Acceptability of rapid HIV testing among Latinos in Washington Heights, New York City, New York, USA

Running title suggestion: Rapid HIV testing

ABSTRACT

Background. In the United States, human immunodeficiency virus (HIV) has a disproportionately large impact on Latino Americans. This study assessed the acceptability of rapid HIV testing among a sample of Latinos from New York City.

Methods. A cross-sectional study was conducted with 192 participants from The Washington Heights/Inwood Informatics Infrastructure for Community-Centered Comparative Effectiveness Research (WICER) study. Participants were interviewed and offered rapid HIV testing and post-test counseling.

Results. Seventy-five percent (n=143) accepted rapid HIV testing when offered. More religious participants were less likely than less religious participants to undergo testing (RR=0.73; 95% CI 0.54-0.99). Participants tested for HIV within the past year were less likely than those who had not been tested within the past year to agree to undergo testing (RR=0.27; 95% CI 0.11-0.66).

Conclusions. Community-based rapid HIV testing is feasible among Latinos in urban environments. Outreach efforts to engage religious individuals and encouraging routine testing should be reinforced.

Keywords: HIV testing; ethnic; Latinos; prevention

Background

In the United States (U.S.), human immunodeficiency virus (HIV) continues to have a disproportionately large impact on minority populations [1, 2]. Latino Americans are overrepresented among HIV-infected individuals in the U.S. Even though they comprise 17 percent of the U.S. population, Latino Americans comprise 21 percent of all HIV cases [3].

The Centers for Disease Control and Prevention (CDC) has endorsed a "seek, test, and treat" (STT) strategy to reduce HIV transmission and AIDS-related morbidity and mortality. Essentially, this strategy entails actively seeking high-risk individuals, testing them for HIV, and providing comprehensive care to those who are HIV-positive or have AIDS. There is strong empirical evidence that this strategy slows the spread of HIV among vulnerable populations [4, 5], and increases life expectancy of HIV-infected individuals [6].

Early diagnosis of individuals at risk for HIV infection is critical to having a sustainable impact on the epidemic [7, 8]. However, accessing vulnerable populations and providing them with the opportunity to undergo HIV testing is challenging [9]. Latinos, specifically, may be more likely than their White and Black counterparts to delay testing [10, 11] and receive an HIV diagnosis during the later stages of the disease when it is more difficult to treat [11, 12], increasing HIV-associated morbidity and mortality among this population [13].

HIV-infected individuals unaware of their status are responsible for more than 55 percent of new HIV cases [14]. Hence, engaging vulnerable populations in routine HIV testing is crucial to stemming the spread of the epidemic. Although targeted approaches that promote HIV testing have shown exceptional promise [5, 6], identifying and improving access to high-risk populations who may have minimal contact with the health care system, and are willing to engage in HIV testing, remains a significant challenge [15, 16]. Research suggests that making

rapid HIV testing more accessible to populations at an elevated risk for HIV infection substantially increases the number of people who receive their test results, engages individuals who may not regularly utilize these services, and improves linkage to care for HIV-infected individuals [17-19]. This study assesses the acceptability of community-based rapid HIV testing and post-test risk reduction counseling among a sample largely comprised of Latinos from an urban setting who previously identified HIV/AIDS as one of their top three health concerns.

Methods

Participants

We conducted a cross-sectional study with participants recruited from The Washington Heights/Inwood Informatics Infrastructure for Community-Centered Comparative Effectiveness Research (WICER) study. The overall goal of the WICER study is to understand the health needs of the community of the Washington Heights and Inwood neighborhoods of New York City (NYC), New York. The information collected through WICER can be used to improve the prevention, diagnosis and treatment of illness, and the promotion of health in Washington Heights/Inwood. More specific information about the WICER study is available elsewhere [20, 21].

