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Sexual behavior and knowledge of reproductive health and HIV prevention among secondary school students in Nigeria

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In Nigeria, adolescents have been long identified as vulnerable to sexually transmitted infections (STIs) including HIV/AIDS. They face multiple challenges including unwanted pregnancies, unsafe abortion, sexual coercion resulting in sexually transmitted infections including HIV and AIDS. The study assessed sexual behavior and knowledge of reproductive health and HIV prevention among secondary school students as part of efforts to plan appropriate interventions among this population. The study employed a cross-sectional study design in which data were collected from 1914 secondary schools students across six states in all the geopolitical zones in Nigeria. Data were collected using 47-item questionnaire which explored the students' socio-demographic characteristic, knowledge of HIV/AIDS and reproductive health, attitude towards HIV prevention and people living with HIV/AIDS, condom use and abstinence and sexual behaviour. Data was analysed using descriptive statistics, Chi-square and t-test at 0.05 level of significance. Majority (93.6%) of the respondents had good knowledge of HIV and other STIs. Females had a slightly higher mean knowledge of HIV and other STIs than their male counterparts (38.4 ± 7.7 vs 37.8 ± 7.5) ($p < 0.05$). Only 22.8% has ever been tested for HIV out of which 25.5% were males and 20.5% were females. More males (24.4%) reported that they had ever experienced sexual intercourse than their female counterparts (13.2%). The overall mean age of sexual debut was 13.9 ± 4.9 . Secondary schools students in Nigeria are quite knowledgeable about reproductive health but few practice safe sex. Behavioral change communication needs to be strengthened among these adolescents.

Keywords: HIV/AIDS, reproductive health, sexual behaviour, adolescent, sex.

INTRODUCTION

Adolescents are a significant component of the Nigerian population. For example, 22.1% (28 million) of the population are adolescents aged 10-19 years and about a third are young people aged 10-24 years (UNFPA, 2010). The Nigerian adolescent's population is also significant because many in this population participate in

risky sexual activities including early sexual debut (Slap et al., 2003) and unprotected sex with multiple partners (Dada et al, 1998; Ajuwon et al, 2002; Fawole et al, 2003) which places them at increased risk of acquiring sexually transmitted infections (STIs). Adolescents who begin sexual activity early appear more likely to have sex with high-risk partners or multiple partners and are less likely to use condoms (Olasode 2007). According to the 2013 National Demographic Health Survey, only 38% of female and 46% of males who had multiple sexual partner used

a condom during the twelve months preceding the survey (NPC, 2013).

Consequently adolescents are usually adventurous in all aspects of human endeavors including sexual practices (Morhason-Bello et al, 2008) and they face multiple reproductive health challenges including unwanted pregnancies, unsafe abortion, sexual abuse, violence or coercion to sexually transmitted infections including HIV and AIDS (Makinwa-Adebusoye, 1992; Temin, Okonofua, Omorodion, Renne, Coplan, Haggenhougan et al, 1999). This has made sexually transmitted infections (STIs) a major public health concern among adolescents and young adults (Olasode 2007). For example, the prevalence rates for HIV among the 15-19 and 25-29 years age groups are 6% and 5.6% respectively (NACA, 2009). Several studies have shown that adolescents and other youths have limited knowledge about HIV and sexual and reproductive health (NPC, 2013; Nworgue et al, 2009). For example, only 48% of male and 59% of female adolescents aged 15-19 years knew that use of condoms and limiting sexual intercourse with an uninfected person can prevent sexual transmission of HIV (NPC, 2013). Other Nigerian authors have reported similar findings (Omobude-Iyadi 2007, Murtala 2009, Ajuwon and Brieger, 2007, Ajuwon et al, 2006).

These data underscore the need to develop appropriate interventions to address the reproductive health knowledge gaps and sexual risk practices among adolescents in Nigeria. With the exception of the NDHS, few studies among adolescents are derived from small sample populations located in urban or rural locations (Ajuwon & Brieger, 2007) or a region of the country (Ajuwon et al, 2006). We report in this article a national survey of secondary school students recruited from each of the six geo-political zones of the country. The study was conducted as part of a national effort to develop appropriate intervention to address the reproductive health information and practice needs of secondary school students in Nigeria.

