

Voluntary Counselling and Testing in the Third Decade of HIV Epidemic: A Survey of Three Nigerian States

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Introduction

HIV/AIDS has become a serious global health and psychosocial crisis with about 32 million infected individuals worldwide (UNAIDS, 2007; Murray *et al.*, 2014), affecting adults, children and adolescents. In Nigeria, HIV/AIDS has remained a challenge, with high susceptibility among people who are in their productive and reproductive age. Its prevalence in Nigeria increased from 1.8% in 1990 to 3.8% in 1993, 4.5% in 1995, 5.4% in 1999, and 5.8% in 2001, and then took a downward trend in 2003 when the rate dropped to 5.0%. According to the Anti-Natal Clinic (ANC) survey data, the rate has decreased and stabilised in Nigeria, with a national HIV prevalence of 4.1% in 2010. National AIDS and Reproductive Health Survey (NARHS) report showed that in 2013 the prevalence of HIV further decreased to 3.4%, lower than 3.6% reported in 2007 (NACA, 2015). However, current statistics show that Nigeria has the second largest burden of HIV in sub-Saharan Africa and globally. It is estimated that about 3.2 million people live with HIV in Nigeria and about 220,393 new HIV infections occurred in 2013 and 210,031 died from AIDS related cases. Latest statistics also indicate wide variations of HIV prevalence across the country (NACA, 2015).

The Federal Government of Nigeria, however, has initiated strategies aimed at reducing the HIV prevalence rates to the lowest possible levels. Some of these strategies include the promotion of sexual behavioural change, use of anti-retroviral therapy, prevention of mother to child transmission and voluntary counselling and testing. HIV voluntary counselling and testing has been accepted worldwide as a good measure of slowing down

infection in many countries because of its numerous benefits (Odimegwu *et al.*, 2013; Bunnell *et al.*, 2006; Pronyk *et al.*, 2002; Sweat *et al.*, 2000).

Voluntary counselling and testing (VCT) has become a basic component of HIV/AIDS services, and the number of VCT sites in sub-Saharan Africa is increasing rapidly. VCT provides support for individuals to find out their HIV status and is a critical component in influencing behaviour and preventing further transmission (Odimegwu *et al.*, 2013; Thompson *et al.*, 2013). Although knowledge of sero-status through testing is key to prevention of the infection, care and support for persons living with HIV/AIDS also play important role in curbing the rate of spread of the virus to uninfected people. While studies have observed the patronage of VCT in Nigeria and other developing countries to be generally low (Laver, 2001; Zhang *et al.*, 2007, Bwambale, *et al.*, 2008; Iyaniwura and Oloyede, 2006; Iliyasu *et al.*, 2006), high VCT awareness levels have been reported (Muganga *et al.*, 2002). Available studies reported levels of VCT uptake between 12% and 56% in sub-Saharan Africa (Hutchinson, Mahlalela, 2006; Kalichman, Simbayi, 2003, Charles *et al.*, 2009). In Nigeria, the 2013 Demographic and Health survey indicates that only about 18% of young men and women were tested for HIV and received their result in the 12 months preceding the study. Reasons for this low patronage of VCT have not been systematically and adequately explored by existing studies. Thus, identifying the factors which continue to act as barriers to the acceptance of VCT services as the world negotiates the third decade of HIV will help promote the services in the prevention and control of the epidemic. This is the focus of this study that

collected data on use of VCT services in three states of Nigeria.

Materials and methods

Setting and population

This study was conducted in three states in Nigeria: Lagos, Oyo and Benue. The choice of the states was informed by their peculiarities in terms of their HIV prevalence, varied cosmopolitan nature and location in different parts of Nigeria. Whereas, Lagos and Oyo states are located in south-western part of the country, Benue State is located in the north-central zone of Nigeria. Lagos and Oyo State are more cosmopolitan than Benue. Lagos being the second most populous State in Nigeria has a population of over 9 million inhabitants, while the population of Oyo State is 5.59 million, according to the 2006 national census. Benue, on the other hand, is less populated (4.2 million). Although Lagos is Yoruba-speaking, it is the most cosmopolitan state in Nigeria with large populations of all ethnic groups; it is the nation's largest urban area and the economic capital of Nigeria. Similarly, Oyo State is a predominantly Yoruba-speaking State with ethnically diverse communities and has a number of urban settlements with members of ethnic groups from other parts of the country. Benue State with its capital in Makurdi, is predominantly agrarian and has fewer urban settlements with the Tiv and Idoma as the major ethnic groups. In terms of HIV prevalence, Benue had the highest prevalence in the country, with prevalence rate of 10.8 per cent relative to 6.1 per cent in Lagos and 2.2 per cent in Oyo State. This rather neat HIV prevalence gradient justifies the selection of these dissimilar geographic regions for this study. The study population comprised inhabitants of rural and urban locations (male and female aged 15-59 years) in the three states covered in this survey. There was a total of nine target communities (six urban) and (three rural) with three communities (1 rural and 2 urban communities) selected from each of the three states.

