



HHS Public Access

Author manuscript

Am J Community Psychol. Author manuscript; available in PMC 2016 June 01.

Published in final edited form as:

Am J Community Psychol. 2015 June ; 55(0): 433–443. doi:10.1007/s10464-015-9725-z.

HIV testing experience and risk behavior among sexually active Black young adults: a CBPR-based study using respondent-driven sampling in Durham, North Carolina

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Abstract

African Americans are disproportionately affected by the HIV epidemic inclusive of men who have sex with men, heterosexual men, and women. As part of a community-based participatory research study we assessed HIV testing experience among sexually active 18 to 30 year old Black men and women in Durham, North Carolina. Of 508 participants, 173 (74%) men and 236 (86%; $p=.0008$) women reported ever being tested. Barriers to testing (e.g., perceived risk and stigma) were the same for men and women, but men fell behind mainly because a primary facilitator of testing---routine screening in clinical settings---was more effective at reaching women. Structural

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and behavioral risk factors associated with HIV infection were prevalent but did not predict HIV testing experience. Reduced access to health care services for low income Black young adults may exacerbate HIV testing barriers that already exist for men and undermine previous success rates in reaching women.

Keywords

HIV testing; Black young adults; HIV risk; disparities; gender

Introduction

African Americans comprised 14% of the US population yet accounted for 44% of new HIV infections in 2010. Black men who have sex with men (MSM) are at highest risk for HIV infection in the U.S. but Black women and heterosexual men are also disproportionately affected. Black women accounted for 27% of new HIV diagnoses in 2011 (CDC, 2013b), with 85% presumed to have been infected via sex with male partners. It is difficult to find information on rates of HIV infection among Black heterosexual men, but the low numbers of known infections in this population may not fully reflect prevalence given the mode of infection among Black women and evidence suggesting that few of these infections result from sex with men who have sex with both men and women (MSMW) (Bond, et al., 2009; Lauby, et al., 2008). A recent study among sexually active heterosexuals from high poverty areas in 21 U.S. cities found the highest prevalence of HIV infection occurring among Blacks, persons reporting crack cocaine use or exchange sex, those with low levels of education or income, and persons living in urban centers in the Northeast or South. The study also found that 26% of participants had never been tested previously for HIV; those who had never been tested had a higher proportion testing positive compared with those who reported being tested in the past 12 months (CDC, 2013a).

In 2011 the rate of new HIV diagnoses for adult/adolescent non-Hispanic Blacks in North Carolina (63 per 100,000 population) was 10 times greater than that for adult/adolescent whites (6.3 per 100,000 population). Non-Hispanic Black individuals accounted for 937 (60%) of the 1,563 HIV disease cases diagnosed in NC in 2011, including 502 MSM (32%), 264 heterosexual women (17%) and 171 heterosexual men (11%) (N.C. Department of Health and Human Services, 2012).

Durham, North Carolina is a microcosm of national and regional HIV-related disparities. In 2011 Durham County had the 4th highest 3-year average HIV disease rate among the state's 100 counties (29.9 per 100,000 population). The AIDS death rate among Blacks (30 per 100,000 population) was over 3 times the county average for all groups combined (N.C. Department of Health and Human Services, 2012).

These HIV disparities are driven by multiple social and structural factors that interact to promote a concentration of the disease among communities that historically and currently receive limited benefits from a wide range of public services. These conditions may include: lack of education and low health literacy (Adimora et al., 2006); low income and unemployment (Adimora et al., 2006; CDC, 2013a; Centers for Disease Control and

Prevention, 2011); lack of access to healthcare and supportive services to maintain health and wellness (Adimora, Ramirez, Schoenbach, & Cohen, 2014); history of drug or alcohol abuse (Adimora et al., 2006; Zaller, Fu, Nunn, & Beckwith, 2011); homelessness (Institute of Medicine (U.S.). Committee on HIV Screening and Access to Care., 2011; Kidder, Wolitski, Campsmith, & Nakamura, 2007); stigma and discrimination (Aziz & Smith, 2011); and higher rates of crime and violence in the community (Aidala & Sumartojo, 2007). Race and ethnicity often serve as proxies for this complex array of social experiences but they are neither biological causes of nor explanations for the resulting health disparities. The treatment of race/ethnic minorities as homogeneous populations can overshadow the fact that communities are diverse along many dimensions: education, income, ethnic identity, and religious affiliation, to name a few. Identifying and describing the diversity of behavioral and social risks within communities is critical for effective design and targeting of prevention research and programs, and for fully engaging communities disparately impacted by HIV.

