FACTORS RELATED TO HIV TESTING AMONG AN AFRICAN AMERICAN CHURCH-AFFILIATED POPULATION

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Abstract

HIV continues to disproportionately impact communities of color, and more calls are being extended to African American churches to assist in HIV education and screening efforts. However, no studies have reported on the HIV testing practices of African American church-affiliated persons. This study examines demographic, social, and behavioral factors associated with ever receiving an HIV test and last 12-month HIV testing. Findings indicated not having insurance and condom use were predictors of ever receiving an HIV test. Predictors of HIV testing in the last 12 months included marital status (i.e., single, divorced, separated, or widowed) and intentions to get tested for HIV in the near future. These predictors should be considered when designing HIV education and screening interventions for African American church settings.

The Centers for Disease Control and Prevention (CDC) estimates that 1.1 million Americans are living with HIV (CDC, 2008a, and an additional 56,000 Americans are estimated to become infected each year (Hall et al., 2008). With the advent of effective HIV testing and treatment options over the last two decades, more persons living with HIV are experiencing reduced morbidity and mortality (Crum et al., 2006; Hammer et al., 2006). However, to fully receive these benefits, individuals must know that they are HIV-positive early in the course of their infection. It is estimated that 20% to 25% of HIV-positive individuals are unaware of their status and may contribute to approximately 50% of all new HIV cases (Marks, Crepaz, Senterfitt, & Janssen, 2005). Also, 32% of all new HIV cases were considered to be late diagnoses in 2007 (CDC, 2010a). Although HIV testing rates increased among adults from about 40% between 2001 and 2006 to 45% in 2009 (CDC, 2010a), a large portion of the U.S. population has never been tested for HIV. Subsequently, a primary goal of the National HIV/AIDS Strategy is to have 90% of all HIV-positive persons aware of their status by 2015 (Office of National AIDS Policy, 2010).

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Though HIV/AIDS is a general public health issue, African Americans are disproportionately impacted. African Americans comprise approximately 12% of the U.S. population, yet accounted for 52% of all new HIV/AIDS cases in 2009 (CDC, 2011a). HIV rates were 19 and 8 times higher among African American women and men than among White women and men, respectively (CDC, 2011b). Further, African American men made up 45% of HIV cases among all HIV-positive males, and African American women made up 66% of HIV cases among all HIV-positive females. Interestingly, many more African Americans get tested for HIV compared to Whites. National studies indicate that as many as 60–68% of African Americans have been tested for HIV at some point in their lifetime as compared to 42–49% of Whites (Anderson, Chandra, & Mosher, 2005; CDC, 2010a; Kaiser Family Foundation [KFF], 2010). Also, approximately 40% of African Americans reported receipt of an HIV test in the "last 12 months," compared to 14% of Whites. Despite having higher HIV testing rates overall, African Americans have the highest prevalence of undiagnosed HIV (22%), which indicates that more African Americans could benefit from HIV testing—and possibly at a more frequent rate (CDC, 2010a). Studies indicate that African Americans are more likely to have delayed HIV diagnosis and treatment, as compared to Whites (Hall et al., 2008; Marks et al., 2005; Turner et al., 2000; Wong et al., 2004), and those who are unaware their HIV-positive status may significantly contribute to high rates of HIV among African Americans (CDC, 2010a; Marks et al., 2005).

In 2006, the CDC (2006) updated their HIV testing guidelines to include routine screening of all individuals between the ages of 13 and 64 in health care settings. These updated HIV testing and counseling guidelines also recommend routine/repeat screening of all high-risk individuals, including individuals entering into new sexual relationships, heterosexuals who themselves or their sex partners have had more than one sex partner since their last HIV screening, and individuals seeking treatment for sexually transmitted infections. In particular, the goal of routine screening is to increase the number of individuals who are universally screened for HIV whenever they have contact with medical settings (e.g., doctors' offices, emergency departments, STD clinics). Using this strategy, individuals do not have to be perceived as "at-risk" to be offered HIV screening. This strategy is of importance due to the changing demographics of those becoming infected, including more young adults, women, and heterosexuals unaware of their HIV risks, particularly among ethnic minorities. However, availability of routine and repeat screening does little for African Americans who do not have access to or do not regularly seek health services. Studies indicate that many more African Americans have limited or no access to health care. Also, a study by Leibowitz & Taylor (2007) found that the travel distance to HIV testing sites may prohibit underserved persons from seeking HIV testing services.