WICER participants were selected and recruited from community settings including homes, businesses, clinics, health centers, and the Ambulatory Care Network of New York Presbyterian Hospital in Washington Heights. Research staff approached potential participants while they were in waiting rooms and other public areas. Individuals were eligible for the WICER study if they were above the age of 18 years old, a resident of Washington Heights, NYC, and English or Spanish speaking. WICER participants were interviewed in their homes, and in private rooms located in

community-based sites. Participants were also asked to refer other individuals who met the study's inclusion criteria.

WICER data were collected by bilingual community health workers and individuals received $25 worth of incentives for their participation. To date, WICER has enrolled over 5,800 participants; they are largely Latino (95%), female (74%), on Medicaid or Medicare (77%), and foreign-born (86%). Approximately half possess less than a high school education. When asked to list their top three health concerns, approximately 18 percent of WICER participants listed HIV/AIDS. Our sample was drawn from these individuals.

Recruitment & Procedures

We recruited WICER participants who met the following inclusion criteria: 1) WICER participant who agreed to be contacted for research studies and 2) listed HIV/AIDS as one of their top three health concerns. From 5,800 WICER participants, approximately 1,250 met this study's inclusion criteria. The PROC SURVEYSELECT procedure in SAS 9.1 (SAS Institute Inc., 2002) was used to generate a randomized list of the 1,250 WICER participants that met the study's inclusion criteria. Participants were then selected from this list. To get an estimate of the minimal sample size required for this study, a power analysis was conducted using G-Power 3.1 [22]. This analysis indicated that approximately 200 participants would be needed to achieve a medium effect size with 80% power and a significance level of 0.05, assuming about 75% of the participants would accept the test.

Potential participants were contacted by phone and asked to schedule an interview with a bilingual research assistant. Interested individuals were consented and interviewed privately at a community-based site in Washington Heights. Ninety-one percent of the interviews were

conducted in Spanish. All participants received $25 for participating in this study. Approximately 93 percent of the 206 randomly selected individuals who were contacted agreed to enroll in the study resulting in a sample size of 192 participants, or 15 percent of the eligible WICER participants. Similarly-sized samples have been used in other studies examining HIV testing acceptance [23] and HIV risk behaviors among Latinos [24]. On average, interviews took 38 minutes to complete.

After being interviewed about their previous HIV testing experience, HIV risk behaviors and exposure to HIV prevention messages, participants were offered rapid HIV testing using an OraQuick Advance HIV1/2 Antibody Test (OraSure Technologies, Inc., Bethlehem, PA) and post-test counseling. The CDC guidelines for rapid HIV testing were followed for quality assurance. The testing occurred in the same room after the interview was completed. For the rapid testing procedure, participants were asked to take a cotton swab and rub it between their teeth and upper and lower gums one time. The swab was then entered into a test tube to be analyzed. The results were available in approximately 15 minutes, on average. During the waiting period all participants who accepted rapid testing underwent post-test counseling. Test results were immediately reported back to participants when they became available. All test kits were immediately discarded after the interview. The study's procedures were approved by the Columbia University Medical Center Institutional Review Board.

Measures

Socio-demographic characteristics. Data on socio-demographic characteristics (e.g., age, gender, education, monthly income, sexual orientation, and relationship status and cohabitation) were collected using the study survey. The following question, "How religious do you think you

are?" measured religiosity. Response categories ranged from not religious at all (1) to very religious (4). Data on characteristics including, number of years lived in the United States, birth country, and number of household members was retrieved from the WICER dataset.

Exposure to HIV/AIDS programming (on television, billboards, public transportation) was assessed using the following questions: Have you seen public services announcements about HIV/AIDS on television? Have you seen public service announcements about HIV/AIDS on bus or subway displays? Have you seen public service announcements about HIV/AIDS on street signs or billboard? All responses were yes/no.

HIV KQ-18. The HIV Knowledge Questionnaire-18 (HIV KQ-18), an 18-item questionnaire was used to assess HIV transmission knowledge [25]. The HIV KQ-18 has good internal consistency (alpha = .75-.89) and test-retest stability (rs = .76- .94). Scores range from 0%-100% based on the percent of questions correctly endorsed. Two categories were created to represent a "low" (below the mean score) or "high" (above the mean score) level of HIV knowledge.