Recruitment

This research was conducted between June 2008 and March 2009 as part of a larger research project on Combating HIV/AIDS in Nigeria. Given the envisaged relevance of this study to HIV counselling policy and programmes in Nigeria, the

research team embarked on massive community mobilisation for participation in the study between June and September 2008. The aim of the mobilisation was to plan the study with community leaders and policy makers and solicit their support for the smooth conduct of the research. Survey data were gathered between October 2008 and March 2009 in the three States after clearance from the ethical review boards of the two collaborating universities (Northwestern University, Evanston, IL, USA and the University of Ibadan, Nigeria) (REACH, 2010).

Recruitment of participants for this study was conducted in stages. A multistage clustered sampling design produced a representative sample of inhabitants aged 15-59 years who were living in the three target states of Benue, Lagos, and Oyo. In the first stage of the sampling procedure, a sampling frame of all the local government areas (LGAs) in the three states was obtained from the National Population Commission (NPC). The LGAs selected in Lagos State were Ikeja, Lagos Island, and Epe; in Benue State, Kwande, Otukpo, and Makurdi; and in Oyo State, Ibadan North, Ibadan South west and Atisbo.

In the second stage, using a sampling frame of all enumeration areas (EAs) in the selected LGAs, 15 EAs were randomly selected from each LGA, resulting in a total of 135 EAs in the three States. The third stage involved mapping and listing of all houses found in each EA. In the fourth stage, households, including all households in houses with more than one household were mapped and listed. A sample of 2,453 households was systematically selected from the list of households compiled for each EA. Finally, in the fifth stage, one resident age 15-59 years who had resided in the household for at least six months was randomly selected for participation in each selected household. Overall, a total of 2,453 households were selected in the nine LGAs and yielded 2,453 respondents (1,082 in Benue State, 717 in Lagos State, and 654 in Oyo State). The Kish grid method (Kish, 1949) was utilised to identify the resident in each household who would be interviewed.

The ethical consideration was a critical factor in the conduct of this survey. The research instrument and tools were subject to two ethical review boards at Northwestern University and the University of Ibadan. Trained field assistants were

instructed to go over the contents of the consent form, emphasizing relevant areas of no risk, no direct benefits and confidentiality of information volunteered by the respondents. Spousal or parental consent from appropriate members of the household was sought and obtained when necessary. All respondents interviewed either signed or thumb-printed the consent form before interview was conducted. For convenience on the part of the field workers and interviewees, interviews were conducted by field workers who were of same gender as the respondent.

Measures

Participants provided information about their age, marital status, religion, ethnicity, occupation and level of educational attainment among other socio-demographic information. Participants' general HIV knowledge was assessed from four different perspectives namely awareness and general knowledge, knowledge related to sexual transmission, mother to child transmission and myths and fact about HIV. Participants' awareness and general knowledge was assessed by asking respondents questions that bother on whether they had ever heard of HIV, and whether something can be done to avoid getting HIV or AIDS. On HIV transmission through sexual behaviour, participants were asked to answer questions on multiple sex partners, condom use and as protection and frequency of sexual episode before one can be infected with HIV/AIDS. Issues related to knowledge of mother to child transmission were treated by asking participants whether it is possible for an unborn or newborn infant or a young child to get an HIV infection or AIDS from his or her mother during pregnancy and the possibility for a mother to transmit HIV to a child during breastfeeding.

Myths and facts related to HIV knowledge were addressed with questions that elicited information about the likelihood that: infected persons can be identified just by looking at them, infected persons can look healthy, availability of cure for AIDS, HIV and AIDS does not exist, and a person can get HIV through witchcraft. The instrument also elicited information from participants about their contact and first-hand experience of HIV and AIDS situation with questions ranging from whether participants knew someone personally who had died of AIDS.

Participants' opinion was also sought concerning general prevailing counselling and testing as it applies to them. Respondents also provided information on whether they had voluntarily tested for HIV within last 12 months, whether results of such voluntary testing were obtained. Participants indicated whether they knew a place within a day's journey to get tested for HIV. In addition, information was obtained from respondents on whether they had considered themselves at risk of having HIV, talked with someone about HIV testing and counselling in the past 12 months, whether they were worried that their spouse or sexual partner could be infected, if they needed any approval from anybody or an authority before they test for HIV and ability to convince spouse or sexual partner to have HIV counselling and test. Participants were probed for opinion on whether health workers keep test results confidential and if the cost of HIV counselling and testing is high.

