Published in final edited form as:

Behav Med. 2013 ; 39(3): 52–59. doi:10.1080/08964289.2013.779565.

Factors associated with HIV testing history among Black men who have sex with men (BMSM) in Los Angeles County

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Abstract

Black men who have sex with men (BMSM) are disproportionately affected with HIV, and nearly half are unaware of their status. Those unaware of their status are more likely to engage in risky behavior; thus, HIV-testing uptake is crucial. This study explored correlates of past 2-year HIV-testing history. BMSM ($n = 102$) completed self-administered questionnaires. Fisher exact test indicated that BMSM at clubs/bars and gay pride events had higher rates of being tested within the past two years (86%–65%) than did participants who responded to online advertisements (44%, $p < 0.001$). Those untested for HIV were more likely to have had receptive anal sex without a condom (50 % vs 25%, $p = 0.033$), used the Internet seeking sex (65% vs 26%, $p < 0.001$), low HIV knowledge (52% vs 22%, $p = 0.005$), and less education. Literacy and tailored online interventions might be worth considering to increase HIV-testing uptake.

Keywords

HIV/AIDS; MSM; HIV Testing; Risk factors

Introduction

African Americans continue to be disproportionately affected by HIV with an estimated rate of HIV infection in 2009 of 66.6 per 100,000 compared to 22.8 among Latinos and 7.2 among Whites¹. Black men who have sex with men (BMSM) are particularly impacted with very high numbers of new HIV infections; among BMSM, those aged 13–29 accounted for 60% of new infections, and this is the only group of men who have sex with men (MSM) in which incidence significantly increased from 2006–2009.^{2,3} A recent CDC study indicated that nearly one in five (19%) MSM in 21 major US cities were infected with HIV, nearly half (44%) were unaware of their infection, and the proportion unaware was highest among BMSM (59%).^{4,5}

For several reasons, getting BMSM into HIV testing is a crucial component for controlling the impact of AIDS among BMSM.⁶ First, previous research suggests that BMSM are diagnosed with AIDS later, and have less access to treatment than their White counterparts,

and three year survival after an AIDS diagnosis is lower for BMSM than for White or Hispanic MSM.⁷ Second, studies have indicated that those who are aware of their HIV infection can be linked to the proper services for care and other assistance; proper care may help to reduce viral loads, thus making these men less infectious.^{8–12} Third, those men who are unaware of their HIV-positive status are more likely to engage in risky behavior, putting their HIV-negative partners at-risk for HIV-infection.¹³ Thus, HIV testing is important for primary and secondary prevention.

A paucity of research exists focusing solely on BMSM and their HIV testing behavior. Several studies, however, have explored, within the general MSM population, the prevalence and awareness of HIV infection,^{3,4,14,15} the frequency of testing^{13,14,16–18}, and testing type i.e., rapid versus traditional, and testing location preferences.^{19–21} For example, Lauby and Milnamow²⁰ interviewed 451 MSM in Philadelphia about the first type of place they took an HIV test. The data indicated that of the 408 MSM who had ever tested, most tested in a clinic or hospital (29%) and at an HIV organization (30%). In another study, Petroll et al. explored HIV testing history among Black men in general.²² From a sample of 352 Black men, the findings revealed that 52% had been tested for HIV during the prior 12 months; having been diagnosed or treated for a sexually transmitted disease, or having a primary care physician recommend testing was associated with testing. Nonetheless, many of the respondents had not tested for HIV, even those seen by a doctor.

Among the few studies focused on BMSM, Mimiaga et al.¹⁶ explored the personal and health system barriers to HIV testing among BMSM. The findings indicated factors that were associated with not having a recent HIV test; these included never having been tested for HIV at a community health clinic or jail, having less education, and engaging in serodiscordant unprotected sex. Furthermore, the findings indicated that Black MSM who had a health care professional recommend HIV testing (within the last 12 months) increased the likelihood of having an HIV test.

It is clear from the aforementioned studies that increasing testing uptake among BMSM needs to involve access and consistent visits to health care professionals who will recommend HIV testing. However, increasing access and consistent visits to a health professional, alone, is not the only challenge.^{16,23} Previous research has highlighted the urgent need for a better understanding about HIV testing behaviors particularly among BMSM. Additionally, more research is needed to explore consistent HIV testing behaviors among BMSM. While the need to increase HIV testing uptake among those who have not been tested is urgent, it is just as important to encourage consistent HIV testing uptake among those who have never been tested, and those who are infrequently tested (within 12 months).