In order to better understand the HIV disparities in Durham's Black community from an assets- or strengths-based perspective, we implemented a community-based participatory research (CBPR) project called *LinCS 2 Durham: Linking Communities and Scientists*. We sought to foster collaboration and dialogue about HIV, and to generate interest in and evaluate the suitability of biomedical HIV prevention strategies in the local community. LinCS 2 Durham grew out of previous community-based qualitative research conducted in Durham and elsewhere in the mid to late 1990s to better understand community perspectives on potential HIV vaccine research (MacQueen, et al., 2001; Strauss, et al., 2001; Blanchard, et al., 1999; Strauss, et al., 1999). That earlier work highlighted the socioeconomic diversity in Durham's Black community, the challenges faced in mobilizing around the HIV epidemic, and the importance of ensuring that research with the community provided tangible benefits to the community. In LinCS 2 Durham we therefore sought to use a community-based participatory research approach emphasizing capacity-building of young Black researchers, both academic and community-based (Foster-Fishman, et al., 2001; Minkler, 2000; Israel, et al., 1998; Dressler, 1993). Ethnography provided a vehicle for our participatory approach as well as a means for bridging our research goals with community practice (Case, Todd & Kral, 2014). The project was guided by a Collaborative Council, with a cross-representation of partners, including advocates and policy-makers in allied fields, civil society and grassroots community stakeholders, potential research participants, researchers and sponsors, and program managers for HIV and allied service areas. An example of the kind of tangible benefit we sought to generate is the creation of an HIV Prevention Research Literacy Curriculum targeted to Blacks ages 18–30 that included strategies to support and verify multi-stakeholder engagement, team building, capacity building, and shared decision making (Isler, et al., 2014).

As part of this work we also conducted a community survey among sexually active Black men and women aged 18 to 30 living in Durham County. The questions asked in the survey reflected our desire to understand the variability in the social and structural context of the lives of Black young adults in Durham and how these related to behavior. Because of the importance placed on a strengths-based approach by community members, we chose to

survey Black youth from across Durham County rather than recruit only individuals who met predetermined criteria for HIV risk. This approach supported a fuller understanding of the local community context within which individual HIV risk is situated. The process used to develop the survey measures included active engagement between the research team and community members, with the goal of balancing community knowledge, interests and concerns with scientific considerations and the realities of funding and project timetables (Gonzalez & Trickett, 2014). For example, in addition to standardized measures of sexual risk we framed questions about sexual relationships to reflect the range of experiences specific to Black young adults in Durham and to be responsive to community sensitivities regarding same sex relationships (see section on data collection below).

Here we summarize primary findings on their HIV testing experience, including barriers and facilitators, as well as identifying and describing the distribution of behavioral and social factors that have been identified elsewhere as contributors to increased HIV risk. The findings provide a crucial first step toward designing and targeting effective HIV prevention research and programs for this population.

Methods

We conducted a cross-sectional survey informed by community collaboration, literature review, and formative data gathered from community mapping, participant observation, and focus groups. Formative findings aided recruitment design, incentive levels, survey locations, and survey design including local terminology and the framing of questions. All study materials were reviewed and approved by institutional review boards at FHI 360 and North Carolina Central University (NCCU).

Sampling Strategy

Eligibility requirements included self-identifying as Black or African American; living in Durham County during the previous six months; aged 18–30 years; and reporting vaginal or anal sex in the previous six months. Men and women reporting only oral sex and women reporting sex with women only were excluded due to the low HIV transmission rates associated with these behaviors.

We sought to recruit a representative sample of sexually active Black young adults using respondent-driven sampling (RDS), a chain referral sampling approach that starts with a small set of purposely selected participants called seeds; seed participants then recruit peers, who in turn also recruit peers (Heckathorn, 1997). We chose to use RDS because of its potential to overcome recruitment barriers related to distrust of research and HIV-related stigma. To maximize the potential to enroll diverse Black young adults, we sought seed participants with diverse characteristics including: self-identification as a gay man, public housing resident, homelessness, suburban or rural resident, active or recovering substance user, church attendee and student. Participants received coupons to recruit up to 4 peers. A coupon management system was developed to generate coupon numbers with unique identifiers to track recruitment chains, assign expiration dates, print coupons, and automatically record which coupons were given to each participant and which coupons were redeemed. Participants received \$50 for time spent completing the survey and \$10 per peer

successfully referred and enrolled in the study. Enrollment began on May 11, 2011 and ended June 9, 2012.