Results

The mean age of respondents was 30.9 ± 11.2 and 51.3% were male. Data in Table 1 show that more respondents resided in the urban (65.7%) than rural areas (34.3%). The majority of the respondents were married (51.7%); 43% were single and 4.9% were separated, divorced or widowed. The educational attainment level of respondents indicates that more than half of the respondents had secondary level of schooling, whereas 15.7% had postsecondary. Of those who had postsecondary education, there were more males (19.8%) than females (11.5%), and in urban (18.9%) than rural area (9.9%); similar patterns were observed for secondary level education. The widespread unemployment in most developing economies (Nigeria inclusive) is borne out by the large number of respondents (30.9%) who were unemployed, with only a marginal difference between males (30.3%) and females (31.6%). Self-employed people were up to 52% and were engaged in trades such as petty-trading and other activities such as hairdressing, dress-making, and farming. The sample comprised 45.5 per cent Yoruba, 24.9 Tiv and 15 per cent Idoma. The ethnic distribution of the respondents is a function of geographic areas where the study took place, Lagos and Oyo States are dominated by the Yoruba and Benue State is dominated by the Tiv and Idoma ethnic groups.

Table 1: Socio-demographic Characteristics of Respondents by Place of Residence and Sex

Socio-demographics	Number	Percentage	Residence		Sex	
			Rural	Urban	Male	Female
Sex						
Male	1258	51.3	49.5	52.2	-	-
Female	1195	48.7	50.5	47.8	-	-
Age Group						
15-24	799	32.6	31.7	33.0	33.2	31.9
25-39	1084	44.2	39.7	46.5	42.0	46.5
40-59	570	23.2	28.5	20.5	24.8	21.6
Mean Age	30.9					
Standard Deviation	11.2					
Marital Status						
Single (never married)	1063	43.3	32.9	48.8	53.9	32.3
Married/cohabitating	1267	51.7	62.4	46.1	44.0	59.7
Separated/div/widowed	121	4.9	4.6	5.1	2.1	7.9
Religion Affiliations						
Christianity	1749	71.3	64.8	75.1	-	-
Islam	676	27.6	34.0	24.3	-	-
Traditional	20	0.8	1.2	0.6	-	-
Place of Residence						
Rural	841	34.3	-	-	-	-
Urban	1612	65.7	-	-	-	-
Educational Attainment						
No formal	219	9.4	14.3	6.7	5.4	13.5
Primary	389	16.6	22.3	13.6	15.9	17.4
Secondary	1363	58.3	53.5	60.8	58.9	57.6
Post-secondary	368	15.7	9.9	18.9	19.8	11.5
Occupation						
Unemployed	752	30.9	26.4	33.3	30.3	31.6
Self-employed	1265	52.0	61.1	47.3	46.6	57.7
Privately employed	200	8.2	3.6	10.7	11.2	5.1
Government-employed	215	8.8	9.0	8.8	11.9	5.6
Ethnic Group						
Yoruba	1117	45.5	52.0	42.2	37.9	53.6
Igbo	152	6.2	2.9	7.9	6.7	5.7
Tiv	612	24.9	38.2	18.1	30.0	19.6
Idoma	368	15.0	0.8	22.4	18.0	11.8
Others	204	8.3	6.2	9.4	7.3	9.4
Total	2453	100.0	34.3	65.7	51.3	48.7

Table 2 presents percentage distribution of respondents with respect to HIV test and perception about VCT according to selected variables. Only 35% of the respondents had ever been tested for HIV, 96.5% of whom received the test results; significantly more female (37.5%) than male (32.7%) respondents had ever been tested, while significantly more males (10.1%) than females (6.9%) had been tested in the past one year. Only 9% of respondents had tested for HIV in the 12

months preceding the study, while 42.5% said they were likely to test in the future with significantly more females (46.1%) than males (39.0%) indicating likelihood to do so. Half (50.7%) of the respondents considered themselves to be at risk of contracting HIV; more than two-thirds were concerned that their sexual partner may be infected (72%), and 24.6% reported having more than one sexual partner in the past three months. The majority (84.2%) knew where to get HIV

counselling and testing; about one male in hundred and three females in hundred agreed that they would need approval before going for test. More than 90% reported that they think they would be stigmatised and discriminated against if found to be positive, but about 82% believed that health workers would keep test results confidential. Less than one in five respondents thought the cost of HIV test is high. About 82% thought their spouse

would want them to get tested, with little difference between male and females. However, significantly more males (88.6%) than females (78.8%) would be able to convince their partners to get tested. Only 30% of the respondents had good knowledge of HIV prevention with significantly more males (33.5%) than females (26.9%).

