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Racial variance in rationale for HIV testing in community-based setting in the United States: Evidence from National Health Interview Survey

Laurens Holmes Jr, MD, DrPH[1], **Emmanuel Monjok, MD, MPH**[1], **Doriel Ward, Ph.D, MPH**[2], **Orsolya M. Garrison, MPH**[2,3], **Evette D Toney, Ph.D**[2], **Gbadebo Ogungbade, DVM, MPH**[1], and **E. James Essien, MD, DrPH**[1,3]

[1] Institute of Community Health, University of Houston, Texas Medical Center, 1441 Moursund Street, Houston TX, 77030

[2] MD Anderson Cancer Center, University of Texas, Houston TX 77030

[3] University of Texas at Houston, School of Public Health, Houston TX, 77030

Abstract

Background—HIV testing varies across racial/ethnic groups in the United States (US), but it is unclear whether the rationale for testing differs as well racially. We aimed to assess the rationale for HIV testing and the racial/ethnic variation therein.

Methods—Using the National Health Interview Survey 2003 (n=29,753), we examined the association between rationale for HIV testing and race. Chi-Square statistic and multinomial logistic regression analyses were used to test for racial differences and the effect of race/ethnicity on the rationale for HIV testing.

Results—There was a statistically significant racial difference with respect to HIV testing rationale, $\chi^2 = 808.9$, $c < 0.0001$. After adjustment for relevant covariates, compared with Caucasians, African Americans (AAs) were 37% less likely to be tested due to exposure to sex/drugs, whereas Hispanics were not, Prevalence Risk Ratio(PRR), 0.63,95% Confidence Interval (CI), 0.47–0.84 respectively. Likewise AAs and Hispanics were less likely to be tested if they were sick or had a medical problem (PRR=0.66, 95% CI=0.44–0.99 and PRR=0.65, 95% CI=0.43–0.98).

Conclusions—Substantial racial variation occurred in the reason for being tested for HIV in US, indicative of the need to understand such rationale for effective HIV screening and testing.

Keywords

HIV testing rationale; racial variance; African Americans; Hispanics; Caucasians

Lead/Corresponding author: Laurens Holmes Jr. Institute of Community Health, University of Houston, Texas Medical Center, 1441 Moursund Street, Room 116, Houston, TX 77030, USA. E-mail: lholmes3@uh.edu. Tel: (713)795 8351. Fax: (713)795 8383.
Co-authors: Emmanuel Monjok. E-mail: emonjok@uh.edu. Tel: (713)795 8321
Doriel Ward E-mail: dward@mdanderson.org. Tel: (713)794 4020
Orsolya M. Garrison. E-mail: ogarriso@mdanderson.org. Tel: (713)745 3805
Evette D Toney E-mail: edtoney@mdanderson.org. Tel: (713)563 9222
Gbadebo Ogungbade. E-mail: gogungbade@uh.edu. Tel: (713)795 8321
E. James Essien. E-mail: ejessien@uh.edu. Tel: (713)795 8393

Introduction

Racial disparities persist in HIV/AIDS morbidity and mortality in the US despite the progress to date, including routine screening and testing, antiretroviral drug treatments, education of AIDS physicians and intervention/prevention.[1–3] Likewise, there are differences with respect to HIV testing,[4] but it is unclear why disproportionate racial variances exist. It is also unknown what variables motivate HIV testing, besides HIV risk perception. The knowledge of the rationale for HIV testing may explain the motives for HIV testing and facilitate our current effort in screening and testing, thus reducing HIV incidence across the US population.

