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Sexual Identity Disclosure and Awareness of HIV Prevention Methods Among Black Men Who Have Sex With Men

Ryan J. Watson

Department of Human Development and Family Studies, University of Connecticut

Jessica N. Fish

Population Research Center, University of Texas at Austin

Aerielle Allen

Department of Psychology, University of Connecticut

Lisa Eaton

Department of Human Development and Family Studies, University of Connecticut

Black men who have sex with men (BMSM) are disproportionately affected by the human immunodeficiency virus (HIV) epidemic, yet we know little about how HIV-negative BMSM of different sexual orientations access HIV prevention strategies. Identity development, minority stress, and disclosure theories suggest that for people of different sexual orientations, disclosure of sexual identity may be related to health behaviors. We performed a latent class analysis on a sample of 650 BMSM ($M_{age} = 33.78$, $SD = 11.44$) from Atlanta, Georgia, to explore whether sexual orientation, disclosure of sexual identity, and relationship status were related to HIV prevention strategies, including awareness of PrEP (pre-exposure prophylaxis) and PEP (post-exposure prophylaxis) and frequency of HIV testing. We found three distinct BMSM classes referred to as (1) closeted bisexuals, (2) sexual identity managers, and (3) gay, out, and open; all classes primarily engaged in casual sex. Classes differed in their awareness and access to HIV prevention strategies. The closeted bisexual class was least aware of and least likely to access HIV prevention. Findings have important implications for future research, namely the consideration of sexual identity and disclosure among BMSM. With this knowledge, we may be able to engage BMSM in HIV/sexually transmitted infection (STI) prevention services.

Black men who have sex with men (BMSM) disproportionately represent the number of people living with human immunodeficiency virus (HIV) in North America and the United Kingdom (Millett, Flores, Peterson, & Bakeman, 2007; Millett et al., 2012; Millett, Peterson, Wolitski, & Stall, 2006). Disparities in HIV infections between BMSM and White MSM have been well documented, but scholars have only recently confirmed that racial disparities cannot alone explain why Black and White MSM vary in their rates of HIV infection (Goodreau et al., 2017). Though this group has higher HIV prevalence and incidence rates compared to any other racial/ethnic group, a large quantity of research to date has focused on BMSM as a monolithic group without attention to variability in sexual identity, public disclosure of that identity, or sexual partnerships. One exception is research from more than a decade ago where data demonstrated that BMSM were more likely to identify as

bisexual, but those who did not disclose this identity were less likely to engage in HIV risks compared to those who did disclose (Millett, Malebranche, Mason, & Spikes, 2005). Greater attention to and understanding of sexual identity among BMSM can help improve outreach and health care engagement.

Research that has examined the unique health outcomes associated with sexual orientation often focuses on minority stress theory (Meyer, 1995, 2003). According to this theory, members of stigmatized groups (e.g., sexual minorities, racial minorities) experience unique stressors compared to their nonstigmatized counterparts due to their marginalized group membership. For sexual minorities, it is this unique stress that results in greater risks for health problems because they are exposed to prejudice, stereotypes, and discrimination based on their minority status (Meyer, 2003). Although studies are limited, researchers have proposed that BMSM are at an even greater risk of poor health due to their dual membership in minority groups (i.e., sexual and racial; Balsam, Molina, Beadnell, Simoni, & Walters, 2011; Fields et al., 2015). For instance, lesbian, gay, and bisexual (LGB) individuals who

Correspondence should be addressed to Ryan J. Watson, University of Connecticut, Department of Human Development and Family Studies, 348 Mansfield Road, U-1058, Storrs, CT 06269. E-mail: ryanwatson@uconn.edu

are also racial/ethnic minorities may be subjected to microaggressions that are associated with both racism and sexism (Balsam et al., 2011; Bowleg, 2008, 2013). Negative experiences, such as microaggressions, that are associated with minority group membership have the potential to result in poor health outcomes (Cochran, 2001; Hatzenbuehler, 2009; Smith, Allen, & Danley, 2007).