Table 2: Distribution of respondents according HIV testing and characteristics related with VCT

Voluntary counselling and testing	Number	Percentage	Sex		
			Male	Female	P. value
Ever tested					
Yes	859	35.0	32.7	37.5	0.012
No	1594	65.0	67.3	62.5	
Received result					
Yes	96.5	817	97.1	95.9	0.362
No	3.5	30	2.9	4.1	
Tested last 12 months					
Yes	209	8.5	10.1	6.9	0.004
No	2244	91.5	89.9	93.1	
Likely to test in future					
Yes	1024	42.5	39.0	46.1	0.000
No	1387	57.5	61.0	53.9	
Talked with someone about counselling and testing in last 12 months					
Yes	48.2	1165	50.4	45.8	0.024
No	51.8	1252	49.6	54.2	
Consider self at Risk of HIV					
Yes	1056	48.3	49.8	48.7	0.601
No	1087	50.7	50.2	51.3	
Worry sexual partner may be infected					
Yes	602	28.0	30.9	25.1	0.003
No	1546	72.0	69.1	74.9	
Multiple Sex Partners last 3 Months					
One or no Partner	633	75.4	70.2	84.8	0.000
More than one partners	207	24.6	29.8	15.2	
Know where to go for test					
Yes	1715	84.2	26.2	34.2	0.000
No	321	15.8	73.8	65.8	
Need approval before test					
Yes	542	21.6	10.9	32.9	0.000
No	1900	78.4	89.1	67.1	
People may say bad things (Stigma and discrimination) if positive					
Yes	2051	91.2	91.4	90.9	0.661
No	199	8.8	8.6	9.1	
Health workers keep test results confidential					
Yes	1484	81.5	79.9	83.2	0.069
No	336	18.5	20.1	16.8	
Cost of HIV testing/counselling is too high					
Yes	239	18.6	18.1	19.2	0.622
No	1049	81.4	81.9	80.8	

Spouse/partner would want you to go for test					
Yes	1527	82.4	82.3	82.5	0.884
No	126	17.6	17.7	17.5	
Ability to convince partner/spouse to test					
Yes	1743	83.8	88.6	78.8	0.000
No	337	16.2	11.4	21.2	
Knows someone who died of HIV					
Yes	948	41.0	-	-	-
No	1366	59.0	-	-	
Knowledge of HIV prevention					
Poor	1711	69.8	66.5	73.1	0.000
Good	742	30.2	33.5	26.9	

Those who have not undergone HIV counselling and testing were asked reasons why they have not done so, as shown in Fig 1. About half (53%) of them claimed they were unlikely to have HIV and saw no reason for the test, and 25.0% simply preferred not to think about HIV. Eight per cent of the respondents replied they did not know where to

get tested as the reason for not going for HIV counselling and testing. Asked if they would be willing to get tested if they were presented with ‘free-of-charge’ opportunity at home, the majority of those who had not tested for HIV said that they would avail themselves of such opportunity.

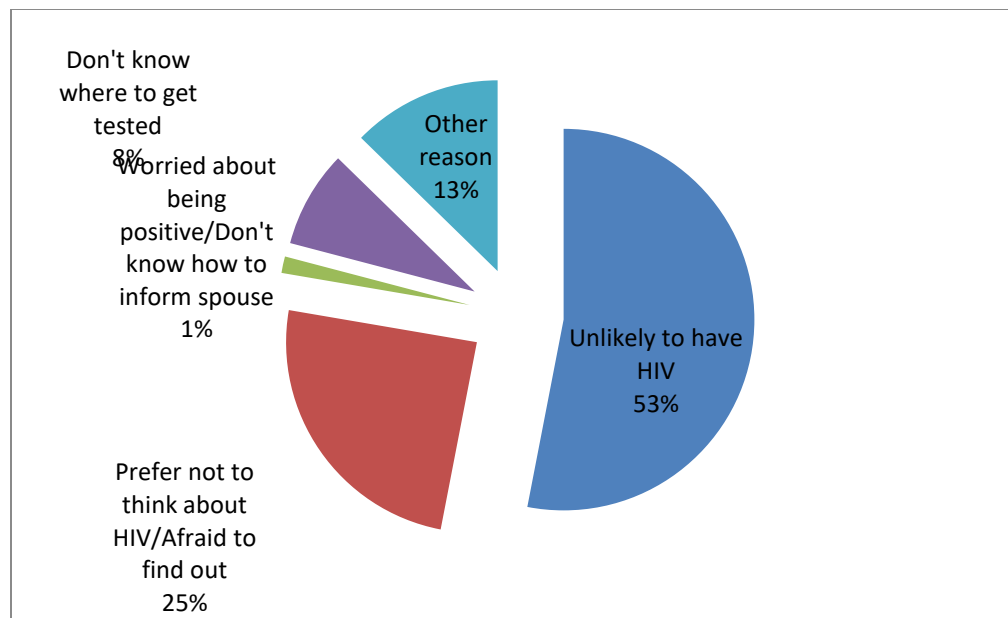


Figure 1: Reasons for not having tested for HIV

Figure 2 displays the circumstances under which respondent who had undergone the test did so, or the reasons why they opted for VCT. The most important reason is advice from health workers (24.2%), followed by voluntary testing (23.1%) and pregnancy related testing (17.4%). The findings

underscore the importance of health workers and hospitalization in the uptake of counselling and testing for HIV. Only about 6 per cent undertook VCT due to reasons related to spouses or sexual partners.