Data Collection

Enrolled participants were interviewed face-to-face to collect screening data and information about their social network size (to support the RDS adjusted analysis, see details below). Participants then completed an audio-computer assisted survey interview (ACASI). All data collection activities took place at community-based venues including a historically black university (NCCU), a shopping mall, a housing development, and a non-profit community health center.

Measures

Network size—Network size estimation is important for assessing homophily (a form of recruitment bias) when using RDS (Heckathorn, 2002). In alignment with recommendations on methods for eliciting network size information (McCarty, et al., 2001; World Health Organization, 2013) participants were asked how many Black people they knew who were 18 to 30 years old, living in Durham county, and sexually active in the past six months. To help participants accurately determine their network size, questions were asked focusing on friends, co-workers or classmates, relatives, and others. Interviewers entered responses to each question, the overall network size was computed, and the total verified with participants.

Sociodemographic characteristics—Participants were asked about education level attained and the level they hoped to achieve, employment status, income, housing, incarceration, and gender identity (male, female, transgender). Age in years and area of residence were determined during the eligibility screening process.

Sexual behavior—Participants were asked how many sexual partners they had vaginal or anal sex with in their lifetime. Participants were then asked if they had vaginal or anal sex with each of four types of partners in the previous six months: (1) a spouse, boyfriend or girlfriend who they had feelings for, (2) casual partners (e.g., “friends with benefits” or “booty calls”), (3) one-night stands, and (4) someone with whom they had a child but were not currently in a committed relationship. Consistency of condom use with each type of partner was assessed. To identify MSM, participants were asked how many of their lifetime partners and of each partner type reported were men (none, some, most, all, or refuse to answer). The four types of partnerships and the indirect framing of questions to identify MSM reflect the formative research and community consultation processes.

Participants were asked if during the last six months they had given or received drugs, money or other resources (e.g., groceries, paying bills, transportation, and clothing) in exchange for sex.

Substance use—To assess alcohol consumption we used generic measures of quantity (number of drinks on an average drinking day) and frequency (pre-specified ranges, e.g., never, rarely, about once a month, 2 or 3 times a month, etc., up through about every day

and more than once a day) (Sobell & Sobell, 2003). Alcohol consumption in the past six months was assessed, in alignment with the six month recall for sexual behavior recall questions. Because binge drinking has been found to be associated with HIV risk behaviors in U.S. adults and especially among those aged 18–20 years (Xiao-Jun, Balluz & Town, 2012), we asked participants (1) if they had ever gone on a drinking binge where they drank more than usual or stayed drunk for a period of time and (2) how often they were unable to remember what happened the night before because they had been drinking. We assessed ever use of drugs in the past 6 months with regard to injecting drugs; ecstasy, marijuana or pill-popping; and narcotics or hallucinogens such as cocaine, crack, meth, acids or mushrooms. We used these questions to look at general substance use patterns and did not attempt a more detailed substance abuse assessment in order to minimize measurement burden.

HIV testing—Participants were asked if they had ever been tested for HIV other than for tests associated with blood donations. Those who reported never being tested were provided a list of eight reasons for not being tested and asked to check all that applied. Participants who reported ever being tested were asked how long it had been since their last HIV test. They were provided a list of 14 reasons for being tested and asked to check all that applied. For their most recent HIV test, participants were asked where they were tested, if they were willing to share the result and, if yes, what that result was.

Statistical Analyses

We used RDS Analysis Tool (RDSAT 7.1) (Volz et al., 2012) to estimate the population distribution of major descriptive variables with adjusted 95% confidence intervals. This software computes weights based on recruitment patterns (homophily) and network sizes reported by participants to adjust for biases in the chain referral sampling (Heckathorn, 2002; Salganik & Heckathorn, 2004). Additional association analyses were conducted without RDS adjustments.

We considered how participants differed by sex and demographic characteristics, risk behavior and HIV testing experience. We then assessed differences in HIV testing experience by risk factors associated with HIV infection in heterosexual men and women including education, household income, employment status, transactional sex, and use of narcotics or hallucinogens (CDC, 2013a). Differences were tested using chi-square or Fisher's exact tests for categorical variables and t-tests for continuous variables. Tests were considered significant at the .05 alpha level for two-sided comparisons.

