

Original Article

HIV Prevalence and Predictors among Sexually Active Nigerian Youths

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Abstract

Background: HIV/AIDS has played a significant role in reversing development in Africa and is a threat to the future of Africa. Young people are exposed to series of experimentation and risk factors that increase their vulnerability to HIV/AIDS. Understanding the predictors of HIV infection among them is important for effective prevention intervention.

Objective: To examine the predictors and prevalence of HIV infection among sexually active youths in Nigeria.

Methodology: NARHS-2007, a national survey of men and women of reproductive age was used. A total of 2357 sexually active youth (15 – 24 years) were analysed to determine association between HIV serostatus, socio-demographic and sexual behavioural factors. Data was analysed using SPSS.

Results: The mean age of respondents was 20.4 years \pm 2.5. Sixty-six percent were aged 20 – 24 years, about 60% were females, 9% attained tertiary education, 68.3% reside in rural areas and 45.6% were married. Male respondents reported higher condom use and multiple partners (64.5%, 68.8% respectively). HIV prevalence was 2.7%. HIV prevalence was 3.9% among respondents aged 20 – 24 years, 3.9% among females and 7.0% among respondents living with their sex partners. Divorced/separated/widowed respondents were less likely than those that were not married (OR=0.217, CI=0.075 – 0.624) to be infected.

Conclusions: Findings from this study revealed that marital status is a significant predictor of HIV infection and respondents engage in risky sexual behaviours. Hence appropriate and interventions that are youth friendly be implemented through effective behavioural change program. Young people are the future of every nation and the driving force behind national growth and development and this is only actualized if policies and programs are in place to enhance their skills, opportunities and participation in decision making.

Keywords: HIV, Youths, Sexuality

Introduction

Acquired Immune Deficiency Syndrome (AIDS) is a leading health and development problem globally, with the greatest impact being in sub-Saharan Africa where the prevalence is highest (Osuji, 2008). The Human Immunodeficiency Syndrome (HIV)

and AIDS have impacted Africa's development negatively resulting in reduction in life expectancy and compromising progress in virtually all major sectors of the economy. About 14,000 new infections occur daily (UNAIDS, 2006). In 2009, an estimated 2.6 million people became newly infected with HIV.

HIV/AIDS is now the leading cause of death in Africa and the fourth largest cause of death globally (UNAIDS, 2010).

Young people are at the centre of the HIV/AIDS epidemic, and contribute about 40% of all new HIV infections globally. HIV incidence in young people in SSA is largely linked to the unsafe sexual behaviours they adopt or are forced to adopt (NACA, 2011). Young women are about eight times more likely than their male counterpart to be HIV positive (UN, 2011). The prevalence of HIV among adolescents is higher in Sub-Saharan Africa than in other parts of the world (UNAIDS, 2004). In sub-Saharan Africa (SSA), about 10 million youths are currently infected, accounting for almost two-thirds of the people living with HIV (PLHIV) in the region (UNAIDS, 2011; UNAIDS, 2004).

Nigeria has the second highest burden of HIV in the world, with approximately 3 million people infected based on the HIV antenatal care sero-prevalence rate of 4% in 2010 (FMOH, 2008). While Nigeria has conducted two-yearly ANC seroprevalence survey since 1986, the country's first HIV survey in general population was carried out in 2007 as part of the National HIV/AIDS and Reproductive Health Survey (NARHS-Plus).

A rate of 3.6% was reported for the general population from NARHS-Plus, and a rate of 1.7% and 2.4% for adolescents (15-19 years) and youths (15-24 years) respectively (FMOH, 2008). While several research works have been conducted regarding the sexual behaviour of young people in Nigeria, there has been no direct exploration of the behaviour with HIV outcome. This study, based on the 2007 NARHS data, addresses this gap: Specifically, evidence based findings on the predictors of HIV infection among young people in Nigeria will be beneficial to design and inform effective HIV prevention programs and interventions that will help to achieve goals that have been set to reduce HIV infection rates.

