

Who has been tested and who should be tested? Policy implication on HIV/AIDS testing among African American women — Evidence using data from BRFSS

Journal of Research
on Women and Gender
Volume 5, 30-39
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Abstract

African American women are facing a high risk of being infected with HIV/AIDS at an alarming rate. Once believed to predominantly affect gay men and intravenous drug users, African American women now account for 30% of the estimated rate of new HIV cases among all African Americans and 57% of all new HIV infections among all races of women. Knowing their HIV status is a key component to preventing further detriment to the lives of African American women, this study uses the nationally representative data from the 2010 Behavioral Risk Factor Surveillance System (BRFSS) to examine socio-demographic and health factors associated with African American women ever being tested for HIV. This study's findings indicate that education, age, and marital status are significantly associated with predicting whether African American women have ever been tested for HIV. This study suggests that when designing HIV prevention and education programs for African American women, it should be taken into account that the married older population needs to be particularly aware of the potential risk of HIV infection.

Keywords

HIV, AIDS, testing, prevention, African Americans, women, gender, BRFSS

Despite more than 30 years of accumulative research on intervention and prevention of HIV and AIDS, the number of African American women in the United States living with or dying from HIV/AIDS continues to significantly outpace those of any other race of women affected by the disease. In 2007, HIV was the ninth-leading cause of death among all African Americans and the third-leading cause of death among African American women (Centers for Disease Control and Prevention [CDC], 2011). By the end of 2008, an estimated 240,627

African Americans with an AIDS diagnosis had died in the United States. According to the Centers for Disease Control and Prevention (CDC), in 2009, African American women accounted for 30% of the estimated new HIV infections among all African Americans. The estimated rate of new HIV infections for African American women was more than 15 times as high as the rate for White women, and more than three times as high as that of Hispanic women. At some point in their lifetime, one in 32 African American women will be diagnosed with HIV infection.

The HIV/AIDS epidemic has struck African American women in the United States at a disturbing rate (Horton, 2010). In the African American community, women continue to be disproportionately affected by the HIV/AIDS epidemic. Research suggests that there is lack of effective HIV/AIDS prevention strategies that specifically address the needs of African American women who are at risk (El-Bassel, Cadira, Ruglass, & Gilbert, 2009). Previous research findings indicate that prevention efforts for the spread of HIV and AIDS in the United States for the African American community have been ineffective and more preventive measures are necessary to combat this epidemic (Melton, 2011). With the acceleration of African American women leading the total number of women living with HIV and AIDS, one wonders what is driving the HIV and AIDS epidemic among African American women. An increased effort to promote HIV testing for African American women is urgent and necessary. According to the CDC, lack of awareness of HIV status can affect HIV rates in communities. Approximately one in five adults and adolescents in the United States living with HIV are unaware of their HIV status, which translates to approximately 116,750 persons in the African American community. Many at risk for infection fear stigma and may choose instead to hide their high-risk behavior rather than seek counseling and testing (CDC, 2011).

The objectives of this study are: (1) to examine how various factors affect African American women's decision to get tested for HIV/AIDS; and (2) to identify what group of African American women should be aware of the importance of knowing HIV status by using the data from the 2010 Behavioral Risk Factor Surveillance System, as opposed to results drawn from non-representative samples or qualitative methods

with the smaller number of respondents. This study hypothesizes that married African American women are less likely to get tested for HIV, as is the older population. They may believe that it is truly unnecessary for them to take an HIV test because they do not engage in behaviors that would lead to HIV or any sexually transmitted infection. This study also hypothesizes that the likelihood of getting tested for HIV is higher among African American women with a high socio-economic status as well as those who engage in high-risk behavior, as they have higher awareness of disease prevention. This study is important because it calls into question why some African American women may not be tested for HIV/AIDS to prevent a further spread of the disease in the African American community. Also, it will facilitate a better understanding of the importance of HIV testing, specifically among African American women for policy implications.