Disclosing one's sexual orientation, or one's degree of outness, can have different implications on health and well-being and may be related to factors such as race/ethnicity and socioeconomic status (SES) (McGarrity & Huebner, 2014; Moradi et al., 2010). On the one hand, scholars have linked disclosure with better well-being and mental health, decreased illicit drug use, and a positive and stable self-concept (Juster, Smith, Ouellet, Sindi, & Lupien, 2013; McGarrity & Huebner, 2014; Morris, Waldo, & Rothblum, 2001; Pachankis & Goldfried, 2006), compared to those who do not disclose their sexual orientation. On the other hand, disclosure has also been associated with increased harassment, victimization, depression, suicide ideation and attempts, HIV/STI risk behavior, and decreased well-being (D'Augelli, Hershberger, & Pilkington, 1998; Friedman, Marshal, Stall, Cheong, & Wright, 2008; McGarrity & Huebner, 2014). Clearly, the impacts of sexual orientation disclosure may function differently for people of various identities and sociodemographic characteristics. Given that SES is often linked to race and ethnicity, it is meaningful that level of sexual orientation disclosure is linked to SES. In one study of 564 gay and bisexual men, researchers found SES to significantly moderate the relation between sexual identity disclosure and physician visits; high-SES individuals who were more out reported significantly fewer physician visits (McGarrity & Huebner, 2014).

There is reason to believe that sexual partnerships may play a role in the health and well-being of BMSM. For example, research has found racial/ethnic differences in the number of sexual partners and barriers to dating within the LGBTQ community. In a study examining the relationship between number of casual partners, self-reported HIV status, and risk behaviors, both Black and Latino MSM reported having fewer casual sex partners and more main partners compared to their White counterparts (Rosenberg, Sullivan, DiNenno, Salazar, & Sanchez, 2011). In addition, racial minority LGBTQ may experience racism and/or discrimination in dating relationships. Beliefs and feelings associated with racial/ethnic differences in sexual behavior can lead to rejection and/or sexual objectification of racial minority LGBTQs by other LGBTQ people, such as the idea that some racial minority LGBTQ people are less attractive or better at sexual intercourse (Wilson et al., 2009).

Before the emergence of the prescription medication known as pre-exposure prophylaxis (PrEP; brand name Truvada), condom use was the primary method of HIV prevention (Dolezal et al., 2015; Gardner, McLees, Steiner, Del Rio, & Burman, 2011). Treatment as prevention uses antiretrovirals to reduce viral load and, therefore, likelihood of HIV transmission among HIV-positive persons. PrEP is a daily

dose of antiretrovirals to reduce the likelihood of HIV acquisition among HIV-negative individuals (Burns, Grossman, Turpin, Elharrar, & Veronese, 2014; Dolezal et al., 2015; Grant et al., 2010). For HIV-negative BMSM, PrEP is a highly effective form of HIV prevention (Baeten et al., 2012; Dolezal et al., 2015; Grant et al., 2010; Thigpen et al., 2012). Multiple studies, however, have demonstrated that PrEP awareness and use are dramatically low (Burns et al., 2014; Dolezal et al., 2015), especially among BMSM (Eaton, Driffin, Bauermeister, Smith, & Conway-Washington, 2015). In other words, PrEP awareness and use are lowest among the most vulnerable populations, yet we are unaware to what extent different subgroups of BMSM might use PrEP.

Another method aimed to reduce the acquisition of HIV is post-exposure prophylaxis (PEP). PEP is an emergency intervention that is used to stop the acquisition of HIV after being exposed to the virus. It was initially used for occupational exposure to the HIV virus, but in 2001 studies began demonstrating its safety and feasibility in nonoccupational incidents (sexual exposure, intravenous drug exposure; Beymer et al., 2014; Dolezal et al., 2015; Kahn et al., 2001; Panlilio, Cardo, Grohskopf, Heneine, & Ross, 2005; Smith et al., 2015). The Centers for Disease Control and Prevention (CDC) recommends a 28-day treatment beginning within 72 hours of initial exposure. Similar to PrEP, PEP awareness and use are extremely low, particularly among populations most vulnerable, such as BMSM.

