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Prevalence and Correlates of HIV Testing among Sexually Active African American Adolescents in Four U.S. Cities

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Abstract

Background—Routine HIV testing is recommended for all adolescents ages 13 years and older. This study aims to report the prevalence of HIV testing among African American adolescents, describe characteristics of adolescents who have been tested, and identify potentially modifiable factors associated with greater likelihood of testing across gender.

Methods—African American adolescents ages 13 to 18 were recruited from community-based outreach in four U.S. cities. Present analyses include sexually active participants (N = 990; 52.3% female).

Results—Twenty-nine percent of adolescents had ever been tested for HIV. In a multivariate logistic regression adjusted for significant demographics, the strongest predictor of HIV testing

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among girls was prior STI testing (OR = 88.39) followed by pregnancy (OR = 2.75), risk reduction self-efficacy (OR = 2.28), and STI knowledge (OR = 2.25). Among boys, having had an STI test (OR = 38.09), having talked about testing with partners (OR = 3.49), and less religiosity (OR = 2.07) were associated with HIV testing.

Conclusions—African Americans adolescents are disproportionately at risk for HIV/AIDS, yet less than one-third of participants reported being tested. Those receiving sexual or reproductive healthcare services were most likely to be tested, but many teens at risk for HIV do not seek available services and others may face barriers to accessing healthcare. Findings provide support for increasing school-based educational programs due to the low rates of STI/HIV knowledge among teens. Additionally, culturally-sensitive programs promoting HIV testing among teens should foster skill-building for preventive behaviors and increase partner communication about testing.

Keywords

HIV Testing; HIV/AIDS; Adolescent; African American; Sexual Behavior; Prevention

Although awareness of serostatus is an important component of HIV prevention, approximately 21% of the estimated 1.1 million people living with HIV/AIDS in the United States are unaware they are infected.[1] Routine HIV testing would help to prevent HIV transmission by providing opportunities for early detection and entry into life-sustaining treatment.[2] In addition, research indicates that persons with HIV tend to adopt safer sex behaviors following diagnosis whereas those who are undiagnosed are likely to continue transmitting the infection.[3] Because 54% to 70% of new infections are transmitted from undiagnosed individuals, expanding HIV testing and counseling services, especially among populations that are disproportionately affected by HIV, would help to reduce new HIV infections.[4]

Health disparities in HIV/AIDS have been well-established by surveillance studies, with higher rates of illness, shorter survival time, and greater morbidity among African Americans as compared to other ethnic/racial groups.[5,6] For example, although African Americans accounted for only 13% of the population, they accounted for 51% of new HIV/AIDS diagnoses in the United States.[7] Even though 50% of new infections are likely to have occurred among adolescents (ages 13 to 18) and young adults (ages 19 to 24), less than one-quarter of African American high school students report a history of HIV testing.[8,9] Of those tested, 15% to 26% of adolescents do not return for their results.[10,11] Thus, investigating factors associated with HIV testing among African American adolescents is both epidemiologically important as well as consistent with recent public health objectives targeting HIV prevention in minority youth.[12]

Few studies have specifically examined HIV testing among African American adolescents, but the uptake of HIV testing has been demonstrated to be low.[9,13] According to data from the 2007 Youth Risk Behavior Surveillance System, only 27% of Black female and 17% of Black male high school students reported a history of testing.[9] Although rates of testing among African Americans are higher than the national average for high school students (13%), efforts need to be made to increase HIV testing further given the endemic levels of infection within the African American community.[5,7,9] However, a better understanding of factors associated with HIV testing among at-risk African American teens is needed to inform the development of culturally-sensitive, empirically-supported approaches to increase testing uptake.

Older age and female gender, as well as a past history of sexually transmitted infections (STIs) and pregnancy, have been associated with HIV testing among ethnic/racially diverse

samples of adolescents.[9,11,14] Of these factors, gender appears to be a particularly potent contributor to testing status. Illustratively, in a recent sample of sexually active African American adolescents, controlling for age and history of STI testing, the odds of self-reported HIV testing were nearly three times higher among females than males, and six times higher among pregnant females than males.[15] Thus, sexually active girls may be more likely to be offered testing than boys as a result of receiving reproductive healthcare services for pregnancy prevention, abortion, or prenatal care. Given that girls and boys differentially engage in sexual risk behaviors that contribute to adverse outcomes such as HIV, other STIs, and unintended pregnancy and utilize sexual and reproductive healthcare at different rates, factors associated with HIV testing are also likely to differ across gender.[9,16]