Methodology

This study is a secondary analysis of the NARHS 2007 data. NARHS is a cross-sectional population-based study that covers the entire 36 States of Nigeria and the

Federal Capital Territory; the first NARHS was carried out in 2003. NARHS was conceptualised to be a biennial nationwide survey to generate a series of datasets and reliable figures on key sets of indicators that will facilitate trend analysis in the HIV/AIDS and Reproductive Health (RH) field.

The approach of NARHS was expanded in 2007 to incorporate HIV testing, resulting in re-branding of the survey as "NARHS-Plus". The major objective of NARHS-Plus is to obtain accurate HIV prevalence estimates and information on risk factors related to HIV infection at the regional and to some extent at state level.

The sampling procedure for NARHS-Plus was a (four-level) multi-stage cluster sampling aimed at selecting eligible persons with known and equal probability in each state. Overall, 11,822 respondents were selected for interview of which 11,521 were successfully interviewed resulting in a 2.5% non-response rate.

A total of 6,161 females (15-49 years) and 5360 males (15-64 years) participated in the survey. A sample of 4,633 young people (15-24 years) was included in the NARHS-Plus sample consisting, of which 2,357 were sexually experienced: these consisted of 933 males (39.6%) and 1,424 males (60.4%). Sexually active youths are the focus of this study.

Data collection

NARHS-Plus data was collected by personal interview method using structured and semi-structured questionnaire on various reproductive and sexual issues such as sexual behaviour, knowledge of sexually transmitted infections and HIV/AIDS, condom accessibility and use, family planning attitude and utilisation, sexuality communication, HIV counselling and testing, stigma and discrimination and safe motherhood.

Questions were asked in English but keywords were translated to local languages for communities selected. Data was collected using trained interviewers. The Census and Surveys Processing Software (CSPRO) was used for data entry, validation, and cleaning. The data was subsequently imported into SPSS for analysis.

Measures

The dependent variable was respondents' HIV serostatus while the independent variables were grouped into two; socio-demographic and sexual behavioural variables. Socio-demographic variables consisted of age, sex, marital status, religion, importance of religion, wealth index, highest level of education attained, alcohol use, listens to radio and TV, location and region.

The wealth index was constructed based on the method of Filmer and Pritchett (Filmer & Pritchett, 2001). Sexual behavioural variables include; age at first sex, use of male condom, multiple sex partners, sex in exchange for gift, type of sex partner condom use with condom use and age grade of sex partner.

Data analysis

Data was analysed using SPSS version 15. Descriptive statistics was used to describe the distribution of key variables. Frequencies (percentages) were reported for qualitative variables and mean (with standard deviation) for quantitative variables. Association between HIV infection and the independent variables was evaluated using Chi-square. Binary logistic regression was carried out to determine the association between key independent factors and HIV serostatus, while controlling for potential confounders. The independent variables that were significant at 10% in the Chi-square cross tabulation were included in the logistic model. The forced approach (enter procedure) was used in the SPSS in running the regression. P-value of 5% was considered statistically significant.

Results

Respondent's profile

The total sample consisted of 933 (39.6%) males and 1424 (60.4%) females. A third of the respondents 794 (33.7%) were aged 15-19 years and 1,563 (66.3%) aged 20-24 years, the mean age of the respondent was found to be 20.0 (± 2.5) years. Majority of the respondents were not married (49.2%) and of the 1074 married youths only 293 were in a polygamous marriage. Almost half (49.0%) of the respondents had secondary school as the highest level of education while 8.6%

those who attained tertiary education. Approximately two-thirds of the respondents (68.3%) live in rural areas, and 51.7% were Christians while 47.7% were Muslims (Table 1).

The median age at first sex was 16 years. As Table 2 shows, 51.1% of the respondents had their first sex at age less than 16 years, while 18.4% had multiple sexual partners as at the time of the survey and 7.8% have had sex in exchange for gift or money. Almost two-fifths of the respondents had never used male condoms or had it used by their partners during their sexual relationships.

Association between HIV status and socio-demographic variables

HIV prevalence was higher among youths aged 20-24 years (3.9%) compared to adolescents (2.4%), but the difference was not statistically significant ($p=0.77$). No statistically significant difference was also found between female and male respondents (3.9% vs. 2.7%; $p=0.152$). There also no statistically significant association between religion, importance of religion, wealth index, exposure to media, education, urban-rural location and HIV prevalence rate.

