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What Factors Are Associated With Receiving a Recommendation to Get Tested for HIV by Health Care Providers among Men who Have Sex with Men?

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Abstract

Background: The approach of treatment as prevention for reducing HIV incidence and prevalence hinges upon early detection of HIV infection and treatment in order to achieve viral suppression and, thus, to reduce HIV transmissibility. However, men who have sex with men (MSM), who are at greater risk of HIV infection than the average adult in the United States, are often not tested because many providers do not provide routine opt-out testing or even recommend HIV testing.

Methods: In a sample of 244 MSM in San Francisco, CA, the present study examined whether 1) sociodemographic characteristics (i.e., youth; education; employment status; being African American; being Latino), 2) health care access and utilization, and 3) participants having disclosed their sexual orientation to their health care providers were associated with their odds of having received a recommendation from a health care provider for HIV testing.

Results: Results showed that none of the sociodemographic or health care-related factors were associated with whether a health care provider recommended HIV testing, but MSM having disclosed their sexual orientation to their health care providers was associated with an over eight times greater odds of MSM receiving a recommendation for HIV testing.

Conclusion: The study findings underscore the need for routine opt-out HIV testing in order to screen members of high-risk populations who may not enter the HIV continuum of care and for health care providers to be able to ask patients about HIV risk behavior and sexual orientation and behavior.

Keywords

men who have sex with men; HIV testing; routine opt-out testing; treatment as prevention

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Introduction

Men who have sex with men (MSM) in the United States bear a disproportionate burden of HIV. For example, HIV incidence is consistently higher among MSM than the average adult in the U.S.[1,2], and HIV prevalence among MSM is estimated to be 15.4% compared to less than 1% among all adults in general[3]. Additional factors associated with HIV infection among MSM include younger age, being African American, and being Latino[4–6]. To address HIV incidence and prevalence among high-risk groups such as MSM in the United States, the National HIV/AIDS Strategy urges a focus on "treatment as prevention" (TaSP), or preventing transmission to HIV-negative persons by achieving viral suppression among HIV-positive people, which reduces HIV transmissibility to HIV-negative persons while improving health and survival rates for HIV-positive persons[7,8]. Thus, the Centers for Disease Control and Prevention (CDC) recommends that MSM, given a higher than average risk of HIV infection[9], are tested at least annually in order to promote early detection of HIV, early initiation of ART treatment, and, ultimately, viral suppression and reduced transmissibility of HIV[10].

One way to promote HIV testing among MSM is to promote routine, opt-out testing for all young people and adults who are theoretically at any risk of contracting HIV. For example, US Preventive Sciences Task Force has recommended that clinicians screen all adolescents and adults aged 15 to 65[11,12] and the CDC has recommended routine HIV testing for all persons aged 13 to 64[10]. A number of researchers and practitioners have called for routine opt-out testing due the pit falls of risk-based testing, such as testing based on the aforementioned risk factors of sexual orientation or behavior, which often misses individuals from high-risk populations because they are not known or observed to be high-risk[13,14]. This is particularly dire for subgroups among MSM such as African-American MSM, who bear a greater burden of HIV incidence and prevalence than other MSM[15–17]. African-American MSM are more likely to be unaware of their HIV and less likely to be tested for HIV than other MSM[18]. In addition, MSM who disclose their sexual orientation to their health care provider are more likely to receive a recommendation for HIV testing than MSM who do not disclose their sexual orientation to their health care provider[19–21]. Further, African-American MSM are less likely than other MSM to disclose their sexual orientation to their providers[20].

However, a study using data from the national Medical Monitoring Project has found that many health care providers are still using risk-based testing rather than routine testing[9]. As such, even when members of groups that experience a high burden of HIV and consequences of health disparities present to a health care provider, they may not be tested for HIV. Thus, we examined whether sociodemographic characteristics, including race (i.e., being African American) and ethnicity (i.e., being Hispanic), and health care access and utilization (i.e., has private health insurance or has public or other health insurance, with no insurance as the reference group; has a usual source of health care, such as a specific doctor or clinic) predicted their reports of whether their health care provider recommended HIV testing to them in the prior year. We also examined whether the patients have disclosed their sexual orientation to their health care provider were linked to whether these patients received a recommendation for HIV testing from a health care provider in the prior year. We focused

on MSM in the San Francisco Bay Area, which is a national exemplar of HIV care and public health efforts for engaging MSM into the HIV care continuum[22–24]. Disparities in the San Francisco Bay Area may suggest an even greater need for study of and intervention on disparities in other cities and regions of the U.S.