The National Health Interview Survey of 1999 obtained data on the reasons for being tested for HIV in persons 18 years and above during the 12 months preceding the survey. [5] The analysis revealed that the reasons for testing differ between African Americans, Hispanics and Whites. [5] Further, African Americans were more likely to be tested voluntarily for infection status compared to Hispanics and Whites but were less likely to have tested when required for hospitalization/surgery, health/life insurance, new job and military enlisting, when compared to Whites and Hispanics. [5] Studies have also shown that gender differences exist regarding reasons for HIV testing. [6, 7] Other factors influencing testing vary from perceived risk behavior, [8] having a current HIV positive partner, [9] social setting, such as incarceration, to hospital or drug rehabilitation. [10, 11] Knowledge about HIV testing as a preventive tool is important 12 but this has not prevented many populations in the US particularly low- income African Americans, from engaging in multiple sexual relationships, given risks associated with such behavior. 13 Studies have shown that consistent and accurate condom use dramatically reduces HIV infection in any population.14–16 However; the perception of being at risk precedes condom use itself. Also, another study has shown that having had an HIV test does increase the likelihood of using a condom for Sexually Transmitted Disease (STD) prevention. [17]

To our knowledge, there are limited studies accessing the rationale for HIV testing stratified by race. The present study uses data from the US National Health Interview Survey to assess racial/ethnic differences in the reasons for having an HIV test. We hypothesized that there are substantial racial variation in the rationale for HIV testing. As a collateral hypothesis, we postulated that variation in income, education, health insurance coverage and other socio-demographic factors may explain the observed racial variation in HIV testing. To examine these hypotheses, we utilized a multinomial logistic regression model, given the categorical level of the outcome variable (i.e. rationale for HIV testing).

Materials and Methods

This study utilized secondary data to examine whether race is an independent predictor of the rationale for HIV testing in a cross-section of the United States adult population.

Data Source

The National Health Interview Survey, 2003 (NHIS) Sample Adult component from the National Center for Health Statistics, Centers for Disease Control and Prevention (CDC) will be used to answer the research questions or hypotheses proposed in this study. The conditional response rate for this component was 84.5% of persons identified as sample adults, and the final response rate for the Adult Sample Person component was calculated as (Overall Family Response Rate) × (Sample Adult Response Rate), or (87.9%) × (84.5%) = 74.2%. The conditional Sample Adult response rate is the rate only for those sample adults identified as eligible and does not take into account household or family non-response. The final Sample Adult response rate is the rate for those sample adults identified as eligible that

takes into account household and family non-response. The NHIS, 2003 represents cross-sectional data collected across the United States population. This data included self-response information from participants including socio-demographic variables, health outcomes, health care utilization, clinical diagnoses, and prognostic factors.

Study Population

The interviewed sample for the Sample Adult component of the NHIS, 2003 consisted of 30,852 persons from a total of 36,524 adult individuals. Participants were non-Hispanic Whites, n=20,169 (65.37%), non-Hispanic Blacks, n = 4,168 (13.51%), Hispanics n = 5,416 (17.55%), and others, n = 1,099 (3.56%). Participants were either male, n = 13,427 (43.52%) or female, n = 17,425 (56.48%), ages 18 years and older. Participants were sampled from all states in the United States. For the purpose of analytic description and inferential statistics, we excluded the racial group "others" and obtained a total sample, n = 29,753, with male, n = 12,925 (43.4%) and female, n =16,828 (56.6%).

Data Collection and Sampling Techniques

Data Collection Procedures—The United States Census Bureau was the collection agent for the NHIS. Data were collected via a personal household interview by Census interviewers (about 400 interviewers nationally). These individuals were trained and directed by health survey supervisors in the 12 United States Census Bureau Regional Offices. Supervisors were career Civil Service employees and were selected via an examination and testing process. The detail of the sampling technique is described elsewhere. [18]

Study Variables

Outcome Variable: rationale for HIV testing—The study outcome variable was the self-reported rationale for HIV testing. In the dataset, rationale for HIV testing is measured with multiple responses or levels (16). Participants were asked if they were ever tested for HIV and the reason for being tested.