Background

In the past three decades, HIV/AIDS has had a devastating effect on African American communities, and its epidemic in these communities is still a continuing public health crisis. African Americans are disproportionately represented in every reported surveillance category, and African American women are at special risk. For example, HIV/AIDS is the leading cause of death between the ages of 25 and 34 (CDC, 2009; Jones-DeWeever, 2003). In fact, nearly 90% of African American women infected with HIV are in the prime of their lives and in their childbearing years, between the ages of 20 and 39 (Feist-Price & Wright, 2003).

African American women's knowledge of their HIV status is of critical importance. However, social and economic inequality has been a long-standing problem within the Af-

frican American community, which appears to lag behind when it comes to awareness of one's HIV status (Essien, Meshack, Peters, Ogungbade, & Osemene, 2005). There is evidence that 91% of African Americans considered for the study did not know they were HIV positive (Horton, 2010). The lack of appropriate screening is just one component, and there is considerable evidence of racial disparities in healthcare. Disproportionate access to healthcare among African American women may contribute to the lack of knowledge of one's HIV status in the African American community (McLaughlin, Stokes, & Nonyama, 2004).

Among African American women, unprotected sex, lack of awareness, lack of medical access, and early sexual initiation were related to the risk of HIV (Essien et al., 2005). Unsafe sex practices by African American males who put African American women of all ages at risk for HIV/AIDS also need to be addressed. Enlightening African American women of the HIV/AIDS risk factors associated with sexual partners who practice unsafe sex is critical when addressing issues of ineffective HIV prevention strategies among African American women (Dicks, 1994). As HIV risk for African American women through heterosexual contact has increased, targeted HIV awareness efforts may be needed to increase HIV screening among African American women who are married, cohabitating, or entering new relationships, especially since African American men are twice as likely to have concurrent sexual partners.

Studies report that African American women living with HIV/AIDS are likely to be single (Land, 1994; Owens, 2003). This fact gives rise to the question of how marital status affects women's decision to be tested for HIV. While some researchers argue that marital status (being single, divorced,

or widowed) was a significant predictor of receiving an HIV test in the last 12 months (Berkely-Patton, Moore, Hawes, Thompson, & Bohn, 2012), others argue that the results in this area wavered (Mack & Bland, 1999; Meadows, Catalan, & Gazzard, 1993). The effect of marital status on whether African American women get tested for HIV needs to be explored further.

Another predictor in taking an initiative for an HIV testing is the level of education. It is documented that low education is associated with a high HIV/AIDS death rate (Horton, 2010). Also, African American women, particularly those who were drug users with low educational attainment, were significantly more likely to test positive for HIV and engage in HIV risk behaviors than their better-educated counterparts (Hasnain, Levy, Mensah, & Sinacore, 2007).

Multiple forms of oppression and disparity impact life outcomes; disease status, gender disparity, racial inequalities, and socio-economic barriers are identified as important factors that amplify the risks associated with African American women testing positive for HIV/AIDS (Bryson, 2010; McNair & Prather, 2004). Poverty has a far-reaching effect on every area of African American women's lives and jeopardizes their chances of avoiding the disease (Bryson, 2010). Compared with African American women of higher socio-economic status, those of lower socio-economic status are exposed to more frequent, more severe, and chronic stressors, including unemployment, homelessness, victimization, and exposure to community violence (El-Bassel et al., 2009). African American women often live in neighborhoods with high levels of substance abuse as well as HIV and other sexually transmitted infection, and have limited access to HIV prevention services. It is relevant to note that the stigma associated

with HIV/AIDS may prevent women from getting tested, disclosing their HIV status, or seeking treatment because of fear of negative reactions or discrimination from family, community members, and service providers.

Identifying issues in the socio-economic status of African American women and providing means for them to move towards self-sufficiency would help to combat risk factors that may lead to infection. 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; White House Office of National AIDS Policy, 2010). Increased interest in promoting HIV preventive strategies and testing among African American women has led to the possibility of the African American church being an influential way of reaching African American women at risk for HIV/AIDS (Berkely-Patton, Moore, Hawes, Thompson, & Bohn, 2012).

