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HIV Testing Practices and Interest in Self-Testing Options among Young, Black Men Who Have Sex with Men in North Carolina

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Abstract

Background—Young, Black men who have sex with men (YBMSM) experience disproportionately high HIV incidence in the United States. Relative to other at-risk populations, less is known about their HIV testing behaviors and preferences regarding self-testing.

Methods—We used an online survey to investigate testing practices and interest in self-testing among HIV-uninfected, 18–30 year-old YBMSM in North Carolina.

Results—From July 2014 – March 2015, 212 completed the survey; median age was 24 years. Among 175 (83%) who had ever been tested, 160 (91%) reported testing in the prior year, 124 (71%) tested at least every 6 months, and 71 (40%) tested at least quarterly. About three-quarters (77%; n=164) were aware of HIV self-testing; 35 (17%) had ever purchased rapid (n=27) or dried blood spot-based (n=14) kits. Participants aware of kits had greater intention to test in the next 6 months; were more likely to have income for basic necessities and to ask sex partners about HIV status; and were less likely to have a main sex partner or to have had transactional sex. Among 142 participants at least somewhat likely to self-test in the future, convenience (35%), privacy (23%), and rapid result delivery (18%) were the principal motivators.

Conclusions—Eight of every ten YBMSM have ever been tested for HIV, but inter-test intervals remain unacceptably long for many. Awareness of and interest in self-testing is substantial, but few have used this method. Expanded use of self-tests could help increase the frequency of HIV testing in this epidemiologically important population.

Keywords

Men who have sex with men; African-American; North Carolina; HIV testing; HIV self-testing

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Conflicts of Interest

LHW, WCM and CBH have no conflicts to report.

Introduction

HIV infection is a public health crisis among young, Black men who have sex with men (YBMSM) in the United States (US). Nearly half of the estimated 10,500 Black MSM infected with HIV in 2010 were under age 24.[1] In the multi-site BROTHERS Study (HIV Prevention Trials Network [HPTN] Study 061), the annual incidence of HIV infection was 5.9% among 18–30 year-olds,[2] and the Involve[MEN]t Study estimated that 1 out of every 10 Black MSM under age 25 in Atlanta acquire HIV each year.[3] These unsettling data underscore the need for innovative strategies to curb HIV transmissions among YBMSM.

Knowledge of one's HIV status is critical to all prevention strategies, but infrequent testing among MSM means many new infections go unrecognized for extended periods of time.[1] In 2008, 41% of Black MSM identified as having HIV by the National HIV Behavioral Surveillance (NHBS) System were unaware of their infection; by 2011, this proportion rose to 54%.[4] Up to a third of these men had not been tested during the two years preceding their first positive test – conditions conducive to forward transmission.[5] Indeed, the Centers for Disease Control and Prevention (CDC) estimates that half of all new infections in the US each year are attributable to infected-but-unaware individuals.[6] Reducing the interval between tests has multiple potential benefits for individual and public health, through provision of prevention and care services, as appropriate. However, to develop strategies to increase testing frequency, we must first understand the HIV testing behaviors and preferences among those at greatest risk for infection.

It is surprising, then, that given the importance of YBMSM in the domestic HIV epidemic, we know comparatively little about their testing behaviors. While the NHBS System has provided insights into testing patterns among MSM, only about 25% of the men in NHBS are Black.[4] In Boston[7] and Los Angeles,[8] Black MSM with greater behavioral risk tested less often than those with a lower risk profile. YBMSM in areas not covered by existing surveillance systems represent a major gap, especially in the Southeast US. This region suffers from extremes of poverty, discrimination, health disparities, and HIV-related stigma[9] – all of which may have a deeper impact on young people of color and restrict their access to HIV testing.[10]

Given these structural barriers faced by YBMSM, "home" HIV tests offer an attractive solution for increasing their frequency of testing. A dried blood spot (DBS)-based specimen self-collection (SSC) kit has been commercially available since the mid 1990s,[11] and an over-the-counter, rapid, oral HIV self-test (HIVST) was approved by the US Food and Drug Administration in 2012.[12] Awareness and use of these kits have been explored among MSM,[13, 14] but never specifically YBMSM or men living outside of major metropolitan areas. Here, we describe the results of an online survey exploring HIV testing behaviors and "home" testing options among YBMSM across North Carolina (NC) and provide some epidemiological context to help interpret our findings and their implications.