METHODOLOGY

The study was national in scope with data collected from each of the geo-political zones of the country. The zones and the respective states were South-South (Akwa-Ibom), South East (Enugu), North Central (Kaduna), North East (Gombe), North Central (Plateau) and South West (Osun). These states were randomly selected from a sampling frame of states comprising of 36 states and Federal Capital Territory (FCT) and random selection of the first state was done and thereafter, a sampling interval of six was used to determine the subsequent selection states until the total number of six states have been selected.

Selection of participants

The sample size for students ranged from 317 in Plateau to 320 in Gombe (Table 1). Sample selection was

conducted in three stages: the selection of six states from the 36 states plus FCT from the six geo-political zones, and in each state all the LGAs were arranged according to their population size. The list of LGAs per state served as the sampling frame for the random selection of two LGAs where one urban and one rural LGA was selected using the NPC criteria. In each LGA, list of schools was obtained and schools were sorted out into secondary schools. In each LGA, two secondary schools were selected; while in each school, a maximum of 80 students were randomly selected. This was done using the school enrolment register and students in secondary classes had equal chance of being selected.

Instrument for data collection and data collection process

Data were collected using questionnaire which explored the students' socio-demographic characteristic, knowledge of HIV/AIDS and reproductive health, attitude towards HIV prevention, PLWHA, condom use and abstinence, and sexual behaviour. The questionnaire consisted 47-items. On reproductive health, questions included signs of puberty in both males and females, menstrual cycle, consequences of pregnancy and abortion. On HIV/AIDS and other STIs, questions included common signs and symptoms of STIs in both males and females and method of transmission of HIV. The data were collected by trained interviewers who used a standardized training manual & interviewers guide, and were supervised by Monitoring and Evaluation team. Each questionnaire administered was reviewed and vetted on the field to ensure that the questionnaires were properly completed. The questionnaires were later collated and numbered serially according to the states where the questionnaires had been collected. In addition, informed consent was obtained from each respondent by providing information about the objectives of the study to the respondent and also informed them that the data will be used for research purposes and that participation was voluntary.

Data analyses

Epi-data statistical software was used for quality control checks of the quantitative data entry and editing. The data were exported to SPSS 15.0 software for subsequent analyses. The analysis is descriptive and the data are presented in tables. Those with a correct knowledge of each of the knowledge question were awarded a point leading to the construction of a maximum point of 26 Reproductive Health and 54 on HIV/AIDS. Score below average on Reproductive Health and HIV/AIDS were considered as poor. A 16-point scale was developed to assess the attitude of students towards PLWHA, condom use and abstinence. Score below average; less than 8 were considered as negative attitude

Table 1. Selection of participants by state.

State	Sex		Total N (%)
	Male n (%)	Female n (%)	
Akwa-Ibom	92 (28.8)	227 (71.2)	319 (16.7)
Enugu	123 (39.8)	186 (60.2)	309 (16.1)
Gombe	165 (51.6)	155 (48.4)	320 (16.7)
Kaduna	148 (44.7)	183 (55.3)	331 (17.3)
Osun	156 (49.1)	162 (50.9)	318 (16.6)
Plateau	172 (54.3)	145 (45.7)	317 (16.6)
Total	856 (44.7)	1,058 (55.3)	1,914 (100)

and above as positive attitude. Comparison of means scores was done using t-test. Frequency distributions were generated for categorical variables while the Chi-square test was employed for the comparison of proportions and for assessing associations in contingency tables. The p-value was set at 0.05.

RESULTS

Socio-demographic characteristics

The socio-demographic characteristics of the respondents are presented on Table 2 and segregated by sex. Majority of the respondents are between the age 11 – 15 years among both males (48.2%) and females (51.8%). The dominant religion was Christianity (62.8) while the major ethnic groups had almost equal distribution - Hausa (27.5%), Yoruba (26.0%) and Ibo (27.7%). About three quarter (75.9%) were from monogamous family while majority (96.5%) is still single and there were twice as many married female respondents than males.

Knowledge on HIV and other STIs

Majority (93.6%) of the respondents had good knowledge on HIV and other STIs. Females had a slightly higher mean knowledge of HIV and other STIs than their male counterparts (38.4 ± 7.7 vs 37.8 ± 7.5) ($p < 0.05$). The age group with the highest mean knowledge was 11 – 15 years (38.8 ± 7.6). The ethnic group with the highest mean knowledge was Yoruba (40.8 ± 6.2) while that of the state was Osun State (41.1 ± 5.7). Those who practiced Christian religion significantly had the highest knowledge of HIV and other STIs 38.8 ± 7.7 than those who practiced other religions.