However, there was statistical association between respondent's marital status and HIV prevalence ($p=0.014$): the highest prevalence in this regard was among those previously married (divorced/separated or widowed) (7.0%), followed by those co-habiting (3.4%), while the lowest was among never married group (2.8%) (Table 3). The HIV prevalence level differed significantly by geopolitical zones.

Table 4 shows the association between HIV status and sexual behaviour. There was no significant difference observed for all the variables. HIV prevalence was found to be higher among respondents who had sex at age greater than 16 years (3.9%) compared with 2.9% among those aged 16 years or less ($p=0.234$).

The result of the analysis revealed that HIV prevalence among respondents that had ever used male condom was 4.0% compared with 3.0% those that did not use condom. Respondents that had more than one sexual partner had higher HIV prevalence 4.4%, when compared with 3.2% those that do not

($p=0.256$). Respondents that had older sex partner had high HIV prevalence than those with younger partner or their age mate (3.7%, $p=0.836$).

Multivariate analysis

Table 5 presents the result of the multivariate analysis; only one variable were statistically significant – marital status. Young people in urban areas have statistically significantly

higher rates compared to those in rural areas (aOR=0.64, 95% C.I.0.34-0.41=0.049)

Sexually active youths who were divorced/separated or widowed have about five times the odds of having HIV positive status compared to never married respondents (aOR= 0.22, 95% CI=0.08 – 0.62).

Table 1: Frequency distribution of selected socio-demographic variables of respondents

Variables	Frequency	Percentage (%)
Age-group		
15-19 years	794	33.7
20-24 years	1563	66.3
Sex		
Male	933	39.6
Female	1424	60.4
Marital status		
Currently married	1074	45.6
Living with sex partner	69	2.9
Never married	1159	49.2
Others ^a	55	2.3
Polygamous marriage (n= 1074)		
Yes	293	12.4
No	783	33.2
Religion		
Islam	1124	47.7
Christianity	1219	51.7
Others ^b	14	0.6
Importance of religion		
Very important	2080	88.2
Not important	277	11.8
Highest education attained		
No formal	509	21.6
Quranic & primary	488	20.7
Secondary	1156	49.0
Tertiary	202	8.6
Location		
Urban	746	31.7
Rural	1611	68.3
Zone		
North West	531	22.5
North East	285	12.1
North Central	441	18.7
South West	406	17.2
South East	221	9.4
South South	473	20.1

^a Marital status: others are respondents who are separated, divorced, widowed and no response.

^b Religion: others include respondents of traditional religion, no religion and no response.

Table 2: Frequency distribution of sexual behavioural variables of sexually active youths in Nigeria (n=2357)

Variables	Frequency	Percentage (%)
Age at first sex		
Less than 16 years	1205	51.1
Greater than 16 years	1152	48.9
Have more than one partner		
Yes	433	18.4
No	1865	79.1
No response	59	2.5
Sex in exchange for gift/money		
Yes	183	7.8
No	2149	91.2
No response	25	1.0
Ever used male condom		
Yes	787	33.4
No	908	38.5
No response	662	28.1
Spouse/cohabiting sex partner		
Yes	1052	44.7
No	1304	55.3
Boy/girl friend		
Yes	892	37.9
No	1464	62.1
Casual sex partner		
Yes	74	3.1
No	2282	96.9
Commercial sex worker		
Yes	18	0.8
No	2338	99.2
Condom use with spouse/cohabiting partner (n=1052)		
Yes	43	4.1
No	1009	95.9
Condom use with boy/girl friend (n=892)		
Yes	395	44.3
Yes	497	55.7
No		
Condom use with casual sex partner (n=74)		
Yes	38	51.4
Yes	36	48.6
No		
Condom use with commercial sex partner (n=18)		
Yes	11	61.1
No	7	38.9

