Predictors of HIV/AIDS Status Determination among Women of Child bearing Age in North Central Nigeria

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ABSTRACT

Little studies is known on why people go or do not go to know their HIV/AIDS status in North-central Nigeria. Hence, the study investigate the predictors for HIV status test determination in north central Nigeria

The study was cross-sectional, utilized data from National HIV/AIDS and Reproductive Health Survey. Analysis was performed using Chi-square and logistic regression.

The mean age was 27.87 ± 9.41 (years). Only 83.4% of the women (942) had not gone for HIV test. Age group, educational status, place of residence, current male condom user, and antenatal care attendance were major predictors of HIV status determination. Antenatal care attendee were more likely to know their HIV status (OR= 9.12; 95% CI =4.084 – 20.38).

Majority of the women had not gone for HIV test and therefore do not know their HIV status**.** Counselling, testing units and antenatal care facilities should be strengthened to encourage women to go for testing.

Back ground

HIV prevalence has been one of the major causes of mortality for more than three decades all over the world. Nigeria is the most populous country in Africa and has one of the highest HIV prevalence rate in the sub- Saharan African with National average of 4.4%. Nigeria ranks third globally in terms of the actual number of people living with HIV/AIDS (PLWHA), currently estimated at 3.86 million adults (UNFPA, 2013).

It has a relatively young population with adolescents (10–19 years) constituting over a fifth of its population, while young people (10–24 years) constitute almost a third, and an additional 15% of the population belong to the age group 25 to 34 years, a

segment of the population also covered by the Nigerian Youth Policy (UNFPA, 2013). Youths constitute a high-risk group for human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) infection due to their high-risk sexual behaviours. Furthermore, a prevalence rate of 5.2% was reported for the age group 15–24 years, with adolescent girls being three times more vulnerable than boys (UNFPA, 2013).

The north central geopolitical zone of Nigeria contributed most to the high prevalence (7.6%) (NACA, 2012). It is a known fact that most people in this region do not know their HIV/AIDS; which is not good for the fight against HIV/AIDS in Nigeria. Knowing ones HIV/AIDS status is important at truncating the transmission route of HIV/AIDS in the general population (Baggaley, 2001 and Denison et al, 2008).

The prevention and control of HIV infection depends on the prevention of new infections and treating currently infected individuals. Voluntary Counseling and Testing (VCT) is an entry point to prevention and treatment services (The lancet, 2000 and UNAIDS, 2001)

For any society, widespread knowledge of one's HIV status can lead to better community mobilization against the epidemic, and may reduce HIV related stigma and discrimination (WHO, 2002) and support human right (Baggaley, 2001).

Despite the potential benefits of knowing ones HIV status, visit of people into various HIV counselling and testing (HCT) centre is often poor regardless of the availability of the services (WHO, 2003 and Sherr et al, 2007). Several possible contributing factors could play an essential role in knowing ones status: socio - demographic characteristics, proximity to a clinic, awareness/knowledge related to HIV/AIDS, perception of being at risk of HIV infection, perceived benefits of knowing, the belief that knowledge of infection may accelerate disease progression, psychosocial factors such as HIV/AIDS related stigma and discrimination, and concerns about confidentiality (Bwambale et al, 2008; Jereni and Muula, 2008, and UNAIDS, 2000)

However, as important as knowing ones status is, little studies have been done on why people in this region do or do not go to know their HIV/AIDS status. Hence, the study investigates the predictors responsible for the HIV/AIDS status determination in north central of Nigeria

Materials and Methods

The study area

Nigeria is a democratic Federal Republic in West Africa comprising thirty-six states and one Federal Capital Territory, with capital city in Abuja. The country which consists of over 160 million inhabitants was made up of 36 states formally grouped into six geopolitical zones: North West, North East, North Central, South West, South East and South-South.