Main Predictor Variable: Race—The main study predictor variable is race. In the dataset, race is categorized into Non-Hispanic Whites, Non-Hispanic Blacks, Hispanics, and Others. For this study, Caucasians were used as the reference group comparing outcomes in Caucasians with Blacks, and Hispanics.

Other Potential predictor variables: Insurance coverage, Family income—Insurance coverage is measured by any family members having insurance coverage and was categorized into "yes", "no", "refused", "not ascertained", and "don't know". This variable was dichotomized by recoding or transformation into "yes" and "no" responses. The responses "refused", "not ascertained", and "don't know", because of the small numbers, were not included in the analysis. This approach is appropriate given the overall large sample size in the data set and the small number of participants responding to "refused", "not ascertained", and "don't know".

Income is measured by family income greater than $20,000 and less than $20,000. This variable was categorized into "greater than $20,000", "less than $20,000", "refused", "not ascertained", and "don't know". The family income variable was recoded into a binary scale, i.e., "greater than or equal to $20,000" and "less than $20,000". The responses "refused", "not ascertained", and "don't know" were not included in the analysis.

Socio-demographic Variables: Age, Sex, Education Level, Marital Status—The age of participants in this study is measured by continuous variables. That is, age was

categorized into seven groups commencing with age 18 years. Both males and females were eligible for the survey provided the age requirement was satisfied. Education level is measured by the years of attainment at an educational institution. This variable was collected as categorical but was recoded for suitable categories in comparing “less or equal to high school”, “some college”, and “greater than or equal to a bachelor’s degree”, with the outcome variables. Employment status is measured by a categorical variable that elicited information on job profile. This variable was recoded in order to examine unemployment versus employment, with respect to racial distribution and the association with the outcome variables. Marital status is measured as a categorical variable and was used to examine the influence of social support system on the rationale for HIV testing.

Statistical Analysis

Pre-analysis screening was performed for categorical and continuous data using chi square and mean as well as standard deviation respectively. Pearson Chi square distribution was used to examine the independence of race and other factors on the rationale for HIV testing. To examine the unadjusted association between race and rationale for HIV testing, we utilized the unconditional univariable multinomial logistic regression model. This model is adequate given the categorical level of the response variable, rationale for HIV testing. We examined as well in this model, the association between other possible confounding variables namely age, gender, income, insurance coverage and marital status. We determined a priori, that to be included in the multivariable modeling process for the multinomial multivariable logistic model, variables must be statistically significant at $P < 0.25$, [19] or biologically relevant. Next, we performed an interaction using age and race, income and race, and education and race as product terms, and found these terms not to be significant to enter into the model at statistical significance, $P < 0.10$. Finally, we entered into the multivariable model all variables that were either statistically significant at $P < 0.25$ or biologically relevant, thus adjusting for the possible confounding effect of these variables on the association between race/ethnicity and the reason for HIV testing. All statistical analysis were two-tailed, at significance level 0.05, and were performed using STATA statistical package, version 9.0.

Results

Table 1 presents the distribution of socio-demographic factors across racial and ethnic groups. The total sample comprised, n= 29,753, with majority being Caucasians, n= 20,169 (67.8%), African Americans (AAs), n =4,168 (14.0%) and Hispanics, n=5,416 (18.2%). With respect to education, Hispanics and AAs were less likely to have higher education compared with Caucasians, 3.1% vs. 9.2% and 4.5% vs. 9.2%, $p < 0.001$ respectively. Relative to the Caucasians, AAs were less likely to be married, 53.4% vs. 30.5% $p < 0.001$. Compared to Caucasians, AAs and Hispanics were less likely to be in the higher income category, 72.5% vs. 55.1%, and 72.5% vs. 57.5%, $p < 0.001$ respectively. However, there was no statistically significant difference in insurance coverage with respect to race, $p = 0.39$. Table 1 also shows the age groups of participants by ethnic/racial groups. There was a statistically significant racial difference in age with respect to race, $P < 0.0001$. Caucasians were more likely to be older compared with AAs and Hispanics, 15.5% vs. 9.5% and 6.0% respectively.