Methods

Eligibility and recruitment

Flyers, online classifieds, profiles and advertisements on geosocial networks, and word-of-mouth were all used to recruit potential participants to a dedicated survey website. After reading about the survey, participants were required to provide consent before advancing to eligibility screening questions. Participants had to self-identify as: born male; 18–30 years old; Black or African-American; HIV-uninfected; and having had sex with men in the prior year. A gift card, sent by certified mail, was offered to respondents as an incentive.

Survey design

Demographic data collected included age, education, employment, income, insurance status, incarceration history, and ZIP code of residence. Participants were asked if they were "out" about having sex with men, including disclosure to their healthcare provider (if applicable). Questions on lifetime HIV testing history, most recent test, and motivations for and barriers to testing were incorporated from the NHBS System[15] and its predecessor, the HIV Testing Survey (HITS).[16] We adapted questions from Spielberg, et al.[17] to explore willingness to perform HIVST or SSC, and asked about prior use of commercial HIV test kits (rapid oral or DBS-based). Location of most recent HIV test,[18] intention to test in the coming 6 months,[19] and awareness of friends' and family members' HIV statuses[20] were also captured. The survey was programmed using web-based software (Qualtrics LLC, Provo, UT), with multiple rounds of pilot testing and iterative refinements prior to distribution. To prevent respondents from taking the survey more than once, we utilized software features to block repeat visitors and verified that all submitted participant names and contact information were unique. All data were fully de-identified prior to analysis.

Ethical review

The Institutional Review Board at the University of North Carolina at Chapel Hill approved the study protocol.

Statistical analyses

We characterized the data using descriptive statistics and performed bivariable comparisons of individual characteristics against outcomes of interest using the Pearson χ^2 test or Fisher exact test for categorical variables and the Wilcoxon rank-sum test for continuous variables. Factors significantly associated with the outcomes of interest in bivariable tests were included in multivariable logistic regression models along with age, education, and income. To arrive at a final model, we sequentially removed non-significant variables and assessed the impact of each change with likelihood ratio testing. For this analysis, we examined three outcomes of interest: awareness of "home" HIV testing kits (HIVST or SSC) in the study population, self-perceived likelihood of using commercial kit options in the future, and personal history of ever buying a kit (among those ever tested for HIV). Statistical significance was set at α=0.05, and all analyses were performed using Stata/IC version 11.2 (StataCorp LP, College Station, TX).

Results

General characteristics

From July 2014 – March 2015, we screened 3653 people to enroll 212 participants (5.8%; see Figure, Supplemental Digital Content 1, depicting screening and enrollment numbers). Their median age was 24 (interquartile range [IQR] 21–27; Table 1) and 3% were transgender women (n=7). Nearly half (47%) were currently in school, 32% held a college degree or higher, and 19% had at most a high school diploma. Seventy-three percent of participants were employed, but 62% earned < $20,000 annually and 23% routinely had difficulty making ends meet. A third of the sample (33%) was uninsured and 43% did not have a healthcare provider they saw regularly. Seventeen percent had ever been in jail or prison. ZIP codes revealed that most respondents resided in urban areas of central NC (see Figure, Supplemental Digital Content 2, illustrating the geographic distribution of participants and the Black population across NC).

Sexuality and sexual behavior

About three-quarters (77%) had sex exclusively with men; 71% self-identified as gay (Table 2). Only 76 (63%) of 121 men with a healthcare provider were open with her/him about their sexual identity. Participants reported a median of 4 sex partners in the prior year (IQR, 2–8) – about half of whom were also Black (median 2, IQR 1–4.5). Forty men (19%) ever had transactional sex. Among those not in a relationship, just under half had at least one regular, main sex partner (i.e., a "friend with benefits"). Condom use for anal sex was inconsistent for most participants, with 76% of those with casual partners and 80% of those with main partners (boyfriend or friend with benefits) reporting less than perfect utilization. Only 30% "always" asked partners about their HIV status before having sex, and 14% had any known HIV+ sex partner in the prior year. One third of participants reported any prior sexually transmitted infection (n=69); gonorrhea, chlamydia, and syphilis were the most common.

