

Original Article

Pattern and Correlates of Human Immunodeficiency Virus Testing among General Population in Nasarawa State, Nigeria: Findings from a Population-based Survey

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Article Metrics

Date submitted: 22/05/2020

Date Accepted: 09/06/2020

Date Published: June, 2020



ABSTRACT

Human Immunodeficiency Virus testing provides an entry point into the HIV care and treatment services, necessitating the UNAIDS strategic target of getting 90% of all people living with HIV to know their HIV status by 2020. This study was aimed at determining the prevalence and factors associated with HIV testing among the general population in Nasarawa State, Nigeria. The study was an analysis of a cross-sectional survey conducted among 903 randomly selected sample of the adult population in Nasarawa state, Nigeria. Prevalence of recent HIV testing and its association with respondents' Sociodemographic variables, risky sexual behaviours, drug and alcohol use, among other factors were determined using logistic regression analysis. The proportion of respondents who ever tested for HIV was 53%, while 30.1% did the test in the previous one year. Logistic regression revealed that factors significantly associated with HIV testing in the previous one year secondary education and higher (AOR = 1.92, 95% CI 1.35–2.72), knowing where HIV testing are done (AOR = 31.37, 95% CI: 9.98–99.79), comprehensive knowledge of HIV (AOR: 1.72, 95%CI: 1.24–2.39) and those with low HIV personal risk perception (AOR = 3.56, 95%CI : 1.49 – 8.31). HIV testing among the general population in Nasarawa State is relatively low. Higher education, knowing where HIV testing are done, comprehensive knowledge of HIV, low HIV personal risk perception were significantly associated with HIV testing. Awareness campaigns on HIV and specifically on the importance of HIV testing in communities must be intensified

Keywords: HCT, HIV, Nasarawa

INTRODUCTION

Nigeria and specifically, Nasarawa State, is characterized by a generalized HIV epidemic, though with higher rates of infection among the key populations, which include female who sell sex (FWSS), people who inject drug (PWID) and men having sex with

men (MSM).^{1,2} The 2014 Nigeria HIV sentinel survey showed that the state has HIV prevalence of 6.3%, making it the state with the 6th highest prevalence in Nigeria. The 2018 Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) showed that Nasarawa State had an appreciably lower HIV prevalence of 2.0%, though still placed as the state with the second highest in the North central Nigeria.³

HIV testing provides an entry point into the HIV care and treatment services. A meta-analytic review carried out on 27 publications between 1985 – 1997 showed that HIV counseling and testing effectively serves as secondary prevention for HIV positive persons.⁴ There is therefore an increasing investments aimed at increasing access to HIV counseling and testing services among different populations. The increasing emphasis on HIV testing is in line with the global HIV response UNAIDS strategic targets of 'Ending AIDS by 2030' and Fast Tracking to reach 90-90-90 by 2020. A key element of the Fast Tracking is that 90% of all people living with HIV will know their HIV status by 2020.⁵

HIV testing among the different population groups has remained low in sub-Saharan Africa. A review of DHS in sub-Saharan Africa indicates that only 36.5% of young persons know their HIV status.⁶ Estimates showed that the proportion of persons who knew their HIV status were 9.9% and 22% of the general population Ghana, and Sierra Leone respectively, and 44.2% among students of tertiary institution in South East Nigeria.^{7,8,9} Factors associated with HIV testing among an Italian general population were having sexual partners multiple, age group (30 – 30 years more likely than younger age group) and higher education.¹⁰

Among an African American population, predictors of HIV testing in the previous 12 months were marital status and intention to test.¹¹ In Sub Saharan Africa, HIV testing has been found to be significantly associated with gender, age, age at sexual debut, HIV knowledge and poverty.^{6,8} A systematic review in Gambia revealed that higher education, marital status and misconception were significantly associated with HIV testing uptake. In Sierra Leone, urban residence, age 25 – 44 years, secondary education or higher, later sexual debut and been previously married were significantly associated with HIV Testing.⁸ Among Nigerian couples, HIV knowledge and perceived risk of contracting HIV were predictors of HIV testing.¹² A secondary data analysis from 2012 National HIV /AIDS and Reproductive Health Survey showed that among Nigerian Youth, higher educational attainment, comprehensive HIV knowledge and higher economic

status were associated with more likelihood of doing HIV test.¹³

The modes of HIV transmission (MOT), incidence analysis carried out in 2011 estimated that close to half of the new HIV infections in the state occurred amongst persons who engaged in low risk sex. This includes members of the general population, such as couples who do not engage in risky sexual or other behaviours. The findings of the MOT analysis is very consistent with populations with generalized epidemic in which the bulk of new HIV infections occur amongst persons who do not report high risk sex.¹⁴ Despite the increasing resources made available for HIV testing and other HIV services in Nasarawa State, Nigeria, there are no enough information on factors associated with uptake of HCT at the general population level. Providers of HIV prevention services and policy makers would need this information to improve uptake and efficiency of HIV testing service. The study was aimed at determining the prevalence and factors associated with HIV testing among the general population in Nasarawa State, Nigeria