Despite the association between adverse sexual health outcomes and HIV testing, a consistent relationship between risk behavior and testing has not been demonstrated among adolescents.[10,11] Among young adults, however, rates of HIV testing are greater among those reporting a higher frequency of intercourse, more lifetime sexual partners, and less condom use.[17] Prior research suggests that HIV testing of youth may be primarily occurring as part of risk-based STI and pregnancy screening.[18] As such, adolescents who engage in riskier sexual behavior may be more likely to be offered HIV testing by a healthcare provider at the time of a health crisis than less risky peers.

Given the potential for HIV prevention and health promotion interventions to increase HIV/AIDS knowledge and modify attitudes toward routine HIV testing, the current research has been limited by a lack of studies examining the impact of cognitive factors on testing among adolescents. One recent study found an association between history of HIV testing and greater general self-efficacy among inner-city African American girls.[19] Previous studies with adult samples have also identified several other potentially modifiable cognitive factors associated with HIV testing. For instance, greater knowledge of HIV transmission has been shown to be positively associated with a history of testing among Black adults.[20,21] Low perceived risk and fear of stigma and discrimination are also commonly named as barriers to testing.[22,23] Based on the adult literature, it is reasonable to expect that similar knowledge and attitudinal factors would be associated with testing among adolescents.

As the number of persons living with HIV in the U.S. grows, prevention efforts will increasingly depend upon routine voluntary HIV testing to decrease further transmissions. It will also be necessary to increase both access and linkage to testing, secondary prevention, and treatment services as well as provider initiation and patient acceptance of testing. In 2006, the Centers for Disease Control and Prevention (CDC) published revised guidelines recommending routine voluntary testing in healthcare settings for all people ages 13 to 64 years old, yet many at-risk African American adolescents are still not being screened for STIs and HIV.[24,25] The new guidelines, which update previous guidelines for healthcare settings and pregnant women published in 1993 and 2001, recommend a universal versus targeted testing approach, expand the upper and lower age limits of the population to receive testing (from 15 to 54 years), propose opt-out as opposed to opt-in screening, and suggest eliminating requirements for both separate written consent to testing and pretest counseling in healthcare settings in order to reduce barriers to provider-initiated screening.[26,27,28] Additionally, the revised guidelines recommend screening at least annually for persons at high risk for HIV infection. However, in order to increase the success of these universal policies, barriers and facilitators to HIV testing among at-risk African American adolescents should be identified and culturally-sensitive approaches to promote the adoption of the CDC's recommendations should be developed.

In sum, the goals of the present study were to (a) report the prevalence of prior HIV testing among sexually active African American girls and boys, (b) examine gender differences

across demographics, sexual behaviors, health outcomes, and cognitions, (c) describe the characteristics of girls and boys who report having been tested, and (d) identify correlates of testing from demographic, behavioral, health, and cognitive domains across gender. We expected that adolescents with a history of testing will be more likely to report riskier sexual behavior, a history of STI testing, more incidents of STIs and pregnancy, more HIV/STI knowledge, less AIDS-related stigma, and more positive attitudes toward HIV-preventive behavior. In addition, we expected sexual healthcare (history of STI testing) and health outcomes (history of STIs and pregnancy) to be associated with HIV testing to a greater extent among girls than boys. Information gathered from the present study may inform the development of future health promotion interventions to increase the uptake of testing among sexually active African American adolescents who remain at heightened risk for HIV.

MATERIALS AND METHODS

Participants

Participants were 990 African American adolescents recruited in two matched northeast (Providence, RI and Syracuse, NY) and two matched southeast U. S. cities (Columbia, SC and Macon, GA) for Project iMPPACS, a multilevel HIV preventive-intervention (see Romer et al., in press, and Vanable et al., in press, for a detailed description).[29,30] Within these cities, 21% of participants were recruited from after-school programming at partnering community-based organizations (CBOs), such as Boys and Girls Clubs and community centers that provide recreational, social, and educational services for young people. Additional youth were recruited through street outreach (9%), respondent driven sampling (15%), participant referral (29%), and referral from adults in the community (14%). Baseline data from this longitudinal study are used in the present study. All adolescents ages 13 to 18 who were able to speak and read English were eligible to participate. Adolescents under age 18 whose parents did not provide consent were excluded. Of the 2,145 adolescents invited to participate in the study, 1,657 were consented, assessed at baseline, and randomized to a treatment condition (77%). The 23% who did not participate included adolescents who reported having scheduling conflicts, parent/guardian disapproval of the program, and lack of interest in the program, as well as adolescents who could not be reached to schedule their baseline appointment. The present analyses include participants who reported having had vaginal, anal, or oral intercourse ($N = 990$). The final sample consisted of 472 males and 518 females with 4% of the sample reporting Latino ethnicity. Mean age of participants was 15.31 years ($SD = 1.12$).