A vital step in accessing HIV prevention tools is linkage to HIV testing and counseling. The CDC recommends that sexually active MSM be tested for HIV every three to six months (CDC, 2015). There is mixed evidence that, for some groups, HIV testing and counseling are linked to preventive behavior; one early meta-analysis found that frequent counseling and testing reduced condomless sex and increased condom use among HIV-negative and untested participants (Weinhardt, Carey, Johnson, & Bickham, 1999). A more recent meta-analysis found no additional benefit from HIV sexual risk reduction counseling among 1,281 HIV-negative adults (Metsch et al., 2012). However, this study was conducted before the CDC strongly promoted PrEP; future projects that investigate counseling in light of PrEP might find different results. These HIV prevention methods and racial disparities in the uptake and awareness of PrEP, PEP, and HIV testing provide an impetus to investigate the links between these prevention strategies and sexual identity, disclosure, and sexual partnerships among our sample of BMSM.

The Current Study

For the current study, we used latent class analysis (LCA) to determine whether patterns of sexual identity, disclosure (e.g., outness), and sexual partnerships among a sample of BMSM are related to HIV prevention access and awareness. Based on identity development (D'Augelli, 1994) and minority stress theories (Meyer, 2003), and given recent judicial decisions normalizing some

nonheterosexual identities (Keck, 2009), there is reason to believe that subgroups of sexual minorities (i.e., individuals with nonheterosexual identities, such as gay, same gender loving, lesbian, and bisexual) may have disparate experiences regarding disclosure and accessing health care and disease prevention services (see Garofalo, Wolf, Kessel, Palfrey, & DuRant, 1998; Millett et al., 2012; Watson, Grossman, & Russell, 2016). In this study, we considered how different groups of BMSM—determined by self-reported sexual identity, disclosure of that sexual identity to family and their community, and sexual partnerships—might vary in their access and awareness of different HIV prevention methods.

Early Online View Method

Participants and Procedure

BMSM in this study ($N = 650$, $M_{\text{age}} = 33.78$, $SD = 11.44$) were recruited between December 2012 and November 2014 for an STI prevention trial for BMSM in Atlanta, Georgia. The participants came from a larger study ($N = 703$) that also included transgender women ($n = 53$). In this study, we included only cisgender participants. All participants reported being HIV negative or of unknown status. Participants were recruited via online social networking and dating services (e.g., Facebook and Black Gay Chat), via mobile application software (e.g., Jack'd), and via flyers distributed in public spaces that serve the gay community (e.g., bars, bathhouses, and parks). Recruiters—study staff who were also BMSM and had extensive prior experience interacting with the target sample—screened potential participants in person or online using Qualtrics screening software. To be eligible for the study, participants needed to be at least 18 years old, identify as male or as a transgender woman, report engaging in condomless anal intercourse with a male partner in the past year, and self-report being HIV negative or of unknown HIV status.

Eligible participants attended an in-person appointment at the study research site and provided written consent. During this appointment, participants completed a survey via audio computer-assisted self-interviewing (ACASI) software. After the assessment, participants were given an HIV test (OraQuick HIV-1/2 Antibody Test). Of the screened and eligible participants, 14% ($n = 101$) tested HIV positive but were unaware of this diagnosis when they started the study. These participants were included in the current study given that they became aware of their positive status after completing the initial baseline survey. For their participation, participants were compensated \$30. All procedures were approved by an institutional review board (IRB).

Measures

Sociodemographic variables. Participants reported their age, educational attainment (*Less than high school* to

Graduate school), whether they were currently employed, and annual income.

Class membership variables. To assess sexual identity, participants were asked, “How would you describe your sexual orientation?” Response options included *Same gender loving*; *Gay/homosexual*; *Bisexual*; and *Heterosexual*. To assess whether participants had disclosed their sexual orientation to their family and/or community, two separate items were asked: “Thinking about your family (community), how out are you about your sexuality?” Response options were *Definitely closeted (not open about sexual orientation)*; *Closeted some of the time and out some of the time*; and *Definitely out (open about sexual orientation all of the time)*. Regarding sexual partnerships, one item asked, “Which of the following best describes your relationship status at this point?” Response options included *Not having sexual relations*; *Having sex but do not have an exclusive partner*; *In an exclusive relationship with one person and no outside sexual partners*; and *In a relationship with one person and have outside sexual partners*.