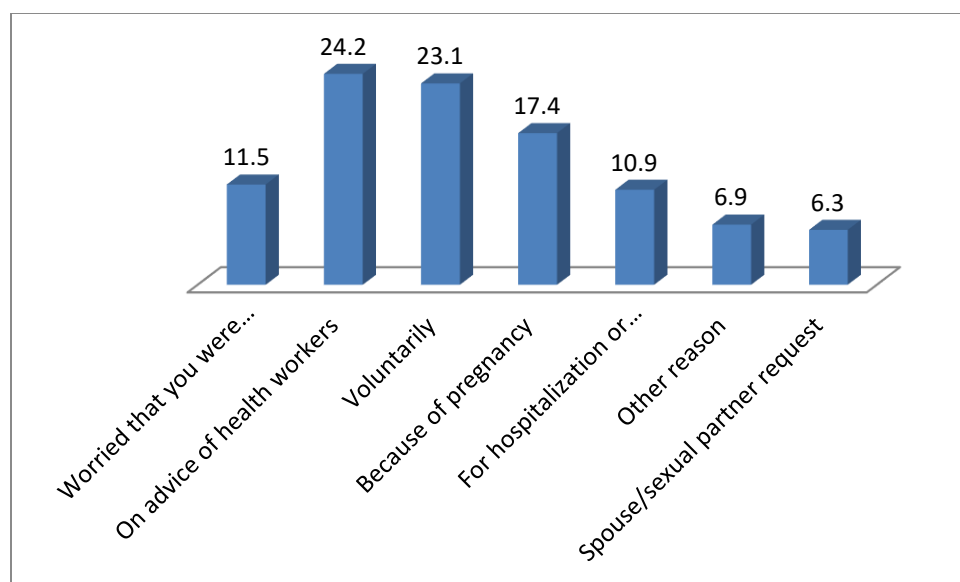


Figure 2: Reasons for testing for HIV

This study found that females are more predisposed to being tested for HIV than males. This is evident in the three measures of ever tested, tested in the last 12 months, and likelihood of testing in future (Table 3). A significantly low numbers of men have ever tested and are likely to test for HIV in future. The Table shows that young people age 15-24 are less likely to have tested for HIV relative to older respondents. By the same token single people are less like to have tested, although more likely to test in future. Christians are more like than Muslims and those in Traditional religion to have ever tested and tested in the preceding 12 months to the survey. The

three measures of HIV testing are high among residents of urban area, and also increase as the level of educational attainment increases. Respondents who consider themselves at risk reported a significantly high level of ever tested, tested in the last 12 months and likelihood of getting tested in future. However, it is observed that respondents who had only one spouse or sexual partner tested for HIV more than those who had more than one sexual partner and indicated a higher significantly likelihood that they were going to test in the future.

Table 3: HIV Testing and Likelihood to Test in the Future by selected Variables

Selected variables	% Ever Tested		% Tested last 12 months		% Likely to test in future		Total
	Yes	No	Yes	No	Yes	No	
Sex							
Male	32.7**	67.3	19.7	80.3	39.0***	61.0	1258
Female	37.5	62.5	22.3	77.7	46.1	31.6	1195
Age Group							
15-24	23.5***	76.5	16.0***	84.0	39.6	60.4	799
25-39	45.6	54.4	26.4	22.4	44.6	55.5	1084
40-59	31.1	68.9	82.3	17.7	42.5	57.5	570
Marital Status							
Single (never married)	26.4***	73.6	17.8***	82.2	38.6***	61.4	1063
Married/cohabitating	42.8	57.2	24.9	75.1	46.8	53.2	1267
Separated/div/widowed	28.9	71.1	8.3	91.7	31.6	68.4	121
Religion Affiliations							
Christianity	38.9***	61.1	24.2***	75.8	42.1	57.9	1749
Islam	24.9	75.1	12.9	87.1	44.2	55.8	676
Traditional	35.0	65.0	10.0	90.0	30.0	70.0	20
Place of Residence							
Rural	28.1***	71.9	18.8*	81.2	52.1***	47.9	841