HIV risk behaviors. The study survey consisted of items measuring illicit drug use and unprotected sexual behavior. Participants were asked whether they had a history of illicit drug use. Questions on risky sexual behavior included engaging in unprotected sex in the past year, number of sexual partners, and knowledge of sexual partner concurrency during the same period. History of HIV testing was also collected (e.g., ever tested for HIV, tested in the past year, and results of test).

Acceptability of rapid HIV testing and post-test counseling. All participants were offered the opportunity to undergo rapid HIV testing and post-testing counseling. Participant responses

were dichotomized as yes if they agreed to receive testing and/or counseling or a no if they declined.

Data Analysis

Descriptive statistics were used to characterize the sample. The primary outcome was acceptability of rapid HIV testing. Given the high acceptability of HIV testing, we adopted risk ratios (RR) to measure associations between participant characteristics and testing acceptance. Previous research suggests that cox regression with constant time variable is a robust method for estimating RR [26, 27]. At the bivariate level, each predictor was entered into the Cox regression model as the single predictor to calculate its risk ratio. Variables statistically significant at the .10 level during bivariate analyses were entered into a multivariable Cox regression model to examine its conditional risk ratio associated with rapid HIV testing acceptance. Data were analyzed using R statistical computing software.

Results

A total of 192 WICER participants were interviewed. The majority of participants were female (71%), Hispanic/Latino (99%), identified as heterosexual (99%), and were unmarried (53%). The sample was primarily low-income, with 49 percent reportedly insured through Medicaid. On average, participants were 48 years old (SD=15; range = 19-85) and had a monthly mean income of approximately $853. Seventy-seven percent of participants were born in a country other than the U.S.; 47 percent have reportedly been living in the U.S for more than 20 years. Twenty-two percent reportedly had less than a high school education.

Seventy-five percent (n=143) of the participants accepted rapid HIV testing and post-test counseling when offered. All of the participants who declined HIV testing also declined counseling (n=49). Table 1 compares the characteristics of participants who agreed to undergo rapid HIV testing versus those who declined HIV testing. None of the participants tested positive for HIV. Approximately sixty percent (n=113) of the participants possessed a "low" level of HIV knowledge. Although 88 percent (n=169) of the participants reported a history of HIV testing, only 14 percent (n=27) were reportedly tested within the past year. The most common reason cited for rapid HIV testing refusal was due to low perceived risk (n=19).

Sixty-five percent (n=125) of the participants reportedly engaged in unprotected sex over the past year; 65 percent of these individuals were married. However, married and unmarried participants reported current multiple sexual partnerships and a history of sexual partner concurrency. For instance, eight percent (n=8) of the married participants reported more than one current sexual partner compared to 16 percent of unmarried participants (n=14). Nineteen percent of all participants reported sexual partner concurrency during their last relationship.

Bivariate analyses demonstrated that younger participants were more likely than older participants to accept the HIV testing offer (mean age =48 years old; RR=0.99; 95%CI 0.98-1.00). Individuals with a higher average income were more likely than those with a lower income to accept the HIV testing offer ($914 vs. $673; RR=1; 95%CI 1-1). Participants who resided in the country for more than 20 years were less likely than those who hadn't lived in the country as long to accept the HIV testing offer (51% vs. 45%; RR=0.72; 95%CI 0.49-1.05). Individuals with at least high school education were more likely to accept HIV testing than people with less than high school education (81% vs. 67%; RR=1.46; 95% CI 0.96-2.21).

Participants who were reportedly exposed to HIV/AIDS information on billboards were more likely to accept HIV testing (90% vs. 76%; RR=1.84; 95%CI 1.06-3.19). Participants who tested for HIV within the past year were less likely than those who did test within the past year to accept the HIV testing offer (33% vs. 8%; R=0.35; 95%CI 0.19-0.64). Individuals with live-in partners were more likely than those without live-in partners to accept HIV testing (55% vs. 37%; RR=1.4; 95%CI 1.00-1.94). More religious participants were more likely to refuse HIV testing compared to those who identified themselves as “not at all” or ”not very” religious (RR=0.51; 95%CI 0.36-0.73).