Procedures

All study protocols were approved by the Institutional Review Boards at the respective universities at the four study cites. Informed consent was obtained from adolescents age 18 and older and adolescent assent and parental consent were obtained from those ages 13 to 17. Participants completed assessment measures on laptop computers using an audio computer-assisted self-interview (ACASI) program. The assessment battery took approximately 45 minutes to complete and participants were compensated $30 for their time and effort.

Measures

In addition to demographics, participants reported on HIV testing, sexual risk behaviors, sexual healthcare, and sexual attitudes and knowledge. The test-retest reliability of measures used in Project iMPPACS has been reported previously.[31]

HIV Testing—Participants reported on whether they had ever been tested for HIV (yes/no), the time of most recent test (1 = *less than 3 months ago* to 5 = *over a year ago*), and the results of their most recent test.

Sexual Behaviors—Sexual intercourse (defined as lifetime history of receptive and insertive vaginal, anal, or oral intercourse) and behaviors were assessed using items from previous research.[32,33,34] Participants were asked the number of lifetime vaginal sex partners, the relative frequency of condom use during vaginal sex in the last 90 days (1 = *never* to 6 = *every time*), whether they had used a condom at most recent vaginal sex (yes/no), and their relationship with the last person with whom they had vaginal sex (1 = *someone you just met, or a casual friend*, 2 = *someone you knew well, but not a regular or "steady" partner*, or 3 = *a steady boyfriend or girlfriend*). Participants were also asked about how many times they had talked with a sexual partner about getting tested for a sexually transmitted infection (STI) or HIV in the last 90 days and how many times they had been tested for an STI in their lifetime. Responses to the sexual risk behavior items were coded dichotomously to indicate higher or lower levels of risk behavior.

Sexual Health Outcomes—Participants reported on whether they had ever been pregnant or gotten someone pregnant (yes/no) and whether they had ever been told by a medical professional that they had an STI (yes/no).

Sexual Attitudes and Knowledge—Participants reported on how risky they thought having sex without using a condom would be for their health (1 = *very risky* to 4 = *not at all risky*). Participants also responded to seven items (α = .73) assessing HIV risk reduction self-efficacy.[35] Sample items include "If you have sex after drinking or using drugs, how hard or easy would it be for you to make sure you and your partner use a condom every time" (1 = *very hard to do* to 6 = *very easy to do*). AIDS-related stigma was measured with seven items (α = .84) assessing negative attitudes toward persons with HIV (e.g., "People who have HIV should be ashamed" and "I do not want to be friends with someone who has HIV").[36] Response options ranged from 1 = *strongly disagree* to 6 = *strongly agree*. Knowledge about HIV transmission and prevention was assessed with an 18-item scale (HIV-KQ-18) and knowledge about STIs was assessed with a 10-item scale (STD-KQ).[37,38] For both knowledge scales, response options were *mostly true* or *mostly false*. Rather than guessing, participants were instructed to response with *don't know* if they were unsure. Each correct item added one point toward the total score. The test-retest reliability estimates for the HIV and STI knowledge scales were .73 and .62, respectively.[31]

Data Analytic Strategy

Gender differences across history of HIV testing, demographics, sexual behaviors, health outcomes, and cognitions were examined with chi-square analyses and t-tests. Due to significant gender differences for the criterion variable and several predictors, the sample was stratified by gender for all additional analyses. Bivariate logistic regressions were conducted to determine the final logistic regression models for girls and boys. The potential predictors entered in the bivariate logistic regression models included the proposed variables from the demographic, behavioral, health, and cognitive domains. All predictors that were associated with HIV testing at the bivariate level ($p < .10$) were simultaneously entered into multivariate logistic regression (MLR) models for girls and boys, adjusted for significantly associated demographic variables. Analyses were performed with SPSS version 15.0.