The CDC recently announced a new public campaign, “Testing Makes Us Stronger,” to encourage HIV testing among BMSM.² In addition to promotional material, the campaign will feature online and print ads. Nonetheless, because of the elevated risk of infection and prevalence of new HIV infections among BMSM aged 18 to 29, it is critical to explore correlates of HIV testing history among BMSM to inform efforts to motivate sexually active young BMSM to access HIV testing every 3–6 months.

The aim of the analyses reported here was to explore correlates of HIV testing history among a sample of untested and tested (within the past two years) BMSM in Los Angeles County. These data are important for better understanding a high risk group for HIV transmission. Additionally, the data can help identify the needs of the population to tailor interventions that increase frequent HIV testing among BMSM.

METHODS

Data were collected through an anonymous, self-completed pencil and paper survey, between March and July 2010. To involve a diverse (e.g., socioeconomic status, education level, self-identified gay, bisexual, or heterosexual) cadre of BMSM, aged 18 to 30 (median = 23), participants were recruited through local magazine and internet (Facebook®, Myspace LLC) advertisements; palm cards distributed at local colleges and universities; flyers distributed outside gay establishments and hetero-normative clubs that were frequented by a mixed crowd of heterosexual, bisexual, and homosexual patrons; gay, lesbian, bisexual, and transgender (GLBT) clubs and lounges; and organized events, such as Gay Pride Festivals. Individuals were eligible for the study if they (1) identified as Black or African American; (2) identified as male; (3) reported living in Los Angeles County; and (4) reported oral or anal sex with a man within the preceding six months. The advertisements included the name of the study “HIV Status Awareness Model (HSAM) Study”. The advertisements listed the study’s purpose, criteria, incentives, and the voluntary nature of the study.

Two trained graduate research assistants screened interested participants using a checklist of study criteria. Those participants recruited at clubs, bars, and gay pride events completed the survey in real-time at the site venue. Participants, who desired a more confidential environment, were given the option to contact an HSAM staff member to take part in the study at another time. Participants who contact HSAM staff in response to the advertisements (i.e., palm cards, internet or local magazines) were scheduled to complete the survey at the Center for Behavioral Research and Services at a time convenient for the participant and the research staff. Other participants who responded to the advertisements as part of a private men’s group meeting completed the survey at the location of their group meeting administered by HSAM staff. All participants were given an informed consent form, and asked to complete the survey, which took approximately 25 to 30 minutes. Each participant was given an unmarked envelope in which to place the completed survey. Participants were compensated \$10. A total of 134 participants completed the survey. Although a negative or unknown HIV status was not required to participate, our focus was on correlates of HIV testing history between tested and untested (within the last 2 years) participants. Consequently, those who reported that they were HIV positive and that they had not tested within the last 2 years were excluded (n=32) from further analysis; this group may have not sought testing since learning their HIV-positive status. As a result, the final sample size for our analyses was 102. The institutional review board of the principal investigator’s home institution approved the study procedures.

Measures

A modified version of The Risk Behavior for Gay Men (RBGM) survey from the Center for AIDS Prevention Services was used to collect data for this study. The RBGM survey has been widely used for research among.^{24,25} Participants completed 97 selected items, most of which were from the 200-items on the RBGM survey. Other questions were included as indicated below. The 97- items were selected based on previous literature and relevance for this study’s purpose. The dependent variable was HIV testing history. Participants were asked “Have you had an HIV test?” Response options were “no,” and “yes.” Responses were dichotomized to indicate whether a respondent was untested within the last two years. To further assess the consistency of HIV testing history, participants were asked “in the last two years, how many times have you been tested for HIV?”

The survey included items assessing the frequency of two types of sexual behaviors (insertive anal sex, receptive anal sex) and practices (insertive anal sex without a condom, receptive anal sex without a condom). For example, participants were asked “During the last

three months, have you had insertive anal sex (your penis inside someone else's anus) without a condom?" Response options were "yes," and "no." If the response was yes, respondents were asked "with how many sex partners?" Another example is, "During the last three months, how often were you able to use a condom for receptive anal sex?" Response options were "never," "rarely," "sometimes," "almost always," and "always."