Knowledge on RH

Many (71.8%) of the respondents had good knowledge

on Knowledge on RH. The ethnic group with the highest knowledge on RH was Yoruba (while that of the state was Osun (20.5 ± 4.1) ($p < 0.05$). The religion with highest knowledge was Christianity (Table 4).

Attitude towards HIV prevention, PLWHA, Condom use and abstinence

Majority (82.0%) of the respondents had positive attitude toward HIV prevention, PLWHA, Condom use and abstinence. The highest attitudinal disposition towards HIV prevention, PLWHA, Condom use and abstinence was recorded among respondents from Yoruba ethnic group (19.8%) and from Osun State (9.2 ± 3.8). The religion with the highest attitudinal disposition was Christianity (11.2 ± 3.7) (Table 5).

Sexual behaviour and practices

Only 22.8% has ever been tested for HIV out of which 25.5% were males and 20.5% were females. Likewise on sexual experience, more males (24.4%) reported ever experienced sexual intercourse than their female counterparts (13.2%). Mean age of sexual debut was higher among males (14.2 ± 5.1) than females (13.5 ± 4.8). The overall mean age of sexual debut was 13.9 ± 4.9 . Among those who have ever experienced sexual intercourse, some (35.8%) reported they have had sex with both sexes. For those who reported they had sexual intercourse with their sex alone included 13.9% among males and 18.5% among females (Figure 1). On the circumstance of the first sexual intercourse, about a fifth (18.5%) of the respondents reported they were raped (Figure 2).

DISCUSSION

As expected, over 95% of our survey respondents had never been married. However, more respondents from Hausa ethnic group are already married compared to

Table 2. Socio-demographic characteristics of the respondents.

Variable	Male n (%)	Female n (%)	Total N (%)
Age group			
<10 years	52 (6.1)	105 (10.0)	157 (8.3)
11 – 15 years	408 (48.2)	545 (51.8)	953 (50.2)
>15 years	387 (45.7)	403 (38.3)	790 (41.6)
Religion			
Christianity	548 (65.5)	728 (70.4)	1276 (68.2)
Islam	282 (33.7)	297 (28.7)	579 (30.9)
Traditional	6 (0.7)	8 (0.8)	14 (0.7)
Others	1 (0.1)	1 (0.1)	2 (0.1)
Ethnicity			
Yoruba	179 (27.5)	208 (24.8)	387 (26.0)
Hausa	214 (32.8)	196 (23.4)	410 (27.5)
Ibo	146 (22.4)	266 (31.7)	412 (27.7)
Others	113 (17.3)	168 (20.0)	281 (18.9)
Marital Status			
Single	811 (96.3)	1001 (96.6)	1812 (95.4)
Married	31 (3.7)	66 (3.4)	87 (4.6)
Family type			
Monogamous	645 (77.7)	766 (74.5)	1411 (75.9)
Polygamous	185 (22.3)	262 (25.5)	447 (24.1)
Father's level of Education			
No formal education	53 (6.4)	42 (4.2)	95 (5.2)
Primary education	119 (14.4)	121 (12.0)	240 (13.1)
Secondary education	280 (34.0)	324 (32.1)	604 (32.9)
Tertiary education	372 (45.1)	523 (51.8)	895 (48.8)
Mother's level of Education			
No formal education	67 (8.2)	69 (6.8)	136 (7.5)
Primary education	146 (17.9)	136 (13.5)	282 (15.5)
Secondary education	302 (37.1)	360 (35.6)	662 (36.3)
Tertiary education	299 (36.7)	446 (44.1)	745 (40.8)

those from other ethnic groups. This findings support previous results that indicate that early marriage is more common in the Northern than Southern geo-political zones of Nigeria. For example, the 2008 NDHS showed that 54.3% of women from the North West zone had been married by age 15 compared to 1.4% in the South East (NPC, 2009). Early marriage imply early exposure to sex which is a risk factor for sexually transmitted infections since those who have sexual debut early have longer period of exposure to different sexual partners during their lifetime. They also tend to have greater number of partners per unit of time and tend to choose partners who are at greater risk for STDs (Aral, 1992).

