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Willingness to take a Free Anonymous Home HIV Test and Associated Factors among Internet-using Men who have Sex with Men

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Abstract

Objectives—Online HIV prevention studies have been limited in their ability to obtain biological specimens to measure study outcomes. We describe the factors associated with willingness of MSM to take a free anonymous home HIV test, and the self-identified barriers to home testing as part of an online prevention study.

Methods—Between March–April 2009 we recruited 6163 internet-using self-reported HIV negative MSM, who indicated their willingness to test for HIV infection using a commercially available home collection kit when offered hypothetically no incentive, \$10, \$25 or \$50.

Results—3833 (62%) men reported being very likely and 1236 (20%) men reported being somewhat likely to take a home HIV test offered as part of an online HIV prevention study. When compared to men who were not offered any hypothetical incentive, the odds of being willing to test at home were approximately twice as great for men offered hypothetically \$10 (odds ratio (OR), 1.8; 95% confidence interval (CI), 1.5–2.2), \$25 (OR, 1.8; CI, 1.5–2.2) or \$50 (OR, 2.1; CI, 1.8–2.6). Black MSM (OR, 1.3; CI, 1.1–1.7), men who had unprotected anal intercourse in the past 12 months (OR, 1.3; CI, 1.1–1.5), and men who were unaware of their HIV status (OR, 1.2; CI, 1.0–1.4) had increased odds of being willing to test at home.

Conclusions—Home testing offered as part of online HIV prevention research is acceptable, and future research and interventions should focus on addressing self-identified barriers faced by MSM to testing using home collection kits.

Keywords

Internet-using MSM; Home HIV Testing; Online HIV Prevention

INTRODUCTION

Between 2001 and 2006, the most common route of human immunodeficiency virus (HIV) transmission in the United States was male-male sex [1]. A national study aimed at providing direct estimates of HIV incidence for the year 2006 suggested that more than half (53%) of new infections occurred among men who were infected through sexual contact with other men [2]. Because men who have sex with men (MSM) who use the internet to

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meet sex partners may report higher levels of sexual risk behaviors for HIV acquisition [3–7], there has been great interest in the possibility of delivering HIV prevention intervention content through the internet [8–10]. Evidence about the feasibility of HIV prevention interventions delivered online is increasing, and researchers have reviewed the advantages, challenges and possibilities offered by this new medium [11]. A recent review and meta-analysis of computer-based behavioral interventions demonstrated that they are as efficacious as interventions delivered by human facilitators and have great potential for dissemination [12]. However, the capacity to test online interventions is still emergent, and one important barrier to conducting randomized prevention trials online has been the lack of availability of biological specimens to assess study endpoints such as HIV or STI infection.

Independent of the use of HIV testing to measure study endpoints in prevention trials, HIV testing is itself an important HIV prevention activity, and barriers to testing among MSM still exist. CDC recommends that sexually active MSM should test for HIV at least annually, and that men who are at a higher risk for infection should be tested for HIV at least once every six months [13]. However, findings from a study among MSM in five of the 17 cities participating in the National HIV Behavioral Surveillance (NHBS) system between 2004 and 2005 indicated that despite 92% of MSM reporting they had previously been tested for HIV, 48% of HIV-positive men were unaware of their status [14]. Many reasons exist for the reduced willingness of MSM to take an HIV test. In a cross-sectional interview study of persons at high risk among six states participating in the HIV Testing Surveys (HITS-I and HITS-II), the fear of being diagnosed with HIV and the denial of risk factors were principal reasons to avoid testing [15]. Similar reasons were reported in the 2004–2005 study of MSM in five US cities [14].