HIV testing

Most participants had tested previously for HIV (83%), with 76% reporting a test in the prior 12 months (Table 3). Among 175 ever tested, 29% tested infrequently (1 year between tests; n=51) and 40% tested quarterly or monthly (n=71). The median number of lifetime tests was 6 (IQR, 3–12). Health departments and community health centers were the most common testing venues among participants, regardless of insurance status; private healthcare providers were responsible for only one quarter of most recent tests. Only 7% of most recent tests were self-administered with commercial HIVST or SSC kits (n=12).

Over half of participants (55%) indicated the main reason for getting tested was "to know where I stood," with 13% (the next highest) pursuing testing after a sexual exposure (see Table, Supplemental Digital Content 3 and Figure, Supplemental Digital Content 4 – both describing motivations for HIV testing among those ever tested). Ten percent were tested as part of a medical checkup. Among ever tested participants without a test in the prior year and those who had never been tested, low perceived risk of infection and fear of a positive result were the main reasons for test avoidance (see Tables, Supplemental Digital Content 5

and 6, and Figures, Supplemental Digital Content 7 and 8 – describing barriers to HIV testing among those without recent tests).

HIVST and SSC: awareness, experience, and perceptions

Three-quarters of participants (77%, n=164) were aware of commercial kits to test oneself for HIV (Table 4). Thirty-five participants (17%) had bought a kit in the past, a minority of whom (37%) had bought two or more. Oral rapid HIVST kits were more commonly used than DBS SSC kits and more often purchased in pharmacies (n=28) than online (n=10). Regardless of baseline awareness of kits, 67% of participants indicated they were at least somewhat likely to purchase one in the future – with convenience (35%), privacy (23%), and rapid results (18%) cited as the principal motivations. Among the 64 participants who indicated they were unlikely to ever purchase a kit, comfort with existing testing approaches was their primary reason (42%), followed by concern over the accuracy of kits (17%) and cost (14%). With respect to DBS SSC kits, 116 participants indicated they were undecided or unlikely to choose such a kit after reading a description of the method. When presented with a series of hypothetical considerations to see if their attitudes became more favorable, these participants indicated that they valued an ability to detect very early infections and the potential to diagnose syphilis using the same specimen (see Figure, Supplemental Digital Content 9, depicting changing favorability based on hypothetical scenarios). Responses were strongly favorable if the test was offered free of charge.

In bivariable analyses (Table 5), significant associations were noted between baseline awareness of test kits and: consistently having sufficient money for rent, food, and utilities (P=0.008); not having a main sex partner (P = 0.03); never having had transactional sex (P=0.01); and routinely asking sex partners about their HIV status (P=0.001). Among those ever tested for HIV, having purchased an HIVST or DBS SSC kit was associated with education (P=0.02); higher income (P=0.004); having health insurance (P=0.007); not knowing anyone who died of HIV/AIDS (P=0.03); and a greater likelihood of future kit use (P<0.001; not shown in Table 5). Lastly, among all participants, the perceived likelihood of purchasing HIVST or DBS SSC kits in the future (regardless of baseline awareness of kits) was associated with education (P=0.03); having sufficient income to make ends meet (P=0.04); not having a main sex partner (P=0.02); and intent to test in the next six months (P=0.02).

In multivariable logistic regression models, awareness of "home" testing kits was most closely associated with having sufficient monthly income (OR 1.31, 95% CI: 1.07, 1.60), and not having a main sex partner (OR 2.34, 95% CI: 1.10, 4.98). Among those ever tested for HIV, having bought a test kit was significantly associated with increased odds at each tier of rising income (OR 1.75, 95% CI: 1.04, 2.92), not knowing anyone who died of HIV/AIDS (OR 2.70, 95% CI: 1.04, 7.04), and being likely to buy a kit in the future (OR 7.12, 95% CI: 1.96, 25.8). The likelihood of buying a kit in the future was associated with not having a main sex partner, doubling the odds (OR 2.04, 95% CI: 1.07, 3.91). Education had an influence on this outcome as well, with 1.6 times the odds increase for each education level completed (OR 1.60, 95% CI: 1.13, 2.27).