Results

We screened 568 Blacks aged 18–30 living in Durham; of these, 513 were confirmed eligible and included in the study and 508 in the analysis. Because all analyses examined differences by gender, four participants were excluded due to missing or contradictory gender responses (n=4); one person identified as transgender and was also excluded.

The use of RDS to recruit participants proved successful in reaching the target population in all but one 2010 Durham County census tract with more than 300 Black residents. That tract

had a median household income in the top 25% for all Black households in the county. Neither seed recruitment nor peer recruitment in suburban and rural census tracts outside the city limits was successful. In total, 12 seeds were recruited, 1,633 coupons distributed, and recruitment continued to a maximum of 28 waves. The median reported network size was 26 (range 1–610). Table 1 summarizes the distribution of the RDS sample for selected sociodemographic groups, the final distribution of the sample relative to the initial seeds, homophily measures, and the RDS weighted analysis. Homophily was low and weighted rates varied little from the observed rates.

More women (273) were enrolled than men (235), with a female-to-male sex ratio of 1.2; this compared favorably to the 1.3 sex ratio for 18–30 year old African Americans in Durham County as reported in the 2010 Census (12,156 women to 9,304 men).

Sociodemographic characteristics

Men and women differed with regard to employment status and household income (Table 2). Among those employed at least part time (n=222, students excluded), 44% (n= 97) reported an income less than \$10,000 per year and 17% (n=38) reported an income of \$25,000 or more. Despite overall low incomes, only 1% reported living in a homeless shelter or on the streets. Women reported lower household incomes on average than men, but not lower personal incomes (data not shown).

Overall education levels were low (Table 2). Of 194 (38%) participants reporting some college but no degree, 61% (n=82) reported “student” as their employment status indicating that nearly two-thirds with some college were still in school. Only 6 participants (1.2%) said they had completed the highest level of education desired, and 67% hoped to achieve a bachelors degree or higher. Incarceration rates were high, with men (38%) more likely than women (18%) to report ever being incarcerated.

Men were significantly less likely than women to report access to health insurance, and 19% of men did not know if they had health insurance (compared to 6% of women). Women were significantly more likely to say they knew someone with or who had died from HIV or AIDS.

Sexual behavior and substance use

Twenty (9%) men reported ever having had anal sex with another man; of these 11 reported also ever having had vaginal or anal sex with a woman. Sixteen men reported anal sex with a man in the past six months, of which 4 also reported sex with a woman. Forty-four (16%) women reported ever having sex with another woman; as previously noted, vaginal or anal sex with a man in the past 6 months was one of the eligibility requirements for women.

Men and women differed significantly with regard to all aspects of sexual behavior (Table 3) except for transactional sex, which was rare for both sexes with fewer than 3% reporting exchanging sex for money, drugs, or other resources (data not shown). Across all partners inconsistent condom use was predominant regardless of sex; however, men were more likely to report consistent use while women were more likely to report no condom use. Partner

turnover was frequent for both sexes, as seen in the numbers of partners in the past six months and over lifetime.

Of 154 participants under the age of 21, 68 (44%) reported never or rarely consuming alcohol in the previous 6 months, 56 (36%) monthly and 30 (19%) weekly or daily consumption. In this same age group 100 (64%) reported never or rarely using marijuana, ecstasy or pills while 54 (35%) reported such drug use at least monthly. Reported use of narcotics or hallucinogens including cocaine or crack was rare (Table 3).

HIV testing experience

Most participants (80%) indicated ever having been tested for HIV (Table 2; weighted estimate 77% with 95% CI [71%–83%]). Testing experience varied by gender, with 173 (74%) men and 236 (86%; $p < .001$) women reporting ever being tested. Of those ever tested, 14 men and 4 women were unwilling to divulge the results of their most recent test and 3 (all women) reported a positive test result. Nineteen of the 20 men who reported ever having sex with a man reported being tested; 18 said their most recent test was negative and one declined to divulge. Of the 44 women reporting ever having sex with a woman, 37 (84%) reported being tested; all divulged including 1 reporting a positive test result.

Among those ever tested, men and women differed significantly with regard to where testing occurred ($p < .001$). The locations most commonly cited for the most recent test were hospitals, emergency rooms or outpatient clinics (33% of men, 41% of women); private doctors (20% of men, 37% of women); and community events (23% of men, 14% of women). Men also reported testing at drug treatment facilities (5%) and in jail or prison facilities (5%).

