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Nicholas DeGroote April 16th, 2015

Experienced Sexual Stigma, Community Tolerance, and Other Factors Associated with Disclosure of MSM's Same-sex Behavior to a Healthcare Provider

By

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Master of Public Health

Epidemiology

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An abstract of

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Abstract

Experienced Sexual Stigma, Community Tolerance, and Other Factors Associated with Disclosure of MSM's Same-sex Behavior to a Healthcare Provider

By Nicholas DeGroote

Disclosure of same-sex behavior to a healthcare provider in men who have sex with men (MSM) is important because MSM have unique health needs. This analysis sought to investigate the associations between sexual stigma, community tolerance, and disclosure of same-sex behavior to a healthcare provider among MSM in the United States. 3,264 HIV-negative MSM who completed the stigma sub-survey of the cross-sectional American Men's Internet Survey (AMIS) in 2013 were selected for the analysis. The primary outcome of interest was disclosure of same-sex behavior to a healthcare provider and main exposure variables included community tolerance of MSM and experience of sexual stigma. 2,321 (70%) of MSM in the analysis disclosed their same-sex behavior to a healthcare provider. MSM who did disclose were at a lower odds for having been called named or insulted because someone assumed they were MSM (aOR 0.50; 95% CI 0.38, 0.66), a greater odds for strongly agreeing their community was tolerant of MSM (aOR 2.65; 95% CI 1.93, 3.64), and a greater odds for agreeing that their community was tolerant of MSM (aOR 1.35; 95% CI 1.10, 1.69) when adjusting for demographic confounders, versus MSM who did not disclose their sexual behavior. This analysis found that MSM who were stigmatized on an individual and community level were less likely to disclose their same-sex behavior to their healthcare provider. These results demonstrate the need for healthcare providers be open, tolerant, and aware of LGBT health issues in order to increase disclosure and reduce stigma towards MSM.

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Most importantly, I want to thank my family and friends. I am incredibly grateful for the support I have received from my mother, grandparents, and siblings back home in Iowa. You have all reminded me to not forget where I come from and are absolutely my biggest fans. I also want to thank my Atlanta family for being a source of motivation, support, and fun. In addition, I want to thank Emily Lakemaker for being a dedicated supervisor and friend at the Rollins School of Public Health. Without her support, I would not have taken the initiative to seek out the opportunities I have been a part of during my time at Rollins. Lastly and most importantly, I want to thank my partner, Patrick Brooks, for being there for me day after day the past three years. You have kept me grounded and motivated throughout this entire process. Without your support and love, I wouldn't be where I am at today.

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I. Review of MSM Same-sex Behavior Disclosure to a Healthcare Provider

a. HIV and STD Epidemic in the United States

The CDC estimates that as of 2012, 1,201,100 persons aged 13 and older are living with HIV in the United States. 168,300 (14%) of those person are unaware they are infected with HIV (1). The rate of new infections has stabilized in the past decade with 50,000 incident infections per year (2) . Testing for HIV is important in reducing HIV transmisison (3) because those that are aware of their infection are more likely their behavior and seek treament thus hindering the spread of HIV (4). Sexually transmitted diseases (STD) such as chlamydia, gonorrhea, herpes, hepatitis, and syphilis are also prevalent in the United States with an estimated 20 million new infections per year (5). STDs promote HIV transmission by increasing HIV infectiousness and susceptibility through direct biological mechanisms (6). Individuals infected with a STD are 2 to 5 times more likely to contract HIV (7). STD treatment as a form of HIV prevention has been seen as an important tool in preventing infection in HIV-negative individuals (8). STD treatment can also be used prevention transmission in HIV positive individuals by decreasing the amount of secreted viral particles (6). The importance of routine STD screening and treatment as a potential form of HIV prevention cannot be understated as a measure of curbing the HIV epidemic (9). Other forms of STD and HIV control should focus on case management to break sexual network chain infections (10), primary prevention by using barrier contraceptives, and by targeting high-risk populations to prevent further transmission both in and out of high-risk groups (11).

i. Risk Groups for HIV and STDs

HIV and STDs disproportionately affect several different racial and sexual minority groups. Variations in case numbers among risk groups may be attributed to changes in the numbers of new HIV infections reported, differences in sexual networks, differences in sexual risk behavior, targeted interventions, or differences in testing behaviors.

Men who have sex with men (MSM)

MSM are the largest group at risk for HIV in the United States totaling 63% of new infections in 2010 (1) despite making up 4% of the United States population (12). MSM also are heavily at risk for STDs and antimicrobial resistance (13), accounting for 75% of all primary and secondary syphilis cases in 2013 (5) and an estimated prevalence of 16.9% and 15.2% for gonorrhea and chlamydia respectively (14). A number of individual risk behaviors contribute to the ongoing disparities of HIV and STDs numbers in MSM including higher number of sexual partners, stigma, higher rate of partner acquisition rates, and unprotected anal intercourse (15). Unprotected anal intercourse is one of the major risk factors for contracting HIV and STDs among MSM due to how efficiently the virus spreads in contrast to other sexual behaviors (16). Substance abuse among MSM also increases the odds of having unprotected anal intercourse (17). Additionally, 57% to 63% of unprotected anal intercourse among MSM is with partners who have an unknown HIV status (18). The CDC's National HIV Behavioral Surveillance system found that in 2008, 19% of the 8,153 MSM surveyed were HIV positive. Of the 19% with HIV, 44% were unaware they were infected with HIV (19). Sexually active MSM can reduce their risk for HIV and STDs by getting annual screenings. To aid with prevention, the CDC recommended that, as of 2002, all sexually active MSM receive yearly screening for HIV, chlamydia, gonorrhea, syphilis, and other sexually transmitted diseases (20, 21).

(1) Black MSM

Minority MSM, especially black MSM, are at the highest risk for contracting HIV and STDs in the United States. In 2010, 4,800 new HIV infections, the highest among MSM for that year, occurred in young black MSM aged 13 to 24, accounting for 45% of new HIV infections among black MSM and 55% among young MSM overall (2).

Black MSM are also have the highest percentage of individuals unaware that they are infected with HIV. Black MSM are at the highest risk due to the higher prevalence of HIV among their sex partners, leading to a higher possibility of transmission, despite having a similar frequency of risk behaviors as other MSM populations (22). Low awareness may be due to MSM having a recent infection, underestimating personal risk, unable to get tested, or other factors (22). One of the major factors for influencing HIV and STD transmission in all minority MSM is homophobia, racism, and stigma associated with sexual orientation (23).

b. Discrimination and Stigma

Discrimination and stigma among MSM are common and barriers to HIV and STD prevention (24). Discrimination is broadly defined as behavior resulting from prejudice and can take on a variety of forms and included racism (25). Stigma is defined as as the social devaluation of a person based on an attribute (26), such as stigma towards someone for their sexual orientation. Many studies have found that a significant number of MSM experienced homophobia and racism throughout their lifetime (27-29). Discrimination and stigma may make it difficult for MSM to obtain quality healthcare, which places MSM at a higher risk for mental and physical health issues (23). Multiple forms of discrimination and stigma can lead to even more profound effects on MSM including substance abuse disorders (30) and psychological distress (28).

i. Racial Discrimination

Racial MSM are especially subjected to discrimination and are doubly marginalized, both for being a racial minority and a sexual minority (28, 31). Racial MSM are more likely to experience racism from the gay population in contrast to the general public as determined in a study that found 70% of 1196 respondents experiecing racism in the gay community and 57% in the general public (32).