Dried blood spot collection kits for home HIV testing have been unevenly adopted in the United States. Data from seven states in the HIV Testing Survey of 2000 study showed that the overall awareness and use of these tests were limited: only 54% of the respondents were aware of the home collection kit and a major reason offered for not using alternative tests was concern about their accuracy [16]. However, non-internet-based research studies have successfully incorporated home collection kits for HIV testing. One study conducted across four cities suggested that 80% of the urban MSM identified and interviewed by telephone consented to be mailed an oral fluid specimen home collection kit, and 84% of those men returned a specimen [17]. In another study on the feasibility and acceptability of bimonthly home oral fluid (OF) and dried blood spot (DBS) specimen collection for HIV testing among high risk individuals, including MSM recruited from four sites in the HIV Network for Prevention Trials (HIVNET) cohort, 96% of expected OF specimens and 90% of expected DBS specimens were returned to the laboratory [18]. At the end of the study 86% participants reported being willing to continue bimonthly home specimen collection if kits were provided at no cost and 95% participants preferred receiving their test results by telephone [18]. Therefore, home collection HIV test kits hold promise for use in online HIV prevention research studies.

We sought to describe the factors associated with willingness of internet-using MSM to take a free anonymous home HIV test as part of online prevention activities. Specifically, we hypothesized that offering some monetary incentive would be associated with an increased willingness to take a commercially-available home HIV test mailed to their homes. Furthermore, we sought to describe important self-identified barriers to HIV testing using home collection kits in the setting of internet-based HIV prevention research.

METHODS

MSM were recruited online through selective placement of banner advertisements displayed on a social networking website (MySpace.com) from March-April 2009. During this period, internet users in the United States who reported being male and 18 years of age or older, and who had reported their sexual orientation as gay, bisexual or unsure in their MySpace profile were exposed to these advertisements. Participants who clicked through the banner advertisements were directed to an online informed consent module, and those who consented were administered an internet-based survey. Eligibility criteria included being reportedly male, 18 years of age or older and having at least one male sex partner in the preceding 12 months.

Demographic information collected from participants included age, race/ethnicity, census region, education, and self-identified sexual orientation. Questions pertaining to the participants' behaviors included gender of their sex partners, whether they had engaged in unprotected anal intercourse (UAI) with male sex partners in the past 12 months, HIV testing history, and HIV status of their most recent male sex partner. Because of our focus on HIV testing, men who reported being infected with HIV were excluded from our analyses.

Our primary analytic outcome was self-reported willingness to take a free anonymous home HIV test offered as part of an online prevention study. The participants were randomized to being offered hypothetically no incentive, \$10, \$25 or \$50 to take such a test, in approximately equal proportions. For those who were not offered any hypothetical incentive, willingness was assessed by the question: "How likely would you be to agree to take an at-home HIV test like this?" For those who were offered hypothetically \$10, willingness was assessed by the question: "If you were offered \$10 to take an at-home HIV test like this, how likely would you be to take the test?" Similar questions were asked to assess willingness among men who were offered hypothetically \$25 and \$50. Their responses were collected as an ordinal variable ("Very likely", "Somewhat likely", "Somewhat unlikely", and "Very unlikely").

Men who responded they were somewhat or very unlikely to take a home HIV test were asked to indicate one or more reasons for not being willing to take such a test from a list of eight options based on prior publications and subject area expertise. Men were also provided with the option of typing in any other reason for their reduced willingness to test at home. Further, participants who indicated multiple reasons were asked to choose their most important reason for not being willing to take such a test.

Statistical analyses were performed using SAS version 9.2 [19]. Bivariate analyses were conducted to report crude associations with the outcome, and multivariate analyses were used to report associations after controlling for demographic and behavioral covariates. Several potentially explanatory variables were included in our analyses because of their known associations with HIV testing behaviors in MSM. These include age [15, 20, 17, 21], race/ethnicity [20–22], education [21, 22], unprotected anal sex [22], healthcare provider recommending an HIV test [15, 23], and knowledge of one's HIV status [17, 21]. The outcome measure was dichotomized into "Willing to test at home" and "Not willing to test at home" because, on performing statistical analyses our assumptions for conducting ordinal logistic regression analyses were invalidated [24].

Based on evaluation of estimated logit plots of willingness and the continuous independent variable age, we treated age as a continuous variable [19]. Also, because age was not normally distributed, we performed the Wilcoxon rank-sum test to assess the bivariate relationship between age and the outcome [25].