Findings showed that majority of the respondents had good knowledge of HIV/AIDS and other STIs. This could be attributed to the HIV prevention education through NYSC peer education and Family Life and HIV/AIDS Education (FLHE) programme conducted across many

secondary schools in Nigeria supported by The Global Fund to reach In-school Young People. The first being the National Reproductive Health, HIV & AIDS Prevention and Care Project through the NYSC scheme which use the peer education (extra-curricular) approach and the FLHE, which use the curricular (classroom delivery) approach. Family Life and HIV/AIDS Education is a curricular based lifelong process of acquiring information about one's sexual development and reproductive health issues and life skills that will enable young people to be better informed.

Another interesting finding was that females had a slightly higher knowledge of HIV than their male counterparts. This is contrary to the findings from 2013 NDHS (NPC, 2013) in which males had better knowledge of HIV than their female counterparts. The possible reason for this could be the difference in age range covered in the respective studies. This may not be unconnected with

Table 3. Knowledge on HIV and other STIs (54 points knowledge scale).

Variables	Mean and Standard Deviation			Test statistics and p-value
	Male	Female	Total	
Age group				
<10 years	37.4 ± 8.1	36.4 ± 8.1	36.7 ± 8.1	7.4, 0.001
11 – 15 years	38.8 ± 7.1	38.7 ± 7.9	38.8 ± 7.6	
>15 years	36.9 ± 7.6	38.5 ± 7.6	37.7 ± 7.5	
Ethnic group				
Yoruba	40.4 ± 5.9	41.1 ± 6.3	40.8 ± 6.2	56.5, 0.00
Hausa	33.5 ± 7.3	35.6 ± 8.1	34.5 ± 7.8	
Ibo	40.9 ± 7.3	38.9 ± 7.9	39.6 ± 7.8	
Others	37.7 ± 6.9	38.4 ± 7.2	38.2 ± 7.2	
State				
Akwa Ibom	38.6 ± 6.6	37.8 ± 7.8	38.0 ± 7.5	52.4, 0.00
Enugu	40.6 ± 7.7	39.5 ± 8.0	39.9 ± 7.9	
Gombe	32.8 ± 7.8	34.8 ± 8.7	33.8 ± 8.3	
Kaduna	34.7 ± 6.9	36.6 ± 7.5	35.7 ± 7.3	
Osun	41.2 ± 5.2	41.0 ± 6.2	41.1 ± 5.7	
Plateau	39.9 ± 6.0	41.1 ± 5.9	40.4 ± 6.0	
Religion				
Christianity	38.7 ± 7.5	38.9 ± 7.8	38.8 ± 7.7	10.3, 0.00
Islam	36.6 ± 7.1	37.7 ± 7.3	37.2 ± 7.2	
Traditional	33.5 ± 3.3	30.6 ± 7.6	31.9 ± 6.1	
Others	32.0 ± 0.0	29.0 ± 0.0	30.5 ± 2.1	
Location				
Rural	37.9 ± 6.2	38.1 ± 6.9	38.0 ± 6.6	0.73, 0.47
Urban	37.7 ± 8.3	38.7 ± 8.6	38.3 ± 8.5	
Total	37.8 ± 7.5	38.4 ± 7.8	38.2 ± 7.6	1.65, 0.10

Table 4. Knowledge on RH (26 points knowledge scale).