HIV knowledge was measured using 14 questions; for example, "HIV can be transmitted through the saliva of an infected person?" and "People must be sexually promiscuous in order to get infected with HIV?" Response options were "true," "false," and "don't know." One point was assigned for each accurate response with don't know scored as inaccurate. The responses were coded as 1 for a correct response and 0 for an incorrect or don't know response. Overall scores could range from 0 to 14, with 14 being high HIV-related knowledge. A dichotomous variable was created indicating low HIV knowledge (scores below the mean) or high HIV knowledge. The HIV knowledge scale was developed by a team of renowned researchers with expertise in HIV/AIDS prevention interventions and research, and test-retest reliability are reported elsewhere.²⁶ The scale was adapted for this study's population, and later pilot tested during focus group sessions.

HIV-related stigma was measured using the shortened 10-item HIV Stigma Scale (Berger et al., 2001). Examples of questions were "Telling someone I have HIV [would be] risky?" and "Most people are uncomfortable around someone with HIV?" Response options were "strongly disagree," "disagree," "agree," and "strongly agree." The overall score is calculated by simply adding up the raw values. A dichotomous variable was created indicating low HIV-related stigma (scores below the mean) or high HIV-related stigma. Coefficient alpha has been reported as .96 for the overall scale, which suggests it has good internal reliability.²⁷ The HIV Stigma Scale was also found to be associated with related constructs of self-esteem, depression, social support, and social conflict supporting construct validity. One item was used to measure intentions to test. The question was "Do you have intentions (planning) to test for HIV within the next 6 to 12 months?" The response options were "yes," and "no."

Drug using behavior was measured using a four-part item. First, participants were asked, "During the last 3 months, have you consumed drugs that were not prescribed by a doctor?" Response options were "yes," and "no." Participants who responded "yes" were asked, "Please indicate which ones." Response options were marijuana, crack, crystal meth, cocaine, poppers, heroin, ecstasy, ketamine, GHB, Viagra/cialis, and other. The remaining two questions asked about problems from drugs use, and risk for acquiring or transmitting HIV because of drug use, during the last three months. The "drug use risky sex" variable was measured using the following question: "During the last three months, were you at risk for acquiring or transmitting HIV because of your drug use (e.g., sex without a condom using drugs that were not prescribed by a doctor before or during sex)?" The response options were "yes," and "no." Similarly, for the "alcohol use risky sex" variable, participants were asked, "During the last three months, were you at risk for acquiring or transmitting HIV because of your alcohol use (e.g., sex without a condom using alcoholic beverages, such as beer, wine, liquor before or during sex)?" The response options were "yes," and "no." Furthermore, participants were asked questions about the use of the following to seek sex during the last three months: "Internet to look for sex," "sex phone lines," and "public place (e.g., sex clubs, parks, bookstores, porn stores, etc.)." Response options were "yes" and "no."

Eight demographic variables were included. Age was self-reported and categorized as less than 23 years or 23 years or older. Level of education response options were less than high school, high school/GED, technical/vocational school, some college, college degree, some

graduate studies, and graduate degree. The variable was categorized indicating “high school/ GED or less,” and “some college/technical school or more.” Employment status response options were “yes, full-time,” “yes, part-time,” and “no.” The variable was categorized as “fulltime/part-time employment” and “no employment.” Lastly, the recruitment venue variable was measured using three categories: “club/bars,” “gay pride events,” and “advertisements”. The variable was later dummy coded using “clubs/bars” as the reference for the logistic regression analysis.

Statistical Analyses

Descriptive analyses were conducted to estimate frequencies of the dependent variable, HIV testing history within the past two years, and the demographic variables, and other covariates. Fisher exact tests were conducted to examine an association between the two groups, those tested and untested for HIV, and the following categorical variables: recruitment venue, employment status, educational level, receptive anal sex without a condom, insertive anal sex without a condom, seeking sex on the internet, drug use risky sex, and alcohol use risky sex. The researchers conducted an independent samples t-test to examine mean differences in the HIV knowledge score, and HIV related stigma score, by HIV Tested and Untested Black MSM. Lastly, logistic regression was conducted to further explore associations between HIV testing history within the past two years before and after adjusting for other covariates, such as recruitment venue, seeking sex on the internet, educational level, receptive anal sex without a condom, HIV knowledge. The logistic regression modeling included only the variables that were significant at $p < .05$ in the fisher exact analyses. The likelihood ratio test was used to determine whether the addition of a particular variable significantly improved the overall fit of the model. Significance was set at the $p < .05$ level. The final analyses were done using STATA 9.0 (Stata Corp LP, College Station, TX).