For categorical variables we calculated crude odds ratios (cOR) and 95% confidence intervals (CI) versus referent groups to report bivariate associations. Adjusted odds ratios (aOR) and 95% CIs were obtained by performing multivariate logistic regression to control for potential confounders. We attempted to use ordinal logistic regression using the ordered levels of likelihood of using the home test kit as the ordinal outcome, but the proportional odds assumption was violated, so we dichotomized the outcome variable for logistic regression modeling. Variables found to have at least one significant categorical level ($P < 0.05$) in the bivariate analysis were included in the initial multivariate logistic regression model, and we used a stepwise selection approach to reach a final model. All two-way interactions of first order factors retained in the model were examined, and none of them were found to be significant on applying the Bonferroni correction. Also, we did not detect any problems with collinearity [26, 27].

Willingness to take a home HIV test was assessed in men who were offered hypothetical incentives of \$10, \$25 or \$50 versus those who were not offered any hypothetical monetary incentive. In separate models, willingness was also assessed in men who were offered hypothetically \$50 versus those offered hypothetically \$25 or \$10, and in men who were offered hypothetically \$25 versus those offered hypothetically \$10.

Further, reasons why men who were somewhat or very unlikely to take a free anonymous home HIV test were tabulated. Participants' responses under "Other Reason" were manually reviewed and reassigned to appropriate pre-specified options. The main self-identified barriers to taking a home HIV test chosen by men who indicated more than one reason for being unwilling to test were also tabulated.

RESULTS

Overall, 8,257,271 MySpace advertising impressions resulted in 30,559 click-throughs to the survey over a 29-day period; 16,597 (54% of click-throughs) completed the questions used to determine eligibility; 11,681 (70% of respondents to eligibility questions) were eligible to participate, and 9005 (77% of eligible respondents) consented to participate in the study. We restricted our analyses to 6163 (68% of participants) men who did not report being infected with HIV, and who responded to the question on willingness to take a free anonymous home HIV test. Compared to participants who completed the survey and were included, those who failed to complete the survey were more likely to be black or Hispanic, bisexually or heterosexually identified, younger, and of lower educational attainment (data not shown in table).

Table 1 summarizes the demographic and behavioral characteristics of respondents included in our analyses. Most of the participants were aged ≤ 24 years, more than half the men had used the internet to meet sexual partners in the past 12 months, and nearly two-thirds of the men reported having a UAI partner within the past 12 months. Almost one-third of the participants had never been tested for HIV. The majority of men (62%) reported being very likely to take a free anonymous home HIV test if offered as part of an online research study, and 20% reported being somewhat likely. However, 6% of the men reported being somewhat unlikely and 12% reported being very unlikely to take such a test.

Table 2 shows results from the bivariate and multivariate analyses of factors associated with the willingness to take a home HIV test as part of an online prevention study. For men who were offered hypothetical monetary incentives of \$10, \$25 or \$50, the odds of being willing to test at home were approximately twice as great when compared to men who were not offered any hypothetical incentive. In separate models (full models not shown) men who were offered hypothetically \$50 did not have increased odds of reporting willingness to take

such a test compared to those hypothetically offered \$25 (OR, 1.2; CI, 0.9–1.4) or \$10 (OR, 1.2; CI, 0.9–1.4). Also, men who were hypothetically offered \$25 did not have increased odds of being willing to take a home HIV test compared to those hypothetically offered \$10 (OR, 1.0; CI, 0.8–1.2). Non-Hispanic black men had increased odds of being willing to take such a test compared to non-Hispanic white men. Engaging in UAI with a male sex partner in the past 12 months was associated with increased odds of being willing to take a home HIV test compared to not having unprotected anal sex. Men who had been recommended an HIV test in the past 12 months by their healthcare provider had reduced odds of being willing to test at home than men who were not recommended a test. Lack of knowledge of HIV status was associated with increased odds of being willing to take a home HIV test when compared to having tested negative in the most recent HIV test. The difference in the distribution of age by willingness to take a free anonymous home HIV test was not significant in bivariate analysis, and age was not associated with the willingness to test in the multivariate analysis.