RESULTS

Prevalence of HIV Testing Among Sexually Active African American Adolescents

Overall, less than one-third (29%) of the adolescents in the present study reported a history of HIV testing. As expected, significant gender differences were found for prevalence of testing, χ^2 (1, N = 990) = 14.49, p < .001, with 34% of females reporting a history of testing compared to only 23% of males. Of those that had been tested, 41% reported that their most recent test was "less than 3 months ago." Six adolescents reported testing positive for HIV (2%) and 39 adolescents did not know their results (14%).

Characteristics of the Sample

Demographics Characteristics Across Gender—Girls and boys were distributed similarly in terms of age, t(955.18) = −1.27, *ns*, ethnicity, χ^2 (1, N = 990) = 1.97, *ns*, eligibility for free or reduced-priced lunch at school, χ^2 (1, N = 980) = .75, *ns*, and religiosity, t(988) = −.28, *ns*. Average ages for girls (M = 15.36, SD = 1.07) and boys (M = 15.26, SD = 1.17) were similar. Few participants reported Latino ethnicity (5% of girls and 3% of boys). Participants were predominantly low-income youth, with 73% of girls and 76% of boys eligible for a free or reduced-price school lunch. Over half (54 % of girls and 56% of boys) reported attending religious services at least monthly. Across the demographic variables, significant gender differences were found only for academic performance, t(978) = 3.89, p < .001, with girls reporting significantly better grades in school during the past 12 months than boys.

Sexual Behaviors and Health Outcomes Across Gender—Significant gender differences were found for both sexual behaviors and health outcomes. Although girls and boys were equally likely to report ever having had vaginal sex (86% v. 90%: χ^2 (1, N = 990) = 2.85, *ns*), boys were more likely than girls to report both oral sex (77 v. 70%: χ^2 (1, N = 990) = 6.68, p < .01) and anal sex (37% v. 26%: χ^2 (1, N = 990) = 16.66, p <.001). Among the small subset of participants who did not report vaginal or anal sex, girls were significantly more likely than boys to report having *only* had oral sex (12% v. 7%: χ^2 (1, N = 990) = 5.95, p < .05). We also examined the prevalence of men who have sex with men (MSM) and found that 9 males (1.9%) reported receptive anal intercourse and 6 males (1.2%) reported insertive anal intercourse with a male partner (categories not mutually exclusive). Given the low rates of MSM in the current sample, we were unable analyze this subgroup further.

On average, boys reported significantly more lifetime vaginal sex partners (M = 6.85, SD = 11.13, median = 4.00) than girls (M = 3.07, SD= 4.19, median = 2.00), t(533.71) = 6.56, p < .001. Boys were more likely than girls to report condom use at last sex (79% v. 66%: χ^2 (1, N = 869) = 18.55, p < .001), however, girls were more likely to report that their last sex partner was a "steady" partner than boys (79% v. 55%: χ^2 (1, N = 869) = 53.80, p < .001). Girls were also more likely to have communicated with a partner about getting tested for HIV or other STIs (39% v. 28%: χ^2 (1, N = 990) = 14.07, p < .001) and to have gotten tested for an STI previously (40% v. 28%: χ^2 (1, N = 990) = 16.87, p < .001). In addition, more girls than boys reported ever having been diagnosed with an STI (9% v. 1%: χ^2 (1, N = 990) = 29.67, p < .001) or pregnancy (14% v. 9%: χ^2 (1, N = 869) = 5.27, p < .05).

Attitudes and Knowledge Across Gender—Significant gender differences were also present for cognitive factors with girls reporting less HIV-related stigma, more self-efficacy for HIV risk reduction behaviors, and more factual knowledge of HIV/AIDS and STIs than boys. A trend indicated that males perceived sex without a condom to be marginally riskier than females (girls: M = 1.35, SD = .74; boys: M = 1.44, SD = .83; 1 = *very risky* to 4 = *not*

at all risky), $t(951.80) = 1.79$, $p = .07$. With regard to HIV-related stigma, participants endorsed generally positive attitudes towards persons with HIV but girls reported significantly less stigma than boys (girls: $M = 2.13$, $SD = 1.00$; boys: $M = 2.53$, $SD = 1.12$; 1 = *strongly disagree* to 6 = *strongly agree*), $t(949.02) = 5.90$, $p < .001$. In addition, girls felt that performing risk reduction behaviors would be easier to do than boys (girls: $M = 4.72$, $SD = .91$; boys: $M = 4.46$, $SD = .91$; 1 = *very hard to do* to 6 = *very easy to do*), $t(988) = -4.61$, $p < .001$.