Studies on African Americans' receipt of HIV testing have identified psychosocial and environmental factors associated with increased intent and history of HIV testing and under what circumstances (e.g., Phillips, 1993). For example, studies have found that testing is more likely to occur among African Americans who: (a) are aged 25–44 (CDC, 2010a; KFF, 2009); (b) perceive themselves to be at risk for HIV infection (CDC, 2010b; Crosby, Bonney, & Odenat, 2004; Exner et al., 2002); (c) are seeing a health care provider (Bond, Lauby, & Batson, 2005); or (d) currently have an STD (Exner et al., 2002). However, many African Americans who are at risk for HIV often do not perceive themselves to be at risk (CDC, 2011b; KFF, 2009), and many have limited access to health care (Ayanian et al., 2000). Further, a national study found that only 29% of African Americans reported that their health care provider suggested they take an HIV test (Pew Forum on Religion and Public Life, 2009). Indeed, it has become increasingly important to develop more creative approaches to identify HIV-positive African Americans and quickly link them to high quality care.

National strategies continue to be identified to increase the numbers of African Americans tested for HIV in medical and nontraditional settings (e.g., CDC, 2006, 2009; Office of National AIDS Policy, 2010). More recently, consideration has been given to the African American church as a setting to facilitate HIV education and screening, and thereby increasing the reach of these services to church and community members (e.g., CDC, 2009; H.R. 1964, 111th Congress, 2009). Also, there have been an increasing number of media reports and studies of African American churches providing HIV screening (e.g., Agate et al., 2005; Berkley-Patton et al., 2010; Griffith et al., 2010). The church may be a particularly important venue to increase access to HIV screening for several reasons. First, it remains a powerful, influential institution with substantial reach in most African Americans communities (Lincoln & Mamiya, 1990). Second, studies have found that most African Americans attend church weekly (Barna Group, 2008; Pew Forum on Religion and Public Life, 2010), and many African American churches provide outreach services to their underserved community members (Berkley-Patton et al., 2010; Derose et al., 2011; Lincoln & Mamiya, 1990), which can increase their exposure to HIV education and screening programs. Third, African American women, who make up almost 70% of all new HIV cases among females, are heavily overrepresented in Black churches. Also, a study of HIV risks with African American churchgoing females found that 84% had a history of STDs and that 81% inconsistently used condoms (McKoy & Petersen, 2006), which suggests that routine, accessible HIV screening in church settings may be highly beneficial for churchgoing African American women.

Despite the many benefits of offering HIV education and screening in African American churches and the increasing number of HIV studies conducted in church settings, no studies have reported on HIV testing practices among African American church members. To better inform the development of church-based HIV education and screening services for African Americans, there is a need to understand factors associated with HIV testing among church-affiliated populations. In the current exploratory study, we attempted to identify the most salient measures that were predictive of HIV testing in a church-affiliated population. Church leaders provided input on survey development by discussing their interest in measures possibly related to HIV testing, such as religiosity and HIV stigma (Berkley-Patton et al., 2010). They also reviewed survey questions for clarity in project meetings prior to survey administration. We examined established predictors of HIV testing (e.g., age, number of sex partners, condom use) along with measures of religiosity in an African American church-affiliated population. Research questions that guided the current study included: a) to what degree has lifetime and last 12 months HIV testing been received; b) under what circumstances has HIV testing been sought (i.e., location, reasons); and c) what are the predictors of HIV testing among an African American church-affiliated population.