Racism in the gay community has caused some racial groups to become more tight-knit and interconnected especially among black MSM, lowering the number of sexual partners in the sexual network. The limited number of sexual partners can increase HIV risk and facilitate continual HIV transmission leading to a sustainced prevalence of infection throughout black MSM sexual networks (33), despite participating in lower instances of unprotected anal intercourse, less substance abuse instances, and having an overall lower prevalence of HIV (34).

Racism towards racial/ethnic MSM has been determined to have profound impacts on the health of MSM leading to psychological distress including feelings of low self-worth and isolation, low resiliency, and negative impacts on social support (28). Racism has deleterious effects on the frequency of risk behaviors of minority MSM compared to those not experienced discrimination including greater participation in unprotected anal intercourse (35), substance abuse (30), and sexual dysfunction such as erectile dysfunction and other sexual performance issues (36).

ii. HIV Stigma

Stigma and discrimination associated with HIV and STD infection can lead to barriers for testing and treatment services in MSM (37). While recent data suggests that reporting requirements likely are not major deterrants to testing (38, 39), anti-HIV stigma remains a powerful force shaping access to healthcare. HIV and STD-related stigma may contribute to underusage of HIV and STD prevention services and testing (40). HIV stigma affects HIV positive MSM in other ways and can be a deterrent for seeking or continuing HIV treatment (41). Many who are HIV-infected do not disclose their HIV status for fear of rejection (42). Those that experience HIV-related stigma report poor social support and increased depression, anxiety, and loneliness (43). Feelings of loneliness have been associated with lack of condom usage in HIV-positive MSM and could be a strong factor in infecting others (44).

In addition to emotional effects from being stigmatized for having HIV, those that do experience HIV-related stigma are more likely to have unprotected receptive or insertive anal intercourse and have anal intercourse with a partner of an unknown HIV status (45).

iii. Sexual Stigma

Sexual stigma is also a type of stigma that affects many MSM and is defined broadly as negative attitudes, relative powerlessness, and lost of status related to sexual orientation or idenity (46). Sexual stigma is further defined into self-stigma, enacted or experienced stigma, and structural stigma. The latter of which is focusd on cultural norms and institutional policities that constrain opportunities and resources of those stigmatized (47). Sexual stigma is common among MSM with one study estimating 42% of 41 MSM experiencing some form of perceived stigma based on their sexual orientation on a day-today or lifetime basis (48). Another study found that 20% of the 662 LGBT members in the sample experienced some form of personal or property crime based on their sexual orientation, with 50% experiencing verbal harrassment and 10% experiencing employment or housing discrimination (49). A study of 1,248 MSM in the southwestern United States, 37% experienced verbal harrassment and 4.8% experienced physical violence in the past six months due to their sexual orientation (50). Lastly, in a sample of 509 MSM in New York City, 53.2% reported having experienced any gay-related discrimination in the past 12 months, with 45% being called names, 23.6% receving poorer services from a business, 22.0% being treated unfairly at work or school, 15.1% being physically attacked or injured, and 6.7% being denied healthcare because someone assumed or knew they were MSM (51).

Aside from the direct physical effects sexual stigma may take on, there are other effects that may have a much stronger effect on the health of MSM. Specifically, MSM who have been exposed to sexual stigma and homophobia are more likely to participate and be affected by high

risk behavior including heavy substance abuse (52) and abuse (53), psychological symptoms of distress including ideation, anxiety, depression, eating disorders, ADHD, and self harm (3, 28, 54, 55). The framework for how sexual stigma affects mental health is not entirely clear, but one framework example suggests that stigma-related stress elevates emotion dysregulation, social problems, and other processes that may put MSM at risk for mental disorders (56).

Sexual stigma is also associated with other HIV risk behaviors such as unprotected anal intercourse among MSM who experienced stigma in their home or community (57, 58). Sexual stigma also has important implications on HIV testing and treatment, with those experiencing sexual stigma are less likely to be ever tested for HIV (59). Fear of being stigmatized for being MSM is associated with reluctance to seek HIV/STD testing and treatment among those who had not experienced sexual stigma (60).

Sexual stigma and racism are common in minority MSM, with 89% of participants in a study of 312 black MSM reported discrimination based on their sexual orientation and their race (61). Psychological distress is also associated with racial and sexual orientation discrimination (61). Bisexual identifying men face unique forms of stigma and stereotyping due to their sexual orientation, which may lead them to mask their sexual orientation due to misunderstanding about their sexual identity (62) . Young MSM also experience the effects of sexual stigma, reporting higher levels of substance abuse, suicidality, and sexual risk behaviors (63).

The deterimental effects of sexual stigma can be averted with the help of social support. A protective effect against the negative effects exists for those who experience stigma, but discussed with gay friends and family about the eventwhile low levels of discussion and high levels of experienced stigma are associated with higher rates of unprotected anal intercourse (64).

However, MSM who seek support for sexual stigma instances may actually experience greater relationship issues, both generally and with a partner (65). Other studies have found that stigma had brought some MSM's partners closer together, strengthening the relationship's bond and increasing intimacy. While the effects can be mixed, the importance of relationships and a social support system cannot be understated (65).

Lastly, one study found that non-disclosure and concealment of one's sexual identity mediated the effect that sexual stigma had on the development of depression, while depression mediated the effect of concealment and STDs. However, concealment ultimately was negatively related to STD infection, so this coping method has its own clear disadvantages (66).

While sexual stigma will likely still exist in the future, the growing acceptance of LGBT members may reduce the burden sexual stigma has on MSM. In additional, several individual and community-wide measures may reduce stigma and include individual counseling, empowerment, education, training programs, and policy and legal development on a governmental level (67).

c. Community Tolerance and Acceptance of the LGBT Community

The United States has experienced a shifting of attitudes towards more liberal issues with 60% of Americans supporting gay marriage and acceptance of the LGBT community (68, 69). Legalization of same-sex marriage has profound impacts on the well-being of MSM including relationship stability, physical and mental health, more well-being, and reduction in discrimination (70, 71). Same-sex married couples living in a state that legalizes gay marriage are less distressed and the mental disparities between heterosexual, homosexuals, lesbians, and bisexuals are diminished with same-sex marriage (72). Following the challenge of California's Proposition 8, gay and lesbian married couples from Massachusetts testified about the benefits the couples felt after same-sex marriage was legalized.

These benefits include 72% of couples feeling more committed to their partners and 70% feeling more accepted by their communities (73). Lastly, MSM in domestic partnerships had lower sexual risk behaviors including lower prevalence of multiple partnerships and unprotected anal intercourse with a non-primary partner (74).