HIV-related outcome measures. We measured the frequency of HIV testing by asking participants, “How often do you get tested for HIV?” Response options were *Never been tested for HIV*; *Less than yearly*; *Yearly*; *Every six months*; *Every three months*; and *Monthly*. In accordance with CDC testing guidelines, we dichotomized this variable as tested every six months or more often (which includes every three months and monthly) and tested less than every six months. Regarding PEP awareness and use, participants were asked whether they had ever heard of PEP (PEP was then defined as “taking anti-HIV medications AFTER possible exposure to HIV”) and whether they had ever taken PEP. Given PrEP is recommended as a prevention option for MSM who are at substantial risk of HIV acquisition by the CDC (2014), we also assessed awareness and use of PrEP. Participants were asked whether they had ever heard of PrEP (PrEP was then defined as “taking anti-HIV medications to prevent HIV infection”) and whether they had ever taken PrEP. Response options were *No* and *Yes* for both PEP and PrEP items. Participants were also asked if, given the option, would they be interested in taking PrEP. Responses options were *No* and *Yes*.

Analytic Strategy

We used LCA to identify patterns of sexuality characteristics (i.e., sexual identity, disclosures of sexual identity, and relationship status) and to test whether subgroups of BMSM differed on prevention and awareness methods. We used PROC LCA (Lanza, Collins, Lemmon, & Schafer, 2007) in SAS Version 9.4 and the %LCA_Distal macro (Lanza, Tan, & Bray, 2013) to estimate associations between latent class membership and outcomes. We assessed model fit by

comparing Akaike information criteria (AIC) and Bayesian information criteria (BIC) across 500 sets of random starting values, where lower scores indicate better fit. We also considered interpretability and class separation during model enumeration. Following the selection of our latent class model, we estimated the association between demographic covariates and latent class membership. Finally, we estimated the association between latent class membership and HIV testing and PrEP and PEP use and awareness. Associations between latent class membership and HIV-related outcomes are tested using a multinomial logistic regression framework. Therefore, when an odds ratio is above 1.00, the comparison class has higher odds than the referent class of engaging in the associated outcome. Conversely, when an odds ratio is below 1.00, the comparison class has lower odds than the referent class of engaging in the associated outcome.

Results

Because there were no significant differences in variables of interest between same-gender-loving and gay/homosexual participants in our preliminary analyses, we combined the two groups. Table 1 displays the sociodemographic characteristics of our sample. More than half (54.33%) of participants reported earning \$10,000 a year or less, and

Table 1. Descriptive Statistics ($N = 650$)

	<i>n</i>	%
Education		
Less than high school	37	6.25
High school	199	32.81
Some college	260	38.64
≥ College	154	15.48
Employed		
Yes	356	54.85
No	293	45.15
Income (USD)		
≤ \$10,000	351	54.33
\$11,000–\$20,000	119	18.42
\$21,000–\$30,000	82	12.69
\$31,000–\$40,000	44	6.81
\$41,000–\$50,000	29	4.49
\$51,000–\$60,000	12	1.86
≥ \$61,000	9	1.39
Tested for HIV		
Yes	536	82.59
No	113	17.41
How often tested		
Never	114	17.62
Less than yearly	86	13.29
Yearly	118	18.24
Every six months	207	31.99
Every three months or more frequently	122	18.86
HIV positive		
Yes	99	15.23
No	551	84.77

Note. M = mean; $M_{\text{age}} = 33.78$, $SD = 11.44$.

50.85% of the sample indicated they received HIV testing at least every six months. A total of 385 participants (64% of the sample and 98% of the total participants who had ever heard of PrEP) reported they had not used PrEP but showed interest in it if they had the option to take it.