MATERIALS AND METHODS

Study Design

This cross-sectional analytical study was conducted in 2011 among the general population in Nasarawa State Nigeria. Persons eligible to participate in the study were females aged 15 - 49 years and males aged 15-64 years and living in Nasarawa State Nigeria.

Sample Size and Sampling Technique

A sample size of 903 was determined using Contraceptive Prevalence rate of 9.7% obtained from the National Demographic Health Survey Nigeria, 2008 and 2.5% level of precision. Probability sampling techniques was used through a two stage sampling. In stage one, 30 enumeration Team Areas (ETA) were selected using the cumulative measure of size of the Enumeration area in the state. The ETA were listed with their cumulative population sizes and selection was done using random numbers. In stage two,

eligible individuals were randomly selected from a list within each cluster. The sample allocation to urban and rural areas was proportional to the rural/urban distribution of the population. A locality with a population of less than 20,000 was classified as a rural area. In this stage, the buildings and households within each selected ETA were identified and members of the households were listed with their names, ages and sexes. All eligible persons were identified and numbered serially. Systematic random sampling procedure was used to select 28 persons (14 males and 14 females) from each cluster.

Data Collection

Each of the selected respondents was approached and given explanations about the study and then signed an informed consent form. A structured questionnaire was administered to selected individuals. Information was obtained on the background information of respondents, sexual behavior, knowledge and perception of HIV/AIDS, substance use, accessibility and use and access to HIV Counseling and Testing by trained interviewers.

Data Analysis

Data analysis was done using the SPSS version 20 software. The level of significance for the analysis was 5% and analysis was done using chi square, crude logistic regression and multivariable regression. Prevalence of recent HIV testing and its association with respondents' sociodemographic variables, multiple sexual partnering, drug and alcohol use, among other factors were determined using chi square test and logistic regression analysis.

Ethical Consideration

Permission to carry out secondary data analysis was obtained from Society for Family Health (SFH) Nigeria while ethical approval for the original data collection was earlier obtained from the research and ethical committee of the Nigerian Institute of Medical Research. The data do not have identifiers, so confidentiality of population that was used for the original data is maintained. Ethical approval for the original study was given by National Health

Research Ethics committee of Nigeria (NHREC).

RESULT

Sociodemographic characteristics of Respondents

Table 1: Socio-demographic characteristics of a sample of general population in Nasarawa State, Nigeria, 2014

Characteristic	n	%
Sex		
✓ Male	469	51.9
✓ Female	434	48.1
Age (years)		
Mean Age: 29.1 ± 10.26		
✓ 15-19	158	17.5
✓ 20-29	345	38.2
✓ 30-39	247	27.4
✓ 40 or greater	153	16.9
Marital status		
✓ Currently married	476	52.7
✓ Single	371	41.1
✓ Divorced/Widowed /Separated	56	6.2
Location		
✓ Urban	168	18.5
✓ Rural	735	81.5
Highest level of education		
✓ Primary or lower	590	65.3
✓ Secondary	210	23.3
✓ Tertiary	103	11.4
Employment Status		
✓ Unemployed	616	68.2
✓ Employed	287	31.8

Table 1 gives the results of the socio-demographic characteristics of the 903 respondents sampled from the general population of Nasarawa State Nigeria. The mean age was 29.1 ± 10.26 years and majority were aged 20-29 years (38.2%) followed by 30-39 years (27.4%). The male were 51.9% of the respondents and majority were married

(52.7%), rural residents (81.5%), had primary education or lower (65.3%) and unemployed (68.2%).