Girls tended to have greater factual knowledge of both HIV/AIDS and STIs than boys, however, performance on measures of knowledge was poor overall. Girls and boys received average scores of 55% and 50% correct on the HIV/AIDS knowledge scale, respectively (girls: $M = 9.89$, $SD = 3.67$; boys: $M = 8.94$, $SD = 3.80$; range = 0–18), $t(988) = -3.97$, $p < .001$. Average scores for the STI knowledge scale were 44% and 36% correct for girls and boys, respectively (girls: $M = 4.37$, $SD = 2.03$; boys: $M = 3.56$, $SD = 2.08$; range = 0–10), $t(988) = -6.18$, $p < .001$. Knowledge scores among the at-risk African American adolescents in the present study were lower than scores previously reported among ethnically/racially and socioeconomically diverse samples of adults and college students.[37,38]

Bivariate Correlates of HIV Testing

Bivariate associations are reported in Table 1 for girls and Table 2 for boys. Among the demographic variables, older age, less attendance at religious services, and being eligible for free or reduced-price lunch at school (boys only) were associated with higher rates of HIV testing. In the sexual behavior domain, having had more than just oral sex (girls only), more lifetime sex partners (girls only), being in a “steady” relationship with last sex partner (boys only), talking with sex partners about getting tested, and a past history of STI testing were all associated with a history of HIV testing. Being diagnosed with an STI by a medical professional and reporting a history of pregnancy were also associated with HIV testing for both boys and girls. In addition, greater HIV risk reduction self-efficacy (girls only) and more knowledge about STIs were associated with increased likelihood of testing.

Multivariate Correlates of HIV Testing

Several factors were independently associated with HIV testing at the multivariate level, controlling for significant demographics. Among girls (Table 1), the strongest predictor of HIV testing was having had at least one STI test (OR = 88.39), followed by a history of pregnancy (OR = 2.75), greater self-efficacy for HIV risk reduction behaviors (OR = 2.28), and greater STI knowledge (OR = 2.25). Among boys (Table 2), having had at least one STI test (OR = 38.09) was also the strongest predictor of HIV testing, followed by having talked to sex partner(s) about testing (OR = 3.49) and less religiosity (OR = 2.07). According to the Nagelkerke R^2 statistic, the models predicted 71% and 59% of the variance in HIV testing for girls and boys, respectively.

DISCUSSION

African American adolescents are disproportionately at risk for HIV/AIDS, yet many at-risk adolescents are unaware of their serostatus.[6,9] The present study found that only 29% of sexually active African American adolescents had ever received an HIV test. Of those who had been tested, 14% did not know their results and 2% reported testing positive for HIV. This HIV prevalence rate suggests that the project successfully enrolled a high-risk sample and that there are likely infected youth in these communities who are unaware of their infection due to a lack of HIV testing. Findings indicate a need for greater uptake of HIV testing among sexually active African American adolescents to find undiagnosed cases of HIV.

STI testing was the strongest predictor of HIV testing among African American girls and boys, and remained independently associated with HIV testing when accounting for the influence of other predictors. In addition, pregnancy was an independent predictor of HIV testing among girls. Findings suggest that HIV testing of adolescents may be primarily occurring as part of risk-based STI and pregnancy screening.[18] Despite the strong association between STI testing and HIV testing, many youth failed to receive HIV testing as part of risk-based screening. Twenty-two percent of girls and 32% of boys who reported a history of STI testing denied having been tested for HIV (see Tables 1 and 2). Additionally, between 15% and 49% of youth with an STI or pregnancy diagnosis also denied a history of HIV testing. Thus there were numerous missed opportunities for testing among at-risk youth, indicating a need for routine HIV screening in healthcare settings.