Modern technology and research have opened the door for new advances in understanding and preventing the spread of the HIV/AIDS virus, yet the need for further research remains critical (Valdiserri, 2011). The role of the U.S. National HIV/AIDS Strategy in diminishing the number of people affected by the HIV epidemic—regardless of age, gender, race/ethnicity, sexual orientation, gender identity, or socio-economic circumstances—as well as providing unfettered access to high quality, life-extending care, free from stigma and discrimination, may be valuable when promoting preventive methods and HIV testing among African American women (White House Office of National AIDS Policy, 2010).

This study evaluates each predictor and examines how each factor included in a statistical model influences African American women getting tested for HIV. The previous studies are based on the results from with a

limited number of samples of respondents and/or non-representative samples. However, this study uses one of the largest nationally representative dataset on health behaviors such as the BRFSS. The primary focus is to look into whether the results would be different from or consistent with other studies if the prevalence of testing for HIV among African American women is examined by using the BRFSS. The results may reveal the population group that needs to be encouraged to get tested for HIV.

Data and Methods

Data were obtained from the 2010 Behavioral Risk Factor Surveillance System (BRFSS) conducted by CDC. The BRFSS is a state-based system of cross-sectional health surveys conducted monthly and is the largest health telephone survey that emphasizes questions regarding health conditions and risk behaviors. Approximately 350,000 adults, ages 18 or over, are interviewed every year, and they are the representative sample in each state. A state agency calls potential respondents at their home telephone numbers, and only one person per household participates in the surveys. One of the questions asks respondents whether or not they have ever been tested for HIV, which is the primary focus in this study in measuring the status and prevalence of HIV testing among African American women. This study selected African American women aged 18 to 64 who resided in the 50 states and the District of Columbia. The respondents who resided in Guam, Puerto Rico, and the U.S. Virgin Islands were excluded from this study. It includes the samples of 14,872 African American women for the analysis.

The dependent variable is whether respondents have ever been tested for HIV. Because it is a dichotomy, the binary logistic

regression analysis was performed to estimate the likelihood of the effect of various socio-demographic as well as health variables on the HIV testing status among African American women. The explanatory factors included in the models as independent variables are age, level of education, income level, marital status, whether a respondent has any healthcare coverage, and whether a respondent engaged in any high-risk behavior that could lead to increasing the chance of HIV infection in the past year. In the regression model, age is measured in years and treated as a continuous variable. Educational attainment levels of respondents are grouped into the two categories: (1) no college education, the reference category; (2) at least some college education. The level of income is divided into the two groups: (1) respondents who make less than \$35,000 a year, the reference category; (2) those who make \$35,000 or more a year. According to the American Community Survey one-year estimates, the median household income among African Americans was approximately \$33,578 in 2010, which is around the time that the BRFSS data were collected (U.S. Census Bureau, 2010). As the original income variable in the dataset was already recoded in income categories, the cutoff at \$35,000 was the closest feasible point to reflecting the national median household income.

Marital status is dichotomized into “married” and “not married,” where “not married” serves as the reference category. For the healthcare coverage variable, the “No” serves as the reference category. The variable to reflect on whether a respondent engaged in any high-risk behavior is defined as follows. According to the BRFSS codebook, the following statements were read to respondents by an interviewer: (1) “You have used intravenous drugs in the past year”; (2) “You have been treated for a sexually transmitted

or venereal disease in the past year”; (3) “You have given or received money or drugs in exchange for sex in the past year”; and (4) “You had anal sex without a condom in the past year.” Without specifying what type of behavior, if a respondent indicated that any one of the situations applied, a respondent was considered having engaged in a high-risk behavior for HIV infection (“Yes”). The reference category is “No,” which suggests that a respondent has never engaged in any high-risk situations.