Prevalence and Pattern of HIV testing among Respondents

The proportion of the respondents who ever had HIV test were (53%), while 47% ever done test and got results and

Table 2: HIV Testing among the general population Nigeria, 2014 in Nasarawa State,

Variable	n	%
i. Ever done HIV Test		
✓ Yes	479	53.0
✓ No	424	47.0
ii. Ever Had HIV Test and got result		
✓ Yes	424	47.0
✓ No	479	53.0
iii. How the last Test was done		
✓ Asked for the test	241	50.3
✓ Was offered and accepted	191	39.9
✓ Was required to do it	47	9.8
iv. Done HIV Test in last 12 months		
✓ Yes	272	30.1
✓ No	631	69.9
v. Know an HIV testing centre		
✓ Yes	693	76.7
✓ No	210	23.3

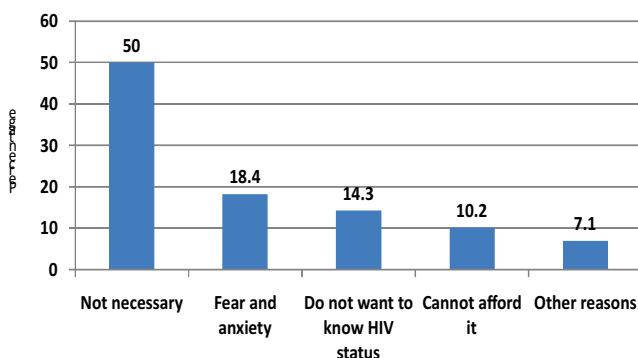


Figure 1: Reasons for not doing HIV Testing among General Population in Nasarawa State, Nigeria, 2014.

30.1% did HIV test in the previous 12 months. Majority of the respondents asked to be tested (50.3%) while 39.9% were offered and accepted to be tested and 9.8% were required to do the test and had to do it. Most of the respondents, 76.7% knew at least one HIV testing centre (Table 2). Among respondents who did not do the test, 50% thought doing HIV test was not necessary, 18.4% did so because of fear and anxiety, 14.3% did not want to know their HIV status and 10.2% could not afford the cost of testing (figure 1).

Factors Associated with HIV Testing

The logistic regression analysis, as shown in table 3, shows that higher education, knowing where HIV test can be taken, comprehensive knowledge of HIV and low HIV personal risk perception were significantly associated with

Table 3: Logistic Regression Analysis of factors Associated with HIV Testinamong the general population in Nasarawa state, Nigeria, 2014g

Variable	AOR	95% C.I. for OR	Sig.
Sex			
➤ Female	Ref		
➤ Male	0.90	0.65 – 1.27	0.557
Age (Years)			
➤ = 29yrs	Ref		
➤ = 30 yrs	0.78	0.55 – 1.10	0.162
Education			
➤ Primary or lower	Ref		
➤ Secondary or higher	1.92	1.35 – 2.72	<0.001
Employment Status			
➤ Unemployed	Ref		
➤ Employed	0.75	0.51 – 1.10	0.136
Use of Illicit Drugs			
➤ No	Ref		
➤ Yes	1.20	0.60 – 2.38	0.606
Had Sex for gift previous year			
➤ No	Ref		
➤ Yes	1.34	0.75 – 2.65	0.283
Know where HIV test can be taken			
➤ No	Ref		
➤ Yes	31.37	9.86 – 99.79	< 0.001
Comprehensive Knowledge of HIV			
➤ No	Ref		
➤ Yes	1.72	1.24 – 2.39	0.001
HIV Transmission self Risk Perception			
➤ High	Ref		
➤ Low	3.56	1.49 – 8.31	0.004

doing HIV test in the previous 12 months. Adjusted odd Ratios suggest that respondents with secondary education and higher were 1.92 times more likely to use HIV testing services (OR = 1.92 (95 % CI 1.35–2.72). The odd ratios for respondents who knew where HIV testing are done were 31.37 times more likely to do the test than those who didn't know (OR = 31.37, 95% CI: 9.98-99.79). Respondents with comprehensive knowledge of HIV were 1.72 times more likely to do the test compared those without comprehensive knowledge (AOR: 1.72, 95%CI: 1.24 – 2.39) and those with low HIV personal risk perception had AOR of 3.56 and 95%CI of 1.49 – 8.31 compared to those with higher risk perception. (Table 3)

DISCUSSION

Our study revealed that, among the general population in Nasarawa state, the prevalence of ever done HIV test was 53.0% while 30.1% did their most recent test in the previous 12 months. These findings are lower than expected to meet the UNAIDS strategic targets of getting 90% of all people living with HIV to know their HIV status by 2020. However, previous studies showed generally lower HIV testing prevalence. A review of DHS data in Sub Saharan Africa showed that 36.5% of young persons knew their HIV status and only 9.9% and 22% of general population in Ghana and Sierra Leone, respectively, knew their HIV status.^{6,7,8}

We identified four key significant factors associated with HCT uptake in Nasarawa State in the past one year prior to this study. These were educational level, comprehensive knowledge of HIV, knowing HIV testing sites and HIV transmission self-risk perception. On the other hand, core risk determinants of acquiring HIV infections were not significantly linked to HCT uptake including use of illicit drugs, regular alcohol ingestion and having sex in exchange for gifts.