METHODS

PARTICIPANTS AND PROCEDURES

Church-affiliated participants were recruited from churches that primarily served African American congregants in the Kansas City, Kansas, and Kansas City, Missouri, metropolitan area. Participants consisted of persons aged 18 and older who attended an African American church (at least once/month). Participants completed the survey as part of a study evaluating the feasibility of implementing the Taking It to the Pews (TIPS) project, an HIV education and screening intervention in African American churches, which has been described elsewhere (Berkley-Patton et al., 2010). Briefly, church leaders from fourteen churches attending health ministry training conferences and workshops indicated interest in participating in TIPS. These trainings were coordinated by Calvary Community Outreach Network, a faith-based nonprofit organization focused on improving the quality of lives of individual and families with innovative programs. Of the fourteen churches, twelve (with an

average of 200 members) consented to participating in TIPS, and eight of the twelve churches participated in the survey study reported here. Participants (*n* = 211) provided consent and completed surveys, which on average took about 20 minutes, at their respective churches after church services (e.g., Sunday services, midweek bible study). One participant did not respond to key study variables and was not included in the final sample (*n* = 210). Study procedures were approved by the University of Missouri-Kansas City Institutional Review Board.

SURVEY MEASURES

Demographics—Participants provided demographic information (e.g., age, gender, education, insurance, marital status, children, household income, years of church membership, church denomination).

HIV testing measures—We adapted items from national surveys that assessed HIV testing (Anderson, Chandra, & Mosher, 2005; Nelson, Powell-Griner, Town, & Kovar, 2003) to collect data on participants' receipt of lifetime and 12-month HIV testing. Participants were asked, "Except for testing that may have been done with your blood donations (if applicable), have you *ever* been tested for HIV (lifetime), the virus that causes AIDS?" (Yes/No). Participants were also asked if they had been tested for HIV in the last 12 months (Yes/No). Additionally, participants were asked to report the reasons why they received their most recent HIV test (e.g., for a hospitalization or surgical procedure, to apply for health insurance) and to indicate where they received their most recent HIV test (e.g., clinic or health center, health department, doctor's office). Intentions to get tested for HIV annually were measured with three items (e.g., "To what extent do you feel you WANT to always get an annual HIV test?"; Gerkovich, Williams, Catley, & Goggin, 2008) scored on a six-point Likert-type scale (Not at all = 0 to Extremely = 5) and then summed (α = .91). Amount of encouragement from referents (friends, family, and church members) to get an annual HIV test was measured with three items (one item for each referent) and was scored on a six-point Likert-type scale (None = 0 to A lot = 5).

Sexual behaviors—We used an adapted version of the Behavioral Risk Assessment Tool (BRAT) developed by the Wisconsin HIV Prevention Evaluation Work Group (2000). Participants were asked if they had ever had sex (Y/N). Lifetime number of sex partners was measured with two items asking the number of male and female sex partners with whom they *ever* had sex. For sexually active participants, lifetime frequency of inconsistent condom use was assessed with one item on a five-point Likert scale (Always = 0 to Never = 4). Additionally, other HIV risk factors were measured with 12 Yes/No items (e.g., been homeless, had sex while high on drugs or alcohol, diagnosed with Hepatitis C), which were summed with higher scores indicating more HIV risk.

Other psychosocial measures—HIV-related stigma was measured with a summation of five items adapted from national studies on HIV/AIDS stigma (Herek, 1999; Herek, Capitanio, & Widaman, 2002) (e.g., "How strongly would you agree or disagree that scientists and doctors can be trusted to tell the truth about HIV?"; "If you were going to be tested for HIV, how concerned would you be that you might be treated differently or discriminated against if you test results were positive for HIV?") using a four-point Likert scale (e.g., 1 = Not concerned at all to 4 = Very concerned) (α =.32). HIV knowledge consisted of the summation of correct scores for ten items (e.g., "You can get HIV if you share a drink, sink, shower, or toilet seat with someone who has AIDS") adapted from the HIV Knowledge Questionnaire (Carey, Morrison-Beedy, & Johnson, 1997) (α = .66). Health screenings in the last year were measured with the summation of seven types of screenings participants may have received (e.g., blood pressure screening, colon cancer

screening). Religious beliefs and behaviors (religiosity) was measured with a seven-item version of the Religious Background and Behavior survey on participants' engagement in church activities (e.g., prayed, meditated, attended a worship service) in the past year and one item regarding their description of their religiosity (e.g., atheist, spiritual, religious) (Connors, Tonigan, & Miller, 1996) using an eight-point Likert scale (Never = 0 to Always = 7) (α = .77). All summed scores (i.e., knowledge, religiosity, health screenings) were analyzed with higher scores indicating increased endorsement.