Sampling procedure and data collection

The study was cross-sectional in design and utilized data originally collected by National HIV/AIDS and Reproductive Health Survey (NARHS) in Nigeria which focused on 942 women of reproductive age who reside in north central region of the country. It adopted a multi-stage cluster sampling technique to select the eligible respondents. Ethical clearance was obtained from the Institutional Review Board (IRB) of the National Institute of Medical Research (Nigeria) prior the commencement of the primary survey. Oral and written informed consents were sought from each respondent before a questionnaire was administered, and each sero-test conducted. Pre and post test counselling were provided to all respondents who agreed to be tested. Where a respondent chose not to participate, the questionnaire was returned as refusal.

Respondents who were sero positive were referred to a hematopoeitic cell transplant (HCT)/anti-retroviral therapies ART site for follow up. In order to protect the anonymity of the results during the processing phase, the master survey data file was kept at FMOH; all hard copies and files were stored in locked cabinets.

During the actual survey, primary data were collected by personal interview using well-structured questionnaire which included socio-demographic characteristics, knowledge and perception of HIV/AIDS, attitude and use of family planning, knowledge about family planning among others. Two questionnaires were used for the primary data collection: an individual questionnaire for each respondent and a one page questionnaire for the biomarker component. These instruments were based on the questionnaires developed by the NARHS National programme which was adapted from

International standard questionnaires such as the Demographic Health Survey (DHS) and adapted to Nigeria's specific data needs. The questionnaires as well as all survey procedures including those relating to the HIV was translated and piloted prior to implementation of the main survey.

Data analysis

Data were analyzed using Chi-square and logistic regression model. The dependent variable is ever gone for HIV test (tested or not tested) whereas, socio-demographic variables such as age, gender, marital status, place of residence e.t.c. were the independent variables. The logistic regression model was used to identify predictors of HIV status determination. This is of the form;

$$\log\left(\frac{\gamma_i}{1-\gamma_i}\right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_n x_n$$

Where; γ is 1 if tested and 0 if otherwise. The parameters $\beta_0, \beta_1, \beta_2, \ldots, \beta_n$ are to be estimated. The Odd Ratio of each parameter is estimated as exp (β_i); i=1, 2, 3...n

RESULT:

Total number of 942 women of reproductive age in the north central of Nigeria was selected for the study. The mean age was 27.87 ± 9.41 (years). Majority of the respondent fell between the age ranges of 15 – 19 (22.5%) and more than half of them were practising Islam (53.6%) and were currently married (68.6%) (See table 1). Only few (16.6%) of the respondents had gone for HIV test before the survey was conducted. most of the respondent were not educated (37.7%) at all and were not employed (27.3%) and most had their first sexual intercourse in the age range
13 – 17.

Table 1 Frequency distribution of respondent background characteristics

Background Characteristics	**Frequency n= 942**	**Percentage**
Age group		
15 – 19	212	22.5
20 – 24	184	19.5
25 – 29	164	17.4
30 – 34	127	13.5

35 – 39	98	10.4
40 – 44	90	9.6
45 – 49	67	7.1
Age at first sexual intercourse		
8 – 12	42	4.5
13 – 17	374	39.7
18 – 22	287	30.5
23 – 27	45	4.8
Never	194	20.6
Religion		
Islam	505	53.6
Christianity	427	45.3
Other	10	1.1
Occupation		
Paid job	46	4.9
Self employed	253	26.9
Artisan	63	6.7
Farmer	121	12.8
Unemployed	257	27.3
Student	202	21.4
Marital status		
Currently married	646	68.6
Never married	245	26.0
Formally	51	5.4
Educational status		
Quranic /primary	234	24.8
Secondary	280	29.7
Higher	73	7.7
None	355	37.7
Antenatal care visit		
Yes	331	35.1
No	611	64.9
Female condom use		
Yes	3	0.3
No	939	99.7
Exchange sex for gift		
Yes	40	4.2
No	902	95.8
Have more than one sex partner		
Yes	79	8.4
No	863	91.6
Had sex in the last 12 months		
Yes	632	67.1