Table 3 summarizes the reasons and the main reason cited by 1,094 respondents who reported being somewhat or very unlikely to take a home HIV test. The most common reason indicated by almost half the men was uncertainty about the accuracy of such a test. More than one-third men were not willing to give their mailing address to receive the test kit and an equal percentage responded that they would rather talk to a counselor when they got an HIV test. Main reasons indicated for not being likely to test were similar. More than one-fifth men cited uncertainty about the accuracy of a home HIV test as their main reason for being unwilling. Fifteen percent of men reported they would prefer talking to a counselor when they got an HIV test as their main reason, and 13% of men were mainly apprehensive that people living with them might see the test kit arrive.

DISCUSSION

Our study sought to describe the factors associated with willingness of internet-using MSM to take a free anonymous home HIV test as part of online HIV prevention activities. Using the internet is a highly prevalent method of meeting sex partners among MSM [28], and many studies to date have reported that men who seek partners online are more likely to engage in high risk sex [3–6, 28]. Our study suggests that, based on self-reported intention to use at-home HIV testing as part of an online prevention research study, home testing may be an acceptable means of assessing biological outcomes in future online research studies targeted toward MSM. Further, our data suggest that racial/ethnic minority men and men with high risk sexual behaviors, two important groups to represent in online prevention research, may be especially likely to agree to home HIV testing.

In our study, MSM who were hypothetically offered incentives of \$10, \$25 or \$50 were approximately twice as likely to take a home HIV test compared to men who were not hypothetically offered any incentive. These findings have implications for future research, as they suggest that offering an incentive to MSM recruited online can positively influence intentions to test for HIV using a home collection kit.

It is important to note that intentions do not always translate into actions, and whether greater willingness to take a home HIV test will actually lead to increased testing cannot be guaranteed. Sequential cross-sectional HIV Testing Surveys (HITS) conducted at the time when home collection kits were being introduced (HITS-I: 1995–96) and when they were widely available (HITS-II: 1998–99) demonstrated this disparity [21]. Although 19% of respondents in HITS-I intended to use home collection kits, only 1% of respondents in HITS-II reported actual use [21].

Our study found that non-Hispanic black MSM were significantly more likely to report being willing to take a home HIV test than non-Hispanic white MSM. This finding is encouraging especially because younger black MSM in the United States have the highest prevalence of unrecognized HIV infection [1, 14], and are experiencing the highest increase in new infections [2, 29]. MSM of color have been systematically underrepresented in most internet-based HIV prevention studies [7, 9, 10, 22, 30], possibly because of reduced access to both basic and high speed broadband internet among black Americans compared with white Americans [31]. However, the racial and ethnic distribution of our study population reflects that non-Hispanic black MSM represented about 13% of the total, which is comparable to the proportion of African American men in the United States.

Engaging in unprotected anal sex with a male partner in the past 12 months was associated with an increased willingness to test. This finding is consistent with the notion that a heightened HIV risk perception can positively influence intentions to test. In a study describing predictors of recent HIV testing among homosexual men in Australian capital cities, HIV testing levels were highest in men who reported having UAI in the past 6 months [32].

Our study also found that men who had been recommended an HIV test in the past 12 months by their healthcare provider were less likely to take a home HIV test than men who were not recommended a test. One explanation for this negative association could be that these men were more likely to get tested using traditional clinic-based or standard blood testing which might have been offered at their healthcare provider's office. Another explanation could be that these men shared a trusting relationship with their healthcare provider and were therefore more comfortable getting tested for HIV at their medical facility.

Almost one-third of the men in our study reported never been tested for HIV, and about one-fifth of the total study population was not willing to take a free anonymous home HIV test. The most common reason specified for not willing to take such a test was uncertainty about its accuracy. This is consistent with the results from the HIV Testing Survey (HITS) conducted in seven states from September 2000 to February 2001, which asked MSM and other high risk populations about reasons for not using home collection kits [16]. Among men who chose more than one reason for being unlikely to test using a home collection kit, a majority cited concerns about accuracy as their main reason, followed by apprehensions that people who live with them might see the test kit arrive. These findings are important from a public health research perspective, because given some of the most common and main reasons provided for not willing to take home HIV tests, efforts can be made to educate MSM about these issues in future online interventions. We hope that alleviating concerns about accuracy and confidentiality will lead to higher levels of HIV testing using home collection kits.