Table 3: Association between HIV status and socio-demographic variables

Variables	Respondents HIV status		Total (%)	X ²	P-value
	+ve (%)	-ve (%)			
Age-group					
15 – 19 years	15 (2.4)	620 (97.6)	635 (100)	3.136	0.077
20 – 24 years	49 (3.9)	1199(96.1)	1248 (100)		
Sex					
Male	21 (2.7)	760 (97.3)	781 (100)	2.049	0.152
Female	43 (3.9)	1059(96.1)	1102 (100)		
Marital status					
Currently married	27 (3.4)	769 (96.6)	796 (100)	10.683	0.014*
Living with sex partner	4 (7.0)	53 (93.0)	57 (100)		
Never married	28 (2.8)	955 (97.5)	983 (100)		
divorced/separated/widowed	5 (10.6)	42 (89.4)	47 (100)		
Are you in a polygamous marriage					
No	21 (3.6)	558 (96.4)	579 (100)	0.370	0.543
Yes	6 (2.8)	212 (97.2)	218 (100)		
Religion					
Islam	24 (2.9)	806 (97.1)	830 (100)	1.264	0.261
Christianity	40 (3.8)	1001 (96.2)	1041 (100)		
Importance of religion					
Very important	52 (3.1)	1609 (96.9)	1661(100)	3.086	0.079
Others	12 (5.2)	210 (94.6)	222 (100)		
Level of education attained					
No formal	9 (2.5)	347 (97.5)	356 (100)	2.493	0.477
Quranic or primary	17 (4.6)	353 (95.4)	370 (100)		
Secondary	32 (3.3)	950 (96.7)	982 (100)		
Tertiary	6 (3.4)	169 (96.6)	175 (100)		
Wealth index					
Low quintile	11 (2.9)	369 (97.1)	380 (100)	3.349	0.501
2 nd quintile	14 (3.4)	394 (96.6)	408 (100)		
3 rd quintile	18 (4.8)	358 (95.2)	376 (100)		
4 th quintile	9 (2.5)	348 (97.5)	357 (100)		
Highest quintile	12 (3.3)	350 (96.7)	362 (100)		
Had alcohol in the last four month					
Yes	13 (3.7)	337 (96.3)	350 (100)	0.130	0.718
No	51 (3.3)	1482 (96.7)	1533 (100)		
Listens to radio					
Everyday/almost everyday	23 (3.0)	753 (97.0)	776 (100)	0.760	0.383
Not every day	41 (3.7)	1066 (96.3)	1107 (100)		
Watches television					
Everyday/almost everyday	49 (3.0)	483 (97.0)	1385 (100)	0.308	0.579
Not every day	15 (3.5)	1336 (96.5)	498 (100)		
Location					
Urban	27 (4.5)	578 (95.5)	605 (100)	3.073	0.080
Rural	37 (2.9)	1241 (97.1)	1278 (100)		

*statistically significant

Table 4: Association between HIV status and sexual behaviour variables

Variables	Respondents HIV status		Total (%)	X ²	P-value
	+ve (%)	-ve (%)			
Age at first sex					
≤16	27 (2.9)	905 (97.1)	932 (100)	1.415	0.234
>16	37 (3.9)	914 (96.1)	951 (100)		
Ever use male condom					
Yes	26 (4.0)	626 (96.0)	652 (100)	0.996	0.318
No	23 (3.0)	740 (97.0)	763 (100)		
Have more than one sex partner					
No	47 (3.2)	1424 (96.8)	1471 (100)	1.291	0.256
Yes	16 (4.4)	347 (95.6)	363 (100)		
Had sex in exchange for gift					
Yes	7 (4.4)	153 (95.6)	160 (100)	0.601	0.438
No	55 (3.2)	1650 (96.8)	1705 (100)		
Spouse/ living together					
Yes	29 (3.6)	768 (96.4)	797 (100)	0.242	0.623
No	35 (3.2)	1051 (96.8)	1086 (100)		
Boy/girl friend					
Yes	24 (3.2)	721 (96.8)	1745 (100)	0.118	0.731
No	40 (3.5)	1098 (96.5)	1138 (100)		
Commercial sex partner					
Yes	0 (0.0)	17 (100.0)	17 (100)	0.604	0.437
No	64 (3.4)	1802 (96.6)	1866 (100)		
Casual sex partner					
Yes	0 (0.0)	64 (100.0)	64 (100)	2.331	0.127
No	64 (3.5)	1755 (96.5)	1819 (100)		
Condom use with Spouse/ living together					
Yes	3 (8.8)	31 (91.2)	34 (100)	2.723	0.099
No	26 (3.4)	737 (96.6)	763 (100)		
Condom use with boy/girl friend					
Yes	11 (3.4)	309 (96.6)	320 (100)	0.084	0.772
No	13 (3.1)	412 (96.9)	425 (100)		
Age grade of sex partner					
Younger	10 (2.8)	344 (97.2)	354 (100)	0.358	0.836
About same age	5 (3.1)	158 (96.9)	163 (100)		
Older	9 (3.7)	235 (96.3)	244 (100)		