MSM living in areas that are not tolerant experience a host of negative health outcomes as a result of stigma and discrimination. MSM living in areas that were less tolerant and had high levels of state-level structural stigma have decreased PrEP understanding and use, increased sexual behavior, and decreased comfort with discussing behavior with a primary care physician (75). Internalized homophobia, as a result of internalizing society's anti-gay sentiments, is also associated with increased risky behaviors and negative health outcomes (76).

One mechanism of MSM for coping with an intolerant community is overcoming stigma by connecting to LGBT communities as it provides a safe, non-stigmatizing environment and social support (77). Identification within the LGBT community will foster further acceptance of LGBT issues, reducing self-homophobia, stigma, and leading to better psychological well-being (77). Lastly, MSM who report more LGBT-identified friends in relationships and friends who are aware of an individual's sexual orientation have a decreased sexual risk (78).

d. Disclosure of Same-sex Behavior to Healthcare Providers

It is estimated that 3-6% of patients seen by healthcare providers are gay or lesbian (79). Rates of disclosure to healthcare providers are relatively low, ranging from 35% in a study of 131 youth LGBT (80) to 39% in a study of 452 MSM patients in San Francisco (81). Gay and lesbian patients have unique health risks that require individualized care and interventions such as STD and HIV screening, treatment, and mental health treatment (82). Many health risks interventions are not met due to several assumptions related to communication issues (83).

One study found that 98% of the 126 MSM visited a healthcare provider in the previous year, but 39% had not been screened for STDS (82). Some providers assume that all of their patients are heterosexual and many do not ask follow up question when a patient discloses they are sexually active, thus misguiding the treatment and care plan for LGBT patients (84). LGBT patients report wishing that their healthcare provider asked them same-sex behavior and sexual identity questions during their healthcare appointment (80, 85) and an overwhelming number understand the importance of asking questions related to their same-sex behavior orientation and sexual identity (80, 86)

Disclosure is important to the health of LGBT patients as LGBT patients have have higher rates of depression, suicide attempts (85), alcoholism, generalized anxiety disorders (87), lower self-report of well-being (88), increased risk for sexually transmitted infections, and some cancers (89). Studies looking at general disclosure to friends and family members have found that those that disclose have better personal relationships with those who directly told their same-sex behavior (90).

Same-sex behavior disclosure to a healthcare provider is also important, as MSM have unique healthcare needs that often go unmet. MSM are at an increased risk for HIV and STDs, substance abuse, anxiety, depression, and other psychological disorders related to experienced sexual stigma (91). MSM who do disclose their same-sex behavior are recommended more instances of HIV tests, hepatitis A or B vaccinations, and STD screenings (92, 93). Additionally, MSM who disclose their same-sex behavior report numerous mental health benefits (94), . Lastly, disclosure of a positive HIV status and sexual activity to a healthcare provider was associated with retention in HIV care (95-97).

There are some negative effects that have been reported due to disclosing one's same-sex behavior and may include verbal and physical abuse (98) and mistreatment (50). LGBT youths who disclosed their sexual identity to family and friends and reacted negatively also report higher levels of risk behaviors and poorer health conditions compared to those with positve support (99).

MSM may also struggle with the effects of disclosure due to internal religious conflict and perceived stigma from others (100). Physicians and other healthcare providers can ease the disparities in LGBT care by remaining open, using gender-neutral terms, and being self-aware of their own attitudes towards issues (101, 102). Healthcare providers can further help eliminate LGBT-related health disparities by also eliciting sexual orientation questions from their patients by a detailed history-taking and an open, non-judgemental attitude (87, 103).

e. Risk Factors associated with Non-Disclosure to Healthcare Provider

There are several risk factors that that are associated with MSM not disclosing their same-sex behavior to a healthcare provider including being black or Hispanic (81, 92, 104), bisexual (81, 82, 88, 105, 106), and younger age (88, 107, 108). Education, and experiencing discrimination are other risk factors that should be analyzed in more detail.

i. Education

Disclosure of same-sex behavior to a healthcare provider is associated with having completed a secondary education and use of a condom with their last sex partner (109). LGBT-centered education in schools can have effects on increasing MSM disclosure through health resources and helping professionals improve their knowledge of LGBT health disparities (110)

ii. Rural/Urban

Rural settings can impede MSM from accessing appropriate HIV and STD prevention and treatment resources as a result of being denied care due to their sexual identity (111). LGBT members living rural communities report lower levels of outness and guardedness related to their same-sex behavior (112). Providers living in rural areas proclaim acceptance of LGBT patients, yet lack education about specific LGBT health issues (111). Studies looking at disclosure in rural settings have found that LGBT patients are less likely to disclose their same-sex behavior than those living in urban settings (113). Other studies have found that MSM living in a rural area who use the internet to find sexual partners participate more in unprotected anal intercourse, putting them at greater risk for HIV and STDs (114). Rural LGBT youth also face hostile school climates and struggle with disclosure and sexual identity expression (115). Lastly, stigma orignating from disclosure in rural settings directedly affected MSM's sexual behavior through their mental health status (116).

iii. Discrimination

Discrimination is a factor preventing MSM from disclosing their same-sex behavior and may have other health implications such as adhereing to risk behavior changes and accessing HIV prevention and treatment (117-119). One of the significant medical risks in MSM is the avoidance of medical care due to experienced or potential stigma that may be directed towards them by the medical community (87, 120). MSM have reported that they were deemed sexually promiscuous and deviant and felt discomfort with disclosing their sexual identity (62). MSM who are HIV-positive are subjected to stigma in healthcare settings due to lack of awareness of stigma by healthcare workers, lack of knowledge about HIV transmission, and the belief of an association between HIV and immoral behavior (119).

Lastly, the number of negative reactions to MSM's disclosure is also associated with current and continued use of alcohol, cigarette, and marijuana (121).

f. Conclusions

MSM have the highest rates of HIV and STD, especially among MSM that are a racial minority. Stigma and discrimination are common and have documented negative health effects assocatied with experiencing racism, stigma related to HIV, and sexual stigma.

Community tolerance, acceptance, and social support may offset the effects of stigma. Disclosure of same-sex behavior is important, especially in the healthcare setting. LGBT patients have unique healthcare needs and may not receive them for several reasons. MSM wish healthcare providers would ask them questions about their sexual identity. Many healthcare providers do not have the skillset necessary to effectively treat LGBT patients, despite wish to. Culturally competent care for sexual minorities is necessary and important to help healthcare providers give LGBT individuals the unique healthcare they need (122). A large proportion of healthcare providers receive little formal training on LGBT helath issues and thus contributed to the problem. (87, 123).

Many physicians do not believe they have the skills needed to address issues of health related to sexual orientation and wish these issues are addressed more often during their training (84, 124). Additionally, some osteopathic and allopathic medical students report not being prepared to address LGBT issues related to health and lacked the medical knowledge necessary to give such care (125-127). Other studies have found low passing levels of LGBT medical knowledge in other healthcare profession such as nursing (128, 129) and nurse practitioners (89). LGBT medical issues should be taught throughout medical education programs such as medical school and nursing school (87, 120).