Methods

Data Source

The data were collected in the 2014 wave of National HIV Behavioral Surveillance (NHBS). Details of the specific methods of NHBS have been previously published.[25] The survey utilized time-location sampling (TLS) to sample MSM frequenting venues that were identified in a formative phase of the project as venue where MSM congregate. These venues included MSM-identified venues (e.g., bars; dance clubs; social organizations) and non-MSM-identified venues (e.g., parks; cafes; gyms). Venues were randomly sampled by study staff from July to December in 2014. All participants provided verbal consent, completed an interviewer-administered survey, and provided a blood sample for HIV antibody and HIV incidence testing with the option of receiving their HIV test results in person or via telephone one week later. An HIV-negative serostatus was confirmed for all participants in the present study. All participation was anonymous, and all aspects of data collection were ethically reviewed and cleared or approved by the University of California, San Francisco's Committee on Human Research (IRB approval # 084556).

Measures

The NHBS survey covered a number of domains and factors. The present study focused on several clinical-behavioral measures. Specifically, given the focus of the present study on factors linked health care providers recommending HIV testing to MSM patients, participants were asked to answer *yes* or *no* to the following item: "In the past 12 months… have you seen a doctor, nurse, or other health care provider?" If they responded *yes*, they were then asked to respond *yes* or *no* to the following item: "At any of those times you were seen, were you offered an HIV test? An HIV test checks whether someone has the virus that causes AIDS." The latter item served as a measure of whether a provider recommended HIV testing. Participants were also assessed on whether they had disclosed their sexual orientation to their health care providers with the items, "Have you ever told anyone that you are attracted to or have sex with men?" and then a follow-up *yes*/*no* item for whether they had told their health care provider.

Additional measures included the following sociodemographic items: age, education, employment status, race and ethnicity. Age was categorized as whether participants were young (i.e., ages 18 to 29; ages 30 or older), education was categorized as shown in Table 1, employment was categorized was whether participants were employed full-time, race was categorized as whether participants were African American, and ethnicity was categorized as whether participants were Latino or Hispanic. Finally, three dichotomous measures of health care access and utilization were added. Two variables represented whether participants had private health insurance and whether they had public or other health insurance, respectively;

no health insurance was the reference group. The third variable was whether participants had a usual source of health care (e.g., clinic; doctor's office).

Data Analysis

Analyses were guided by the hypothesis that sociodemographic characteristics (i.e., age; education; employment status; race; ethnicity), health care access and utilization (i.e., has private health insurance; has public or other health insurance; has a usual source of health care), and disclosure of sexual orientation to health care provider were significantly associated with whether MSM's health care providers recommended HIV testing to them. We restricted our analyses to HIV-negative MSM who had seen a health care provider in the prior 12 months. Bivariable associations between all of the following study variables were estimated first to examine unadjusted associations between them and to help identify possible confounding: young, education, employment, African American, Latino, has private health insurance, has public or other health insurance, has a usual source of health care, disclosed sexual orientation to health care provider, and health care provider recommended testing. Multivariable logistic regression was then used to identify which sociodemographic and health care access and utilization factors were associated with the odds of having a health care provider recommend HIV testing within the prior 12 months among MSM participants who were HIV-negative and had seen a health care provider in the prior 12 months. A second model was run to determine whether disclosing one's sexual orientation to one's health care provider accounted for the odds of having a health care provider recommend HIV testing within the prior 12 months above and beyond sociodemographic and health care access and utilization factors. Analyses were conducted using Stata (version 14). We used a significance level of 0.05 for all statistical tests.