However, our study is not without limitations. Our participants are a convenience sample and therefore the results cannot be generalized to all MSM users of MySpace, users of other online social networks, or MSM in the general US population. Because our banner advertisements were displayed only to men who had reported their sexual orientation as gay, bisexual or unsure in their MySpace profile, MSM who had reported their sexual orientation as straight were systematically underrepresented. One limitation of collecting data online is the inability to verify participants' self-reported demographic characteristics. Due to the sensitive nature of some questions, participants may not have accurately disclosed their risk behaviors, possibly subjecting our study to social desirability bias [33]. However, we do not think this was a major limitation because people tend to be more open and honest while reporting risk behaviors using computer-survey technologies when compared to traditional

questionnaires [34]. Because our survey involved a 12-month recall period, respondents had to answer many questions based on memory, consequently subjecting our results to recall bias. Another concern could be regarding the same respondent taking the survey multiple times. However, we do not think this was common in our study because participants could only enter the survey by clicking on the banner advertisement displayed on MySpace, and the probability of more than one such display occurrence was quite low. Furthermore, multiple surveys could not be completed from the same IP address, so unless the participant changed his IP address or took the survey from a different computer, he could not have taken the survey more than once.

Despite these limitations, our study has important implications for conducting online HIV prevention research in future. We suggest that researchers proposing home HIV testing as part of online HIV prevention research include a statement clarifying that home collection kits use the same laboratory tests as traditional HIV testing methods such as venipuncture-based testing, with equivalent accuracy. We also recommend displaying a picture of the box containing the HIV test kit which would be delivered to the participants' homes, to illustrate that the packaging is like any other shipment and does not identify its specific contents. Further, we suggest highlighting the availability of telephone counseling while receiving the results of their HIV test, and the option for referral to in-person counseling if desired.

The epidemiology of HIV among MSM in the United States necessitates exploring new technologies as vehicles for disseminating information on risk reduction and disseminating HIV prevention interventions. The internet holds great promise as a venue in which HIV prevention interventions can be disseminated in a cost-effective way. Our data suggest that it may be acceptable to include home HIV testing as part of HIV prevention interventions, both in the setting of prevention research and perhaps eventually as part of online intervention packages.

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Table 1

Demographic and behavioral characteristics of 6,163 HIV-negative or -unknown MSM* respondents to a national 'Barriers to Online HIV Prevention' survey, United States, 2009.

Characteristic	n [†]	%
Age group (years) [‡] :		
18–24	4231	69
25–29	977	16
30–34	403	7
35–40	414	7
> 40	138	2
Race/Ethnicity:		
White, non-Hispanic	2661	43
Black, non-Hispanic	819	13
Hispanic	1934	31
Other [§]	749	12
Census region:		
West	1885	31
Midwest	956	16
Northeast	810	13
South	2222	36
Unknown	290	4
Education:		
College, Post graduate, or Professional school	942	15
Some college, Associate's degree, and/or Technical school	2640	43
High school, GED or less	2513	41
Unknown	68	1
Self-identified sexual orientation:		
Homosexual (Gay)	4525	73
Bisexual	1480	24
Heterosexual (Straight)	34	1
Other	124	2
Had sex in the past 12 months with:		
Only one or more men	5464	89
Both men and women		
Told their female sex partner about having sex with men	459	7
Not told their female sex partner about having sex with men	240	4
Gone online to meet sex partners in the past 12 months:		
Yes	3237	52
No	2870	47
Unknown	56	1
Had unprotected anal intercourse [¶] with a male sex partner in the past 12 months:		