In our study, those with secondary education or higher were more likely to go for HCT when compared to those with lower education (adjusted Odds Ratio 1.9, CI 1.6 – 2.7, and P-value < 0.001). Persons with low education are

likely to be less knowledgeable about HIV and may not fully appreciate the benefits of testing for HIV. This finding is in agreement with many previous studies. A study conducted in Nigeria among youths confirmed that those with higher education were 4.4 times more likely to volunteer for HIV testing than those with primary school or no education, P value < 0.001¹⁵. Many other previous studies conducted in Nigeria and Africa showed that persons with higher education were more likely to do HIV testing than those with lower education.^{8,10,13,16-19}

Respondents with comprehensive knowledge of HIV were 1.7 times more likely to do HIV test. This was logical going by the finding in the preceding paragraph on education where those with low education had poor uptake of HCT. This agrees with a systematic review of global studies on factors associated with HIV testing which showed that HIV knowledge and testing had a positive and significant relationship (d = 0.22, 95 % CI 0.14–0.31, P-value 0.001).²⁰ Similarly, a study in ten southern African countries pointed to the fact that knowledge gained by hearing about HIV/AIDS or talking often about it in the last one year was significantly associated with HCT²¹. Our finding with predominant rural participants was similar to that of rural Ethiopian population¹⁶, one with predominant youths in South Africa and in Conakry, with participants being female sex workers.^{22,23}

Those who knew where to access HCT were 30 times more likely to go for HCT than those who don't know the testing site, but with low uptake of HCT at 30% in this study. Similar finding was noted in a study on youths in Kano and Bauchi states where knowing a source for obtaining VCT was significant at last model of logistic regression with even lower proportion of VCT at about 10%.²⁴ However two negative findings in this study were against the significant finding about HCT sites at univariate analysis. Firstly, about 631 (70%) of the participants did not know where to go for HCT services. Thus, it could be that there were no enough HCT sites, as was noted in a study in Kwara state.²⁵ Secondly, 580 (66%) or two-thirds of the participants had primary or lower educational status, a situation where health seeking behavior may be negatively

affected. It was however contrary to a study in Ghana, where over 95% of the students were knowledgeable about HIV and even knew where get an HIV test but only 45.4% had tested for HIV. There is thus a need for a push for uptake of HCT services generally through enhanced social mobilization activities, directing the populace to HCT sites for services. Without active HCT services, Nasarawa State lacks power to pursue 90-90-90 initiative towards 2030 target to eliminate HIV menace.

Those with low HIV transmission risk perception were 3.6 times more likely to go for HCT than those with higher risk perception. This finding agrees with a previous study which showed that the majority of respondents who rated themselves as 'greatly' or 'quite a lot' at risk of HIV had not tested in the past year while 29.6% of men and 39.9% of women who did HIV test in the previous 12 months were classified as low risk.²⁶ Our finding is, however, in disagreement with findings from many other previous studies which showed that high personal risk perception was associated with more likelihood of doing HIV test.^{12,27,23,16,20}

The association between low risk perception and HIV test may be as a result of fears and anxiety related to doing the test. This study found that among respondents who didn't do the test, 18.4% of them did so because of fear and anxiety and 14.3% said they were not interested in knowing their HIV status (Figure 1). This finding has however provided a new evidence to support previous reservations held against the interpretation of personal risk perception of contracting HIV. A previous study in South Africa showed that personal risk perception may be affected by psycho social factors not related to sexual and other risk taking behaviours.^{28,29} It is therefore imperative that the concept of risk perceptions is contextualized.

CONCLUSION

HIV testing among the general population in Nasarawa State is relatively low. Higher education, knowing where HIV testing are done, comprehensive knowledge of HIV, low HIV personal risk perception were significantly

associated with HIV testing. Reasons given for not doing HIV testing were fear and anxiety, affordability and the feeling that doing HIV test was not necessary.

Recommendation

More awareness campaigns should be undertaken using the mass media and other locally acceptable platforms such as village development committees, churches and mosques and the use of community theatres. More HIV testing and counseling centres should be established to bring the services closer to the people. In carrying out HIV awareness campaigns in Nasarawa State, it must be ensured that the general population understands the basic modes of HIV transmission as well as addressing myths and misconceptions. More research should be undertaken to determine the acceptance and efficiency of self HIV testing among the general population in this setting.

Limitations

One limitation of this study is the skewed nature of the sample, particularly with respect to location (urban and rural). This is however in line with the rural nature of the state. In addition, there is likelihood of recall bias with regards to HIV testing and other variables such as sexual activities.

Conflict of Interest

None declared

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