Table 5: Logistic regression results for correlates of HIV infection among sexually active youths

Variable	Odds Ratio	95% CI (OR)	P-value
Zone/region			
North-west	1.14	0.27 – 4.86	0.858
North-east	0.36	0.10 – 1.32	0.123
North-central	0.31	0.09 – 1.07	0.064
South-west	0.60	0.16 – 2.21	0.442
South-south	0.51	0.14 – 1.85	0.308
South-east *			
Location			
Urban	0.64	0.34 – 0.10	0.049
Rural *			
Marital status			
Currently married	0.74	0.40 – 1.36	0.329
Living/cohabiting with partner	0.37	0.12 – 1.12	0.079
Others	0.22	0.08 – 0.62	0.005**
Never married *			
Age-group			
20 – 24	0.66	0.36 – 1.20	0.172
15 – 19 *			
Importance of religion			
Very important	1.77	0.93 – 3.37	0.083
Not important *			

*Reference category **statistically significant

Discussion

HIV prevalence among sexually active youths was 2.7% which is low compared with 14% in Lesotho (UNAIDS, 2010). There was a significant association between HIV infection and their marital status. Those who are separated, divorced or widowed were less likely than those not married to be infected with HIV. Young people who are divorced or widowed are possibly under some kind of psychological trauma hence are less likely to be sexually active or have regular sex which is the major route of transmission. Even if they are very active they are likely to have more than one partner and maybe due to their experience use some form of protective. People in this category have higher risk perception and their engagement in risky behaviour is reduced. It is important to note that that the high HIV prevalence among married respondents might be linked to gender related issues and

high rates of early marriage in the country which have been reported by other studies (NPC, 2008; Odimegwu & Okemgbo 2008).

Younger age of sexual debut (15 years or younger) were reported in other African countries and regions compared with that of reported in this study (UNAIDS, 2010). This age of sexual intercourse among the study population might be linked to high rate of early marriage and lack of correct sexual and reproductive information among youths. Sexually active youth's usage of male condom was 38.5% which is low compared to 73.8% reported in Namibia (FMoH, 2008) putting them at risk of being infected.

Of interest is the higher proportion of youths aged 20 - 24 years who were infected with HIV. The multivariate analysis shows no significant as they appeared to be less likely to be infected. This research finding is consistent with the findings from a national survey (NPC, 2008) but contrary to what was

found in Swaziland where women aged 15-19 years old have a 10% chance of HIV infection and by age 20-24 years, the figure more than doubles to 38% (UN, 2011). This might be because youths in the 20-24 years age group are more exposed and knowledgeable, for instance they have more access to contraceptives and voluntary counselling and testing compared to those aged 15 – 19 years who 'might be a little bit frightened to access them. Also, people aged 20 - 24 years group have more access to information regarding sexual and reproductive health and are matured enough to interpret them.

Looking at gender difference in HIV prevalence, female respondents had higher prevalence compared with male respondents though not significant, the result correlates with findings from other studies where the number of adolescent girls aged 10-19 years living with HIV is about double that of adolescent boys (UN, 2011; Obi et al., 2010). Young women make up 60% young people living with HIV and are about three times as likely to be infected as young men (UN, 2011). Factors such as the female anatomical make-up which makes them more prone to HIV infection, knowledge and access to information and facilities surrounding sexual health and issues surrounding women's autonomy and ability to make decision especially regarding sexual practices might be responsible for the observed association.