Men and women generally differed with regard to the reasons cited for the most recent HIV test (multiple reasons could be given), with men more likely to report wanting to know their status (88% versus 78% for women, $p < .001$) and someone suggesting they should (26% versus 12%, $p < .001$). Women were more likely to cite a routine check-up, hospitalization, or surgical procedure (52% versus 29% for men, $p < .0001$); 28% of women specifically cited pregnancy or childbirth. Men and women were equally likely to say they were tested because they believed they might have been exposed through sex or drug use (9%), because “my partner and I decided to get tested together” (20%), because “I wanted to make sure I wasn’t giving HIV to someone else” (18%), and “no particular reason” (34%).

There were no significant differences by sex among the 90 participants who reported they had never been tested for HIV. The most common reasons were “I do not believe I am at risk for getting HIV” (49%), “I just don’t want to get tested, I don’t have a reason” (39%), “I don’t know how, or where to go, to get tested” (27%), “I don’t have enough time to go and get tested” (18%), and “I’m afraid I’ll lose family or friends if I get tested and the results show I have HIV” (11%).

As previously described, differences in HIV testing experience were assessed by risk factors associated with HIV infection in heterosexual men and women including education, household income, employment status, transactional sex, and use of narcotics or

hallucinogens. No association was observed between any of these risk factors and never having been tested for HIV, for men or women (Table 4).

Discussion

In a community-based survey of sexually active, predominately heterosexual Black young adults, social drivers typically associated with HIV burden at the community level were evident including low education and income levels and high unemployment and incarceration rates. We observed almost no reported use of drugs such as cocaine, crack, and heroin or exchanges of money, drugs or other resources for sex. However, several salient behaviors that can contribute to high transmission of HIV were observed including high rates of turnover and concurrency in sexual partners, inconsistent condom use, and prevalent use of alcohol and drugs such as marijuana and pill-popping.

Our findings help explain Durham's persistent high ranking among North Carolina counties with regard to HIV case rates. Continued prevention efforts are needed, including greater awareness of HIV, risk reduction counseling, condom negotiation skills, increased understanding about how sexual concurrency can contribute to ongoing transmission of HIV and other sexually transmitted diseases and consideration given to access to pre-exposure prophylaxis (PrEP) as an option for those at highest risk. Structural determinants of risk also need to be addressed; this is a population experiencing high rates of poverty, unemployment, and incarceration. Notably, they are also young people who need---and want---greater educational opportunities. Raiford and colleagues conducted a study among African American women 16–19 years of age from mostly economically disadvantaged communities in Durham and neighboring Wake County (Raiford, et al., 2014). Their study, which overlapped in time with our survey, found less than one-fifth of the participants saw their future education and employment opportunities as limited, despite high rates of unemployment and below-grade-level education for their age. This suggested to the authors that the young women had an underlying resiliency despite obstacles to achieving their goals. The obstacles noted for the disadvantaged young women in the Raiford, et al. study were also observed for a substantial proportion of the young men and women in our study, suggesting that resiliency alone is not sufficient to overcome those obstacles as they age into their 20s.

Self-reported HIV testing rates reflected statewide trends toward higher testing among those 20 to 29 years of age (N.C. Department of Health and Human Services, 2012). The importance of access to health care for HIV testing was evident, with Black young women reporting higher testing rates during routine medical care and utilization of health care services. The fact that 19% of the men in this study did not know if they had health insurance suggests a disturbing degree of disconnection from health care services. Further, the fact that 23% of men tested for HIV had their most recent test through community events highlights the importance of non-clinical settings for reaching them. Since all but one of the MSM and MSM/W in this study reported having been tested, the non-testing men were almost exclusively heterosexual. The lower rate of testing among these men also underscores the potential for underestimating HIV prevalence among Black heterosexual men. These findings reinforce previous calls to fund community-based men's health

programs that integrate HIV prevention within health promotion and disease prevention programs for Black heterosexual men that also include workforce and post-incarceration release programs, linkages to women's prevention programs, and faith-based initiatives (Bowleg & Raj, 2012).