Table 2 presents the rationale for being tested for HIV infection by racial/ethnic groups. Of the 29,753 who participated in the survey, 10,481 (35.2%) responded to the questions on the rationale for HIV testing, whites, n = 6,230 (59.2%), AAs, n =2,067 (19.7%), and Hispanics, n = 2,184 (20.8%). With respect to reason for being tested, there was a statistically significant racial difference. African Americans (AAs) significantly differed from Caucasians and Hispanics with respect to wanting to find out if they were infected or not,

15.4% vs. 11.0% and 15.4% vs. 10.2%, $p < 0.001$, respectively. With respect to being tested for reason being exposure through work, AAs and Hispanics compared to Caucasians were less likely to be tested, 2.6% vs. 4.2% and 2.1% vs. 4.2%, $p < 0.001$, respectively. Relative to Caucasians, AAs and Hispanics were less likely to be tested for the reason of being ill or seeking medical care, 2.4% vs. 1.7% and 2.4% vs. 1.6%, $p < 0.001$, respectively. Compared with Caucasians and AAs, Hispanics were more likely to be tested if they were pregnant or during delivery, 15.9% vs. 23.8% and 14.0% vs. 23.8%, $p < 0.001$, respectively. Regarding transmitting HIV to others as reason for being tested, AAs were less likely to be tested relative to Caucasians and Hispanics, 0.05% vs. 0.24% and 0.05% vs. 0.14%, $p < 0.001$, respectively.

Table 3 presents unadjusted multinomial logistic regression analysis of the association between race and the rationale for HIV testing, using no reason for being tested as the base outcome category. Relative to Caucasians, AAs were 40% more likely to be tested for wanting to find out if infected but Hispanics were not, Prevalence Risk Ratio(PRR) = 1.40, 95% confidence interval(CI), 1.15–1.71 and PRR = 0.99, 95% CI, 0.80–1.22 respectively. Compared to Caucasians, AAs were more likely to be tested for reason being routine medical checkup but Hispanics were not, PRR =1.30, 95% CI, 1.09–1.54, and PRR = 1.02 95% CI, 0.86–1.22, respectively. With respect to the reason for being tested because someone suggested testing, Hispanics were 54% more likely to be tested relative to Caucasians but AAs were not, PRR = 1.54, 95% CI, 1.18–2.00 and PRR =1.07, 95% CI, 0.80–1.42 respectively. Likewise, relative to Caucasians, Hispanics were 8 times more likely to be tested for immigration reasons, but AAs were not, PRR = 8.51, 95% CI, 6.32–11.47 and PRR = 1.26, 95% CI, 0.82–1.94 respectively. Relative to Caucasians, AAs and Hispanics were 38% and 46% less likely to be tested for reason being that they might have been exposed to HIV infection through work, PRR =0.62, 95% CI, 0.44– 0.86 and PRR = 0.54, 95% CI, 0.38–0.76 respectively. Compared with Caucasians, AAs and Hispanics were 55% and 45% less likely to be tested for the reason being application for a marriage license or getting married, PRR =0.45, 95% CI, 0.31–0.64 and PRR =0.55, 95% CI, 0.39–0.76 respectively. Further, compared with Caucasians, AAs were 41% and Hispanics 59% less likely to be tested for reason being obtaining health/medical insurance coverage, PRR = 0.59, 95% CI, 0.45–0.76 and PRR = 0.41, 95% CI, 0.13–0.38 respectively.