Urban	38.6	61.4	22.1	77.9	37.5	62.5	1612
Educational Attainment							
No formal	16.1***	83.9	11.9***	88.1	41.9**	58.1	224
Primary	24.2	75.8	13.1	86.9	37.6	62.4	389
Secondary	35.5	64.5	20.6	79.4	41.9	58.1	1363
Post-secondary	57.2	42.2	24.5	75.5	47.2	52.8	477
Consider self at Risk of HIV							
Yes	38.3	61.7	24.1***	75.9	53.8***	42.2	1087
No	36.1	63.9	20.5	79.5	33.9	66.1	1056
Worry sexual partner may be infected							
Yes	28.4	71.6	14.5***	85.5	61.3***	38.7	303
No	42.9	57.1	25.5	74.5	41.0	59.0	1138
Multiple sex partners last 3 Months							
One or no partner	41.2	58.8	24.3***	75.7	46.3	53.7	1179
More than one partners	32.8	67.2	18.8	81.2	39.4	60.6	250
No Response	28.3	71.7	17.6	82.4	38.8	61.2	1022
Know where to go for test							
Yes	45.8***	54.2	28.1***	71.9	47.7***	52.3	1715
No	10.0	80.0	4.4	95.6	29.9	70.1	730
Talked with someone about counselling and testing in last 12 months							
Yes	48.8**	51.2	12.0**	88.0	51.9***	48.1	1265
No	39.5	60.5	5.7	94.3	31.4	68.6	156
Need approval before test							
Yes	28.1***	71.9	14.3***	85.7	48.8**	51.2	510
No	37.3	62.7	22.9	77.1	41.0	59.0	1877
People may say bad things (Stigma and discrimination) if positive							
Yes	36.2	63.8	21.7	78.3	41.9	58.1	2020
No	35.7	64.3	23.1	76.9	46.7	53.3	197
Health workers keep test results confidential							
Yes	41.2	58.8	24.5	75.5	48.5	51.5	1462
No	41.1	58.9	26.2	73.8	46.4	53.6	332
Cost of HIV testing/counselling is too high							
Yes	41.0***	59.0	23.8**	76.2	45.6	54.4	228
No	56.3	53.7	35.1	64.9	50.4	49.6	1038
Spouse/partner would want you to go for test							
Yes	39.8**	60.2	25.1***	74.9	53.3***	46.7	1507
No	31.6	68.4	14.1	85.9	26.6	73.4	319
Ability to convince partner/spouse to test							
Yes	42.4***	57.6	9.9**	90.1	49.7***	50.3	1724
No	16.6	83.4	5.0	95.0	29.1	70.9	327

*Significant at $p < 0.10$; ** Significant at $p < 0.05$; *** Significant at $p < 0.001$

It is instructive that even among respondents who were worried that their spouses may be infected and thus infect them, the majority did not undergo the test; only 28.4% and 14.5% had ever tested and had tested for HIV in the 12 months preceding the

study, respectively. However, a significantly higher number said they would be tested in future. The Table clearly shows that talking to somebody about HIV counselling and testing enhances the uptake of testing; those who talked with somebody are more

likely to have tested for HIV, more likely to have tested in the preceding 12 months, and more likely to go for the test in future. Those who reported they needed approval before they could get tested showed a significantly lower rate of ever testing for HIV and testing in the last 12 months, than those who did not need approval from anybody (28% vs 37.3% and 14.3% vs 22.9%, respectively). Respondents who reported that the cost of HIV counselling and testing was high displayed lower levels of ever testing for HIV, testing in the last 12 months and intending to test in future relative to those who reported that cost of testing was low. Respondents who said that their partners would want them to go for HIV counselling and testing reported higher levels of ever being tested, tested in the past 12 months and higher likelihood of getting tested in the future. Similarly, those who could convince their partners or spouses to test for HIV exhibited significantly higher levels of being ever tested, test in the past 12 months and likelihood of testing in the future.

Table 4 presents the results of logistic regressions of the likelihood of being ever tested for HIV, being tested in the preceding 12 months and likelihood of being tested in the next 12 months with respect to the characteristics of respondents. Female respondents were nearly two times more

likely to have undergone HIV testing compared to male respondents. Respondents' age presents interesting results; respondents aged 15-24 years were more likely to go for the test in future compared to other categories. But they were less likely to have ever tested or tested in the past 12 months relative to other age categories. Respondents who are widowed, divorced and separated were significantly more likely to have been ever tested for HIV, and those who are single were more likely to have tested in the preceding 12 months and also more likely to test in the next 12 months.

Respondents in the highest educational category were more like to have ever tested and more likely to test in future relative to other education categories. Respondents who were not worried that their sexual partner might be infected with HIV were less likely to have been tested and less likely to test in future. Those who knew a place where they could obtain HIV voluntary counselling and testing were more than two times more likely to undergo a test in the 12 months post study than those who did not know where to go for a test. Having good knowledge of HIV prevention disposed respondents to ever being tested, being tested in the past 12 months and the likelihood of testing in the next 12 months.