DATA ANALYSIS

We first determined the prevalence of lifetime and 12-month HIV testing and participants' characteristics (e.g., demographics, sexual behaviors, HIV stigma, religiosity). We then conducted bivariate analyses to determine significant relationships between study variables and lifetime and 12-month HIV testing. Exposure to HIV information and activities in the TIPS HIV intervention was used as a covariate and controlled for in the multivariate analyses. Potential predictors were assessed using frequencies and proportions for categorical variables (χ^2 tests) and correlations for continuous variables. After testing for collinearity, we included all variables with significant associations to lifetime and 12-month testing ($p < .05$) from the bivariate analysis into final logistic regression models. If participants were missing two or fewer items, missing predictor data were imputed using mean replacement.

RESULTS

PARTICIPANT CHARACTERISTICS

Church affiliate participants ($n = 210$) were primarily African American (89.4%, $n = 185$), female (66.3%, $n = 138$), and ranged in age from 18 to 87 years, with the average age being 46.2 years ($SD = 14.6$), as shown in Table 1. The majority of participants were Baptist (73.3%, $n = 151$). Almost all participants were members of the church where they completed the survey, with the average length of church membership being 12.7 years ($SD = 14.2$). Participants had a mean religiosity score of 36.4 ($SD = 7$, range: 3–46), and 51.4% ($n = 110$) attended church at least twice a week. The most frequently reported health screenings obtained by participants (both males and females) in the past 12 months were blood pressure, cholesterol, and blood glucose screenings, with most participants reporting getting about 3 health screenings ($SD = 2$) in the past year.

Most of the sample had been sexually active (91.4%, $n = 192$), and the average number of sex partners was 7.0 ($SD = 13$; males = 10, $SD = 19.5$; females = 5, $SD = 8$). Average number of other sexual risks (e.g., incarceration, sex for drugs) reported was 1.1 ($SD = 1.8$), and 12% used condoms consistently. Participants reported a moderate amount of HIV stigma (stigma mean = 10.3; $SD = 2.2$, range: 6–19). Average HIV knowledge was 7.5 ($SD = 2.0$, range: 0–10). The most frequently incorrect HIV knowledge questions were: "A condom should be completely unrolled before it is placed on the penis" and "A person can get HIV by giving blood."

RECEIPT OF HIV TESTING

The majority of the sample reported being tested for HIV at least once in their lifetime (68.6%, $n = 144$), and 30.5% ($n = 64$) reported being tested in the last 12 months. Most were tested in their doctor's office or HMO, followed by "some other place", as shown in Table 2. The most frequently reported write-in response for "some other place" was church or a church-sponsored event ($n = 12$). Also, participants' most frequently reported reason for getting tested was some "other" reason (46%), that is, reasons not listed on the survey, as shown in Table 2. These other reasons included getting tested as part of an annual exam or

check-up ($n = 10$), having the opportunity to get tested at a church or community event ($n = 5$), a requirement for employment or military enlistment ($n = 4$), to know one's status ($n = 7$), and to be an example for others ($n = 3$). The next most frequently reported reason for HIV testing was concern for HIV risk (23%). The average overall score for encouragement from family, friends, and other church members to get tested for HIV was 5.4 ($SD = 4.6$, range: 0–15). Testing encouragement primarily came from church members ($M = 2.3$). The average score for intentions to get an annual HIV test was 9.9 ($SD = 4.5$, range: 0–15).

FACTORS ASSOCIATED WITH HIV TESTING

Lifetime HIV testing—Chi-square analyses conducted with lifetime HIV testing and all categorical variables indicated three significant factors: gender (males were more likely to have tested for HIV; $\chi^2[1] = 6.702$, $p < .01$), blood donations (blood donors were more likely to have tested for HIV; $\chi^2[1] = 4.467$, $p < .05$), and insurance (uninsured participants were more likely to have tested for HIV; $\chi^2[1] = 10.636$, $p < .01$). Six variables were significantly correlated with lifetime HIV testing: age ($r = -.30$, $p < .01$), intentions ($r = .17$, $p < .05$), HIV knowledge ($r = .19$, $p < .01$), number of sex partners ($r = .14$, $p < .05$), inconsistent condom use ($r = -.22$, $p < .01$), and other risk factors ($r = .21$, $p < .01$). Health screenings also approached significance ($r = .15$, $p < .053$).