Results

Table 1 presents sample characteristics as well as comparisons of selected characteristics between HIV tested and untested BMSM. Briefly, 34% of the participants were untested for HIV within the last two years. Slightly half of the participants (49%) were aged 22 years or younger, and 51% were 23 and older at the time the survey was administered. Forty-two percent of the participants were recruited at clubs and bars, 23% were recruited at gay pride events in LA County, and 35% responded to advertisements. The majority of the participants (62%) were employed at least part-time or full-time, and 53% of the participants had at least some college.

One third (33%) of the participants had receptive anal sex without a condom and 28% had insertive anal sex without a condom in the preceding 3 months. Thirty-eight percent of the participants used the Internet to seek sex in the preceding 3 months. Thirty-seven percent of the participants had risky sex when using illegal drugs and half (50%) had risky sex when using alcohol. Approximately 46% reported high level of HIV related stigma. The majority (68%) of the participants had high HIV knowledge.

Fisher exact test indicated that those participants at clubs/bars and gay pride events had higher rates of being tested (86%–65%) than did participants who responded to advertisements (44%, $p < 0.001$). Higher percentages of those untested than tested had high school or less education (71% vs 36%, $p = 0.002$). The percentage of receptive anal sex without a condom within the last 3 months was higher for those untested for HIV (50%) than those tested (25%, $p = 0.033$). Similarly, higher percentages of those untested than tested used the Internet to seek sex (65% vs 26%, $p < 0.001$), and had risky sex when using illegal drugs (58% vs 27%, $p = 0.004$). Marginally, those untested had higher percentages of high

HIV related stigma (61% vs 39%, $p=.050$). Moreover, higher percentages of those untested than tested had low HIV knowledge (52% vs 22%, $p=.005$). However, both groups were similar in terms of age, employment status, insertive anal sex without a condom, and risky sex when using alcohol. Table 2 shows the odds ratio (OR) estimates before and after adjusting for other covariates. BMSM who responded to advertisements were 0.78 times less likely to be tested compared with BMSM at gay clubs/bars (unadjusted OR [uOR] = 0.22, 95% confidence interval [CI] = 0.09–0.53, $p<0.001$). However, rates were not significantly different for those who were recruited at gay pride events compared with BMSM at gay clubs/bars (uOR=0.59, CI=0.26–1.35, $p=0.21$). Those BMSM who used the internet to seek sex were 0.78 times less likely to be tested compared with those not using the internet to seek sex (uOR = 0.22, 95% CI = 0.09–0.52, $p<0.001$). Those who had at least some college were more likely to have tested in the past two years compared to those with high school or less (uOR = 3.75, 95% CI = 1.56–8.99, $p=0.003$). Similarly, BMSM with high HIV knowledge were more likely to be tested compared to those with low HIV knowledge (uOR = 3.47, 95% CI = 1.43–8.39, $p=0.006$). Those BMSM who reported having had receptive anal sex without a condom were less likely to be tested compared to those reporting no receptive anal sex without a condom (uOR = 0.36, 95% CI = 0.15–0.88, $p=0.025$). The other variables, Drug Use Risky Sex (uOR=0.38, CI=0.06–2.23, $p=0.21$), and HIV Related Stigma (OR=0.44, CI=0.19–1.03, $p=0.059$) were not significantly associated with HIV testing history; thus, those variables were not included in the final adjusted model.

Two variables remained significantly related to HIV testing in the adjusted logistic regression model. Those who seek sex on the Internet remained less likely to have been tested within the past two years compared to those not seeking sex on the internet (adjusted OR [aOR] = 0.30, 95% CI = 0.09–0.96, $p=0.042$). Lastly, participants with at least some college were more likely to have tested for HIV in the past two years compared to those with high school or less education (adjusted OR = 3.34, 95% CI = 1.24–8.95, $p=0.017$).

Comments

The major findings of this study were three-fold: first, we found that the majority of BMSM untested for HIV within the past two years were those who contacted the study's staff to schedule a time to participate in response to advertisements (i.e., palm cards, newspaper or online advertisements, and scheduled a time to complete the survey). Second, we found that being untested for HIV within the past two years was significantly associated with conditions that place individuals at high risk of acquiring HIV, including receptive anal sex without a condom, risky sex using drugs before or during sex, and lower HIV knowledge. Third, we found that being untested for HIV within the past two years was significantly associated with having high school or less education, and seeking sex using the Internet. Corroborating this finding, we found that being untested for HIV within the past two years remained independently associated with high school or less education, and using the Internet to seek sexual partners, after adjusting for covariates.