Latent Class Analysis

We compared five latent class models to identify the best-fitting model (see Table 2). All relative fit indices of AIC and BIC pointed to a three-class model, and follow-up investigation into class separation and interpretability supported this conclusion. Results from the bootstrap likelihood ratio tests (BLRT, conducted in Mplus; Muthén & Muthén, 1998–2012), which compares the fit of a k class to $k - 1$ class, supported the three-class solution. Table 3 displays the item-response probabilities of sexuality indicators by latent class membership. Class 1, named gay, out, and open, included predominantly gay BMSM who were definitely out to their families (89.03%) and communities (88.94%) and engaged in sex outside of a partnership but to a lesser degree than the other two classes. The gay, out, and open participants were more likely than other groups to report exclusive partners and not having sex. Class 2 consisted of majority bisexual (50.95%) BMSM (but also included heterosexual and gay men) who were largely not out to their family or community and engaged in sex outside of a partnership; we refer to this group as closeted bisexuals. Class 3, the managing minorities, included sexual minority (gay and bisexual) BMSM who were mostly managing their outness levels to family and community (i.e., were closeted some of the time) and engaged in sex outside of a partnership.

Characteristics of Class Membership

Table 4 presents the latent class memberships by demographic covariates. Latent class membership varied by age ($p < .001$) and education ($p = .027$). Nearly 60% of 18- to 24-year-olds were in the gay, out, and open class, compared to 13.73% who were in the managing minorities class. Men with a high school education or who had not completed high school had a higher probability of being in the closeted bisexuals class, whereas those with some college or a college degree had a higher probability of being in the managing minorities class. Class membership variability was not, overall, significantly related to employment, though post hoc group comparisons indicated that managing minorities were less likely to be employed than gay, out, and open men.

Association Between Latent Class Membership and Outcomes

We tested whether class membership was significantly associated with (1) frequency of HIV testing and (2) PrEP/PEP awareness, use, and interest. Results of estimated

Table 2. Model Fit Indices for Competing Latent Class Models (N = 650)

No. of Classes	LL	G ²	df	AIC	BIC	CAIC	ABIC	% Seed	Entropy
1	-2738.43	583.33	(98)	601.33	641.62	650.62	613.05	100.0	1.00
2	-2532.65	171.77	(88)	209.77	294.83	313.83	234.50	100.0	0.80
3	-2493.33	93.13	(78)	151.13	280.96	309.96	188.88	99.6	0.71
4	-2484.18	74.82	(68)	152.82	327.43	366.43	203.60	33.0	0.74
5	-2477.43	61.33	(58)	159.33	378.70	427.70	223.13	13.6	0.81

Note. BIC = Bayesian information criterion; CAIC = Consistent Akaike information criterion; BLRT = Bootstrap likelihood ratio test not available for nondichotomous indicators (Dziak & Lanza, 2016). Model estimation was replicated in Mplus where BLRT indicated that a three-class model fit the data best ($LL_{diff} = 18.30$, $df = 10$, $p = .217$); boldface indicates the best-fitting model.

Table 3. Sexual Orientation, Degree of Being Out to Community and Family, and Relationship Status in the Overall Sample and by Latent Class (N = 650)

	Overall Sample		Gay, Out, and Open	Closeted Bisexual	Managing Minorities
	n	%	(33.18%)	(36.31%)	(30.51%)
Sexual identity					
Gay	301	46.74	66.75	22.27	53.98
Bisexual	257	39.91	27.00	50.95	40.84
Heterosexual	86	13.35	6.25	26.78	5.18
Out to community					
Definitely closeted	138	21.26	1.05	57.21	0.37
Closeted some of the time	275	42.37	10.00	42.79	76.92
Definitely out	236	36.36	88.94	0.00	22.71
Out to family					
Definitely closeted	219	33.69	4.27	79.81	10.82
Closeted some of the time	193	29.69	6.70	18.35	68.18
Definitely out	238	36.62	89.03	1.84	21.00
Relationships status					
Not having sex	62	9.54	18.08	8.80	1.13
Having sex, no partner	401	61.69	51.86	59.92	74.50
Exclusive partner	80	12.31	17.26	8.87	11.01
In relationship, outside partners	107	16.46	12.80	22.41	13.36

Note. Participant reports across items may not reflect sample size (N = 650) due to missing data.