Logistic regression was conducted with lifetime HIV testing and the ten significant factors: age, gender, insurance, blood donation, health screenings, HIV knowledge, number of sex partners, inconsistent condom use, other risk factors, and intentions. Religion, HIV stigma, and other variables that were not significantly related to HIV testing in the bivariate analyses were not entered in the regression analysis. Prior to controlling for exposure to HIV interventions, HIV knowledge was a significant predictor, with church affiliates with greater knowledge being 23% more likely to have received an HIV test. Also, those with insurance were 82% less likely to have received an HIV test in their lifetime. After controlling for intervention exposure, regression findings, as shown in Table 3, indicated that HIV knowledge was no longer a significant predictor, and church affiliates who had insurance were 91% less likely to have ever had an HIV test than those without insurance. Also, church affiliates with inconsistent condom use were 33% less likely to have ever had an HIV test than those with more consistent condom use.

12-month HIV testing—There was a significant association between last 12-month HIV testing and one categorical predictor: marital status ($\chi^2[1] = 4.936$, $p < .05$). Participants who were single/divorced/separated/widowed were more likely to report ever having an HIV test than participants who were married/in a committed relationship. Two variables were significantly correlated with last 12-month HIV testing: intentions ($r = .33$, $p < .01$) and encouragement from others to get tested ($r = .19$, $p < .05$).

Logistic regression was conducted with 12-month HIV testing and the three significant factors: intentions, marital status, and encouragement. Religion, HIV stigma, and other variables that were not significantly related to HIV testing in the bivariate analysis were not entered in the regression analysis. After controlling for exposure to HIV prevention intervention activities, two predictive factors related to last 12-month HIV testing were significant in the regression model: marital status and intentions, as shown in Table 3. Church affiliates who were single/divorced/separated/widowed were more than two times as likely to have been tested for HIV in the last 12 months than those in a married or in a committed relationship. Also, church affiliates with stronger intentions to get tested annually were 21% more likely to have been tested for HIV in the last 12 months than those with weaker intentions.

DISCUSSION

To our knowledge, this was the first study to examine factors related to HIV screening practices among an African American church-affiliated population. With heightened focus on increasing HIV screening rates in minority communities and engaging churches in these efforts, understanding HIV testing practices of this population could assist the public health and faith communities in increasing reach of HIV screening services to many more African Americans.

The first primary finding of our study was that almost 70% of our church affiliates had received an HIV test at some point in their lifetime, which is consistent with national HIV testing rates among the general African American population (CDC 2010a; KFF, 2010). However, the occurrence of church affiliates receiving an HIV test in the last 12 months was much lower than last 12-month HIV testing among general population African Americans in national studies (i.e., 30% compared to nearly 40%, respectively; CDC, 2010a; KFF, 2010). Although our measure of religiosity was not found to be related to last 12-month or lifetime HIV testing, possibly some other aspect of religion or personal values may have factored into church affiliates' reduced past year testing behavior—especially since our church affiliates were highly religious, with most attending church twice as much as general population African Americans (Pew Forum on Religion and Public Life, 2009). Interestingly, the most frequently reported reason for getting tested recently was concern about HIV risks (23%); this was similar to a recent national study (KFF, 2010) that found 21% of African Americans reported concern about HIV risk as a reason for getting testing. Further, African American church and general populations have reported that they would like more HIV testing information (Berkley-Patton et al., 2010; KFF, 2009). Additional research using qualitative methods is needed to determine motivation (or lack of motivation), facilitators, and barriers related to routine HIV testing among African American church and general populations and possible explanatory reasons related to religiosity.