While there are challenges to implementing more specific health education and training, the benefits of educating healthcare workers and the general public could have an important impact on the health of those in the LGBT community (130).

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INTRODUCTION

MSM are the largest group at risk for HIV in the United States, accounting for 66% of new infections in 2010 (1) despite making up 4% of the male United States population (12). MSM are at high risk for STDs and antimicrobial resistance (13), accounting for 75% of all primary and secondary syphilis cases in 2013 (5) and with an estimated prevalence of 16.9% and 15.2% for gonorrhea and chlamydia respectively (14). STDs promote HIV transmission by increasing HIV infectiousness and susceptibility through direct biological mechanisms (6). Individuals infected with a STD are 2 to 5 times more likely to contract HIV (7). STD treatment as a form of HIV prevention has been seen as an important tool in preventing infection in HIV-negative individuals (8). STD treatment can also be used prevention transmission in HIV positive individuals by decreasing the amount of secreted viral particles (6).

A number of individual risk behaviors contribute to the ongoing disparities of HIV and STDs numbers in MSM including higher number of sexual partners, stigma, higher rate of partner acquisition rates, and unprotected anal intercourse (15). Unprotected anal intercourse is one of the major risk factors for contracting HIV and STDs among MSM due to how efficiently the virus spreads in contrast to other sexual behaviors (16). Additionally, 57% to 63% of unprotected anal intercourse among MSM is with partners who have an unknown HIV status (18).

The CDC's National HIV Behavioral Surveillance System (NHBS) found that in 2008, 19% of the 8,153 MSM surveyed were HIV positive. Of the 19% with HIV, 44% were unaware they were infected with HIV (19). Sexually active MSM can reduce their risk by getting annual screenings for HIV and STDs. To aid with prevention, the CDC recommended that, as of 2002, all sexually active MSM receive yearly screening for HIV, chlamydia, gonorrhea, syphilis, and other

sexually transmitted diseases (20, 21). Despite these recommendations, data from the 2011 cycle of NHBS found that one third of MSM had not been tested for HIV in the past 12 months (20).

There are significant barriers to HIV and STD prevention in MSM, including discrimination and stigma (24). Discrimination is broadly defined as behaviour resulting from prejudice and can take on a variety of forms (25). Stigma is defined as as the social devaluation of a person based on an attribute (26), such as stigma towards someone for their sexual orientation. While the United States has experienced a shifting of attitudes towards more liberal issues with 60% of Americans supporting gay marriage and acceptance of the LGBT community (68, 69), stigma and discrimination are still problems. Many MSM have experienced homophobia and racism throughout their lifetimes (27-29). Discrimination and stigma may make it difficult for MSM to obtain quality healthcare, which places MSM at a higher risk for mental and physical health issues (23). Multiple forms of discrimination and stigma can lead to even more profound effects on MSM including substance abuse disorders (30) and psychological distress (28). Sexual stigma is also a type of stigma that affects many MSM and is defined broadly as negative attitudes, relative powerlessness, and loss of status related to sexual orientation or idenity (46). Sexual stigma is further defined into self-stigma, enacted or experienced stigma, and structural stigma. The latter of which is focusd on cultural norms and institutional policities that constrain opportunities and resources of those stigmatized (47).

Disclosure is important to the health of LGBT patients as LGBT patients have have higher rates of depression, suicide attempts (85), alcoholism, generalized anxiety disorders (87), lower self-report of well-being (88), increased risk for sexually transmitted infections, and some cancers (89).

It is estimated that 3-6% of patients seen by healthcare providers are gay or lesbian (79). Rates of disclosure to healthcare providers are relatively low, ranging from 35% in a study of 131 youth LGBT (80) to 44.5% in a national study of 4,620 MSM (93). Gay and lesbian patients have unique health risks that require individualized care and interventions such as STD and HIV screening, treatment, and mental health treatment (82). Many health risks interventions are not met due to several assumptions related to communication issues (83). One study found that 98% of the 126 MSM visited a healthcare provider in the previous year, but 39% had not beend screened for STDS (82). Some providers assume that all of their patients are heterosexual and many do not ask follow up question when a patient discloses they are sexually active, thus misguiding the treatment and care plan for LGBT patients (84). LGBT patients report wishing that their healthcare provider asked them sexual orientation and gender identity questions during their healthcare appointment (80, 85) and an overwhelming number understand the importance of asking questions related to their sexual orientation and gender identity (80, 86)

Physicians and other healthcare providers can ease the disparities in LGBT care by remaining open, using gender-neutral terms, and being self-aware of their own attitudes towards issues (101, 102). Healthcare providers can further help eliminate LGBT-related health disparities by also eliciting sexual orientation questions from their patients by a detailed history-taking and an open, non-judgemental attitude (87, 103).

METHODS

Recruitment and study design

The American Men's Internet Survey (AMIS) was an online cross-sectional survey that recruited over 170,000 MSM in the U.S. from January 2012 and until December 2014 (131). AMIS was split up into two phases: 2013 and 2014.

AMIS-2013 ran from December 2013 through May 2014. The main purpose of AMIS was to collected surveys from MSM in the United States to analyze annual behaviors (131). Participants were recruited for the study using various forms of general social networking, mobile-only social network, and Internet dating websites via banner advertisements generated through Facebook. MSM who clicked on the banner ad were brought to a consent form with questions following to assess eligibility.

Eligible survey participants were biological males aged 18 and older residing in the United States who reported having sex with a man at least once in the past 12 months. Men were not excluded from the survey if they reported having sex with a woman and a man in the past 12 months. Analysis eligibility criteria were then applied and included participants that were HIV negative and responded to the disclosure of same-sex behavior to a healthcare provider question. Not all respondents were offered questions about sexual stigma; in the survey, only one third of respondents were randomized to this module. Only participants who completed the stigma items were included in the analysis. Participants who were HIV positive were excluded from the analysis due to confounding. Men who were HIV positive were more likely to visit a healthcare provider and thus likely disclosed their sexual behavior to their provider. Following consent and eligibility screening questions, participants then completed a 25 minute survey that had questions related to health, demographics, drug use, sex practices, sexual partner history, HIV prevention services, and attitudes about HIV infection. Institutional Review Board exemption was granted by Emory University for secondary data analysis of the de-identified dataset.

Measures and statistical results

The main outcome of interest was disclosure of same-sex behavior to a participant's healthcare provider, assessed by the survey the question "Who of the following people have you told that you are attracted to or have sex with men?". Within that question, respondents selected health care provider as one of the responses. The other disclosure options included gay, lesbian, or bisexual friends, friends who are not gay, lesbian, bisexual, and family members. Participants who responded "Yes" were defined as having disclosed to their health care provider. Participants who responded "I prefer not to answer" or "I don't know" were categorized as having responded "No", and defined as not having disclosed to their healthcare provider.