Consistent with previous studies,^{4,5} our findings indicated that one-third of the BMSM were untested for HIV within the past two years. Because BMSM represent a high proportion of MSM who are unaware of their HIV infection^{4,5,28}, it was relevant to explore the recruitment locations for those BMSM who had been tested versus those untested. The finding that BMSM who responded to recruitment advertisements were less likely to have tested for HIV in the past two years as compared to those recruited at clubs/bars or gay pride events is important for targeting a sub-population of BMSM. Several hypotheses may explain this finding. Due to various psychosocial factors (e.g., homophobia, stigma), these men may prefer to access HIV testing information and uptake in a less public forum. These men may not frequent clubs/bars or may not participate in gay pride events. Moreover, even

for some BMSM who do attend gay pride events, they too may prefer a space that they perceive to be less intrusive or public. In either case, the finding suggests that promoting interventions for HIV testing uptake using methods that allow for anonymity or a space perceived to be less intrusive to the target population may enhance participation of a subgroup of BMSM. Furthermore, interventions for HIV testing uptake using unconventional methods, such as online sites that allow participants to access the intervention in their own private space, are worth considering.

Not unexpectedly, we found that being untested for HIV within the past two years was significantly associated with conditions that place individuals at high risk of acquiring HIV, including receptive anal sex without a condom, risky sex using drugs before or during sex, and lower HIV knowledge. Earlier studies corroborate this finding.^{13,22} However, an interesting finding was that insertive sex without a condom was not found to be associated with HIV testing history. HIV testing behavior was very similar among those who reported having performed insertive anal sex without a condom within the last 3 months. One speculation is that insertive anal sex without a condom could pose less stigma and challenges than receptive anal sex without a condom. Hence insertive anal sex risk was not significantly related to testing history among participants in this study.

There are several hypotheses that may explain the finding that BMSM who use the Internet to seek partners for sex, are untested, or infrequently test for HIV. Some BMSM who use the Internet to seek sex partners may not frequent social venues where BMSM congregate. Additionally, we found that BMSM who reported internet use to seek sex had significantly lower HIV knowledge than those who did not use the internet to seek sex. Thus, those using the internet to seek sex may not perceive themselves to be at high risk for HIV and therefore may not access the plethora of HIV knowledge available online. Consequently, these men may not understand the importance of HIV testing. Similar to previous research indicating an association with not having a recent HIV test and having less education, these men may not have access to regular health care, may not have knowledge of, or comfortable with, accessing HIV at a community health clinics²². Access to regular health care is an important component for HIV testing uptake, as research has indicated that Black MSM who had a health care professional recommend HIV testing (within the last 12 months) increased the likelihood of having an HIV test.^{16,17,23} Also, the aforementioned reasons may help explain our finding that being untested for HIV was independently associated with seeking sex on the internet, and lower level education, even after adjusting for recruitment venue and conditions known to place BMSM at risk for HIV.

This study's findings are limited by a number of factors. First, as is the case with many studies using a cross-sectional design, it is difficult to make causal inference, and the situation may provide differing results if another time-frame had been chosen. Furthermore, as is the case with studies including hard-to-reach populations, we relied on self-reports of respondents at a single point in time. Second, recruitment strategies yielded a potentially biased and relatively small subgroup of eligible BMSM (e.g., mostly urban, attending sexual minority social functions, slightly younger), and findings might not be generalizable to other subgroups. Another limitation is that the two scale variables, HIV knowledge, and HIV-related stigma, were artificially dichotomized. In doing so, the authors understand the concern of artificially dichotomizing a continuous variable, which may attenuate the correlation from its true value and resulting in a downward distortion in the mean correlation, and an upward distortion in the apparent real variation of correlations. We selected to use the mean as the point for which to categorize the two continuous variables, and we explored exact corrections for this distortion for the case of both variables. We ran additional analyses using the variable as continuous, and as dichotomized, and found that the artificially dichotomized variables revealed similar results. We selected to use the

dichotomized variables as the categorical variables allows for a more reasonable presentation.

We also acknowledge the possible history threat to the internal validity of HIV knowledge in that some participants could have been exposed to HIV knowledge at their last testing visit. Thus, it is important to use caution when reporting the predictor variables, which could have preceded HIV testing. We also acknowledge that the question regarding “Internet to look for sex” does not measure whether or not the participants actually had sex with a sex partner from the Internet, or had risk sex. Future research is needed to further explore the rate of risky sex among those using the internet to seek sex. Additionally, the pen-and-paper survey used included questions about some activities that may be stigmatized, hence underreported, such as receptive anal sex without a condom with other men. Future studies should consider the use of methods that provide anonymity or greater levels of confidentiality (e.g., Internet or other social media) to access stigmatized activities among BMSM. Furthermore, the survey did not include items assessing testing site preferences, regular health care seeking behavior, and health care access. Previous research suggests that HIV testing is associated with having a primary doctor offer testing¹⁶. Thus, future research is needed to explore strategies for increasing testing among those BMSM who may not have a primary doctor.