Moreover, findings suggest that HIV testing needs to be made more accessible to adolescents who do *not* seek medical care given that less than one-third of sexually active adolescents in the present study had ever been tested for HIV. Some at-risk youth may not seek medical care due to a lack of insurance, difficulty navigating the healthcare system, or cultural mistrust of healthcare providers whereas others may feel inhibited by fear, shame, or embarrassment associated with seeking reproductive and sexual healthcare.[39,40] Thus, increasing the availability of free or low-cost HIV testing in convenient and youth-friendly locations, such as school-based health centers, may help reduce barriers to testing among sexually active African American adolescents.[13]

Several potentially modifiable health promoting behaviors and attitudes were also associated with higher rates of HIV testing. First, the present study found that communication with sex partners about getting tested for HIV was independently associated with greater likelihood of HIV testing among males. Although HIV testing might result in a discussion with a sexual partner, increasing adolescents' partner communication skills for HIV preventive behaviors may be an effective means by which to promote HIV testing. Youth who do not discuss testing with a partner, on the other hand, may have insufficient awareness of risk exposure or may feel uncomfortable discussing sexual health issues with their partner. Second, self-efficacy for HIV risk reduction was independently associated with HIV testing among girls, meaning that youth who believed they could engage in preventive behaviors were also more likely to have obtained HIV testing. Third, greater STI knowledge was associated with testing among girls. Findings suggest that, among girls, basic knowledge about STIs may contribute to the uptake of HIV testing. Alternatively, youth may be provided with education about STIs when they are tested for HIV. Nevertheless, the relatively low rates of accurate knowledge about both STI and HIV symptoms, transmission, and treatment demonstrated by adolescents in the present study is concerning.[37,38]

Given that knowledge is prerequisite to accurately assessing one's risk for HIV, the present findings indicate a need for increased efforts to educate African American youth about HIV/STI prevention strategies, such as routine testing and consistent condom use with all partners. In particular, incorporating comprehensive HIV prevention information into school-based health education may be an effective strategy for increasing adolescents' sexual health literacy as well as health-promotive behaviors. Future research should attempt to identify specific areas of informational deficits associated with lack of HIV testing so that educational programming can be effectively and efficiently enhanced. For example, in a sample of African American adolescents, 38% of the teens reported that knowing about treatments or medications for HIV would motivate them to accept HIV testing.[13] Although most adolescents acknowledged the health risk of having sex without a condom, this did not translate into greater HIV testing, suggesting a current disconnect between beliefs about personal risk and health behavior. Therefore, more effective HIV prevention education about

risks may afford a more accurate personal risk assessment, which in turn, may result in increased test seeking behavior.

Interestingly, the present study found that religiosity was the only demographic predictor independently associated with HIV testing and only among boys. In the present study, African American males with less religiosity were more likely to report HIV testing. Prior research examining the impact of religiosity on sexual behavior among adolescent males has been mixed but, among African American females, greater religiosity has been shown to be related to delayed sexual initiation, more positive attitudes toward condoms, more actual condom use, and greater self-efficacy for partner communication about HIV prevention.[41,42] One explanation for the present findings may be that young males who more frequently attend religious services engage in less risky sexual behavior and, as a result, may be less likely to seek testing. Alternatively, religious prohibitions against premarital sex may create additional barriers (e.g., stigma or shame) to seeking sexual healthcare and HIV/STI screening for males. Present findings highlight the potential impact of HIV prevention outreach programs supported by community-based religious organizations (e.g., churches, mosques, etc.) in the African American community, and in particular, among young religious males.

Consistent with prior research, the present study found gender differences in HIV testing prevalence and correlates.[15] The present study extends prior research by examining cognitive correlates of testing across gender. Among girls, both knowledge and attitudes had an impact on HIV testing. Findings suggest that sexual education programs for girls that place HIV testing in a health-promotive context may lead to increased acceptance of testing among females. Among boys, behavioral factors (i.e., talking with partners about getting tested for HIV/STIs and having received STI testing) were associated with HIV testing. Thus, creating partner support for testing and a context for action may enhance the uptake of HIV testing among boys.