Characteristic	n [†]	%
Yes	3980	65
No	2183	35
HIV status of last male sex partner:		
Positive	105	2
Negative	4329	70
Unknown	1729	28
Healthcare provider recommended an HIV test in the past 12 months:		
Yes	1346	22
No ^{**}	4817	78
Time of most recent HIV test:		
Never tested	1721	28
Tested within the past 6 months	2007	33
Tested within the past 7 – 12 months	920	15
Tested more than 12 months ago	970	16
Unknown	545	8
HIV status ^{††} (Result of most recent HIV test):		
Negative	4238	69
Unknown	1925	31
Likelihood of taking a free anonymous home HIV test:		
Very likely	3833	62
Somewhat likely	1236	20
Somewhat unlikely	351	6
Very unlikely	743	12
Incentive hypothetically offered to take a free anonymous home HIV test:		
None	1583	26
\$ 10	1525	25
\$ 25	1560	25
\$ 50	1495	24

* MSM: Men who have sex with men.

[†] Sample size (N) = 6163.

[‡] Age: Mean = 24, Median = 21, Range = 18–80.

[§] Includes 143 Asian/Pacific Islander, 128 American Indian/Alaskan Native, 322 multiracial, 99 other and 57 unknown.

// Includes 58 men who preferred not to answer and 66 who indicated “Other” as their response.

¶ Neither the respondent nor his partner used a condom.

** Includes 1511 men who were not recommended an HIV test as they did not visit a healthcare provider in the past 12 months.

^{††} Negative includes 18 indeterminate. Unknown includes 68 who tested but did not receive a result and 1857 unknown.

Table 2

Associations between demographic and behavioral factors and willingness* to take a free anonymous home HIV test among of 6,163 HIV-negative or -unknown MSM† respondents to a national ‘Barriers to Online HIV Prevention’ survey, United States, 2009.

Characteristic	Willing to test at home n (%)	Not willing to test at home n (%)	Crude OR‡ (95% CI§)	Adjusted OR‡ (95% CI§)
<i>Categorical Variables</i>				
Incentive hypothetically offered to take a free anonymous home HIV test:				
None	1184 (75)	399 (25)	Referent	Referent
\$ 10	1285 (84)	240 (16)	1.8 (1.5–2.2)	1.8 (1.5–2.2)
\$ 25	1314 (84)	246 (16)	1.8 (1.5–2.2)	1.8 (1.5–2.2)
\$ 50	1286 (86)	209 (14)	2.1 (1.7–2.5)	2.1 (1.8–2.6)
Race/Ethnicity:				
White, non-Hispanic	2179 (82)	482 (18)	Referent	Referent
Black, non-Hispanic	695 (85)	124 (15)	1.2 (1.0–1.5)	1.3 (1.1–1.7)
Hispanic	1602 (83)	332 (17)	1.1 (0.9–1.3)	1.1 (0.9–1.3)
Other¶	593 (79)	156 (21)	0.8 (0.7–1.0)	0.9 (0.7–1.1)
Education:				
College, Post graduate, or Professional school	737 (78)	205 (22)	0.8 (0.6–0.9)	0.8 (0.7–1.0)¶
Some college, Associate’s degree, and/or Technical school	2219 (84)	421 (16)	1.1 (1.0–1.3)	1.1 (1.0–1.3)
High school, GED or less	2069 (82)	444 (18)	Referent	Referent
Had sex in the past 12 months with:				
Only one or more men	4525 (83)	939 (17)	Referent	Referent
Both men and women:				
Told their female sex partner about having sex with men	368 (80)	91 (20)	0.8 (0.7–1.1)	0.9 (0.7–1.2)
Not told their female sex partner about having sex with men	176 (73)	64 (27)	0.6 (0.4–0.8)	0.6 (0.4–0.8)
Had unprotected anal intercourse** with a male sex partner in the past 12 months:				
Yes	3329 (84)	651 (16)	1.3 (1.1–1.5)	1.3 (1.1–1.5)
No	1740 (80)	443 (20)	Referent	Referent
HIV status of last male sex partner:				
Positive	86 (82)	19 (18)	1.0 (0.6–1.7)	--
Negative	3533 (82)	796 (18)	Referent	Referent
Unknown	1450 (84)	279 (16)	1.2 (1.0–1.4)	--
Healthcare provider recommended an HIV test in the past 12 months:				
Yes	1051 (78)	295 (22)	0.7 (0.6–0.8)	0.7 (0.6–0.8)
No‡‡	4018 (83)	799 (17)	Referent	Referent
Time of most recent HIV test:				