Regarding location of receipt of their most recent HIV test, only 38% of the church affiliates reported getting an HIV test in a physician's office. This is much less than in the national studies that indicate approximately 55% of the general African American population received their last HIV test in a private doctor's office or HMO setting (CDC, 2010a). Additionally, only 6% of our church affiliates reported that their receipt of HIV screening was due a physician's referral, whereas 29% of general population African Americans reported their doctor or health care provider suggested they take an HIV test (KFF, 2010). This lack of referral for HIV screening is unfortunate, particularly since church affiliates in the current study received three health screenings on average in the last year, and receipt of other health screenings was not associated with lifetime or 12-month HIV testing. Overall, these findings related to receipt of health care services suggest that health providers have missed opportunities to offer routine HIV testing per CDC universal screening guidelines (CDC, 2006) with their African American patients, and have possibly missed opportunities for early HIV diagnosis and treatment. This is particularly disturbing since the goal of CDC's updated universal screening guidelines was to increase the number of individuals who are screened for HIV when they have contact with medical settings (2006). Using this strategy, individuals do not have to be perceived as "at-risk" to be offered HIV screening by their health care providers. When offered, universal testing in health care settings will likely help increase early detection of HIV infection, increase linkages to appropriate medical and secondary prevention services, and ultimately may play an important role in reducing new HIV cases. There is clearly a need for initiatives to further inform and prompt health providers to encourage their African American patients to get routine HIV testing as part of their regular health exams, regardless of their level of risk (Beckwith et al., 2005). African

American faith leaders could assist in these efforts by encouraging church and community members to request HIV screening during their regular health care visits.

Regarding sexual risks, although sexual behaviors (e.g., number of sex partners, inconsistent condom use) were not significantly related to HIV testing in the last 12 months, these factors were significantly related to lifetime HIV testing in our study. Also, inconsistent condom use was a significant predictor of not ever receiving an HIV test in regression analysis. Possibly, church members who used condoms during an earlier period in their life sought HIV screening in part due to concerns about risks at that time. Regardless, recent studies are finding that African Americans, women in particular, with low personal risk (e.g., fewer sex partners, no drug use) tend to be at increased HIV risk due to their involvement in heterosexual relationships with high risk sex partners (e.g., past drug use, incarceration, concurrent relationships)—especially in communities with high density of HIV prevalence (e.g., Aral, Adimora, & Fenton, 2008; Fleming, Lansky, Lee, & Nakashima, 2006), thereby increasing transmission of HIV in these communities. Taken together, these findings on the relationship of sexual behaviors and HIV screening combined with the previously mentioned church affiliates' concerns about HIV risks (23% of participants had this concern) suggest that this population should not be overlooked when developing HIV screening interventions for community settings.

Marital status (being single, divorced, or widowed) was also a significant predictor of receipt of an HIV test in the last 12 months. This is an important finding since it suggests that church affiliates in marriage or cohabiting relationships may not know their current HIV status. Past studies have found mixed results related to marital status as an HIV screening predictor (Heffelfinger et al., 2009; Inungu et al., 2005; Mack & Bland, 1999; Meadows, Catalan, & Gazzard, 1993). However, considering the changing demographics of new HIV cases, particularly with increased HIV risk for African American women through heterosexual contact, targeted HIV awareness efforts may be needed to increase HIV screening among church affiliates who are married, cohabiting, or entering new relationships, especially since studies suggest that African American men are twice as likely to have concurrent sexual partners. In addition, due to the large proportion of African American women who attend church (Pew Forum on Religion and Public Life, 2009), the church setting may be an appropriate place to normalize the importance of HIV testing for African American women.

Prior to controlling for intervention exposure, HIV knowledge was a significant predictor for lifetime HIV testing. Participants had moderately high HIV knowledge scores on average (7.5 out of a possible 10), and having HIV information has been shown to be significantly related to HIV screening. Although HIV knowledge alone may not be powerful enough to increase uptake of HIV screening behaviors, these findings suggest that expanding HIV awareness and screening education should be critical components of HIV testing promotion efforts. The CDC's Heightened National Response to Address the HIV/AIDS Crisis Among African Americans (CDC, 2009) plan calls for African American faith leaders to serve as nontraditional partners in collaborating with other community sectors (e.g., health departments, AIDS services organizations) to disseminate HIV information to their church and community members. The plan also includes strategies for increasing HIV screening opportunities outside of traditional health care settings where access to health screenings may be limited. Therefore, health communication studies that are religiously tailored and delivered by influential church leaders in church settings should be explored.