The present study was limited by a cross-sectional design, which limits causal inferences. The sample of adolescent participants was enrolled for an HIV preventive-intervention and, despite recruitment from four cities in two geographical regions of the U.S., may not be representative of the entire population of sexually active African American adolescents. Given the rate of study refusal (23%), our sample may have also been impacted by selection bias favoring youth whose parents were supportive of HIV prevention programming, or youth who were less involved in extracurricular activities that would prohibit participation. In addition, the location, type, and motivation for HIV testing were not assessed, and HIV testing and serostatus were assessed only by self-report. Nevertheless, prior research suggests that self-report of HIV status is highly reliable.[43]

Overall, findings indicate HIV testing uptake, receipt of results, and HIV/STI knowledge need to be increased among sexually active African American youth. Currently, HIV testing among urban, minority adolescents primarily occurs as part of risk-based STI and pregnancy screening in healthcare settings.[18] As a result, adolescents who are at risk for HIV but do not access these services are unlikely to get tested. Implementing HIV testing outreach in community settings, with support from religious institutions, would likely increase the accessibility of testing and reduce barriers for youth least likely to be tested. In addition, increasing efforts to educate African American teens about STIs, foster skill-building for HIV preventive-behaviors, promote communication with sex partners about testing, and bridge the gap between beliefs about risk and health behavior may contribute to greater HIV test-seeking and test acceptance.

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Table 1

Correlates of HIV testing among sexually active African American girls ($N = 518$)[a]

Variable	HIV Test *N* (%)	Unadjusted OR[b]	*p*-value	MLR OR[c] (CI)	*p*-value
Demographics					
Site					
Columbia	42/128 (33%)	0			
Syracuse	51/122 (42%)	1.471	.142	--	
Macon	43/151 (29%)	0.815	.433		
Providence	38/117 (33%)	0.985	.956		
Age					
13–14	28/126 (22%)	0		0	
15+	146/392 (37%)	2.077	**.002**	1.042 (.463–2.348)	.920
Ethnicity					
Hispanic	9/27 (33%)	0			
Non-Hispanic	165/491 (34%)	1.012	.977	--	
Attends religious services					
Weekly/monthly	85/282 (30%)	0		0	
Rarely/never	89/236 (38%)	1.403	**.070**	1.299 (.687–2.459)	.421
Free Lunch Status					
No	47/136 (35%)	0			
Yes	123/376 (33%)	0.921	.695	--	
Academic Grades					
As or Bs	96/304 (32%)	0			
Cs or less	74/208 (36%)	1.197	.346	--	
Sexual Risk Behavior & Health					
Oral sex					
Only had oral sex	8/61 (13%)	0			
Had other sex	166/457 (36%)	3.779	**.001**	*c*	
Anal sex					
Yes	41/127 (32%)	0			
No	133/391 (34%)	1.081	.720	--	

Variable	HIV Test *N* (%)	Unadjusted OR[b]	*p*-value	MLR OR[c] (CI)	*p*-value
Lifetime vaginal sex partners					
1–2	73/268 (27%)	0		0	
3+	90/178 (51%)	2.732	**.000**	1.581 (.822–3.044)	.170
Last vaginal sex partner					
Casual partner	35/96 (37%)	0			
Steady partner	128/350 (37%)	1.005	.984	--	
Condom used last vaginal sex					
Yes	101/295 (34%)	0			
No	62/151 (41%)	1.338	.157	--	
Partner communication					
Didn't talk about testing	84/317 (27%)	0		0	
Talked about testing	90/201 (45%)	2.249	**.000**	1.359 (.711–2.599)	.354
STI tests					
0	11/310 (4%)	0		0	
1+	163/208 (78%)	98.459	**.000**	88.389 (39.584–197.368)	**.000**
STI lifetime					
No or never tested	134/471 (29%)	0		0	
Yes	40/47 (85%)	14.371	**.000**	1.521 (.590–3.921)	.385
Pregnancy					
No	119/385 (31%)	0		0	
Yes	44/61 (72%)	5.785	**.000**	2.748 (1.065–7.091)	**.037**
Attitudes & Knowledge (median splits)					
Risk of condom non-use					
Less risky	39/120 (33%)	0			
More risky	135/398 (34%)	1.066	.773	--	
Risk reduction self-efficacy					
Less easy	59/215 (27%)	0		0	
More easy	115/303 (38%)	1.617	**.013**	2.281 (1.176–4.426)	**.015**
AIDS-related stigma					
More stigma	78/245 (32%)	0			
Less stigma	96/273 (35%)	1.161	.423	--	

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Variable	HIV Test *N* (%)	Unadjusted OR[b]	*p*-value	MLR OR[c] (CI)	*p*-value
HIV/AIDS knowledge					
Less knowledge	73/242 (30%)	0			
More knowledge	101/276 (37%)	1.336	.123	--	
STI knowledge					
Less knowledge	48/173 (28%)	0		0	
More knowledge	126/345 (37%)	1.498	**.047**	2.247 (1.041–4.850)	**.039**

OR = Odds Ratios. CI = Confidence Intervals. MLR = Multivariate Logistic Regression.