Of the 20 men who reported ever having anal sex with a man, 16 reported anal sex with a man and 11 reported vaginal or anal sex with a woman in the previous six months. A study conducted in 13 urban locations across the US found that Black MSM were more likely to include MSMW than other racial/ethnic groups and that, in contrast to other racial/ethnic groups, Black MSMW were also more likely to have been tested for HIV than those exclusively MSM (Flores, et al., 2009).

We found no significant relationship between risk factors identified elsewhere for heterosexual transmission of HIV (CDC, 2013a) and those reporting not being tested. However, this analysis is limited due to a lack of statistical power to detect meaningful differences in the small number of non-testers, especially for very low prevalence factors such as transactional sex and use of narcotics or hallucinogens in our population. A more in-depth assessment of non-testers in this population of Black young adults is warranted.

Most women reported personally knowing someone with or who had died from HIV or AIDS, yet significantly fewer men did so. This raises questions about stigma and the extent to which HIV may be socially hidden among or by men in Durham's Black community and the extent to which people may be living with and dying of HIV in silence, as has been seen elsewhere in North Carolina (Miles, 2011). The implications of such silence for HIV prevention among Black young MSM, who are stigmatized and at highest risk, are also in need of exploration.

While the number of men reporting anal sex with another man is small in this study ($n=20$), the proportion relative to the total number of men enrolled (RDS adjusted 2.4%) is higher than has been estimated from established national surveys. Probably the best source for this data nationally, the National Survey of Family Growth (NSFG) found 1.5% of Black/African American men reported ever having anal sex, and 2.4% reported any oral or anal sex with another man, compared with 3.2% and 6.0%, respectively, for White men (Chandra, Mosher, Copen, & Sionean, 2011). We recruited two seed participants who identified as a gay man, and there was no evidence of biased recruitment related to those seeds based on homophily. We are therefore inclined to think that our numbers are a more accurate reflection of the proportion of young Black men engaging in same-sex anal intercourse in the Durham community than would be suggested by national surveys.

According to the 2010 Census, there were 9,675 African American/Black men in Durham County aged 18–30 years. If accurate, our RDS adjusted rate for men in this age group gives a total estimate of 232 who ever had anal sex with another man. Even assuming the rate is an underestimate, the numbers highlight the extent to which MSM constitute a small minority within Durham's Black community. Not surprisingly, evidence points toward sexual networks that extend regionally. An investigation of an HIV outbreak in North Carolina between 2000 and 2003 centered on a sexual partner network investigation that linked 21

colleges, 61 students, and 8 partners of students who were primarily African American MSM and MSM/W (Hightow, et al., 2005). A geographically dispersed Black MSM and MSM/W community combined with stigma against both sexual minorities and HIV in the local (geographic) Black community presents HIV prevention challenges that may be amplified in smaller urban settings like Durham. The importance of addressing homophobia as part of HIV prevention efforts was highlighted in a study of Black MSM in larger U.S. urban areas, where social integration in the local community was not shown to buffer the negative effects of homophobia on HIV risk behavior (Jeffries, et al., 2013).

A quarter of our sample included students, most of whom likely attended North Carolina Central University (NCCU), a historically Black university in central Durham that was also our primary data collection site. Similar to many historically black colleges and universities, NCCU has made concerted efforts to increase HIV testing and awareness among students. Project SAFE has provided HIV/STD peer education for more than a decade and sponsors HIV testing events on campus. Status Matters has specifically targeted young campus women with training on prevention and social marketing messages encouraging HIV testing. As a result, our sample may reflect higher exposure to testing interventions than typically seen in the general population of non-college attending Black young adults in Durham.

While our findings highlight some of the successes of HIV testing among Black young adults in Durham, they also point to a significant minority that is not being reached with current testing efforts, most notably young men. We found that barriers to HIV testing (e.g., perceived risk and stigma) were the same for men and women, and it appears that men fell behind mainly because a primary facilitator of testing---routine screening in clinical settings---was more effective at reaching women. Whether this was due to ease of access (i.e., there were ways for young men to get tested, but they just did not encounter them as easily as women) or actual barriers to access (i.e., there were not as many ways for young men to get tested) is important to clarify, especially given North Carolina's refusal to expand Medicaid. Reduced access to health care services for low income Black young adults may exacerbate barriers that already exist for men and undermine previous success rates in reaching women.