Discussion

This study is the first to characterize HIV testing practices and explore awareness of and receptiveness to home testing options among YBMSM in NC, a state with HIV epidemiology similar to the greater Southeast US. Given a background HIV prevalence of 30% in their sexual networks,[21] understanding the HIV testing behaviors of YBMSM is a critical, initial step in developing strategies to encourage and expand more frequent testing in our state and region.

We successfully leveraged geosocial networking applications and traditional word-of-mouth to recruit sexually active YBMSM in need of frequent HIV testing, and online survey delivery allowed us to reach individuals who might otherwise be missed by offline sampling methods. Many MSM who use the Internet for social or sexual networking also frequent physical venues catering to gay men, yet a substantial proportion of our sample was either not gay-identified (29%) or not "out" to anyone about their sexual identity (10%) – and therefore less likely to be captured by venue-based sampling frames used in existing behavioral surveillance systems.[22] Despite the advantages of online survey methods for reaching a wider potential audience geographically and sociodemographically, we found that most participants were educated, had health insurance, and came from more urban areas of NC. Thus, our findings may not be generalizable to poorer, more disadvantaged YBMSM living in rural communities or those who lack convenient access to the Internet.

Compared with those in longitudinal sexual relationships, we observed that participants without a main sex partner were more likely to have heard of "home" testing kits and to indicate a greater likelihood of buying one in the future. Men with higher partner turnover may be more attuned to the need for frequent HIV testing and willing to explore new options – running counter to recent trends suggesting higher-risk MSM were testing less often than those having fewer partners or less condomless sex.[7, 8]

Though 83% of participants had ever been tested, recency and frequency of testing were heterogeneous. Since over 40% of HIV-infected MSM may be unaware of their infection,[4] the CDC currently suggests sexually active MSM test every 3–6 months for HIV and other STIs.[23] Less than half of our sample was testing on at least a quarterly basis (41%), despite multiplicity of partners and inconsistent condom use placing them at increased risk for infection. Socioeconomic disadvantage, lack of health insurance, and absence of men's sexual health clinics force many YBMSM in NC to seek HIV prevention and testing services through publicly-funded sites – a fact reflected by the 51% of our sample whose most recent test was in a health department or STI clinic.

Consistently having sufficient income to pay for rent, utilities and food was associated with each of our principal outcomes of interest: awareness of commercial HIV test kits, history of purchasing them, and likelihood of buying one in the future. As shown in the BROTHERS Study (HPTN 061), economic disenfranchisement among Black Americans is clearly associated with lack of engagement in sexual healthcare[24] and infrequent HIV testing.[25] In light of those findings, our data suggest that with increasing financial stability comes a greater ability to be proactive about sexual health maintenance; having more "disposable"

income may encourage some YBMSM to consider using or actively incorporate commercially available HIV test kits in their personal testing regimens (at an average cost of $40–60 per kit in 2015). In hypothetical situations in which DBS SSC kits were made available at a reduced cost ($5) or free of charge, participants with initially undecided or unfavorable views of this method became significantly more likely to use them.

We were particularly interested in the views of YBMSM on the subject of DBS SSC kits. Although oral fluid-based, rapid HIVST garnered significant attention with the approval of an over-the-counter kit for commercial sale, this method cannot reliably detect early, seronegative HIV infections.[26] Because of the greater risk of acute infection in the high HIV prevalence sexual networks we know exist in our state,[21] a negative rapid HIVST result may offer very recently infected YBMSM a false sense of security. In contrast, DBS testing offers the ability to detect not only HIV-specific antibodies[27] but also HIV RNA[28] or p24 antigen (either alone[29] or as part of a fourth-generation combination assay[30]) – though these more advanced options are currently available only in research settings. With proper public health laboratory support, DBS SSC could marry the convenience of "home" testing with the ability to diagnose acute or chronic HIV or syphilis infections and rapidly link those individuals to care. In our sample, YBMSM were generally savvy about the potential advantages that DBS SSC might afford, as evidenced by their significantly increased likelihood of using such a kit if it was able to detect very early infections, better able to diagnose early infections than rapid tests, or was able to diagnose syphilis as well as HIV. It is reasonable to conclude that initial misgivings about the need to collect a blood sample might be easily overcome if the diagnostic and logistic advantages of this approach are fully explained up front.