Table 4 presents the multivariable multinomial logistic regression analysis of the association between race and rationale for HIV testing, using no reason for being tested as the base outcome category. After adjusting for education, age, income and marital status, relative to Caucasians, Hispanics were 45% more likely to be tested for the reason being that someone suggested that they be tested but AAs were not, Prevalence Risk Ratio(APRR) = 1.45, 95% CI, 1.11–1.91 and APRR = 0.97, 95% CI 0.72–1.30 respectively. In a similar analysis, compared to Caucasians, AAs were 25% more likely to be tested for the reason being that they wanted to find out if infected or not, but Hispanics were not, APRR = 1.25, 95% CI, 1.02–1.54 and APRR = 0.97, 95% CI, 0.78–1.21 respectively. Likewise, relative to Caucasians, AAs were 36% more likely to be tested for the reason being routine medical checkup but Hispanics were not, APRR = 1.36, 95% CI, 1.14–1.62 and APRR = 1.02, 95% CI, 0.85–1.22 respectively. Relative to Caucasians, Hispanics were 8 times more likely to be tested for immigration purposes but AAs were not, APRR = 8.98, 95% CI, 6.58–12.27 and APRR = 1.48, 95% CI, 0.95–2.30 respectively.

Table 4 also shows that relative to Caucasians, AAs and Hispanics were 44% and 35% marginally less likely to be tested for medical care seeking, APRR = 0.66, 95% CI, 0.44–0.99 and APRR = 0.65, 95% CI, 0.43–0.98 respectively. Also, relative to Caucasians, Hispanics were 42% less likely to be tested for reason being obtaining marriage license/ getting married but AAs were not, APRR = 0.58, 95% CI, 0.41–0.83 and APRR = 0.70, 95%

CI, 0.48–1.01 respectively. Further compared with Caucasians, Hispanics were 41% less likely to be tested for acquiring health insurance coverage reason but AAs were not, APRR = 0.59, 95% CI, 0.44–0.79 and APRR = 0.88, 95% CI, 0.97–1.44 respectively. Further, compared to Caucasians, Hispanics were 76% statistically significantly less likely to be tested for the reason being military induction or service, but AAs were not, APRR = 0.24, 95% CI, 0.14–0.40 and APRR = 0.70, 95% CI, 0.48–1.03 respectively.

Discussion

This study has relevant findings. First, there were racial disparities with respect to the rationale for HIV testing. Secondly, racial disparities occurred in education, marital status and income in this cross-section of the US population. Thirdly, relative to Caucasians, AAs were less likely to be tested for reason being exposure through sex or drugs, and for medical care; and were more likely to be tested if they wanted to find out if infected or not, as well as for routine medical checkup. Finally, relative to Caucasians, Hispanics were less likely to be tested for reason being routine medical checkup, health insurance coverage, military induction or service and for marriage license or wanting to get married.

In this study we have demonstrated that racial disparities persisted with respect to HIV testing. Given the factors associated with testing, such as access to and utilization of the health care services, our finding of persistent racial disparities is plausible. This finding implicitly supports studies that have found racial inequalities in HIV testing. [3, 4,20] Though we focused on the racial disparities for the rationale for HIV testing which serves as a proxy for racial variation in HIV testing, studies have found that racial minorities are more likely to be tested relative to Caucasians. [4, 21] It is expected that reasons favoring testing should directly correlate with actual HIV testing itself. However, our finding does not support this assumption.

Disparities in terms of education and income are social phenomena that characterize the US multi-ethnic population. [22] We found substantial variation in education and income across racial/ethnic groups. These are factors or variables that may influence the rationale for HIV testing and HIV screening. Education and income may very well define access and utilization of health services. Therefore, racial variance in education and income as observed in our study may very clearly explain the racial variation in the rationale for HIV testing, likewise observed by our study. We adjusted for these variables given their potential confounding effect on the impact of race on rationale for HIV testing.

This study also demonstrated that AAs were less likely to be tested if exposed to drugs or sex. Our finding may be as a result of differential treatment of AAs at the work place with respect to injury or accidental needle contact. [23] Further, AAs were less likely to be tested because they wanted medical care. It is however, unclear why this disparity occurred. It is possible that variation occurs in compliance to routine medical procedures with respect to HIV testing and hence the rationale.