No	310	32.9
Ever pregnant		
Yes	561	59.6
No	381	40.4
Male condom use		
Yes	140	14.9
No	802	85.1
ever had HIV test		
Yes	156	16.6
No	786	83.4

Women age was significantly associated with going for HIV test. A High proportion (95.3%) of younger people (15 – 19 years) fairly older people (45 – 49 years) had not gone for HIV test. The religion being practiced by the respondents and their marital status went a long way to significantly influence their decision to go for HIV test. Greater numbers of the respondents were practising Islam (87.7%, p=0000) and 90.2% of them were formally married (p<0.000). The place of residence was associated with going for HIV test. The proportion of urban women (26%) who had gone for HIV test was higher than their rural counterparts (12.7%) (p=0.000) (See table 2).

Table 2 Influence of socio-demographic characteristics on the determination of HIV/AIDS status

Background Characteristics	**Gone for HIV/AIDS test n = 942 (%)**		**p-value**
	Yes	No	
Age group			**0.000***
15 – 19	10 (4.7)	202 (95.3)	
20 – 24	29 (15.8)	155 (84.2)	
25 – 29	34 (20.7)	130 (79.3)	
30 – 34	31 (24.4)	96 (75.6)	
35 – 39	23 (23.5)	75 (76.5)	
40 – 44	19 (21.1)	71 (78.9)	
45 – 49	10 (14.9)	57 (85.1)	
Age at first sexual intercourse			**0.000***
8 – 12	6 (14.3)	36 (85.7)	
13 – 17	42 (11.2)	332 (88.8)	
18 – 22	76 (26.5)	211 (73.5)	
23 – 27	11 (24.4)	34 (75.6)	
Never	21 (10.8)	173 (89.2)	
Religion			**0.000***
Islam	62 (12.3)	443 (87.7)	

Christianity	94 (22.0)	333 (78.0)	
Other	0 (0.0)	10 (100.0)	
Occupation			**0.000***
Paid job	19 (41.3)	27 (58.7)	
Self employed	53 (20.9)	200 (79.1)	
Artisan	15 (23.8)	48 (76.2)	
Farmer	11 (9.1)	110 (90.9)	
Unemployed	35 (13.6)	222 (86.4)	
Student	23 (11.4)	179 (88.6)	
Marital status			**0.017****
Currently married	122 (18.9)	524 (81.1)	
Never married	29 (11.8)	216 (88.2)	
Formally	5 (9.8)	46 (90.2)	
Educational status			**0.000***
Quranic /primary	27 (11.5)	207 (88.5)	
Secondary	67 (23.9)	213 (76.1)	
Higher	32 (43.8)	41 (56.2)	
None	30 (8.5)	325 (91.5)	
Location			**0.000***
Urban	71 (26.0)	202 (74.0)	
Rural	85 (12.7)	584 (87.3)	
Antenatal care visit			**0.000***
Yes	80 (24.2)	251 (75.8)	
No	76 (12.4)	535 (87.6)	
Female condom use			**0.434**
Yes	1 (33.3)	2 (66.7)	
No	155 (16.5)	784 (83.5)	
Exchange sex for gift			**0.870**
Yes	7 (17.5)	33 (82.5)	
No	149 (16.5)	753 (83.5)	
Have more than one sex partner			**0.215**
Yes	17 (21.5)	62 (78.5)	
No	139 (16.1)	724 (83.9)	
Had sex in the last 12 months			**0.000***
Yes	127 (20.1)	505 (79.9)	
No	29 (9.4)	281 (90.6)	
Ever pregnant			**0.004***
Yes	109 (19.4)	452 (80.6)	
No	47 (12.3)	334 (87.7)	
Male condom use			**0.000***
Yes	49 (35.0)	91 (65.0)	
No	107 (13.3)	695 (86.7)	

Significant at 0.1%; **Significant at 5%;

Among all socio-demographic variable that were considered, age and educational status were identified as major socio-demographic predictors for HIV status determination. Women who were between 15 – 19 years were less likely to know their HIV status (OR = 0.21: 95% CI= 0.07 – 0.66, p= 0.008) and the women who higher education were more likely to go for HIV test to determine their HIV status (OR= 9.12; 95% CI =4.08 – 20.38, p =0.000) (see table 3)