Table 4: Odds of Ever having tested, testing in past one year and likelihood of testing the future in next 12 months

Predictors	Ever Tested		Tested in past 12 months		Likely to test in next 12 months	
	OR	95% C.I	OR	95% C.I	OR	95% C.I
Sex						
Male	1.00		1.00		1.00	
Female	1.623	0.802-3.283	0.943	0.407-2.184	0.760	0.384-1.503
Age Group						
15-24	1.00		1.00		1.00	
25-39	1.280	0.620-2.644	0.692	0.307-1.560	0.520*	0.250-1.084
40-59	.632	0.219-1.820	0.469	0.107-2.057	0.788	0.277-2.246
Marital Status						
Single (never married)	1.00		1.00		1.00	
Married/cohabitating	1.900	0.884-4.087	0.392*	0.150-1.023	0.725	0.349-1.503
Separated/div/widowed	6.473*	1.274-32.884	0.532	0.049-5.764	0.255*	0.051-1.285
Religion						
Islam	1.00		1.00		1.00	
Christian	1.969	0.978-3.965	3.413**	1.074-0.844	1.060	0.533-2.107
Place of Residence						
Rural	1.00		1.00		1.00	

Urban	1.398	0.767-2.548	1.892	0.870-4.116	0.720	0.398-1.303
Educational Attainment						
No formal	1.00		1.00		1.00	
Primary	1.536	0.267-8.818	0.455	0.053-3.910	1.184	0.225-6.225
Secondary	1.170	0.239-5.727	0.295	0.042-2.097	1.012	0.226-4.524
Post-secondary	1.630	0.307-8.653	0.270	0.035-2.086	1.839	0.376-8.997
Employment status						
Employed	1.00		1.00		1.00	
Unemployed	0.998	0.497-2.003	1.076	0.500-2.315	0.488	0.241-0.985
Consider self at Risk of HIV						
Yes	1.00		1.00		1.00	
No	1.146	0.663-1.982	1.389	0.712-2.712	1.800	1.053-3.078
Worry sexual partner maybe infected						
Yes	1.00		1.00		1.00	
No	0.355***	0.202-.624	0.495**	0.254-.964	0.778	0.448-1.350
Multiple Sex Partners last 3 Months						
One or no Partner	1.00		1.00		1.00	
More than one partner	0.767	0.390-1.509	0.483	0.190-1.229	.720	0.373-1.393
Know where to go for test						
No	1.00		1.00		1.00	
Yes	0.280**	0.100-.783	0.124*	0.015-1.017	0.757	0.288-1.985
Knowledge of HIV Prevention						
Poor	1.00		1.00		1.00	
Good	1.469	0.820-2.632	1.145	0.577-2.273	2.380**	1.329-4.262
Need approval before test						
Yes	1.00		1.00		1.00	
No	0.746	0.300-1.859	0.863	0.280-2.659	1.000	0.393-2.543
People may say bad things (Stigma and discrimination) if positive						
Yes	1.00		1.00		1.00	
No	1.212	0.513-2.863	0.781	0.271-2.250	0.879	0.381-2.029
Cost of HIV testing/counselling is too high						
Yes	1.00		1.00		1.00	
No	1.334	0.659-2.697	0.686	0.287-1.641	1.569	0.777-3.170
Talked with someone about counselling and testing in last 12 months						
No	1.00		1.00		1.00	
Yes	2.112**	1.176-3.791	2.889**	1.261-6.620	1.570	0.883-2.791
Spouse/partner would want you to go for test						
Yes	1.00		1.00		1.00	
No	0.711	0.337-1.497	1.047	0.383-2.858	0.434**	0.206-0.913

*Significant at $p < 0.10$; ** Significant at $p < 0.05$; *** Significant at $p < 0.001$

Discussion

This study was conducted to examine the prevalence of voluntary counselling and testing, which is a veritable means of ensuring that people know their HIV status; also through it people are advised to behave in ways that do not endanger their lives since HIV is a behaviour-related health condition. With the mean age of all respondents at

30.9 years, the study captured a lot of people who are in their productive years and also sexually active. The findings clearly show a low level of testing generally, particularly in the level of testing in the one year preceding the study. These results confirm previous observation of low level of patronage in VCT in Nigeria (Amu *et al.*, 2013; Muganga *et al.*, 2002). However, a considerably

high percentage, nearly half, indicated the willingness to test in the near future. The findings reflect a need for relevant government and non-governmental agencies to intensify activities and programmes that may increase level of awareness on the importance of undergoing HIV test. Increased awareness may result to higher patronage in VCT in the future.