We also found that AAs were more likely to be tested if they wanted to find out their infection status. The observed variance between the Caucasians and AAs in this respect remains to be explained. It is however possible, given the increased risk of being infected among AAs (HIV prevalence and incidence rates), that individuals in this population may want to know about their HIV status and to avoid further risk of being infected. HIV risk behavior reduction may be enhanced by increased HIV risk perception, given the availability and access to information on the specific risk, based on the race-specific HIV/AIDS incidence and prevalence data. In addition, AAs were more likely to be tested for routine medical checkup. Our finding in this vein may be plausible given the fact that HIV is most

prevalent among AAs in the US, [24] indicative of routine screening of HIV among this population.

We have also demonstrated that Hispanics were less likely to be tested for routine medical checkup. This finding is not surprising given the inequality in access to quality health care including preventive services. HIV testing may not be recommended to ethnic minorities including Hispanics during regular medical checkup. Secondly, Hispanics were less likely to be tested for health insurance coverage. It is plausible that Hispanics seeking healthcare coverage may be screened for other conditions but not HIV. Further, Hispanics were less likely to be tested for military induction/service. There is a possible explanation for our result in this direction. There is a pressing need for induction of individuals into the military service, which increases with groups in the lower socioeconomic stratum and ethnic minorities. The Hispanics are poorly educated and socio-economically challenged, therefore increasing their propensity of being enrolled into the military at a lower rank. Furthermore, Hispanics were less likely to be tested for the reason of wanting to get married or seeking marriage license. It is however unclear, why this variance occurred between Hispanics and Caucasians. However, it is imaginable that the religious culture of the Hispanics may influence this finding. For example, the majority of Hispanics are Roman Catholics which may explain why HIV testing may not be considered essential prior to marriage. [25] Conversely, Hispanics were more likely to be tested if someone suggested they should be tested. This finding is plausible given the paternalistic aspect of the Hispanic culture. For instance, if someone in authority suggested or recommended testing for an Hispanic, such a suggestion would be deemed primary compared to AAs or Caucasians. [26] Likewise, Hispanics were more likely to be tested for immigration purposes. This finding is expected given the immigration rate in this population and the need for immigration status change among the Hispanics. [27]

There are a few limitations to our findings. First, we used cross-sectional data, which limits inference on temporal sequence. However, it is unlikely that this result is influenced by this causal inference with respect to ethnicity, since ethnicity precedes the rationale for HIV testing. Secondly, it is possible that selection and misclassification bias may have influenced our results since we categorized variables and recoded variables in order to facilitate the multinomial logistic statistical modeling. Thirdly, in spite of adjustment for possible confounding effect of gender, education, age and income on the effect of race on rationale for HIV testing, we cannot rule out the influence of residual confounding, due to the broad categories for income and education. Finally, as in all epidemiologic studies, unmeasured confoundings might very well have influenced the results in this study.

In summary, despite these limitations, we have shown that rationale for HIV testing varies across the US population suggestive also of racial variation in HIV testing. While these findings recommend measures to encourage HIV testing across racial/ethnic populations, due to racial/ethnic disparities especially in exposure to drugs/sex and at the work place, caution is required in the interpretation of these results.

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Table 1

The distribution of study characteristic by race/ethnicity in National Health Interview Survey, 2003