The main exposures of interest were experienced sexual stigma, defined as a type of stigma that affects many MSM and is defined broadly as negative attitudes, relative powerlessness, and lost of status related to sexual orientation or idenity (46). Additionally, community tolerance of gays and bisexuals was included as an exposure variable. AMIS has five experienced sexual stigma items included in the survey. The initial question sought to determine if any of the men who participated in the survey were a target of experienced sexual stigma and if so, what type.

The question was defined as "During the past 12 months, have any of the following things happened to you because someone knew or assumes you were attracted to men?". The five measurements are defined as follows: "You were called names or insulted", "You received poorer services than other people in restaurants, stores, other businesses or agencies", "You were treated unfairly at work or school", "You were denied or given lower quality health care", and "You were physically attacked or injured". Responses to the measurements were "Yes", "No", "I prefer not to answer", and "Don't know", where the latter two options were combined into the "No" category

to ensure each exposure variable was dichotomous. This scale was previously used and validated by Williams, Yu, Jackson, and Anderson (1997) (132).

Community tolerance was assessed using the question "How strongly do you agree or disagree with the following statement: 'Most people in my area are tolerant of gays and bisexuals'" with responses being strongly agree, agree, neither agree or disagree, disagree, strongly disagree, I prefer not to answer, or don't know. I prefer not to answer or don't know responses were set as missing in the analysis. A Mantel-Haenszel test for trend was then used for the community tolerance variable across the different response levels to determine if there was a dose response.

Potential confounders were determined based on literature review. Confounders included race and ethnicity (81, 92, 104), education (109), population density (113, 115) , sexual identity (81, 82, 88, 106, 133), age (88, 107, 108), and number of male sex partners in the past year (81). Each confounder was measured by respondent's answers to the questionnaire. Income was not used as a confounder because of the high number of missing responses (n=92) compared to education (n=11) and the correlation with education ($p<0.0001$).

Bivariate analyses were used to determine associations between the experienced sexual stigma, community tolerance, confounders, and disclosure to healthcare provider. The results of the associations were reported in Table 1 as frequencies with crude odds ratio and 95% confidence intervals (CI). Education level was categorized using four levels including less than high school diploma, high school diploma or GED, some college or technical degree, and college degree or postgraduate. Sexual identity was categorized into homosexual, bisexual, and heterosexual. Population density was dichotomized by rural and urban using participant's geographic location. Geographic measures were determined based on self-reported zip code.

Estimated logit plots were used to access for non-linearity among continuous confounders (i.e., age and number of male sex partners) using six bins. Both age and number of male sex partners were non-linear and were left as continuous variables. Number of male sex partners were top coded at 10 partners due to both the effect and number of partners beyond 10 being minimal.

A preliminary multivariable logistic regression model was developed to examine the relationships between experienced sexual stigma exposure variables, confounders, and disclosure to healthcare provider. The model included the disclosure to healthcare provider as the outcome, five experienced sexual stigma exposure variables, community tolerance, age, race, education, sexual identity, geographic location, and the number of male sex partners.

Collinearity diagnostics of the preliminary model were accessed before model selection methods using a SAS macro (Obtained from David Kleinbaum at Emory University). Evidence of collinearity was accessed using a condition index > 30 and corresponding variance decomposition proportions >0.5. Using the above cutoffs, there was no evidence of collinearity in the preliminary model and model selection strategies continued.

Backwards elimination was used to access the significance of association ($p<0.05$) between exposure and confounding variables between disclosure to healthcare provider. All two way interactions were considered. Age and race/ethnicity were included in the final model after model selection despite their lack of significance (at a level of $\alpha=0.05$) due to the interest in accessing outcome differences between these variables. No significant two-way interaction terms were observed. Results of the multivariable logistic regression model were reported using adjusted odds ratios and 95% CI. Data analysis was conducted with SAS 9.4 (SAS Institute, Cary, NC, USA).

RESULTS

There were 3,624 MSM who were included the analysis. For the 2013 cycle, 18,669 potential participants completed the consent form with 14,899 (80%) of those that completed being eligible for the study. Of the eligible participants, 10,377 (70%) completed the survey and were used in the total analysis. Because not all respondents were offered questions on the exposures of interest (stigma and community acceptance items), the analysis was limited to 3,264 (31% of eligible consents) participants who answered the disclosure of same-sex behavior to a healthcare provider question (Figure 1). Other participants were excluded from the analysis because of other important missing explanatory variables, were HIV positive, or did not report having sex with a man in the past 12 months. Characteristics of participants and the association between disclosure of same-sex behavior are displayed in Table 1.

Participants were predominantly white, corresponding to 79% of respondents, while 3% were black, 9% were Hispanic/Latino, 3% multi-racial or other, and percentages lower than 3 for the other reported races. More than half of respondents identified as homosexual, reported having a college or postgraduate education, and reported living in an urban setting. The median (IQR) age of participants was 39 years old (range=18 - 87). The median (IQR) number of male sex partners in the past twelve months was 3 for participants.

Experienced sexual stigma was common among participants in the study (Table 2). Nearly 30% of participants reported being called names or insulted, about 10% received poorer services, 12% were treated unfairly at work or school, 1.4% were denied or given poor healthcare, and 3.4% were physical attacked or injured because someone knew or believed they had sex with men.

Lastly, 62% of respondents felt that their community was tolerant of gays and bisexuals. Of the 3,624 eligible MSM participants, nearly three quarters (70.7%) reported disclosure of sexual identity to their healthcare provider. A significant ($p<0.0001$) dose response was observed between the levels of the community tolerance variable. Those who strongly agreed or agreed that their community was tolerant of gays and bisexuals were significantly more likely to disclose their sexual identity (OR: 3.03 CI: 2.28-4.02, and OR 1.56 CI: 1.27-1.91 respectively). Those disagreeing or strongly disagreeing that their community was tolerant were significantly less likely to disclose their sexual identity (OR: 0.86 CI: 0.67-1.12 and OR 0.67 CI: 0.47-0.94 respectively).

In bivariate analysis, higher education was significantly associated with disclosure, especially among those with some college, a college degree, or postgraduate education. Additionally, living in a rural location, age, living in a tolerant area, and number of male sex partners were also significantly associated with disclosure. Two forms of experienced sexual stigma were also significantly associated with disclosure and include being called names or insulted and receiving poorer services.

Race, sexual identity, the other population density category, the experienced stigma variables “Treated unfairly at work or school”, “Denied or given poor healthcare”, “Physically attacked or injured”, and the remainder levels of education were not significantly associated with disclosure to healthcare provider in bivariate analyses.

In the multivariable logistic regression analysis (Table 3), age, education, sexual identity, number of male sex partners, community tolerance, and the exposure “Called names or insulted” were all significantly associated with disclosure to a healthcare provider when adjusting for other variables in the model. Those with some college or a technical degree had a 1.72 higher odds of disclosing their sexual identity (CI: 1.27, 2.30) than those with only a high school diploma.