Results

Table 1 shows demographic characteristics of MSM participants who reported being HIV-negative at the time of the interview (N=244). The sample was varied with respect to age (M=37.54, SD=12.50), with 34.5% of the sample being under age 30, 30.6% ages 30 to 40, 18.4% ages 41 to 50, and 16.8% older than 50 years of age. The sample was also predominantly Caucasian (55.7%), with Latinos forming the next largest racial or ethnic group (21.7%). The sample was well educated, with 58.2% having attained a bachelor's degree or greater, and mostly employed full-time (70.9%). Most participants identified as gay (93.9%) and had disclosed their sexual orientation to their health care providers (91.0%).

Most participants (66.0%) reported that a health care provider recommended HIV testing to them within the prior 12 months. The majority of participants (79.9%) reported that they were tested for HIV in the prior 12 months. A majority of participants reported having some form of health insurance or coverage (88.1%), with most who had health insurance reporting that they had private health insurance (75.3%). The majority of participants reported having a usual source of health care (83.2%). A subset of participants had their most recent HIV test at a private doctor's office (32.5%), with additional subsets of MSM having been most recently tested at a HIV counseling and testing site (22.6%) and a public health clinic or

community health center (20.6%), respectively. There was a strong association between reports of receiving a recommendation from a health care provider to get tested for HIV and reports of getting tested for HIV in the prior 12 months, $\chi^2(1)=61.94$, Cramér's $V=0.50$, $p<0.0005$.

Table 2 displays bivariable associations. Of note, being African American and being Latino were not associated with health care providers recommending HIV testing ($p=0.607$ and 0.794, respectively). Also, being African American and being Latino were not associated with disclosure of sexual orientation to their health care providers ($p=0.776$ and 0.186, respectively).

In multivariable logistic regression analyses (Table 3), a model of sociodemographic and health care access and utilization factors predicting the odds of having a health care provider recommend HIV testing within the prior 12 months among MSM participants who were HIV-negative and had seen a health care provider in the prior 12 months (log likelihood $\chi^2=10.73$, $p=0.218$, Pseudo $R^2=0.03$) showed that none of the sociodemographic factors (e.g., being African American; being Latino) were uniquely, significantly associated with the outcome. This model fit the data (Pearson $\chi^2[105]=94.90$, $p=048$). A second model that included disclosing one's sexual orientation to one's health provider (log likelihood $\chi^2=28.46$, $p=0.018$; Pseudo $R^2=0.09$) showed that patients who reported having disclosed their sexual orientation to their health care providers were over eight times more likely to have a health care provider recommend HIV testing than patients who had not disclosed their sexual orientation to their health care providers ($AOR=8.45$, $SE=4.72$, $p<0.0005$) when controlling for sociodemographic and health care access and utilization factors. This model also fit the data (Pearson $\chi^2[95]=96.53$, $p=0.71$). A log likelihood difference test showed that a logistic regression model that included having disclosed one's sexual orientation to one's health care provider with sociodemographic characteristics fit the data significantly better than a logistic regression model that did not include having disclosed one's sexual orientation to one's health care provider ($\chi^2[1]=17.73$, $p<0.0005$). When adjusting for disclosure of sexual orientation to one's health care provider, none of the variables was statistically significant.

Given the small number of African Americans ($n=15$) and Latinos ($n=53$) in the sample, which reflects the racial and ethnic composition of San Francisco[26], these groups were further examined in three ways using the full model that included disclosure of sexual orientation to one's health care provider. First, a sensitivity analysis showed that overall model sensitivity was 93% with specificity at 24%, and 70% of cases were correctly classified. Thus, there was a high degree of sensitivity in the model even with varied cell sizes. Second, the marginal, predicted probabilities of having a health care provider recommend HIV testing for African-American and Latino MSM, respectively, were computed. The probability of African-American MSM having HIV testing recommended (predicted probability=0.61, delta-method SE=0.14, p<0.0005) was only 7% lower than it was for non-African-American MSM (predicted probability=0.68, delta-method SE=0.03, p<0.0005) when holding all other variables constant at their respective means. The probability of Latino MSM having HIV testing recommended (predicted probability=0.69, delta-method SE=0.07, p<0.0005) was just 2% higher than it was for non-Latino MSM