variable	Race/Ethnic groups			χ^2 (df)	P value
	Caucasians n(%)	AAs n (%)	Hispanics n (%)		
Sex				61.54 (2)	< 0.0001
male	8955 (44.4)	1578 (37.9)	2392 (44.2)		
female	11214 (55.6)	2590 (62.1)	3024 (55.8)		
Education				1600 (6)	<0.0001
≤High school	8672 (43.0)	2257 (54.1)	3852 (71.1)		
Some College	6090 (30.2)	1278 (30.7)	1046 (19.3)		
College	3559 (17.6)	444 (10.6)	352 (6.5)		
> College	1848 (9.2)	189 (4.5)	166 (3.1)		
Marital status				737.12 (2)	<0.0001
Unmarried	9407 (46.6)	2895 (69.5)	2566 (47.4)		
Married	10762 (53.4)	1273 (30.5)	2850 (52.6)		
Income ($)				756.80 (2)	< 0.0001
< 20,000/annum	5547 (27.5)	1872 (44.9)	2290 (42.3)		
> 20,000/annum	14622 (72.5)	2296 (55.1)	3126 (57.5)		
Insurance Cov				1.95 (2)	0.39
Insured	2164 (10.7)	451 (10.8)	617 (11.4)		
Not insured	18005 (89.3)	3717 (89.2)	4799 (88.6)		
Age(years)				1100 (12)	< 0.0001
18–20	754 (3.7)	182 (4.4)	276 (5.1)		
21–30	2868 (14.2)	776 (18.6)	1436 (26.5)		
31–40	3622 (18.0)	920 (22.0)	1413 (26.1)		
41–50	4026 (20.0)	862 (20.7)	984 (18.2)		
51–60	3419 (16.9)	639 (15.3)	609 (11.2)		
61–70	2362 (11.7)	391 (9.4)	374 (6.9)		
71–80+	3118 (15.5)	398 (9.5)	324 (6.0)		

Abbreviations: AAs =African Americans, Cov =Coverage

Table 2

The association between race and rationale for HIV testing in United States sample, National Health Interview Survey, 2003

HIV testing rationale	Race/Ethnic groups of sample of United States Adults		
	Caucasian n (%)	African Americans n (%)	Hispanics n (%)
No Reason	691 (11.1)	229 (11.1)	227 (10.4)
SST	249 (4.0)	88 (4.3)	126 (5.8)
ESD	329 (5.3)	84 (4.1)	59 (2.7)
EW	259 (4.2)	53 (2.7)	46 (2.1)
WI	685 (11.0)	318 (15.4)	222 (10.2)
RMC	1740 (27.9)	748 (36.2)	586 (26.8)
MC	148 (2.4)	35 (1.7)	34 (1.6)
P/L	989 (15.9)	290 (14.0)	519 (23.8)
HIC	544 (8.7)	106 (5.1)	74 (3.4)
MIS	218 (3.5)	40 (1.9)	16 (0.7)
IMP	79 (1.3)	33 (1.6)	221 (10.1)
ML	284 (4.6)	42 (2.0)	51 (2.3)
CT	15 (0.24)	1 (0.05)	3 (0.14)

Note: n =10,481, χ^2 = 808.88, df = 24, P < 0.0001

Abbreviations: χ^2 = Chi-square, df = degree of freedom, 1. SST= Someone Suggested you should be Tested, 2. ESD=might have been Exposed through Sex or Drugs, 3. EW= might have been Exposed through Work, 4. WI = Wanted to find out if Infected or not, 5. RMC = part of a Routine Medical Check-up, 6. MC = Medical Care, 7. P/L = you were Pregnant or had a baby (Labor), 8. HIC = for Health Insurance Coverage, 9. MIS = Military Induction or Service, 10 IMP = for Immigration Purposes, 11. ML = for Marriage License or to get married, 12. CT = Concerned could give HIV to someone (Transmission). No reason –no reason for testing is the base outcome category.