Table 4. Latent Class Membership as a Function of Demographic Covariates

	Prevalence of Latent Class Membership as a Function of Demographic Covariates			Associations Between Demographic Covariates and Latent Class Membership Relative to Gay, Out, and Open (REF)				Overall Test of Significance p Value
	Gay, Out, and Open (%)	Closeted Bisexuals (%)	Managing Minorities (%)	Closeted Bisexuals		Managing Minorities		
				OR	[95% CI]	OR	[95% CI]	
Age								$p < .001$
18–24	58.31	27.96	13.73	REF		REF		
25–40	40.69	31.94	27.37	1.70	0.99, 2.91	1.80	0.94, 3.47	
40+	18.24	52.06	29.69	6.89	3.72, 12.78	4.83	2.19, 10.64	
Education								$p = .027$
High school	15.46	57.59	26.95	REF		REF		
< High school	36.51	38.95	24.55	2.72	1.02, 7.28	2.09	0.59, 7.38	
Some college	33.16	30.85	35.98	1.15	0.67, 1.97	1.84	0.96, 3.52	
College+	21.02	35.33	43.65	1.83	0.92, 3.63	3.10	1.35, 7.13	
Employed								$p = .076$
No	30.63	33.79	35.58	REF		REF		
Yes	38.23	34.58	27.19	0.71	0.46, 1.12	0.54	0.32, 0.91	

Note. REF = reference category; gay, out, and open class is the reference group for associations between demographic covariate and latent class membership. OR = odds ratios; 95% CI = 95% confidence intervals.

Table 5. *Estimated Probabilities of HIV-Related Outcomes by Class Membership*

	Gay, Out, and Open (REF)				Closeted Bisexuals (REF)	
	vs. Closeted Bisexuals		vs. Managing Minorities		vs. Managing Minorities	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Frequency of HIV testing _[≥ 6 mo.]	.45	[0.28, 0.72]	1.06	[0.64, 1.75]	2.34	[1.39, 3.96]
Heard of PEP _[Yes]	.46	[0.28, 0.75]	.83	[0.47, 1.46]	1.79	[0.99, 3.21]
Heard of PrEP _[Yes]	.41	[0.25, 0.67]	.66	[0.36, 1.19]	1.62	[0.86, 3.03]
PEP use _[Yes]	1.83	[0.13, 25.71]	6.19	[0.60, 63.64]	3.39	[0.38, 32.45]
PrEP use _[Yes]	.63	[0.12, 3.19]	.98	[0.18, 5.27]	1.56	[0.21, 11.73]
Interested in PrEP _[Yes]	1.37	[0.81, 2.34]	1.07	[0.53, 2.17]	.78	[0.40, 1.54]

Note. REF = Reference category.

probabilities of HIV-related outcomes by class membership are displayed in Table 5.

Frequency of HIV testing. Closeted bisexual men were 55% less likely than gay, out, and open men to report HIV testing every six months or more often. Managing minorities men were also more likely to test biannually relative to the closeted bisexual class. The odds of biannual testing were similar for the managing minorities and gay, out, and open classes. Results from the SAS % LCA_Distal macro (Lanza et al., 2013) indicated that the closeted bisexual class had the lowest probability of HIV testing (37.31%), compared to men in the managing minorities (58.26%) and the gay, out, and open (56.93%) classes.

PEP and PrEP awareness. Closeted bisexual men were 54% less likely to know about PEP compared to gay, out, and open men. Managing minorities and gay, out, and open men did not vary in their PEP knowledge. Managing minorities were no more or less likely to have heard of PEP than closeted bisexual men. Overall, the closeted bisexual class was the least likely to know about PEP (18.65%) compared to the managing minorities (29.12%) and gay, out, and open (33.12%) classes.