In discussing these findings the Black community members of the project's Collaborative Council noted that HIV testing outreach is an important opportunity to connect at-risk Black young adults with services to protect their health through both prevention for those testing negative and treatment for those infected. Structural and behavioral risk factors remain prevalent in this southern U.S. community, suggesting that an important opportunity is being missed to connect a substantial number of at-risk young adults with services that could reduce the HIV epidemic among African Americans. The prevalence of HIV-related risk behaviors, combined with a strong baseline rate of HIV testing suggest that important opportunities for preventive intervention are potentially achievable via HIV testing efforts. Identification of clients at heightened risk provides an opportunity to intervene and mitigate risk via access to services addressing factors that place them at risk. We are therefore now seeking ways to enhance effective referral and linkage of HIV testing clients to services that address their needs, regardless of their HIV testing status.

Acknowledgments

This research was supported by the National Institute of Nursing Research Grant RO1 NR011232 awarded to Kathleen M. MacQueen.

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Table 1

Sample and seed distribution, RDS weighted percentages and 95% confidence intervals (CI), and homophily for selected sociodemographic groups.

	Seed (n=12) n (%)	All Participants (n=508) n (%)	Weighted analysis Adj. % (95% CI)	Homophily Hx
Gender				
Male	6 (50.0)	235 (46.3)	44.7 (3.8–52.6)	0.38
Female	6 (50.0)	273 (53.7)	55.3 (47.9–63.2)	0.30
Age (years)				
18–20 years	1 (8.3)	154 (30.3)	28.7 (21.4–35.9)	0.35
21–24 years	8 (66.7)	205 (40.4)	37.5 (30.8–45.0)	0.21
25–30 years	3 (25.0)	149 (29.3)	33.8 (25.1–43.2)	0.22
Education Level				
Less than high school	1 (8.3)	71 (14.0)	16.4 (10.2–23.2)	0.13
High school or GED	3 (25.0)	187 (36.8)	38.5 (31.2–47.0)	0.13
Some college, Technical Certification, or Associates Degree	4 (33.3)	218 (42.9)	38.7 (31.2–46.4)	0.26
Bachelors Degree or higher	4 (33.3)	32 (6.3)	6.4 (2.7–10.2)	0.12
Employment				
Employed	5 (45.5)	222 (44.3)	42.2 (33.0–47.1)	0.22
Student	4 (36.4)	135 (26.9)	27.2 (20.3–33.9)	0.30
Unemployed	2 (18.2)	144 (28.7)	30.6 (26.0–40.6)	0.19
Sexual behavior				
MSM	2 (16.7)	9 (1.8)	1.2 (0.0–3.3)	0.20
MSW	4 (33.3)	215 (42.3)	43.2 (34.9–50.5)	0.37
MSMW	0 (0.0)	11 (2.2)	1.2 (0.5–2.1)	–1.0
WSM	4 (33.3)	229 (45.1)	45.5 (37.5–53.2)	0.25
WSMW	2 (16.7)	44 (8.7)	8.9 (5.1–14.4)	0.14

Table 2

Participant characteristics by gender.

	Male (n=235)	Female (n=273)	Total (n=508)	p-value
Age in years				0.836
Mean (standard deviation)	22.8 (3.4)	22.9 (3.4)	22.8 (3.4)	
Highest level education attained (n, %)				0.699
< High School	30 (12.8)	41 (15.0)	71 (14.0)	
High School Diploma or GED	83 (35.3)	104 (38.1)	187 (36.8)	
Some College, Technical Certification or Associates Degree	107 (45.5)	111 (40.7)	218 (42.9)	
Bachelors Degree or higher	15 (6.4)	17 (6.2)	32 (6.3)	
Employment status (n, %)				0.002
Employed	115 (49.1)	107 (39.2)	222 (43.8)	
Student	68 (29.1)	67 (24.5)	135 (26.6)	
Unemployed	51 (21.8)	99 (36.3)	150 (29.6)	
Health insurance (n, %)				<0.001
Does not have insurance	64 (27.2)	50 (18.3)	114 (22.4)	
Don't know	45 (19.1)	18 (6.6)	63 (12.4)	
Current yearly household income (n, %)				0.004
Less than \$10,000	73 (31.1)	119 (43.6)	192 (37.8)	
\$10,000 to \$14,999	34 (14.5)	37 (13.6)	71 (14.0)	
\$15,000 to \$24,999	23 (9.8)	38 (13.9)	61 (12.0)	
\$24,000 to \$49,999	42 (17.9)	33 (12.1)	75 (14.8)	
\$50,000 or more	44 (18.7)	30 (11.0)	74 (14.6)	
Ever incarcerated (n, %)	90 (38.3)	49 (17.9)	139 (27.4)	<0.001
Personally know someone with or who has died from HIV/AIDS	96 (40.9)	164 (60.1)	260 (51.2)	<0.001
Ever tested for HIV (n, %)	173 (73.6)	236 (86.4)	409 (80.5)	<0.001

Table 3

Risk behavior by gender.