Table 3

Univariable multinomial logistic regression model for the association between race and rationale for HIV testing in United States sample, National Health Interview Survey, 2003

HIV testing rationale	Race/Ethnic groups of sample of United States(US) adults					
	Caucasian		African American		Hispanic	
	PRR	95%CI	PRR	95%CI	PRR	95%CI
No Reason	1.0	reference	1.0	reference	1.0	reference
SST	1.0	reference	1.07	0.80–1.42	1.54	1.18–2.00
ESD	1.0	reference	0.77	0.58–1.02	0.55	0.39–0.75
EW	1.0	reference	0.62	0.44–0.86	0.54	0.38–0.76
WI	1.0	reference	1.40	1.15–1.71	0.99	0.80–1.22
RMC	1.0	reference	1.30	1.09–1.54	1.02	0.86–1.22
MC	1.0	reference	0.71	0.48–1.06	0.70	0.47–1.04
P/L	1.0	reference	0.88	0.72–1.08	1.59	1.33–1.92
HIC	1.0	reference	0.59	0.45–0.76	0.41	0.31–0.55
MIS	1.0	reference	0.55	0.38–0.80	0.22	0.13–0.38
IMP	1.0	reference	1.26	0.82–1.94	8.51	6.32–11.47
ML	1.0	reference	0.45	0.31–0.64	0.55	0.39–0.76
CT	1.0	reference	0.20	0.03–1.53	0.61	0.17–2.12

Abbreviations: PRR= Prevalence Risk Ratio, CI= Confidence Interval. 1. SST= Someone Suggested you should be Tested, 2. ESD=might have been Exposed through Sex or Drugs, 3. EW= might have been Exposed through Work, 4. WI = Wanted to find out if Infected or not, 5. RMC = part of a Routine Medical Check-up, 6. MC = Medical Care, 7. P/L = you were Pregnant or had a baby (Labor), 8. HIC = for Health Insurance Coverage, 9. MIS = Military Induction or Service, 10 IMP = for Immigration Purposes, 11. ML = for Marriage License or to get married, 12. CT = Concerned could give HIV to someone (Transmission) No reason – no reason for testing is the base outcome category.

Table 4

Multivariable multinomial logistic regression model for the association between race and rationale for HIV testing in United States sample, National Health Interview Survey, 2003

HIV testing rationale	Race/Ethnic groups of sample of United States (US) adults					
	Caucasian		African American		Hispanic	
	APRR	95%CI	APRR	95%CI	APRR	95%CI
No reason	1.0	reference	1.0	reference	1.0	reference
SST	1.0	reference	0.97	0.72–1.30	1.45	1.11–1.91
ESD	1.0	reference	0.63	0.47–0.84	0.52	0.37–1.71
EW	1.0	reference	0.79	0.56–1.11	0.74	0.52–1.05
WI	1.0	reference	1.25	1.02–1.54	0.97	0.78–1.21
RMC	1.0	reference	1.36	1.14–1.62	1.02	0.85–1.23
MC	1.0	reference	0.66	0.44–0.99	0.65	0.43–0.98
P/L	1.0	reference	1.01	0.82–1.24	1.19	0.98–1.46
HIC	1.0	reference	0.88	0.67–1.14	0.59	0.44–0.79
MIS	1.0	reference	0.70	0.48–1.03	0.24	0.14–0.40
IMP	1.0	reference	1.48	0.95–2.30	8.98	6.58–12.27
ML	1.0	reference	0.70	0.48–1.01	0.58	0.41–0.83
CT	1.0	reference	1.82	0.23–1.41	0.53	0.15–1.90

Notes: Adjusted for education, age, income, and marital status.

Abbreviations: APRR= Adjusted Prevalence Risk Ratio, CI= Confidence Interval. 1. SST= Someone Suggested you should be Tested. 2. ESD=might have been Exposed through Sex or Drugs, 3. EW= might have been Exposed through Work, 4. WI = Wanted to find out if Infected or not, 5. RMC = part of a Routine Medical Check-up, 6. MC = Medical Care, 7. P/L = you were Pregnant or had a baby (Labor) 8. HIC = for Health Insurance Coverage, 9. MIS = Military Induction or Service, 10 IMP= for Immigration Purposes, 11. ML = for Marriage License or to get married, 12. CT = Concerned could give HIV to someone (Transmission). No reason - no reason for testing is the base outcome category.