Additionally, those with a college degree or higher education were at a 2.28 times greater odds of disclosing (CI: 1.71, 3.04) compared to those with a high school education. Those living in a rural location had a 0.53 lower odds of disclosing (CI: 0.44, 0.64) when compared to those living in an urban location.

Additionally, participants that reported living in an area where the community was intolerant of gays and bisexuals, were at a 0.57 lower odds of disclosing their same-sex behavior compared to those living in a tolerant area. Being older (aOR 1.02, CI: 1.01, 1.03) and reporting more sexual partners (aOR 1.09, CI: 1.06,1.11) were both significantly associated with disclosure of male sex partners. Lastly, for participants that received poor services because they of their sexual identity, there was a 0.52 lower odds of disclosure (CI: 0.40, 0.69) when compared to those that did not receive poor services. There was no significant two-way interaction term.

DISCUSSION

This study analyzed the association of experienced discrimination against MSM and community tolerance LGBT members and disclosure of male sex partners to a healthcare provider. Disclosure of same-sex behavior to a healthcare provider was high in the sample with most MSM disclosing their same-sex behavior. Experienced sexual stigma and community tolerance were both high in the study. The prevalence of experienced sexual stigma varied by the type of stigma experienced. A third of respondents were called names or insulted, a tenth received poor services or were treated unfairly at work or school, and less than a tenth were denied or given poor healthcare or were physically attacked or injured because someone assumed or knew the respondents had sex with men.

Two thirds of participants reported either strongly agreeing or agreeing that their community was tolerant of gays and bisexuals, while less than a quarter reported living in a community that either strongly disagreed or disagreed. MSM that experienced sexual stigma and reported living in a less tolerant community were significantly less likely to disclosure their sexual identity to their healthcare provider.

Additionally, other studies have found that MSM living in areas that are not tolerant experience a host of negative health outcomes as a result of stigma and discrimination. MSM living in areas that were less tolerant and had high levels of state-level structural stigma have decreased PrEP understanding and use, increased sexual behavior, and decreased comfort with discussing behavior with a primary care physician (75).

This study found that 70% of respondents disclosed their same-sex behavior to a healthcare provider which is dissimilar to other studies that found reported disclosure rates of 35% (80) and 39% (81). The high percentage of disclosure in this study in contrast to previous studies may be attributed to more recent trends in the growing acceptance of the LGBT community. More acceptance may have helped MSM become more comfortable with their sexuality and thus disclose their same-sex behavior. Additionally, selection bias may have been affecting the disclose percentage as those that had access to the AMIS study may inherently be more likely to disclose their same-sex behavior due to access to the internet and because respondents may have been more comfortable discussing their same-sex behavior compared to those who did not take the survey.

This study also found similar risk factors such as race and ethnicity (81, 92, 104), education (109), population density (113, 115), sexual identity (81, 82, 88, 106, 133), and age (88, 107, 108) associating with disclosure. This study also expanded on previous studies by including individual and community-based stigma and tolerance measures into the analysis.

The community tolerance variable analyzed if the participant perceived his community as being tolerant. Disclosure to health provider was also significantly associated with several other participant characteristics in the analysis. Those that disclosed in the sample were more likely to have some college education or more, were multi-racial or multi-ethnic, were older, lived in an urban area, and had more sexual partners than those that did not disclose their sexual identity.

Participants who did not disclose were more likely to be a racial minority, have less than a college education, lived in a rural setting, and identified as heterosexual or bisexual. Similar conclusions about non-disclosure and been reported in other studies (81, 82, 88, 92, 104, 106-109, 113, 115, 133).

In the final model, the only stigma term that was significantly associated with disclosure to healthcare provider was having been called names or insulted. While only one stigma term was significantly association with disclosure, experienced stigma was still common throughout the sample of respondents. The percentage of experienced sexual stigma was lower in this study in contrast to other studies that found 42% of 41 MSM (48), 50% of 662 LGBT respondents (49), and 53.2% of 509 sampled MSM (51) experienced some form of sexual stigma. Discrimination and stigma can pose much greater problems than nondisclosure to a healthcare provider. Sexual stigma is associated with other HIV risk behaviors such as unprotected anal intercourse among MSM who experienced stigma in their home or community (57, 58).

MSM who have been exposed to sexual stigma and homophobia are more likely to participate and be affected by high risk behavior including heavy substance abuse (52) and abuse (53), psychological symptoms of distress including ideation, anxiety, depression, eating disorders, ADHD, and self harm (55) (3, 28, 54).Sexual stigma also has important implications on HIV testing and treatment, with those experiencing sexual stigma are less likely to be ever tested for

HIV (59). Fear of being stigmatized for being MSM is associated with reluctance to seek HIV/STD testing and treatment among those who had not experienced sexual stigma (60). The findings of our study and others show that discrimination against MSM is still common which can have important impacts on HIV risk.

There were a number of limitations in this study. AMIS was a national online cross-sectional survey and the results of the study are not representative of the MSM population. Relying on responses from men recruited online over-represents MSM who use the internet or certain mobile phone apps and underrepresents MSM who do not use the internet or apps. While the experienced sexual stigma scale has been validated (51, 132), the community tolerance scale has not, which may not be appropriate to capture an actual community's tolerance.

Additionally, the analysis was restricted to MSM who were HIV negative, so these results are likely not representative of MSM who are HIV positive. The survey also relied on self-reported discrimination and community tolerance, which might have resulted in information bias. MSM who reported discrimination may have thought they were being discriminated against because of their sexual identity, but were misattributing the cause of the discrimination. For example, MSM who reported receiving poor services may have perceived received poor services due to their same-sex behavior, but may have actually received poor services because of factors unrelated to their disclosure. Because of this reason, there is likely some exposure misclassification in the study.

However, experienced stigma can be difficult to measure accurately and future studies should utilize other measurement methods. Additionally, respondents may have been unwilling to report experienced stigma because of discomfort or trauma, thus leading to a degree of undesirability bias (134). It is also not possible to ascertain causality between stigma, community tolerance, and disclosure to healthcare provider because of the study design. Despite these limitations, the study

has provided a novel insight into how discrimination may impact MSM disclosure to a healthcare provider and shed light on the importance of disclosure.

In this study, 30% of MSM did not disclose their sexual identity to their healthcare provider. Same-sex behavior disclosure to a healthcare provider is important, as MSM have unique healthcare needs that often go unmet. MSM are at an increased risk for HIV and STDs, substance abuse, anxiety, depression, and other psychological disorders related to experienced sexual stigma (91). MSM who do disclose their sexual identity are recommended more instances of HIV tests, hepatitis A or B vaccinations, and STD screenings (92, 93). Additionally, MSM who disclose their sexual identity report numerous mental health benefits (94). Lastly, disclosure of a positive HIV status and sexual activity to a healthcare provider was associated with retention in HIV care (95-97).

Disclosure is multifaceted and requires both the patient and the provider to have open and active conversations. The main issue is lack of communication between both parties and the reinforcement that heteronormative assumptions. Physicians and other healthcare providers can ease the disparities in LGBT care by remaining open, using gender-neutral terms, and being self-aware of their own attitudes towards issues (101, 102).