Table 3 Logistic regression model of the influence of socio-demographic characteristics on the determination of HIV/AIDS status in the north central region of Nigeria

Background Characteristics	β	Sig.	Exp.(β)	95% C.I for Exp.(β)	
				Lower	Upper
Age group					
15 – 19	-1.566	0.008*	0.209	0.066	0.664
20 – 24	-0.503	0.282	0.605	0.242	1.512
25 – 29	-0.072	0.869	0.930	0.394	2.199
30 – 34	0.360	0.415	1.433	0.603	3.405
35 – 39	0.163	0.722	1.177	0.479	2.892
40 – 44	0.396	0.398	1.486	0.593	3.725
45 – 49	R.C	R.C	R.C	R.C	R.C
Age at first sex intercourse					
8 – 12	0.507	0.383	1.661	0.531	5.192
13 – 17	-0.159	0.658	0.853	0.423	1.723
18 – 22	0.272	0.432	1.312	0.667	2.584
23 – 27	-0.410	0.427	0.664	0.242	1.822
Never	R.C	R.C	R.C	R.C	R.C
Occupation					
Paid job	0.242	0.638	1.274	0.465	3.488
Self employed	0.647	0.138	1.910	0.812	4.488
Artisan	0.833	0.100	2.300	0.851	6.213
Farmer	-0.357	0.514	0.700	0.240	2.044
Unemployed	0.353	0.430	1.423	0.593	3.415
Student	R.C	R.C	R.C	R.C	R.C
Marital status					
Currently married	0.796	0.123	2.216	0.807	6.086
Never married	0.564	0.374	1.757	0.507	6.090
Formally married	R.C	R.C	R.C	R.C	R.C
Educational status					
Quranic/primary	0.446	0.131	1.562	0.875	2.790

Secondary	1.723	0.000*	5.599	3.150	9.954
Higher	2.211	0.000*	9.122	4.084	20.376
None	R.C	R.C	R.C	R.C	R.C

Significant at 0.1%; **Significant at 5%; ref= reference category, β = covariate, exp (β)= estimate of the odds ratio

Location variables such as the States in the region and place of residence were significant predictors of HIV status determination. Women who reside in Benue state were less likely to have their HIV status determined compared to their counterparts in plateaus state (OR = 0.53; 95% CI = 0.29 – 0.95, p=0.03). However, the urban women who reside in these states were more likely to have their HIV status determined than the women who live in the rural areas (OR =2.56; 95% CI =1.76 – 3.71, p= 0.000) (see table 4)

Table 4 Logistic regression model of the influence of location on the determination of HIV/AIDS status in north central region of Nigeria

Background Characteristics	**β**	**Sig.**	**Exp.(β)**	**95% C.I for Exp.(β)**	
				Lower	**Upper**
States in the region					
Benue	-0.645	0.033**	0.525	0.290	0.950
FCT	0.374	0.210	1.453	0.810	2.609
Kogi	-0.845	0.010**	0.429	0.226	0.816
Kwara	-1.538	0.000*	0.215	0.098	0.472
Nasarawa	-0.714	0.035**	0.490	0.252	0.949
Niger	-1.549	0.000*	0.212	0.103	0.439
Plateau	R.C	R.C	R.C	R.C	R.C
Place of residence					
Urban	0.938	0.000*	2.556	1.763	3.705
Rural	R.C	R.C	R.C	R.C	R.C

Significant at 0.1%; **Significant at 5%; ref= reference category, β = covariate, exp (β)= estimate of the odds ratio

Table 5 shows variables describing sexual history. Only ‘currently user of male condom’ was found to be a predictor. Women who were currently using male condom with their partners were more likely to have their HIV status determined than their contemporaries who were not using (OR =2.02; 95% CI = 1.89 – 4.47, p = 0.000). Antenatal care clinic attendance were more likely to know their HIV status (OR =2.02; 95% CI = 1.35 – 3.02, p = 0.001)