(predicted probability=0.67, delta-method SE=0.04, p<0.0005). Finally, the multivariable regression analyses were repeated with the two race and ethnicity variables, being African American and being Latino, replaced with being African American or Latino. This latter category combined the cell sizes of African-American and Latino MSM in the sample in order to determine effects of race and ethnicity with larger subsamples and one less competing variable. The results were essentially the same. MSM who had disclosed their sexual orientation to their health care provider were nearly seven times more likely to have been to have had a health care provider recommend HIV testing to them in the prior 12 months than MSM who had not disclosed their sexual orientation to their health care provider (*AOR*=6.81, *SE*=3.55, *p*<0.0005) when controlling for sociodemographic factors, which were statistically non-significant in the model. Whether the participants were Black or Latino did not predict whether the participant was recommended for HIV testing (*AOR*=1.00, *SE*=0.34, *p*=0.99).

Discussion

The findings of the present study are significant in that they indicate that, even in an exemplar city with a long history of progressive, early-adopter HIV prevention programming and activism such as San Francisco[22–24,27], some MSM may not be getting enough support from health care providers in the form of HIV testing recommendations. Specifically, the results showed that MSM sampled in the present study who had disclosed their sexual orientation to their health care provider had a significantly greater odds of reporting that a health care provider recommended HIV testing to them than MSM who had not disclosed their sexual orientation to their health care provider. In contrast, sociodemographic factors, health insurance coverage, and having a usual source of health care were not significantly associated with having a health care provider recommend HIV testing. For example, MSM who reported being an African American or Latino, racial and ethnic groups that are more adversely affected by HIV than Caucasians, did not differ from MSM of other racial or ethnic groups in their reports of having had a health care provider recommend HIV testing to them in the prior 12 months. These results confirm prior studies showing that MSM who disclose their sexual orientation are more likely to receive a recommendation from a health care provider to be tested for HIV than those who do not disclose[19–21]. Routine, opt-out testing may be critical to reach MSM who do not disclose their sexual orientation and MSM who have providers who do not ask patients about their sexual behavior or identity.

Other key findings included a significant association between reports of receiving a recommendation by a health care provider to get tested for HIV in the prior 12 months and reports of getting tested in the prior 12 months, indicating that MSM who received a recommendation to get tested for HIV were more likely than MSM who did not receive a recommendation to have actually gotten tested in a given time period. This is consistent with prior literature showing an association between a health care provider discussing HIV testing with MSM and MSM getting tested[19]. Further study is needed, however, as MSM typically do not cite a recommendation from a health care provider as the reason for them getting tested[19]. Reasons typically include one's perceptions of own risk of or susceptibility to HIV and testing as a matter of routine[28].

In addition, the percentage of MSM who were recommended for HIV testing was high, 66%. Further, in bivariable and multivariable analyses, having a health care provider recommend HIV testing and disclosure of one's sexual orientation to one's health care provider were not associated with being African American, Latino, specifically, or, non-Caucasian, more broadly, in bivariable analysis of the present sample. These findings suggested that, at least in San Francisco, racial and ethnic minority men in San Francisco are no more or less likely to receive a recommendation for HIV testing or to disclose their sexual identities or behaviors to their health care provider than Caucasian MSM. However, MSM, particularly racial and ethnic minority, in other cities and regions in the U.S. may be more reticent about disclosing their sexual orientation to their health care provider or more likely to have health care providers who tend not to discuss sexuality or HIV[20].

Limitations

Although this study has a number of strengths, its limitations merit discussion. First the survey was cross-sectional and non-representative sample. Therefore, causal inferences cannot be made, and participants may not be representative of all MSM in San Francisco. Also, NHBS uses venue-based sampling as the national standard for sampling MSM. However, our data may miss some groups within the population of MSM or include MSM who may be more or less likely to receive a recommendation for HIV testing by their health care providers. Second, subsample sizes were small, particularly for racial and ethnic minorities. Thus, the finding that African-American MSM had a 21% lower odds of having a physician recommend HIV testing, albeit not statistically significant with wide confidence intervals, when controlling for other factors compared to other MSM merits further study. This is because African-American MSM have been shown to have a lower odds of being screened for HIV compared to other MSM[18]. Third, some important data were not collected as part of the survey for the present study that might be best handled through qualitative methods. For example, such methods could delve deeper into specific reasons MSM can cite for not discussing their sexual orientation or HIV testing with the providers. Also, the health care access and utilization measures were limited. For example, we did not have data on whether participants thought they needed to visit their health care providers the last time they went to a health care provider. Thus, we focused on factors such as whether participants had a usual source of care.