Healthcare providers can further help eliminate LGBT-related health disparities by also eliciting sexual orientation questions from their patients by a detailed history-taking and an open, non-judgemental attitude (87, 103). Providers can avoid using heteronormative language when discussing a men's health and avoid assuming an individual does not have sex with other men. For example, a provider can say "Are you sexually active?" and "Were your sex partners in the past 12 months male, female, or both?" Clinics and healthcare settings can also display open acceptance of LGBT members by posting accepting posters, using same-sex couples in pamphlets and

resources, and promoting the clinics tolerance to ease the fear of discrimination MSM may have due to their sexual identity or disclosure of same-sex behavior.

Many physicians also do not believe they have the skills needed to address issues of health related to sexual orientation and wish these issues are addressed more often during their training (84, 124). Culturally competent care for sexual minorities is necessary and important to help healthcare providers give LGBT individuals the unique healthcare they need (122). A large proportion of healthcare providers receive little formal training on LGBT helath issues and thus contribute to the problem. (87, 123).

LGBT medical issues should be taught throughout medical education programs such as medical school and nursing school (87, 120). While there are challenges to implementing more specific health education and training, the benefits of educating healthcare workers and the general public could have an important impact on the health of those in the LGBT community (130).

There are several resources available to providers that may educate them further about the health of MSM. The Centers for Disease Control and Prevention have resources on their website that can help healthcare providers learn the correct language when discussing gay and bisexual health as well as develop strategies to ease patient discomfort and give appropriate care.

These resources are located at the following URL: http://www.cdc.gov/msmhealth/professional-resources.htm Additional training may be required during a healthcare worker's education to get healthcare workers comfortable discussing sexual behaviors to promote openness between patient and provider [15].

Despite annual CDC recommendations that all sexually active MSM should be screened annually for HIV, gonorrhea, chlamydia, and other STDS, many MSM are hesitant to get screened for fear of being discriminated against, lack of insurance, fear of a positive results, or desire anonymous testing. Discrimination and these other factors can prevent MSM from disclosing their same-sex behavior.

Failure to disclose may cause providers to skip over asking high-risk behavior questions and hinder MSM from getting screened for sexually transmitted infections. This may allow MSM to unknowingly transmit HIV and other sexually transmitted infections to other MSM, further perpetuating the problem. While stigma both in and out of the healthcare system will likely still exist in the future, both patients and providers can work as active participants to reduce sexual identity discrimination and promote disclosure in order to give gay, bisexual and other MSM care tailored to their specific needs.

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TABLES

TABLE 1. Demographic Characteristics and Bivariate Associations for Men Who Have Sex With Men (MSM) Respondents in the American Men's Internet Survey (AMIS) by Disclosure of Same-sex Behavior to Their Healthcare Provider (n=3,283), United States, 2013.

	Disclosure to Provider Status			
Participant Characteristic	**Disclosed to Provider** (n=2,321) N (%)	**Did Not Disclose** (n=962) N (%)	**Total** (n=3,283) N (%)	**Crude OR (95% CI) / p-value**
Race/Ethnicity				
American Indian/Alaska Native	16 (76.2)	5 (23.8)	21 (0.6)	1.26 (0.46 to 3.44)
Asian/Native Hawaiian/Other PI	45 (60.8)	29 (39.2)	74 (2.3)	0.61 (0.38 to 0.98)
Black	67 (63.8)	38 (36.2)	105 (3.2)	0.69 (0.46 to 1.04)
Hispanic/Latino	203 (66.6)	102 (33.4)	305 (9.3)	0.78 (0.61 to 1.01)
White	1865 (69.8)	732 (27.4)	2597 (79.1)	Referent
Other/Multi	125 (69.1)	56 (30.9)	181 (5.5)	0.88 (0.63 to 1.21)
Highest level of Education				
Less than High School Diploma	24 (48.9)	25 (51.0)	49 (1.5)	0.91 (0.49 to 1.67)
High School Diploma or GED	145 (51.2)	138 (48.8)	283 (8.6)	Referent
Some college or technical degree	685 (65.8)	356 (34.2)	1041 (31.7)	1.83 (1.40 to 2.38)
College degree or postgraduate	1467 (76.8)	443 (23.2)	1910 (58.2)	3.15 (2.44 to 4.07)
Population Density				
Urban	1256 (54.1)	425 (44.2)	1681 (51.5)	Referent
Rural	548 (23.6)	377 (39.2)	925 (28.3)	2.03 (1.71 to 2.41)
Other	517 (22.3)	160 (16.6)	677 (20.6)	1.09 (0.89 to 1.34)
Sexual Identity				
Homosexual	2114 (91.1)	653 (67.8)	2767 (84.2)	Referent
Heterosexual	5 (0.2)	28 (2.9)	33 (1.0)	0.054 (0.02 to 0.14)
Bisexual	202 (8.7)	281 (29.2)	483 (14.7)	0.22 (0.22 to 0.31)
Age (years) (Median, IQR)	(40.0, 24.0)	(34.0, 28.0)	(39.0, 25.0)	<0.0001
# of Male Sex Partners (Median, IQR)	(3.0, 9.0)	(2.0, 4.0)	(3.0, 7.0)	<0.0001

CI=Confidence Interval; IQR=Interquartile Range; OR=Odds Ratio

*After adjustment for all other variables

TABLE 2. Experienced Sexual Stigma and Community Tolerance Characteristics for Men Who Have Sex With Men (MSM) Respondents in the American Men's Internet Survey (AMIS) by Disclosure of Same-sex Behavior to Their Healthcare Provider (n=3,283), United States, 2013.

	Disclosure to Provider Status			
	Disclosed to Provider	**Did Not Disclose**	**Total**	
	(n=2,321)	(n=962)	(n=3,283)	**Crude OR**
Exposure Variables	N (%)	N (%)	N (%)	**(95% CI) / p-value**
Community Tolerance				
Strongly Agree	462 (39.9)	86 (7.43)	548 (47.3)	3.03 (2.28 to 4.02)
Agree	1091 (52.1)	394 (18.8)	1485 (70.9)	1.56 (1.27 to 1.92)
Neither agree or disagree	390 (33.7)	220 (19.0)	610 (52.7)	Referent
Disagree	243 (24.0)	159 (15.7)	402 (39.7)	0.86 (0.67 to 1.12)
Strongly Disagree	92 (11.8)	78 (10.0)	170 (21.8)	0.67 (0.47 to 0.94)
Experienced Sexual Stigma				
Called Names or Insulted				
Yes	756 (32.6)	274 (28.5)	1030 (32.4)	1.22 (1.03 to 1.43)
No	1565 (67.4)	688 (71.5)	2253 (68.6)	Referent
Received Poor Services				
Yes	345 (14.9)	92 (9.6)	437 (13.3)	1.65 (1.29 to 2.11)
No	1976 (86.1)	870 (90.4)	2846 (86.7)	Referent
Treated Unfairly at Work or School				
Yes	319 (13.7)	121 (12.6)	440 (13.4)	1.11 (0.89 to 1.39)
No	2002 (86.3)	841 (87.4)	2843 (86.6)	Referent
Denied or Given Poor Healthcare				
Yes	47 (2.0)	13 (1.4)	60 (1.8)	1.51 (0.81 to 2.80)
No	2274 (97.9)	910 (98.7)	3184 (96.9)	Referent
Physically Attacked or Injured				
Yes	60 (2.6)	33 (3.4)	93 (2.8)	0.74 (0.49 to 1.15)
No	2261 (97.4)	929 (96.6)	3190 (97.2)	Referent

CI=Confidence Interval; OR=Odds Ratio

TABLE 3. Multivariable Model of Factors Associated with Disclosure of Same-sex Behavior to a Healthcare Provider for Men Who Have Sex With Men (MSM) Respondents in the American Men's Internet Survey (AMIS) (n=3,283), United States, 2013.