Table 5 Logistic regression model of the influence of sexual history on the determination HIV/AIDS status in north central region of Nigeria

Background Characteristics	β	Sig.	Exp.(β)	95% C.I for Exp.(β)	
				Lower	Upper
Had sex in the last 12 months					
Yes	0.616	0.062	1.851	0.970	3.533
No	R.C	R.C	R.C	R.C	R.C
Ever pregnant					
Yes	-0.221	0.467	0.801	0.441	1.456
No	R.C	R.C	R.C	R.C	R.C
Currently using male condom					
Yes	1.069	0.000*	2.021	1.897	4.471*
No	R.C	R.C	R.C	R.C	R.C
ANC					
Yes	0.704	0.001*	2.021	1.352	3.020*
No	R.C	R.C	R.C	R.C	R.C

Significant at 0.1%; **Significant at 5%; ANC = Antenatal Clinic; RC= Reference Category, β = covariate, exp (β)= estimate of the odds ratio

Discussion

This was a cross sectional study on uptake of HIV test among women of reproductive age in north central Nigeria. According to the study, the uptake of HIV test was low among the women. The prevalence of ever being test for HIV from this study was far behind the findings from other studies (mainly among Africa men), (Hutchinson, 2006; Chandisarewa et al, 2007; and Fylkesnes and Siziya, 2004).

Apparently, all the socio demographic characteristics influenced going HIV status test while only three of the six variables describing sexual history were also associated with going for HIV test. Age was a significant determinant in knowing ones HIV status. Younger women were less likely to going for HIV status determination compared to their older counterpart.

The low uptake of HIV testing facilities among the women suggests that the campaign to encourage testing has not been effective. The findings from this study support those of other studies that found age, education, and marital status to be

predictive of HIV testing (Renzi et al., 2001; Gage and Ali, 2005; Sherr et al., 2007; Glick and Sahn, 2005).

HIV infection is seen as a product of heterosexual intercourse in many African countries (MOH, 2004). Current usage of male condom in the last 12 months preceding the survey with male partners during sexual intercourse was a negative influence on going for HIV testing. The explanation for this could be that the women were more confident; knowing that they have been protecting themselves through the use of male condom; 12 months prior to the survey. However, there is no doubt that the women could have been involved in risky sexual behaviour with only 35% reported to have used male condom; 12 months prior to the survey. This was in agreement with other studies from other sub Saharan African countries (Bwambale et al, 2008; Matovu et al, 2005; and Sherr et al, 2007).

However, contrary to the studies from Ethiopia, Tanzania and Italy, it was found that those who were involved in risky sexual intercourse in the past; having the perception that they were at risk of contracting HIV infection were motivated to going for HIV testing (Renzi et al, 2001, Wringe et al, 2008 and leta et al, 2012). Therefore, it is expedient to strengthen various campaigns on the use of condom in the north central of Nigeria.

Moreover, after further multiple logistic regressions analysis, antenatal care clinic attendance was a major prerequisite for getting tested. This is in consonance with various studies that have been conducted in various sub Saharan countries (Byamugisha et al, 2010 and Chandisarewa et al, 2007). it also corroborate the objective of the world Health Organization for setting up various sentinel (ANC) sites for HIV testing for pregnant women. Therefore, more encouragement should be given to women especially the rural dwellers among them to attend the antenatal clinics.

Conclusion

In conclusion, despite the various effort at making women go for HIV testing on the own, a great number of them still do not go for HIV testing in north central geopolitical zone of Nigeria. Various factors have been identified as major contributors

to going for HIV testing. These included; age, educational level, current condom usage, place of residence, state in the region, antenatal clinic attendance.

It is recommended that various stakeholders should intensifier their effort on younger women on the need to know their HIV status voluntarily as this group of women is at higher risk of being infected because of their sexual activeness. Counselling, testing units and antenatal care facilities should be strengthened to encourage women to go for testing.

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