Finally, two additional limitations are worth noting. In an effort to keep the length of the survey manageable, we omitted scales assessing social supports, internalized homophobia, and personal experiences of institutional racism – each of which may exert a limited, negative influence on HIV testing patterns.[10] The survey functioned as a computer-assisted self-interview, yet immeasurable social desirability biases could have skewed responses on items such as intention to test in the next six months and willingness to use "home" test kits.

In summary, this study is the first to characterize the HIV testing practices of at-risk YBMSM in NC and to investigate their interest in options for "home" HIV testing. Our findings reveal a willingness to explore and incorporate alternative types of testing as a means of reducing the interval between HIV tests. Developing new strategies that empower YBMSM to test more often for HIV and link them to prevention and treatment resources may have a significant impact in reducing HIV incidence in this important, underserved population.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Summary

An online survey of 212 young, Black MSM showed 83% had tested for HIV, but inter-test intervals were unacceptably long. Self-testing awareness was high, but few had used this method.

Table 1

General Characteristics of Young, Black MSM Participating in Online Survey, North Carolina, July 2014–March 2015

Characteristic	Participants[a, b] (N=212)
Age in years	
Range	18–30
Median (IQR)	24 (21–27)
Gender identity	
Male	205 (96.7)
Transgender woman	7 (3.3)
In school	
Yes	100 (47.2)
No	112 (52.8)
Highest education level achieved	
Didn't finish high school	9 (4.3)
High school diploma or GED	31 (14.6)
Some college or technical degree	104 (49.1)
College degree	57 (26.9)
Postgraduate degree (master's, doctorate)	11 (5.2)
Employed	
Yes	154 (72.6)
No	58 (27.4)
Annual income	
< $20,000	132 (62.3)
$20,000 – $40,000	57 (26.9)
$40,000 – $75,000	17 (8.0)
> $75,000	6 (2.8)
Frequency of having sufficient income for rent, food, or utilities	
Never	5 (2.4)
Rarely	43 (20.3)
Sometimes	32 (15.1)
Frequently	81 (38.2)
Always	51 (24.1)
Has health insurance	
Yes	141 (66.5)
No	71 (33.5)
Has regular healthcare provider	
Yes	121 (57.1)
No	91 (42.9)
Ever been in jail or prison	
Yes	36 (17.0)
No	176 (83.0)

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[a]Data are presented as number (%) of participants, unless otherwise indicated.

[b]Due to non-responses on some items, columns may not sum to 212 (100%).

Table 2

Sexual Identity, Outness, and Relationship Status of Young, Black MSM Participating in Online Survey, North Carolina, July 2014–March 2015

Characteristic	Participants[a, b] (N=212)
Sexual partners	
Men only	164 (77.4)
Both men and women	48 (22.6)
Sexual identity	
Gay	150 (70.8)
Bisexual	42 (19.8)
Straight	7 (3.3)
Queer	2 (0.9)
Questioning	8 (3.8)
Other (1 – "pansexual", 1 – "sexual", 1 – "not applicable")	3 (1.4)
Most recent sex	
Within past month	168 (79.3)
Within past 6 months	35 (16.5)
Within past year	9 (4.3)
Number of sex partners in prior year	
Range	1–70
Median (IQR)	4 (2–8)
Number of Black sex partners in prior year	
Range	0–69
Median (IQR)	2 (1–4.5)
Has main sex partner(s), among those not in relationship[c]	
Yes	73 (47.1)
No	82 (52.9)
History of transactional sex	
Yes	40 (18.9)
No	172 (81.1)
In relationship	
Yes	57 (26.9)
No	155 (73.1)
Frequency of asking sex partners about HIV status	
Never	10 (4.7)
Rarely or occasionally	37 (17.5)
Sometimes	31 (14.6)
Frequently or usually	70 (33.0)
Always	64 (30.2)
Any known HIV+ partners among sex partners in prior year	
Yes	30 (14.2)
No	143 (67.5)

Characteristic	Participants[a, b] (N=212)
Don't know	39 (18.4)
History of any STI diagnosis	
Yes	69 (32.6)
Gonorrhea	34
Chlamydia	33
Syphilis	20
Pediculosis	7
Herpes simplex virus	6
Human papilloma virus	5
Trichomoniasis	3
No	143 (67.5)

[a] Data are presented as number (%) of participants, unless otherwise indicated.