Finally, our data from San Francisco do not reflect the state of affairs in other areas, urban or otherwise, in the US or internationally. For example, the demographic composition of MSM in San Francisco likely differs from other populations of MSM in the U.S. and internationally. For example, although sexual orientation is not yet included in the US Census, a recent Gallup poll estimated that the number of lesbian, gay, bisexual and transgender persons is nearly twice as high in San Francisco Bay Area (6.2%) as the national average (3.6%)[29]. In addition, San Francisco has a lower proportion of African Americans, overall, and varying proportions of other racial and ethnic minorities compared to many other cities in the U.S.[26]. Taken together, these data suggest that the racial and ethnic composition of MSM in San Francisco does differ from that of other cities. Further, San Francisco is an early adopter and vocal proponent of multiple and intensive programming to prevent and treat HIV[22–24]. Thus, MSM in other locations in the U.S. may fare more poorly

than MSM in San Francisco in regards to provider recommendations for HIV testing. The present findings are particularly striking in this context.

Conclusion

The present findings further support the need for routine testing. Even among MSM who live in a city with a relatively large MSM population and a long history of cutting-edge work on HIV treatment and prevention, some MSM do not disclose their sexual orientation to their providers, and they are dramatically less likely than MSM who do disclose their sexual orientation to their providers to have HIV testing recommended to them by their health care providers. The need for routine testing may be particularly urgent in locations where there are fewer MSM and where HIV prevention and treatment may be less of a priority. Although the focus of the present study is on the patients' perspective and the need for routine, opt-out testing, future research and intervention should also focus on the need for providers to routinely ask about sexual behavior in nonjudgmental ways, creating "safe spaces" for patients to disclose important, clinically relevant information, such as the extent to which they may engage in HIV-risk behaviors.

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Table 1.

Sample characteristics self-reported HIV negative men, NHBS MSM4, San Francisco, 2014.

Variable	n	%
Age group (years)		
18–24	27	11.1
25–29	57	23.4
30–35	42	17.2
36–40	32	13.1
41–45	23	9.4
46–50	22	9.0
>50	41	16.8
Race/ethnicity		
Asian	21	8.6
Black	15	6.1
White	136	55.7
Latino	53	21.7
Other	17	7.0
Did not answer	2	0.9
Years of formal education completed		
Grades 1 – 8	2	0.8
Grades 9 – 11	2	0.8
Grade 12 or GED	30	12.3
Some college; associate's or technical degree	68	27.9
Bachelor's degree	87	35.7
Any post graduate studies	6	22.5
Employment status		
Full-time	173	70.9
Part-time	29	11.9
Homemaker	1	0.4
Student	6	2.5
Retired	6	2.5
Disabled	5	2.1
Unemployed	21	8.6
Other	3	1.2
Sexual identity		
Straight	4	1.6
Bisexual	11	4.5
Gay	229	93.9
Disclosed sexual orientation to health care provider		
No	22	9.0

Variable	n	%
Yes	222	91.0
Health care provider recommended HIV testing		
No	83	34.0
Yes	161	66.0
Currently have insurance		
No	29	11.9
Yes*	215	88.1
Private insurance	162	75.3
Medicaid	9	4.2
Medicare	21	9.8
Other government insurance	21	9.8
Veterans Administration coverage	4	1.9
Some other health care plan	11	5.1
Has a usual source (i.e., a place or provider) of health care?		
No	41	16.8
Yes	203	83.2
HIV test in the past 12 months?		
No	49	20.1
Yes	195	79.9
Location of recent HIV test		
HIV counseling and testing site	55	22.6
HIV/AIDs street outreach program/Mobile Unit	28	11.5
Public health clinic/ community health center	50	20.6
Private doctor’s office (including HMO)	79	32.5
Hospital (inpatient)	8	3.3
At home	1	0.4
Other	5	2.1
Unknown	17	7.0

Note. NHBS is National HIV Behavioral Surveillance; *MSM4* indicated the fourth, most recently completed wave of the survey for men who have sex with men. Percentages for type of health insurance coverage for participants who reported having insurance is greater than 100% due to overlap between types of health insurance; some participants had more than one type of non-private health insurance.