	Male (n=235)	Female (n=273)	Total (n=508)	p-value
Number of lifetime sexual partners				<0.001
1	3 (1.3)	10 (3.7)	13 (2.6)	
2–5	50 (21.3)	91 (33.3)	141 (27.8)	
6–25	115 (48.9)	156 (57.1)	271 (53.3)	
More than 25	66 (28.1)	16 (5.9)	82 (16.1)	
Total partners in last 6 months				<0.001
Mean number (SD)	6.0 (7.2)	3.1 (4.2)	4.4 (6.0)	
Type of sex partners in last 6 months				
Spouse, boyfriend, or girlfriend (n, %)	208 (88.5)	258 (94.5)	466 (91.7)	0.014
Mean number (SD)	1.8 (1.7)	1.5 (1.6)	1.6 (1.7)	0.035
Other partner (n, %)	186 (79.1)	157 (57.5)	343 (67.5)	<0.001
Mean number (SD)	4.2 (6.7)	1.6 (3.4)	2.8 (5.4)	<0.001
Condom use in last 6 months (all partners combined; n, %)				<0.001
Consistent	69 (29.4)	46 (16.8)	115 (22.6)	
Inconsistent	147 (62.6)	162 (59.3)	309 (60.8)	
Never	19 (8.1)	65 (23.8)	84 (16.5)	
Used ecstasy, marijuana or popped pills in past 6 months (n, %)	146 (62.1)	129 (47.3)	275 (54.1)	<0.001
Used narcotics or hallucinogens such as cocaine, crack, meth, acid, or mushrooms in past 6 months (n, %)	5 (2.1)	15 (5.5)	20 (3.9)	0.052
Frequency of alcohol consumption in past 6 months (n, %)				0.002
Never or rarely (once or twice)	80 (34.0)	127 (46.5)	207 (40.7)	
About monthly but not weekly	80 (34.0)	99 (36.3)	179 (35.2)	
Weekly but not daily	65 (27.7)	41 (15.0)	106 (20.9)	
About every day	10 (4.3)	6 (2.2)	16 (3.1)	
Number of drinks on average drinking occasion (excludes nondrinkers)				<0.001
Mean (SD)	3.6 (2.0)	3.0 (1.6)	3.3 (1.8)	
Ever gone on a drinking binge in past 6 months (n, %)	53 (26.2)	42 (18.6)	95 (22.2)	0.057

	Male (n=235)	Female (n=273)	Total (n=508)	p-value
Injected drugs in the past 6 months (n, %)	2 (0.9)	2 (0.7)	4 (0.8)	1.000

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Table 4

Association between heterosexual risk factors for HIV and never having been tested for HIV, by gender.

Risk Factors	Males		Females	
	Total	Never Tested	Total	Never Tested
Education				
Less than High school	30	6 (20.0)	41	4 (9.8)
High school or GED or higher	205	56 (27.3)	232	33 (14.2)
p-value		0.3957		0.441
Household income (yearly)				
Less than \$10,000	73	19 (26.0)	119	17 (14.3)
\$10,000 or more	143	34 (23.8)	138	17 (12.3)
p-value		0.7161		0.6426
Transactional sex* in last six months				
Yes	222	59 (26.6)	255	36 (14.1)
No	13	3 (23.1)	18	1 (5.6)
p-value		1		0.4827
Used narcotics or hallucinogens in last six months**				
Yes	230	60 (26.1)	258	34 (13.2)
No	5	2 (40.0)	15	3 (20.0)
p-value		0.6095		0.4372
Employment				
Unemployed or disabled and unable to work	50	12 (24.0)	87	14 (16.1)
Other***	184	49 (26.6)	186	23 (12.4)
p-value		0.7071		0.4019

* Includes receiving or providing sex in exchange for money, drugs or other resources.

** Includes narcotics or hallucinogens such as cocaine, crack, meth, acids, or mushrooms

*** Includes employed for wages, self-employed, student, homemaker, retired and on family, maternity, medical or disability leave.