Results

Table 1 presents the profile of the 14,872 African American women included in this study. It provides the distributions

Table 1

Descriptive Statistics of African American Women Ever Being Tested for HIV

	Ever Tested for HIV		
	Yes	No	Total (n)
Age			
18 - 44	79.7%	20.3%	6,189
45 - 64	47.3%	52.7%	8,683
Level of education			
No college education	57.2%	42.8%	6,341
At least some college education	63.4%	36.6%	8,531
Income			
Less than \$35,000	60.6%	39.4%	9,005
\$35,000 or higher	61.1%	38.9%	5,867
Marital status			
Married	53.0%	47.0%	5,464
Not married	65.3%	34.7%	9,408
Have any healthcare coverage?			
Yes	61.0%	39.0%	11,824
No	59.7%	40.3%	3,048
Do any high-risk situations apply?			
Yes	81.0%	19.0%	617
No	59.8%	40.2%	14,159
Overall	60.8%	39.2%	14,872

Source: The 2010 Behavioral Risk Factor Surveillance System

within categories of each variable by their status of HIV testing practice. Of 14,872 respondents, 9,038 (60.8%) reported that they have ever been tested for HIV, while 5,834 (39.2%) have never been tested. Each row totals 100%. For instance, the first row presents that about 79.7% of the 6,189 African American women aged 18 to 44 have been tested for HIV, while 20.3% of the women in the same age group have never been tested for HIV. In the next row, the result reveals that the majority (52.7%) of the African American women who are 45 to 64 years old have never been tested. The prevalence of the HIV testing is shown for a pair of categories within each variable.

In Table 2, logistic regression models are presented. The models compute the log-odds as well as odds ratios of African American women ever being tested for HIV regressed on the explanatory variables considered for this study. From the statistical models, this study found that the factors associated with increasing the likelihood of African American women being tested for HIV are the level of education, having healthcare coverage, and having engaged in high-risk situations for HIV. In fact, African American women who have at least some college education are about 1.24 times more likely to get tested for HIV than those with no college education. Having healthcare coverage increases the

Table 2

Logistic Regression Models of Predicting the HIV Test Screening Status of African American Women, n=14,776

	Model 1				Model 2			
	b	SE	Odds Ratio		b	SE	Odds Ratio	
Age	-0.066	0.002	0.936	***	-0.066	0.002	0.937	***
Level of education								
No college education (Reference)	--	--	--		--	--	--	
At least some college education	0.215	0.040	1.239	***	0.217	0.040	1.243	***
Income								
< \$35,000 (Reference)	--	--	--		--	--	--	
\$35,000 or higher	-0.007	0.042	0.993		0.229	0.118	1.257	†
Marital status								
Married	-0.289	0.038	0.749	***	-0.288	0.038	0.749	***
Not married (Reference)	--	--	--		--	--	--	
Have any healthcare coverage								
Yes	0.144	0.047	1.155	**	0.190	0.051	1.209	***
No (Reference)	--	--	--		--	--	--	
Do any high risk situations apply								
Yes	0.615	0.110	1.849	***	0.614	0.110	1.847	***
No (Reference)	--	--	--		--	--	--	
Interaction term								
Income x Healthcare coverage	--	--	--		-0.266	0.124	0.766	*
Constant	3.391	0.094	29.690	***	3.354	0.096	28.623	***
Nagelkerke R Square	0.172				0.173			

†p<0.10; *p<0.05; **p<0.01; ***p<0.001

likelihood of getting tested by about 1.16 times in comparison with the group without any healthcare coverage. Also, having been exposed to high-risk situations for HIV infection in the past year contributes to participation in HIV testing—about 1.85 times more likely than the women who did not.

On the other hand, this study found that the factors associated with lowering the likelihood of African American women being tested for HIV are their age and marital status. The odds ratio of being tested for HIV for the variable age is 0.94, which can be translated as older African American being less likely, about 1.07 times, to get tested. Regarding marital status, being married contributes to lowering their chance of getting tested for HIV by about 1.34 times, with the odds ratio of 0.75, compared to individuals who are not married. Meanwhile, the level of income does not indicate a statistical significant association with the HIV testing status. That is, the level of income would have an effect on African American women's decision to get tested for HIV infection neither positively nor negatively. However, further investigation into the interaction effect between the level of income and having healthcare coverage shows the negative effect. Those with a higher income level with healthcare coverage are about 1.31 times less likely to get tested for HIV with the odds ratio of 0.77.