Table 2.

Bivariate Correlations of getting a doctor recommendation for HIV testing, NHBS MSM4, San Francisco, 2014.

		1	2	3	4	5	6	7	8	9	10
1.	Health care provider recommended HIV testing	1.000									
2.	Young (under age 30)	0.102	1.000								
3.	Education	−0.030	−0.259[a]	1.000							
4.	Employed full-time	0.111	0.008	0.232[a]	1.000						
5.	Black	−0.033	0.033	−0.076	−0.098	1.000					
6.	Latino	0.020	0.085	−0.269[a]	−0.032	−0.136[c]	1.000				
7.	Has private health insurance	−0.016	−0.087	0.274[a]	0.442[a]	−0.033	−0.149[b]	1.000			
8.	Has public or other health insurance	0.064	0.037	−0.260[a]	−0.428[a]	0.030	0.082	−0.740[a]	1.000		
9.	Has a usual source of health care	0.024	−0.274	0.205[a]	0.098	−0.021	−0.027	0.237[a]	−0.162[c]	1.000	
10.	Disclosed sexual orientation to health care provider	0.257[a]	−0.073	0.126[†]	0.050	0.018	−0.085	−0.042	0.062	0.012	1.000

Note. NHBS is National HIV Behavioral Surveillance; *MSM4* indicated the fourth, most recently completed wave of the survey for men who have sex with men; for *has private health insurance*, no health insurance as reference group; for *has public or other health insurance*, no health insurance as reference group.

[a] $p<0.001$

[b] $p<0.01$

[c] $p<0.05$

[†] $p=0.05$

Table 3.

Hierarchical Multivariate Regression Models Predicting Whether Health Care Provider Recommended HIV Testing, NHBS MSM4, San Francisco, 2014.

Variable	Model 1		Model 2		Models 1 and 2 Δ Log likelihood	
	$\chi^2(8)$	*p*	$\chi^2(9)$	*p*	$\chi^2(1)$	*p*
	10.73	**0.2176**	**28.46**	**0.0008**	**17.73**	**0.0001**
	AOR	**(95% CI_{AOR})**	**AOR**	**(95% CI_{AOR})**		
Sociodemographic						
Young (ages 29 and younger)	1.77	0.93 – 3.35	1.94	0.98 – 3.83		
Years of formal education	0.96	0.72 – 1.30	0.89	0.65 – 1.21		
Employed full-time	2.17	1.10 – 4.29	2.02	0.99 – 4.11		
Black	0.80	0.26 – 2.44	0.73	0.23 – 2.32		
Latino	1.01	0.50 – 2.05	1.11	0.53 – 2.36		
Has health insurance						
Private	1.11	0.46 – 2.68	1.22	0.48 – 3.07		
Public or other	2.29	0.84 – 6.28	2.09	0.74 – 5.96		
Has usual source of care	1.47	0.67 – 3.20	1.50	0.66 – 3.37		
Disclosed sexual orientation to provider			8.45	2.83 – 25.23		

Note. NHBS is National HIV Behavioral Surveillance; *MSM4* indicated the fourth, most recently completed wave of the survey for men who have sex with men; *AOR* is adjusted odds ratio; *has health insurance*, no health insurance as reference group. Analyses were repeated with non-White substituted for Black and Latino, and the results were essentially the same. Not being White was not associated with a health care provider having recommended HIV testing in the prior 12 months, but MSM who had disclosed their sexual orientation to their health care provider had seven times greater the odds of having a health care provider recommend testing as MSM who had not disclosed their sexual orientation to their health care provider when adjusting for sociodemographic factors.