The closeted bisexual class, relative to the gay, out, and open class, was 59% less likely to report awareness about PrEP. Managing minorities and gay, out, and open classes did not differ in their PrEP awareness. Managing minorities were no more or less likely to have heard about PrEP relative to closeted bisexual men. Overall, the gay, out, and open class had the highest probability of PrEP knowledge (32.51%), followed by the managing minorities class (24.11%) and the closeted bisexuals (16.39%).

PEP and PrEP use. PEP and PrEP use did not vary by class membership. PEP use was reported by less than 1.12% of the closeted bisexual class, 3.68% of the managing minorities class, and 0.61% of the gay, out, and open class; and less than 2% of BMSM in all three classes reported the use of PrEP.

PrEP interest. All three classes were equally likely to state they would take PrEP if they had the option. That is, 80.03% of those in the gay, out, and open class, 84.63% of closeted bisexual men, and 81.12% of managing minorities stated they would take PrEP if given the option.

Discussion

In summary, the closeted bisexual participants reported the least frequent HIV testing and were least likely to have heard of PEP and PrEP. The gay, out, and open participants were tested second most frequently for HIV and were most likely to have heard of PEP and PrEP. The managing minorities were consistently at lower risk than the closeted bisexual participants and at higher risk than the gay, out, and open participants. We found clear differences in awareness of common HIV prevention strategies based on sexual identity, disclosure, and sexual partnerships. Each class of BMSM was largely defined by having casual sex without a regular sexual partner (see Table 3). For example, nearly three-fourths of members in the managing minorities class reported their sexual relations as casual and outside of a dating partnership (i.e., casual sex). Despite a similarity in sexual partnership across classes, there were meaningful differences in sexual identity and disclosure across the three classes.

Overall, our findings reveal that BMSM who were in the closeted bisexual class reported the worst access and lowest awareness of HIV prevention strategies. That is, closeted bisexual BMSM tested for HIV less frequently than the CDC recommends and were least likely to have heard of pre- and post-exposure prophylaxis for HIV infection prevention. For our sample of BMSM, identifying as majority bisexual and not revealing that bisexual identity to family and the community was associated with lower levels of awareness of PEP and PrEP awareness. This finding is in line with a large body of research that finds bisexual individuals experience and report the worst outcomes compared to their gay, lesbian, and straight counterparts in mental, sexual, and emotional health (Fredriksen-Goldsen, Kim,

Barkan, Muraco, & Hoy-Ellis, 2013; Institute of Medicine, 2011). In addition, this group's patterns largely reflect those found by scholars who focus on men on the down-low—which are, in part, men who do not disclose their bisexual same-sex activities to female partners (Millett et al., 2005). Most scholarship has linked these disparities to bias and biphobia (Friedman et al., 2014). Research documents that many bisexual individuals feel as if they do not belong to either gay/lesbian or heterosexual groups and may face high rates of stigma and/or feel pressure to choose one of two dichotomous groups (Eliason, 1997). Combined with minority stress related to race/ethnicity, these compounded pressures may help explain the lower awareness and access reported by bisexual BMSM.

Notably, 28% of the closeted bisexual group also identified as heterosexual. Given that public health efforts tend to target groups that show elevated risk, men who do not identify as gay or bisexual may not be receiving public health materials and messages regarding HIV risk. Future studies should explore differences in HIV exposure and awareness and access to HIV prevention strategies between heterosexual MSM and sexual minority MSM. Findings may point to different strategies for HIV prevention efforts and outreach. We found that BMSM who were out to all of their family and community as gay reported high levels of HIV testing and the highest awareness of HIV prevention strategies. This supports research by Scott and colleagues (2014) that found increased social support was linked to increased HIV testing for BMSM.