Findings from this study indicate that there is no association between respondents' educational status and their HIV serostatus, but prevalence was higher among those that attained quranic and primary school. Similarly a report revealed that HIV prevalence was higher among youths with primary and secondary level of education and least among those of Quranic (Obi et al., 2010). The inverse association between HIV and educational status may be an implication of risky behaviour among the educated and urbanisation. Incorporating sex education in school curriculum is important since HIV rate was still high among those that attained tertiary institution.

Data has indicated that by age 20, about 80% of the continents youth have become sexually active (Okonofua, 2007). In many

sub-Saharan countries first sexual intercourse takes place outside marriage with little or inaccurate knowledge of sexual and reproductive health. Youths especially women who sexually debut at earlier ages are more likely to be infected with HIV infection and participate in high-risk behaviours, experience unintended pregnancy and sexually transmitted infections (Mardh et al., 2000; Fatusi & Blum, 2008). This is in contrast to findings from this study that HIV prevalence was higher among youths that sexually debuted at later years (greater than 16) which is similar to findings that early age of sex debut does influences later reproductive health (Gómez et al., 2008). HIV serostatus among youths that debuted early might be attached to competing values between parental, family, and religious messages of immorality against those of powerful peer pressure and forces of modernization and globalization that equate sexuality with modern, educated, urbane lifestyles identities for which youths yearn.

HIV prevalence was found to be higher among the study population that reported condom usage. It was also high among respondents that used condom with their spouses who were at greater risk of HIV infection, with 75% excess risk. This is not consistent with findings that condom use is protective of HIV infection; for instance that part of the success of in HIV reduction in Uganda was linked to condom use (Singh & Bankole, 2003). This might be because condom use was low and not sufficient enough to reduce the spread of HIV or there was high false positive rate. Majority of respondent's sex partner were younger than them but HIV prevalence was higher among those with older sex partners similar with other African studies (Leclerc-Madlala, 2008; Mishra et al., 2007). This is usually for socioeconomic reasons but having sex with a much older partner that carry deadly diseases can put young women at increased risk of HIV infection.

In this study, respondents of the lowest wealth or socioeconomic class quintile had a fairly lower HIV prevalence (2.9%) when compared to 4.8% in the 3rd quintile. Though not statistically significant, this supports other reports that HIV appears to accrue most heavily to wealthier rather than poorer

area (Obi et al., 2010; Shelton et al., 2005). It is not certain and cannot be concluded whether higher prevalence results among rich people for adopting more unsafe sexual behaviours, surviving longer due to greater access to treatment and care, or being exposed to unsafe health care and other HIV risk factors.

The present analyses showed that the proportion respondent in rural areas with positive HIV result is lower than urban dwellers. Some Nigerian states record urban prevalence figures higher than that of the rural similar to findings in this study, though the reverse is the case in others. For instance, in Abia State, the recorded rural prevalence of HIV infection was higher than that of urban (Obi et al., 2010). Urban prevalence reported might be due to exposure to risky sexual behaviour, urbanisation and possible neglect of cultural and religious values in the urban society. Prevalence appears to be higher in the Northern region. Respondents from North West had excess odds of 14% of having HIV compared with those of south east. North western Nigeria compared with other northern states is more urbanised. It is possible but uncertain that factors other than geography distinguished the more Islamic and less educated North from the more educated, urban and largely Christian Southern region. Some of the strengths of this study are; the large sample size and range of variables analysed to determine their association with HIV.

Conclusions

The finding of this study demonstrates that marital status is a significant predictor of HIV infection. This finding represents a further step towards an improved understanding of HIV risk factors. To this effect this study underscores the need to develop holistic interventional programmes that enable youth, especially those sexually active engage in safe practices to protect against HIV infection. Appropriate and effective interventions and strategies that will serve as tools should be fashioned out to end HIV infection through effective behavioural change program and application

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