An interesting finding in our study was that those with insurance were 82% *less* likely to ever have received an HIV test than the uninsured. Interestingly, among our uninsured church affiliates, more than 90% had been screened for HIV. Aguirre and colleagues (2007)

found that recipients of HIV testing in community settings, such as health clinics and community events where testing is free, tend to be highly represented by underserved African Americans. Even among our sample, 23% of church affiliates received screening at "some other place" (mostly churches) and 21% from a health center or clinic. Agate and colleagues (2005) found that large numbers of African American church and community members can effectively be provided with HIV screening services in church settings. Plus, proximity and access to HIV screening has been found to be related to greater use of HIV screening for underserved community members (Leibowitz & Taylor, 2007), and therefore provision of HIV services in church community settings may increase accessibility to underserved communities. Many African Americans have limited or no access to healthcare (Lillie-Blanton et al., 2000), and persons without health insurance tend to have limited access to regular health care and screenings (Ayanian et al., 2000), so it was paradoxical that our insured church affiliates were less likely to access HIV screening. Perhaps insured church affiliates did not perceive themselves to be at risk for HIV or did not consider HIV screening to be a priority compared to other health screenings. More research is needed to better understand how to prioritize receipt of HIV screening for all African Americans, regardless of perceived level of risk, and therefore assist in reaching national goals of 90% of the HIV-positive population aware of their HIV status.

Church affiliates reported fairly high intentions to get tested for HIV on an annual basis, and intentions were significantly related to both lifetime and 12-month HIV testing in correlation and logistic regression analyses. This was not surprising, since annual HIV screenings have been on the rise (CDC, 2010a), and past behavior tends to be predictive of future behaviors, particularly as it relates to health screenings. In considering that participants in this study were a church-affiliated population, it is possible that future church-based intervention research on increasing HIV screening could include social marketing strategies to disseminate religiously appropriate messages that normalize receipt of HIV screening (e.g., "Most African American church members (70%) know their HIV status"). These interventions could also include strategies guided by social learning theory (Bandura, 1977), whereby African American church leaders can serve as role models receiving HIV screening in front of their congregants and encouraging them to get tested, while opportunities to get tested are present (Berkley-Patton et al., 2010). This could be particularly powerful for changing norms about getting tested, especially since encouragement from family, friends, and church members to get screened was related to past year HIV testing in correlation analysis in our study. Also, further examination of mediational relationships between various aspects of intentions and actual HIV testing using appropriate theoretical models, such as Implementation Intentions (Gollwitzer, 1993) or the Theory of Planned Behavior (Azjen, 1991), is needed. Future research on identifying appropriate theoretical models and key religiously appropriate strategies is needed in order to design efficacious church-based HIV screening interventions for African Americans.

LIMITATIONS

The current study was one of the first to identify factors related to HIV testing among an African American church-affiliated population. Yet, this study had its limitations. Church affiliates were largely represented by African American women, and participants' household income was fairly high and most had insurance. This is not surprising, since other church-based studies have found higher socioeconomic status and overrepresentation of women (Bowen et al., 2004; Campbell et al., 1999). However, our high-income insurance holders were significantly less likely to have been tested for HIV and may not consider themselves to be at risk. Future research is needed on reasons why this particular population of African Americans is not seeking HIV testing. Also, there is a need for more research on HIV screening among African American heterosexual men and men who have sex with men—

who were not highly representative in the current sample. Future research on HIV testing practices with African American church-affiliated populations should seek to recruit more diverse community members, possibly through church outreach services, who may be more representative of persons at greatest risk for HIV. Second, it is possible that some participants may believe that they had received an HIV test through blood donations. Conversely, although CDC guidelines on routine HIV testing state that HIV testing should not be done without patient's consent, it is possible that some participants were not informed that testing would take place or did not understand their right to opt out. Future research is needed to understand these possible limitations in self-reports of HIV testing. Third, the HIV stigma measure had poor reliability, thereby possibly producing unreliable predictive findings in the HIV testing logistic regressions. Fourth, we did not assess the prevalence of HIV-positive serostatus among our church affiliates due to stated concerns from HIV-positive and other church leaders regarding collecting this sensitive information. However, our church affiliates were from urban churches located in Kansas City metropolitan areas with the highest rates of HIV prevalence. Last, it is possible that self-report data on health behaviors, particularly sexual risk behaviors, from participating church affiliates were hampered by poor recall and/or socially desirable responding. Future research with church affiliates should include assessments of social desirability (e.g., Strahan & Gerbasi, 1972) to detect issues with social responding, particularly regarding sex behaviors. Regardless, due to the high rates of HIV in African American communities and late HIV diagnosis, increased routine testing for all African Americans may be necessary.