Conclusion and Discussion

As this study explored the behaviors and social determinants of the HIV testing practice among African American women, the findings obtained from BRFSS have confirmed several findings from previous studies and revealed some new ones. The first primary finding of this study is that approximately 61% of the 14,872 African American

women aged 18 to 64 received an HIV test at some point in their lifetime. The result of this study documents that African American women with some college education or higher are more likely to have been tested for HIV than those with a high school education or lower. This study also presents that older African American women are less likely to have been tested for HIV than their younger counterparts. The finding that African American women who are married are less likely to have ever been tested for HIV is also consistent with other studies, although some of the previous studies suggest that marital status may have a mixed result in predicting the status of women ever getting tested for HIV. This observation has a significant public health implication, indicating that prevention efforts may need to be increased to reach this age population of African American women.

African American married women may feel that it is unnecessary to be tested for HIV because of the belief that they are in a monogamous relationship. HIV has been perceived as a disease of gay men or intravenous drug users. In fact, many African American women assume that HIV primarily affects homosexual men, who are heavily afflicted and may not realize when they are having sex with a high-risk partner. However, the notion that African American men are living on the “down-low” and having sex with other men, other women, or both is believed to be a rising trend. If their spouse or partner has engaged in the high-risk behaviors, those women are equally at the risk of HIV infection. Having a boyfriend or husband who practices an unprotected promiscuous sexual lifestyle with men, women, or both may play a role in the increasing number of African American women being infected with HIV. In African American communities, discussion of homosexuality

is largely taboo, and some women report being infected with HIV/AIDS by boyfriends or husbands who they later found out were sleeping with men (Payne, 2008).

Based on findings from this study, the women who engage in high-risk behavior seem to be more aware of the potential risk of HIV infection, as they demonstrate a higher likelihood of being tested for HIV. Therefore, the population of married older women may be at a greater risk of infection of HIV, and now it is time to implement policy to raise awareness among this population who do not think they are exposed to high-risk behaviors. This population of African American women age 45 and older, who are perceived to be at low risk, may benefit greatly from being tested or screened for HIV; testing may serve to prevent increases in infection in this age group. This observation may be of interest to public health authorities and groups who are tasked with increasing testing among vulnerable groups, such as African American women.

Reducing HIV risk behaviors and increasing access to testing and to healthcare can help eliminate health disparities among African American women. CDC recommends routine HIV screening in all healthcare settings for persons aged 13 to 64. African American women who are at higher risk for HIV infection would greatly benefit from more frequent testing to facilitate earlier diagnosis. African American women infected with HIV who know their status can be referred to medical care and treatment that can improve the quality and length of their lives and to preventive services that can reduce the risk of further transmission. Factors that influence increased risks of African American women acquiring HIV/AIDS are related to an intersection of social and contextual factors, such as education, income, age, marital status, and healthcare coverage.

Much of the literature has identified stigma, fear, discrimination, and negative perceptions of HIV testing as factors influencing the HIV epidemic among African American women. It is imperative that testing be increased among African American women. Screening and prevention must go hand in hand in order to reduce the growing number of HIV positive women in the African American community.

In everyday life, it is common to set goals for the future, typically assuming that one's life will progress to old age. Yet for African American women diagnosed with HIV/AIDS, many between the ages of 20 and 39, future planning shifts drastically. Life has more of a finite meaning and becomes far more precious. African American women who are HIV positive face myriad problems related to their diagnosis. Problems include the decline of their physical health, changes in their physical appearance, loss of independence, and their relationship with their family (Feist-Price & Wright, 2003). With the growing rate of HIV infection among African American women, understanding HIV testing practices among this population could assist public health officials in reaching more African American women for HIV screening. African American women who know their HIV status may receive early treatment and prevent further spread of the infection. Historically, most HIV education and prevention programs have focused primarily on gay or bisexual male individuals or intravenous drug users with a resulting lag in the development and identification of successful programs addressing the needs and concerns of women (Amaro, 1995), particularly African American women. African American women are disproportionately affected by HIV/AIDS at a rate higher than any other race of women. More efforts are needed to increase the overall proportion of

African American women who are aware of their HIV status in order to prevent further spread of HIV/AIDS in the African American community. ■

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