[b] Due to non-responses on some items, columns may not sum to 212 (100%).

[c] Percent of 155 respondents who indicated not being in a relationship

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Table 3

HIV Testing Characteristics of Young, Black MSM Participating in Online Survey, North Carolina, July 2014–March 2015

Characteristic	Participants[a, b] (N=212)
Ever tested for HIV	
Yes	175 (82.6)
In prior 12 months	160 (75.5)
No	37 (17.5)
Frequency of HIV testing among those ever tested[c]	
Once every few years	10 (5.7)
Once a year	41 (23.4)
Every 6 months	53 (30.3)
Every 3–4 months	62 (35.4)
Monthly	9 (5.1)
Number of lifetime HIV tests among those ever tested[c]	
Range	1–100
Median (IQR)	6 (3–12)
Location of most recent HIV test among those ever tested and currently insured[d]	
Health department or community health center	35 (30.2)
Private healthcare provider's office	34 (29.3)
STI clinic or HIV testing site	13 (11.2)
Hospital	11 (9.5)
Home test or self-test	10 (8.6)
Other[e]	6 (5.2)
On the street or in a "mobile unit"	5 (4.3)
Emergency department or urgent care clinic	2 (1.7)
In jail or prison	0 (0)
Location of most recent HIV test among those ever tested and currently uninsured[f]	
Health department or community health center	29 (49.2)
Private healthcare provider's office	10 (17.0)
STI clinic or HIV testing site	12 (20.3)
Hospital	1 (1.7)
Home test or self-test	2 (3.4)
Other[e]	0 (0)
On the street or in a "mobile unit"	0 (0)
Emergency department or urgent care clinic	2 (3.4)
In jail or prison	3 (5.1)

[a] Data are presented as number (%) of participants, unless otherwise indicated.

[b] Due to non-responses on some items, columns may not sum to 212 (100%).

[c] Percent of 175 respondents reporting having ever tested for HIV

^dPercent of 116 respondents reporting having ever tested for HIV and having health insurance

^eAnswers included "college," "school," "Planned Parenthood," "military recruiter office," and "community testing event"

^fPercent of 59 respondents reporting having ever tested for HIV and having no health insurance

Table 4

Awareness of, Experiences with, and Attitudes towards Self-Testing among Young, Black MSM Participating in Online Survey, North Carolina, July 2014–March 2015

Characteristic	Number (%) of Participants[a] (N=212)
Is it possible to buy a kit to test yourself or others for HIV?	
Yes	164 (77.4)
No	15 (7.1)
I'm not sure	33 (15.6)
Ever bought a commercial HIV testing kit	
Yes	35 (16.5)
No	103 (48.6)
Number of test kits bought[b]	
One	22 (62.9)
Two	6 (17.1)
Three or more	7 (20)
Type of kit bought[c]	
Dried blood spot (Home Access brand)	14 (40)
Rapid oral (OraQuick brand; identified by photo of paddle)	29 (82.9)
In-Home Kit (identified by photo of kit)	27
Where kit purchased[c]	
Pharmacy	28 (80)
Online	10 (28.6)
From someone I know	0
Likelihood of purchasing kit in future	
Unlikely	64 (30.2)
Undecided	6 (2.8)
Likely	142 (67.0)
Main reason for buying a kit in the future, among 142 indicating likely to purchase	
It is convenient	50 (35.2)
It will help protect my privacy	33 (23.2)
I will get the results back more quickly	25 (17.6)
It will help me test more often than I do now	15 (10.6)
It will help me avoid a visit to a healthcare provider	9 (6.3)
It will be easier than getting a regular blood test	3 (2.1)
Main reason for not buying kit in future, among 64 indicating unlikely to purchase	
I prefer the standard test	13 (20.3)
I prefer face-to-face counseling	12 (18.8)
The results might be less accurate	11 (17.2)
The kits are too expensive	9 (14.1)
I'm concerned about privacy	5 (7.8)
I don't know enough about this kind of test	5 (7.8)

Characteristic	Number (%) of Participants[a] (N=212)
I am uncomfortable asking for the kit	2 (3.1)
I don't want to get tested for HIV	2 (3.1)

[a]Due to non-responses on some items, columns may not sum to 212 (100%).