CONCLUSION

The burden of HIV continues to weigh heavily on African American communities. As African American churches are being called on to assist in expanding the reach of HIV screening services in underserved communities, there is a need to better understand HIV testing practices of church-affiliated African Americans—a sizable and understudied African American population. This study identified factors (i.e., having insurance, marital status, limited condom use, intention to get tested), and thereby gaps, related to HIV testing practices among an African American church-affiliated population that can inform the development of church community HIV testing interventions. Engaging churches in these efforts may be an expedient public health strategy that could have a significant impact on increasing HIV screening for many more African Americans.

Acknowledgments

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TABLE 1

Participant Characteristics

Variable	% (n)
Gender	
Female	65.7 (138)
Sexual Orientation	
Heterosexual	81.4 (171)
Homosexual/Bisexual	3.8 (8)
Other/Choose not to answer	4.3 (9)
Marital Status	
Single/Divorced/Widowed	48.1 (103)
Have Children	82.4 (173)
Education	
Did not graduate from high school	6.7 (14)
Finished high school	33.8 (71)
At least some college	58.1 (122)
Monthly Income	
< $2,001	27.6 (58)
$2,001–$3,000	33.3 (70)
> $3,000	28.1 (59)
Have Insurance	84.8 (178)
Have Donated Blood since March 1985	29.5 (62)
Health Screenings	
Blood Pressure	77.1 (162)
Colon Cancer Screening	24.8 (52)
Cholesterol Screening	61.4 (129)
Blood glucose Screening	56.7 (119)
Prostate Cancer Screening	38.6 (27)[a]
Mammogram	46.4 (64)[b]
Pap test	60.9 (84)[b]
Have had sex	91.4 (192)
Frequency of Condom Use	
Always	11.9 (25)
Usually	18.6 (39)
Sometimes	15.2 (32)
Occasionally	11.9 (25)
Never	26.7 (56)

Note.

[a] Men only;

[b] Women only.

TABLE 2

Reasons and Locations for Most Recent HIV Test

Variables	% (*n*)
Reasons for HIV Test	
For a hospitalization or surgical procedure	13.9 (19)
To apply for a marriage license	3.6 (5)
To apply for health insurance	13.9 (19)
Because of a referral by a doctor	5.9 (8)
Because you were pregnant or as part of prenatal care	10.9 (15)
Because you were concerned you were at risk for HIV	22.6 (31)
Other	46.3 (63)
Location of HIV Test	
Clinic or health center	21.3 (30)
Health Department	2.8 (4)
Doctor's office or HMO	37.6 (53)
Emergency room	2.1 (3)
Hospital outpatient department	11.3 (16)
Some other place	22.7 (32)

TABLE 3

Multivariate Logistic Regression Analysis: HIV Testing Lifetime and Last 12 Months

Predictors	Lifetime HIV Testing AOR (95% CI)	Last 12 Months HIV Testing AOR (95% CI)
Age	.970 (.935–1.006)	a
Gender	.600 (.164–2.194)	a
Insurance	.108 (.012–.946) [c]	a
Blood Donation	2.554 (.908–7.187)	a
Health Screenings	1.212 (.965–1.522)	a
HIV Knowledge	1.046 (.825–1.326)	a
No. of Sex Partners	1.021 (.972–1.073)	a
Inconsistent Condom Use	.668 (.485–.922)[c]	a
Other Risk Factors	1.226 (.882–1.704)	a
Intentions	1.030 (.937–1.132)	1.205 (1.079–1.345) [d]
Marital Status	b	2.113 (1.017–4.475) [c]
Encouragement	b	1.043 (.959–1.136)

Note. AOR = Adjusted Odds Ratio; CI = Confidence Interval.

[a] Not included in 12 month HIV testing multivariate analysis because n.s. in bivariate analysis.

[b] Not included in lifetime HIV testing multivariate analysis because n.s. in bivariate analysis.

[c] $p < .05$,

[d] $p < .01$.