These data offer guidance for HIV prevention efforts to increase HIV testing among BMSM. The rapidly increasing popularity of the Internet has contributed to greater access for seeking anonymous sex.^{29,30} Hence, it is important to consider the Internet as a method for reaching BMSM to motivate HIV testing uptake. Likewise, tailored interventions are needed that may appeal to those BMSM who may have limited education. Additionally, the findings have implications for health professionals aiming to impact the HIV/AIDS health disparity that exists among BMSM. Because using the Internet to seek sex and lower educational level were independently associated with lack of testing, a tailored Internet-based HIV prevention and testing intervention might be worth considering. We also recommend future studies to explore the barriers to implementation of HIV testing in primary health care facilities.

Acknowledgments

Funding was provided by NIMHD, Grant Number 1P20MD003942-01.

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TABLE 1

Differences between HIV Tested and Untested Black MSM and Selected Sample Characteristics (N=102)

Characteristics	Overall, No. (%)	Untested, No. (%)	Tested, No. (%)	P
Total	102 (100)	35 (34)	67 (66)	
Age				.129
< Median Age 23	48 (49)	19 (40)	29 (60)	
Median Age 23	50 (51)	12 (24)	38 (76)	
Recruitment Venue				<.001
Clubs/Bars	42 (42)	06 (14)	36 (86)	
Gay Pride Events	23 (23)	08 (35)	15 (65)	
Advertisements	36 (35)	20 (56)	16 (44)	
Employment Status				.655
No Employment	37 (38)	13 (35)	24 (65)	
Part/Fulltime Empl	61 (62)	18 (30)	43 (70)	
Educational Level				.002
High School or less	46 (47)	22 (71)	24 (36)	
At least Some College	52 (53)	09 (29)	43 (64)	
Receptive Anal				.033
No	62 (67)	15 (50)	47 (75)	
Yes	31 (33)	15 (50)	16 (25)	
Insertive Anal				.813
No	70 (72)	23 (74)	47 (71)	
Yes	27 (28)	08 (26)	19 (29)	
Seek Sex on Internet				<.001
No	60 (62)	11 (36)	49 (74)	
Yes	37 (38)	20 (65)	17 (26)	
Drug Use Risky Sex				.004
No	62 (63)	13 (42)	49 (73)	
Yes	36 (37)	18 (58)	18 (27)	
Alcohol Use Risky Sex				.192
No	49 (50)	19 (61)	30 (45)	
Yes	49 (50)	12 (39)	37 (55)	
HIV Related Stigma				.050
Low	53 (54)	12 (39)	41 (61)	
High	45 (46)	19 (61)	26 (39)	
HIV Knowledge				.005
Low	31 (32)	16 (52)	15 (22)	
High	67 (68)	15 (48)	52 (78)	

Total cell counts may not represent total sample size due to missing data;

Sex without a condom

TABLE 2

Logistic Regression on HIV Testing History within Past Two Years in Relation to Associated Correlates Before and After Adjusting for Covariates Among BMSM (N=102)

Characteristics	Unadjusted			Adjusted		
	OR	95% (CI)	P	OR	95% (CI)	P
Recruitment Venue						
Clubs/Bars	1.00	Reference		1.00	Reference	
Gay Pride Events	0.59	0.26–1.35	0.212	0.12	0.01–2.33	0.161
Advertisements	0.22	0.09–0.53	0.001	0.01	0.00–2.91	0.116
Seek Sex on Internet						
No	1.00	Reference		1.00	Reference	
Yes	0.22	0.09–0.52	0.001	0.30	0.09–0.96	0.042
Educational Level						
High School or less	1.00	Reference		1.00	Reference	
At least Some College	3.75	1.56–8.99	0.003	3.34	1.24–8.95	0.017
HIV Knowledge						
Low	1.00	Reference		1.00	Reference	
High	3.47	1.43–8.39	0.006	2.17	0.78–6.06	0.140
Receptive Anal						
No	1.00	Reference		1.00	Reference	
Yes	0.36	0.15–0.88	0.025	0.59	0.20–1.75	0.343

Sex without a condom