Our multivariable regression analysis results (Table 2) demonstrate that participants who were reportedly somewhat or very religious were less likely than those who were less religious to undergo rapid HIV testing (RR=0.73; 95%CI 0.54-0.99). Participants who were reportedly tested for HIV within the past year were also less likely to accept the HIV testing offer than those who had not been tested within the past year (RR=0.27; 95%CI 0.11-0.66).

Discussion

In summary, our findings demonstrate that rapid HIV testing is feasible among Latinos. The vast majority (75%) of participants in this study agreed to undergo rapid HIV testing and post-test counseling, which is comparable to what other investigators have reported in similar community-based settings [17]. Although the majority of participants reported a history of HIV testing, only 15 percent underwent testing over the past year, as recommended by the CDC, even though they were reportedly engaging in unprotected sexual behavior during the same period. Since participants who were tested for HIV within the past year were less likely to be tested again, it is important that these individuals are encouraged to continue testing for HIV on a

regular basis. At the bivariate level, participants who were younger, more educated, with higher incomes, and who had lived in the country longer were also significantly more likely to undergo HIV testing. Although they did not persist at the multivariable level, these relationships provide some evidence that such information deserves further consideration when developing strategies to engage Latinos in HIV testing efforts.

Participants who were reportedly more religious were also less likely than participants who were less religious to accept the HIV testing offer. Given these findings, faith-based environments and venues should be considered when developing outreach efforts [28, 29]. Information on HIV prevention should also be presented in a manner that does not conflict with or appear to compromise their values.

Even though none of the participants in our study tested positive for HIV, the high proportion of participants engaging in unprotected sexual behavior, and in non-compliance with CDC recommendations for HIV testing, suggests that they may be at risk for infection. Among participants who declined rapid HIV testing, low perceived risk was the most commonly reported reason, which is acknowledged in previous research on HIV transmission among Latinos [30, 31]. Since low risk perception reportedly hinders testing acceptance [32-35], testing opportunities should be accompanied by information explaining the benefits of knowing one's HIV status and attempt to improve risk perception [36, 37].

Although our findings offer additional information regarding factors associated with HIV testing acceptance among Latinos, they are subject to several limitations that should be acknowledged. First, our relatively small sample size prevented us from conducting more rigorous analyses, which could bias the results. Second, the vast majority of the data collected were through self-report, so underreporting may have affected the results. Finally, although

response rates were high, this is a self-selected population who may engage in less risky behaviors than those who opted out, so these findings are not generalizable to other Latinos. Despite these limitations, the data gathered provide more information on factors to consider when promoting community-based HIV testing among Latinos in urban environments.

Conclusions

Our findings confirmed that community-based rapid HIV testing and post-test counseling is feasible for Latinos living in urban environments. Although the vast majority of our participants accepted our testing offer, participants who had tested within the past year and more religious participants were more likely to refuse testing. Because our findings indicated that previous testers HIV testers were less likely to undergo testing, the importance of regular testing should be emphasized during each HIV testing opportunity. Greater access to testing at a variety of community-based sites may encourage the participation of previous testers, while greater awareness of the health benefits associated with HIV testing may encourage participation among religious individuals.

Ongoing efforts to promote routine HIV testing among Latinos is crucial to reducing the risk of HIV transmission among this vulnerable population. Strengthening efforts to engage those who are more religious should be especially reinforced. Prevention interventions in the Latino community should involve routine rapid testing and education about modes of HIV transmission. These programs should be offered to individuals regardless of their HIV testing history, relationship status, or religious affiliation. Prevention programs should be tailored to meet the needs of this population, and should involve a variety of community-based settings, including religious institutions and venues.

Compliance with Ethical Standards

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Ethical approval: All procedures performed in this study were in accordance with the ethical standards of the Columbia University Medical Center Institutional Review Board and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants in the study.

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