Characteristic	Willing to test at home n (%)	Not willing to test at home n (%)	Crude OR [‡] (95% CI [§])	Adjusted OR [‡] (95% CI [§])
Never tested	1452 (84)	269 (16)	Referent	Referent
Tested within the past 6 months	1592 (79)	415 (21)	0.7 (0.6–0.8)	--
Tested within the past 7 – 12 months	769 (84)	151 (16)	0.9 (0.8–1.2)	--
Tested more than 12 months ago	809 (83)	161 (17)	0.9 (0.8–1.2)	--
HIV status ^{††} (Result of most recent HIV test):				
Negative	3449 (81)	789 (19)	Referent	Referent
Unknown	1620 (84)	305 (16)	1.2 (1.1–1.4)	1.2 (1.0–1.4)^{§§}
Characteristic	Median value for willing to test at home	Median value for not willing to test at home	Crude OR (95% CI)	Adjusted OR (95% CI)
<i>Continuous variables</i>				
Age ^{///} (years):	21	21	1.0 (1.0–1.0)	--

* Willing to test at home, N = 5069 (Includes 3833 very likely and 1236 somewhat likely). Not willing to test at home, N = 1094 (Includes 351 somewhat unlikely and 743 very unlikely). Numbers might not add to total because of missing data.

[†] MSM: Men who have sex with men.

[‡] OR: Odds ratio.

[§] CI: Confidence interval.

^{||} Includes 143 Asian/Pacific Islander, 128 American Indian/Alaskan Native, 322 multiracial, 99 other and 57 unknown.

[¶] Result was significant: Upper limit of the 95% CI rounded up from 0.97 to 1.0.

^{**} Neither the respondent nor his partner used a condom.

^{††} Includes 1511 men who were not recommended an HIV test because they did not visit a healthcare provider in the past 12 months.

^{‡‡} Negative includes 18 indeterminate. Unknown includes 68 who tested but did not receive a result and 1857 unknown.

^{§§} Result was significant: Lower limit of the 95% CI rounded down from 1.01 to 1.0.

^{///} Odds Ratio calculated per 10 years. Wilcoxon rank-sum test for difference in distribution of age by willingness was not significant (P=0.53).

Table 3

Reasons and the main reason for not willing to take a free anonymous home HIV test cited by 1,094 HIV-negative or -unknown MSM* respondents[†] to a national 'Barriers to Online HIV Prevention' survey, United States, 2009.

Pre-specified options for unwillingness [‡]	Any reason n [§] (%)	Main reason n ^{//} (%)
I'm not sure an at-home test would be accurate	519 (47)	233 (21)
I would not want to give my mailing address to receive the test kit	396 (36)	118 (11)
I would rather talk to a counselor when I get an HIV test	391 (36)	162 (15)
I live with people who might see the test kit arrive	311 (28)	147 (13)
I've been tested very recently	277 (25)	110 (10)
I don't think I need an HIV test	245 (22)	113 (10)
I would not want to stick my finger to get a drop of blood	217 (20)	49 (5)
I don't want to know if I'm HIV positive	61 (6)	28 (3)

* MSM: Men who have sex with men.

[†] Includes 351 somewhat unlikely and 743 very unlikely to take a free anonymous home HIV test.

[‡] 22 men specified they did not want to mail their blood specimen because of privacy concerns and 18 men specified they did not trust a kit sent through the internet, under the "Other Reason" option.

[§] Numbers do not add to total because respondents could select one or more reasons for not willing to test at home.

^{//} Includes 644 men who indicated their main reason from more than one of their reasons for not being willing to take a free anonymous home HIV test and men who indicated only one reason for their unwillingness.