Further, the higher numbers of respondents willing to test in the near future also may suggest that if the issues related to stigma and confidentiality of test results are addressed, more people will embrace testing. The present study indicates a high rate of mistrust of health workers on issues related to confidentiality of test results. It is also evident that there was a high level of concern for stigma and discrimination relating to HIV testing. This corroborates the findings by Fylkesnes *et al.* (2013) that people are generally afraid that health care workers may not keep results of their test confidential. Previous studies have demonstrated an improved acceptance of testing when home-based strategy for test was employed (Faylkesnes *et al.*, 2013; Allen, 2013). Such strategies can be adopted to improve VCT patronage

The problems of availability and knowledge of location where VCT centres are situated have also been reported as factors that contribute to low rate of VCT (Yahaya *et al.*, 2010). Although there was low knowledge on the prevention of HIV in this study, our results showed that most people know facilities where HIV testing can be done. In spite of this, there seems to be a lack of motivation to test. Some of the reasons that influence testing stem from both personal and external dynamics relating to beliefs and social relationships of individuals. In fact, issues of personal beliefs and ideologies are more responsible for poor uptake of VCT as suggested by the results. For example, many people believed that it is unlikely for them to have HIV; some preferred not to think about the disease and thus were reluctant and afraid to find out their status. Oshi *et al.* (2007) demonstrated that people who have low self-perception of HIV infection feel no need for behavioural change or to undergo HIV testing.

The concern of affordability of counselling and testing was also expressed as a challenge to testing. Yet some programmes and intervention packages offer free counselling and testing in Nigeria and

people can take advantage of such provisions. Thus, more initiatives are needed to make VCT and clinical laboratory test for HIV very cheap and affordable. Some respondents, particularly women, felt that they required the approval of significant others, such as their spouses or partners before undergoing HIV testing. The implication is that respondents in this category tend to be those who do not know their status because they perceptually or actually require someone else's approval before testing, and thus, are in danger of not being able to detect the disease early if they are infected. Such individuals have higher potential of infecting others and should be targeted for intervention to improve HIV testing.

The influence of significant others can serve as positive factors to testing. For example, 82.4 per cent of the respondents said their spouses/partner would want them to go for the test. Our findings also show that the rate of voluntary counselling and testing can be promoted when individuals consider that they were at risk of having HIV, or when individuals worry that their partner may be infected with HIV. Sexually active people should be encouraged to go for HIV counselling and testing particularly when they have multiple sexual partners which are risk factors to having HIV. We found that HIV testing was much lower among people who keep multiple sexual partners and they exhibited lower levels of knowledge of HIV prevention as well as carelessness about the implications of their risky sexual behaviour.

In this study, variables that significant predicted ever testing for HIV include: fear that sexual partner has HIV, knowing where to go for test, and having good knowledge of HIV prevention. These results corroborate previous studies by (Amu *et al.*, 2013; Namazzi, 2010). Positive health outcome of a populace has been repeatedly linked with accessibility and proximity to health facility in a community (Riman & Akpan, 2012). It was therefore expected that knowledge of where HIV testing can be obtained was predictive of VCT. The policy implications are that if more VCT centres are operational within a community and people are aware of their existence, more people will opt for testing.

Gender is also a predictor of ever testing for HIV and the likelihood of testing in the next 12 months, with higher odd of testing among females. This finding is not surprising considering that it is

mandatory for women to undergo HIV testing during antenatal care and child delivery in health facilities, which requires routine blood drawn for syphilis testing (Bashorun *et al.*, 2014). In fact, a good estimate of the prevalence of HIV among adults in Nigeria is from the surveillance of pregnant women attending antenatal care (Nasidi and Harry, 2006). On the other hand, men are limited to testing only in circumstances where investigation for medical purposes is required and when men voluntarily seek testing.

The likelihood of ever testing was higher among people who are married or are cohabiting and people who are either separated divorced or widowed than those who are single. Single people may not have any need for testing especially if they are not sexually active, as opposed to those who might feel the need to know their status by virtue of their circumstances as companions/sexual partners or concern that a partner might be infected. As demonstrated in some previous studies (e.g., Gyapong *et al.*, 2014), which found education to be related to positive social outcomes, this study found that the variable was a strong predictor of ever testing for HIV. No doubt education creates more awareness regarding health issues, and educated people are more exposed to and receptive to health-related information.

With respect to religion, Christians were more likely to ever test for HIV; this is possibly due to encouraging role the church plays in the decisions to use such services. For example, in most Churches couples contemplating marriage are required to test for HIV before they enter into such union. Furthermore, our findings revealed that younger respondents, in the age group 15-24 years, were less likely to ever test for HIV and their rate of testing in the last 12 months preceding the study was quite low. This finding underscores the fact that while young people have the highest prevalence of HIV in Nigeria, they undergo testing least. One of the reasons that inhibit uptake of VCT among youths is that most health staff who provide VCT services have moralistic attitudes regarding sexually active youths (Uzochukwu *et al.*, 2011). More youth-friendly approaches are required to encourage young people to get tested. A lot of intervention packages are still required to disabuse mind-sets about the myths surrounding HIV infection. Until the masses begin to perceive HIV in the same light

as other equally dreaded disease conditions like hypertension and cancer, people may still maintain the current misconception about HIV infection. Furthermore, relevant governmental and non-governmental agencies need to develop innovative strategies to encourage sexually active people across age, gender and educational categories to voluntarily seek HIV counselling and testing as a routine health check. This will no doubt contribute significantly to national and global efforts to combat HIV/AIDS.

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