[b]Percent among those 138 who were aware of kit availability for "home" HIV testing and had ever tested for HIV previously

[c]Percent of 35 endorsing prior purchase and use of commercial HIV testing kit(s)

Table 5

Associations of Participant Characteristics with Baseline HIV Test Kit Awareness, History of Kit Purchase, and Likelihood of Future Kit Purchase

Characteristic	Baseline Awareness of Kits to Test Onself for HIV (N=212)[a,b]			History of Purchasing HIV Test Kit (N=138)[a,b,c]			Likelihood of Purchasing HIV Test Kit in Future (N=206)[a,b]		
	Unaware (n=48)	Aware (n=164)	p[d]	Never Bought (n=103)	Ever Bought (n=35)	p[d]	Unlikely (n=64)	Likely (n=142)	p[d]
Age in years, median (IQR)	23 (20–27)	24 (22–26)	0.29	24 (22–26)	25 (24–28)	0.11	24 (21–26)	24 (21–27)	0.91
Highest education achieved			0.10			0.02			0.03
Didn't finish high school	4	5		3	0		6	3	
High school diploma or GED	9	22		15	0		14	16	
Some college or technical degree	25	79		53	16		28	72	
College degree	10	47		26	14		13	43	
Postgraduate degree	0	11		6	5		3	8	
Annual income			0.40			0.004			0.28
< $20,000	34	98		63	13		42	85	
$20,000 – $40,000	12	45		32	11		19	38	
$40,000 – $75,000	2	15		6	8		3	13	
> $75,000	0	6		2	3		0	6	
Sufficient money for necessities			0.008			0.69			0.04
Never	3	2		2	0		3	1	
Rarely/Occasionally	15	28		17	5		14	27	
Sometimes	9	23		15	5		11	21	
Frequently/Usually	16	65		41	11		16	62	
Always	5	46		28	14		20	31	
Has health insurance			0.98			0.007			0.81
Yes	32	109		62	30		43	93	
No	16	55		41	5		32	49	
Knows anyone who died of HIV			0.94			0.02			0.38
Yes	19	64		50	9		28	53	
No	29	100		53	26		36	89	

Characteristic	Baseline Awareness of Kits to Test Onself for HIV (N=212)[a,b]			History of Purchasing HIV Test Kit (N=138)[a,b,c]			Likelihood of Purchasing HIV Test Kit in Future (N=206)[a,b]		
	Unaware (n=48)	Aware (n=164)	p[d]	Never Bought (n=103)	Ever Bought (n=35)	p[d]	Unlikely (n=64)	Likely (n=142)	p[d]
Has main sex partner(s)			**0.027**			0.47			**0.02**
Yes	36	94		63	19		46	78	
No	12	70		40	16		18	64	
History of transactional sex			**0.013**			0.71			0.08
Yes	15	25		15	6		7	31	
No	33	139		88	29		57	111	
Frequency of asking sex partners about HIV status			**0.001**			0.89			0.10
Never	4	6		1	0		5	5	
Rarely/Occasionally	10	27		15	4		14	20	
Sometimes	14	17		10	5		9	20	
Frequently/Usually	14	56		36	13		14	55	
Always	6	58		41	13		22	42	
Likelihood of testing for HIV in next six months			0.07			0.50			**0.02**
Very unlikely	3	7		3	2		1	8	
Unlikely/Somewhat unlikely	6	13		8	1		12	7	
Undecided	8	9		5	0		6	10	
Somewhat likely/Likely	16	64		41	13		19	59	
Very Likely	15	71		46	19		26	58	

[a] Data are presented as number (%) of participants, unless otherwise indicated.

[b] Due to non-responses on some items, columns may not sum to total (100%).

[c] Presented as total number of respondents who were aware of commercial HIV test kits at baseline and had ever tested for HIV

[d] Bivariable associations tested with Pearson χ^2 test or Fisher exact test for categorical variables, and Wilcoxon rank-sum test for continuous variables