those who were asked about their sexual behavior may be more likely to feel stigmatized, leading to a potentially inflated association between stigma and disclosure to HCP. Second, all items in the online survey were self-reported. A recent meta-analysis demonstrated that online surveys are prone to social desirability bias, which is of particular concern when gathering potentially sensitive information.⁵⁵ Given that having sex with men was an eligibility criterion for the study, self-reported sexual identity may have been biased away from heterosexual/straight and towards either homosexual/gay or bisexual. Third, although we recruited a large sample of men from a variety of online sources, we cannot ensure that our data are generalizable to all GBMSM online. Our sample reported high levels of education and income and may not reflect others in this population. We addressed confounding in the study by including many factors relevant to GBMSM disclosure. Fourth, survey data from men who did not answer whether they had disclosed same-sex behavior to healthcare providers were not included in our analysis. These participants could be less likely to disclose to providers than others retained in the analytic sample, suggesting that our point estimate of the prevalence of disclosure may be an overestimate.

Our findings suggest that almost three-quarters of GBMSM have disclosed same-sex behavior to their healthcare provider. Disclosure is significantly associated with demographic factors (i.e. age, education, marital status), social factors (i.e. stigma, identity, discloser to

others), and healthcare-related factors (i.e. HIV status, talking to a provider about sex, receipt of STI and HIV testing). Given the importance of disclosure to improve the appropriateness of care for this population, there is a need to implement interventions to increase disclosure. Clinician-focused interventions are currently in place at medical schools to prepare future physicians to ask questions about sexual identity, but few hours of medical education curricula are devoted to addressing the health of sexuality minorities.^{49,56} Several recent studies have repeatedly found that patients are willing to answer questions about sexual identity and even consider such information to be relevant to their healthcare.^{8,11,23,25,38} Future interventions to increase patient disclosure could take advantage of mobile app technology to collect sexual history, which was found to be acceptable to the majority of users in a recent trial.⁵⁷ Further research is needed to elucidate means to increase disclosure among young GBMSM with lower levels of education and income.

In the context of increasing biomedicalization of HIV prevention, it is encouraging to see that data from AMIS 2016 show a higher rate of disclosure than in prior studies. Even though patients are overwhelmingly willing to answer sexual orientation questions in the clinical setting, the majority of clinicians are hesitant to ask these questions due to discomfort or their perception that patients will refuse to answer.¹¹ There is a need to normalize the collection of this information from patients to improve their care. Creating electronic medical records with pull-down menus for sexual orientation is a critical step towards improving the capacity of healthcare systems to care for a diverse patient population. Disclosure is not only critical to ensuring proper HIV prevention, but it also has consequences for the differential recommendation of other healthcare services for GBMSM, including hepatitis vaccination,⁵⁸ mental health services,^{2,16} and substance use treatment.¹⁷ More research is needed to determine effective strategies of increase

GBMSM disclosure to healthcare providers. This will help sexual minority patients receive appropriate services and feel more understood by their providers.

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