Researchers have also investigated the implications of sexual orientation disclosure—and subsequent reactions to the disclosure—on health and well-being (Rosario, Schrimshaw, & Hunter, 2009; Ryan et al., 2009), though findings are complex. Some scholars have found that disclosing one's sexual identity results in accepting behaviors; others report experiencing rejection reactions and behaviors. In our study, we cannot surmise whether the men in our sample experienced acceptance or rejection when coming out to their families or communities. Some research that has found positive mental health and emotional outcomes for sexual minorities has also reported high parental support and acceptance of sexual orientation (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010; Shilo & Savaya, 2011); alternatively, Rosario and colleagues (2009) noted substance use disparities for those who disclosed their sexual orientation to others and were rejected. Perhaps the class of BMSM who were in a setting that supported their coming out also provided resources to access HIV prevention strategies. In addition, perhaps those who are out may be better integrated into LGBTQ communities and thus hear about the importance of routine HIV testing and HIV prevention methods. The nuances of these experiences have important implications for how stakeholders consider spreading awareness and acceptance of LGBTQ identities among Black communities. Future work that is focused on the experiences of sexual identity disclosure for BMSM and the subsequent effects on their health and sexual health practices, in

particular, has important implications for health promotion and HIV-prevention strategies.

Surprisingly, BMSM who were managing their gay or bisexual identities were not the best or worst off regarding HIV prevention tools; instead, these men were consistently better off than those in the closeted bisexuals class but worse off than gay BMSM who had disclosed their sexual identities. We might expect that when BMSM need to manage the disclosure of their sexual identities, there may be increased pressure and danger in seeking opportunities that would reduce risk of HIV or other adverse outcomes. Perhaps the BMSM in our sample have developed strategies to compartmentalize their identities and interests according to the groups of people to whom they are out. Much more research is needed to understand the outcomes of those who manage their sexual identity disclosure across networks and contexts.

As noted, 14% of our overall sample tested positive for HIV. This high rate of prevalence among individuals reporting HIV-negative or unknown status is alarming and suggests that participants in the current study were from a high-risk population. In our analyses, classes did not significantly differ by HIV positivity, though the closeted bisexual class had the greatest prevalence of testing HIV positive (20%) relative to managing minorities (10%) and gay, out, and open participants (14%).

Though only 23% of our sample had heard of PrEP, once educated on the benefits of Truvada (i.e., pre-exposure prophylaxis), men across all classes were equally likely—at about 80%—to state that they would use PrEP if given the option. This finding underscores the overwhelming importance of PrEP education and access. Public health strategies need to increase awareness of PrEP for BMSM and minimize barriers to access Truvada for this population.

Limitations and Implications

While this study has many strengths, there are also limitations. First, our study focused on BMSM limited to one large city in the United States. Large cities are epicenters for higher prevalence of HIV and other STIs, but we cannot conclude these patterns or classes generalize across the United States. In addition, though the methodology we employed was advanced and contemporary, we lost some nuance when we classified all participants into one of three classes. In doing so, however, we were able to reveal important differences across discrete groups of sexual identity, disclosure, and partnerships. We did not measure support of sexual orientation or the reaction to sexual identity disclosure; with this information, we may have been better able to suggest why classes differed based on their awareness of and access to prevention methods. Future studies should include more sexuality-specific measures to further determine the effects of sexual identity, disclosure, social support, and self-acceptance of multiple identities.

This study has important implications for clinicians, researchers, and designs of intervention and prevention strategies. Clearly, awareness of HIV prevention is not consistent

across subgroups of BMSM. Our results also suggest that when seeing BMSM patients or designing intervention/prevention programs, stakeholders should be attuned to how sexual identity and sexual identity disclosure might impact the stigma felt in relation to PEP, PrEP, and frequency of HIV testing. In addition, men who are not out to family or community members appear to be an at-risk group for low rates of awareness and low use of HIV prevention strategies. Future research can focus on how disclosure of sexual identity manifests as risk for BMSM or, alternatively, how sexual identity may confer risk for some. Most important, when educated about the benefits of PrEP, we noted no differences across classes. Findings indicate that education efforts and reducing barriers to access for this population would result in a large uptake of PrEP usage and, thus, dramatic decreases in HIV infection rates for a group deemed disproportionately at risk for HIV. Therefore, the most straightforward implication of our findings is the need for education, outreach, and affordable access of PrEP for BMSM.

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