Model Variables	Adjusted Odds Ratio (95% CI)*	P Value (Two-tailed)
Race/Ethnicity		
American Indian/Alaska Native	2.90 (0.92 to 9.16)	0.10
Asian/Native Hawaiian/Other PI	0.55 (0.32 to 0.93)	0.03
Black	0.76 (0.49 to 1.19)	0.10
Hispanic/Latino	0.80 (0.60 to 1.06)	0.15
White	1.0 (Ref.)	
Other/Multi	0.994 (0.44 to 1.69)	0.61
Highest level of Education		
Less than High School Diploma	0.86 (0.44 to 1.70)	0.21
High School Diploma or GED	1.0 (Ref.)	
Some college or technical degree	1.76 (1.30 to 2.36)	0.07
College degree or postgraduate	2.44 (1.83 to 3.30)	<0.0001
Population Density		
Urban	1.0 (Ref.)	
Rural	0.59 (0.49 to 0.72)	<0.0001
Other	1.20 (0.94 to 1.51)	<0.0001
Community Tolerance		
Strongly Agree	2.65 (1.93 to 3.64)	<0.0001
Agree	1.35 (1.10 to 1.69)	0.01
Neither agree or disagree	1.0 (Ref.)	
Disagree	0.813 (0.607 to 1.09	0.0015
Strongly Disagree	0.61 (0.43 to 0.93)	<0.0001
Experienced Sexual Stigma		
Called Names or Insulted		
Yes	0.50 (0.38 to 0.66)	<0.0001
No	1.0 (Ref.)	
Age (years) (Median, IQR)	1.02 (1.01 to 1.03)	<0.0001
# of Male Sex Partners in Past Year per Partner (Median, IQR)**	1.09 (1.06 to 1.11)	<0.0001

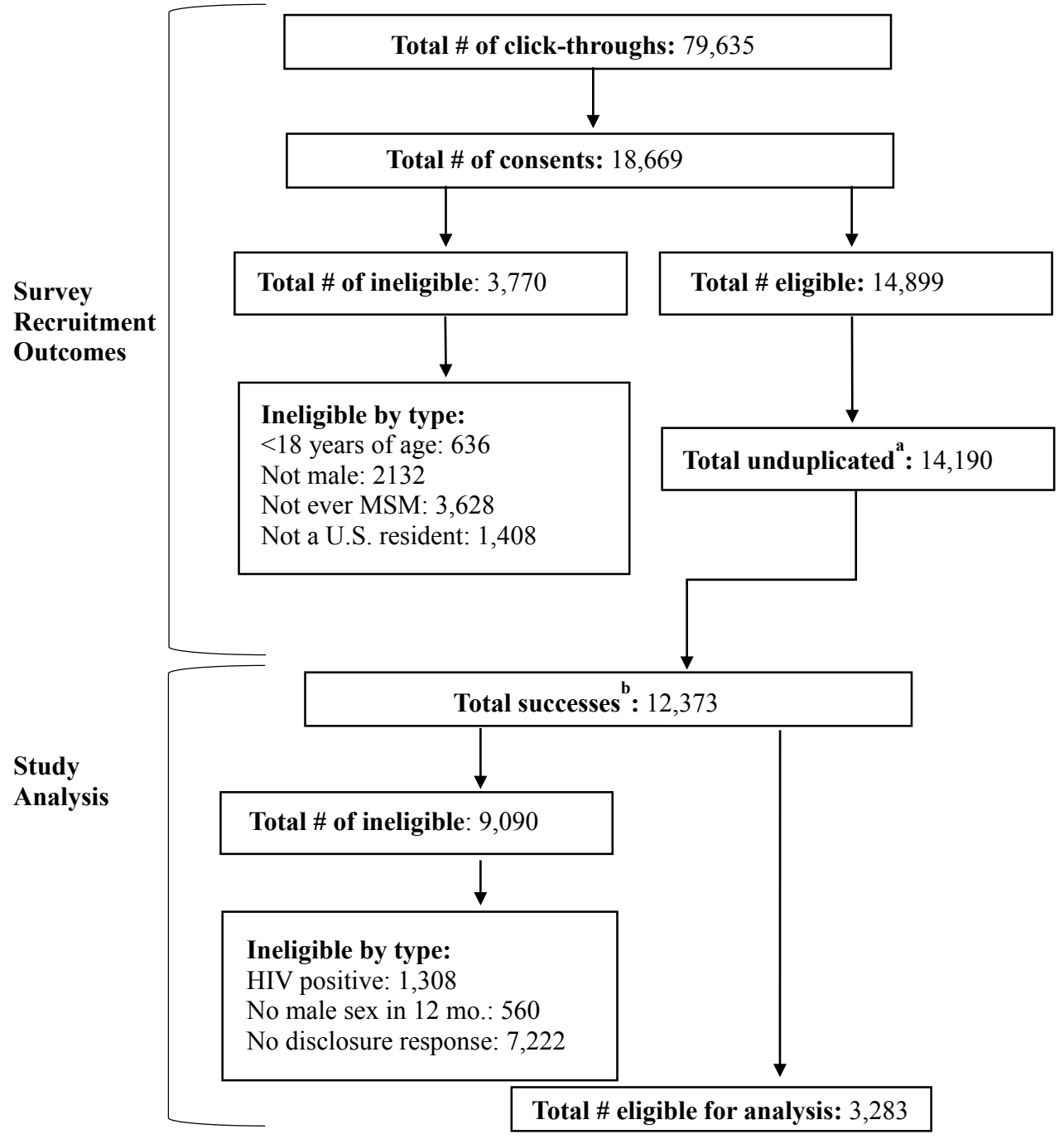
CI=Confidence Interval; OR=Odds Ratio

*After adjustment for all other variables in the logistic regression model

**Number of male sex partners was top-coded at 10 partners

FIGURES

FIGURE 1. Recruitment outcomes and analysis eligibility of participants in the American Men's Internet Survey (AMIS), United States, 2013.



a Proportion is among eligible. Unduplicated removes participants marked as duplicates using IP address and demographic data

b Proportion is among unduplicated. Success removes participants who did not pass the survival analysis test for survey completeness