[a] *n* may vary according to random missing data patterns.

[b] Unadjusted odds of receiving HIV testing.

[c] MLR included all significant bivariate predictors of HIV testing (at $p < .10$). Oral sex was not included in the analysis because the variable was constant for all selected cases.

Table 2

Correlates of HIV testing among sexually active African American boys ($N = 472$)[a]

Variable	HIV Test *N* (%)	Unadjusted OR[b]	*p*-value	MLR OR[c] (CI)	*p*-value
Demographics					
Site					
Columbia	32/135 (24%)	0			
Syracuse	32/122 (26%)	1.144	.640	--	
Macon	21/105 (20%)	0.805	.493		
Providence	22/110 (20%)	0.493	.487		
Age					
13–14	23/161 (14%)	0		0	
15+	84/311 (27%)	2.220	**.002**	1.121 (.530–2.373)	.765
Ethnicity					
Hispanic	3/16 (19%)	0			
Non-Hispanic	104/456 (23%)	1.280	.704	--	
Attends religious services					
Weekly/monthly	49/264 (19%)	0		0	
Rarely/never	58/208 (28%)	1.697	**.017**	2.068 (1.045–4.092)	**.037**
Free Lunch Status					
No	18/113 (16%)	0		0	
Yes	87/355 (25%)	1.713	**.059**	1.113 (.491–2.523)	.797
Academic Grades					
As or Bs	49/220 (22%)	0			
Cs or less	56/248 (23%)	1.018	.936	--	
Sexual Risk Behavior & Health					
Oral sex					
Only had oral sex	4/34 (12%)	0			
Had other sex	103/438 (24%)	2.306	.125	--	
Anal sex					
Yes	40/172 (23%)	0			
No	67/300 (22%)	0.949	.818	--	

Variable	HIV Test *N* (%)	Unadjusted OR[b]	*p*-value	MLR OR[c] (CI)	*p*-value
Lifetime vaginal sex partners					
1–2	30/136 (22%)	0			
3+	68/287 (24%)	1.097	.710	--	
Last vaginal sex partner					
Casual partner	34/190 (18%)	0		0	
Steady partner	64/233 (28%)	1.738	**.021**	1.408 (.714–2.776)	.323
Condom used last vaginal sex					
Yes	79/335 (24%)	0			
No	19/88 (22%)	0.892	.694	--	
Partner communication					
Didn't talk about testing	51/342 (15%)	0		0	
Talked about testing	56/130 (43%)	4.318	**.000**	3.487 (1.748–6.956)	**.000**
STI tests					
0	18/341 (5%)	0		0	
1+	89/131 (68%)	38.025	**.000**	38.087 (18.705–77.551)	**.000**
STI lifetime					
No or never tested	102/466 (22%)	0		0	
Yes	5/6 (83%)	17.843	**.009**	1.390 (.125–15.511)	.789
Pregnancy					
No	79/386 (21%)	0		0	
Yes	19/37 (51%)	4.102	**.000**	1.452 (.517–4.075)	.479
Attitudes & Knowledge (median splits)					
Risk of condom non-use					
Less risky	32/131 (24%)	0			
More risky	75/341 (22%)	0.872	.572	--	
Risk reduction self-efficacy			.325	--	
Less easy	57/271 (21%)	0			
More easy	50/201 (25%)	1.243	.325	--	
AIDS-related stigma					
More stigma	66/286 (23%)	0			
Less stigma	41/186 (22%)	0.943	.793	--	

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Variable	HIV Test *N* (%)	Unadjusted OR[b]	*p*-value	MLR OR[c] (CI)	*p*-value
HIV/AIDS knowledge					
Less knowledge	53/255 (21%)	0			
More knowledge	54/217 (25%)	1.263	.289	--	
STI knowledge					
Less knowledge	43/242 (18%)	0		0	
More knowledge	64/230 (28%)	1.784	**.010**	1.325 (.665–2.641)	.424

OR = Odds Ratios. CI = Confidence Intervals. MLR = Multivariate Logistic egression.

[a] *n* may vary according to random missing data patterns.

[b] Unadjusted odds of receiving HIV testing.

[c] MLR included all significant bivariate predictors of HIV testing (at $p < .10$).

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