Variables	Mean and Standard Deviation			Test statistics
	Male	Female	Total	
Age group				
<10 years	16.9 ± 7.2	15.3 ± 7.4	15.9 ± 7.3	0.45, 0.64
11 – 15 years	16.4 ± 6.5	16.4 ± 6.9	16.4 ± 6.7	
>15 years	15.7 ± 7.3	16.7 ± 6.9	16.2 ± 7.1	
Ethnic group				
Yoruba	19.8 ± 5.1	19.7 ± 4.9	19.8 ± 5.0	70.6, 0.00
Hausa	12.9 ± 7.6	13.3 ± 7.7	13.1 ± 7.6	
Ibo	16.4 ± 6.6	16.4 ± 5.9	16.4 ± 6.3	
Others	15.7 ± 6.9	16.2 ± 6.7	15.9 ± 6.8	
State				
Akwa Ibom	17.2 ± 6.5	16.0 ± 6.4	16.4 ± 6.4	84.8, 0.00
Enugu	16.1 ± 5.7	16.7 ± 6.6	16.4 ± 6.2	
Gombe	10.9 ± 7.6	12.9 ± 8.1	11.9 ± 7.9	
Kaduna	13.6 ± 7.2	13.4 ± 7.3	13.5 ± 7.2	
Osun	20.6 ± 4.0	20.4 ± 4.3	20.5 ± 4.1	
Plateau	18.6 ± 4.8	19.6 ± 5.1	19.1 ± 5.0	
Religion				
Christianity	16.4 ± 6.7	16.7 ± 6.8	16.6 ± 6.7	6.1, 0.00
Islam	15.9 ± 7.4	15.9 ± 7.1	15.9 ± 7.2	
Traditional	11.0 ± 6.8	11.0 ± 6.8	9.3 ± 7.3	
Others	16.0 ± 0.0	22.0 ± 0.0	19 ± 4.24	
Location				
Rural	16.9 ± 6.3	16.6 ± 6.9	16.7 ± 6.7	2.89, 0.004
Urban	15.5 ± 7.3	16.1 ± 7.0	15.8 ± 7.1	
Total	16.1 ± 6.9	16.4 ± 6.9	16.3 ± 6.9	0.9, 0.35

higher sexuality awareness among adolescent females than their male counterparts. More respondents in urban area tend to have slighter higher knowledge of HIV/AIDS

than their counterparts in the rural area. Possible explanation to this is that respondents in the urban area could be more exposed to RH information through the

Table 5. Sixteen points' attitudinal scale on attitude towards HIV prevention, PLWHA, Condom use and abstinence.

Variables	Mean and Standard Deviation			Test statistics
	Male	Female	Total	
Age group				
<10 years	9.8 ± 4.0	9.6 ± 3.7	9.6 ± 3.8	8.1, 0.00
11 – 15 years	10.9 ± 3.7	10.7 ± 3.7	10.8 ± 3.8	
>15 years	10.7 ± 3.7	11.2 ± 3.7	10.9 ± 3.7	
Ethnic group				
Yoruba	9.8 ± 3.9	9.8 ± 3.9	9.9 ± 3.9	12.2, 0.00
Hausa	10.1 ± 3.5	11.0 ± 3.5	10.5 ± 3.6	
Ibo	11.4 ± 3.5	11.2 ± 3.7	11.3 ± 3.6	
Others	11.1 ± 3.7	10.6 ± 4.2	10.8 ± 3.9	
State				
Akwa Ibom	11.2 ± 3.6	10.8 ± 3.9	10.9 ± 3.9	151.8, 0.00
Enugu	11.2 ± 3.6	10.9 ± 4.0	11.0 ± 3.9	
Gombe	10.3 ± 3.6	10.7 ± 3.4	10.5 ± 3.5	
Kaduna	10.6 ± 3.8	11.2 ± 3.7	10.9 ± 3.7	
Osun	9.3 ± 3.9	9.3 ± 3.8	9.2 ± 3.8	
Plateau	12.2 ± 3.2	11.7 ± 3.3	12.0 ± 3.3	
Religion				
Christianity	11.4 ± 3.6	11.2 ± 3.8	11.2 ± 3.7	323, 0.00
Islam	9.5 ± 3.7	10.0 ± 3.6	9.7 ± 3.7	
Traditional	10.0 ± 3.6	7.8 ± 3.3	8.7 ± 3.4	
Others	6.0 ± 0.0	8.0 ± 0.30	7.0 ± 1.4	
Location				
Rural	10.3 ± 3.7	10.4 ± 3.6	10.4 ± 3.7	4.1, 0.00
Urban	11.1 ± 3.7	11.1 ± 3.9	11.1 ± 3.8	
Total	10.8 ± 3.8	10.8 ± 3.8	10.8 ± 3.8	0.07, 0.94

Table 6. Sexual behaviour of the respondents.

Variable	Ever sex*			Number of sexual partners*		
	Yes	No	Total	1	>1	Total
Sex						
Male	208 (24.4)	643 (75.6)	851 (44.8)	26 (55.3)	21 (44.7)	47 (69.1)
Female	138 (13.2)	911 (79.5)	1049 (55.2)	16 (76.2)	5 (23.8)	21 (30.9)
Total	346 (22.8)	1554 (81.8)	1900 (100)	42 (61.8)	26 (32.8)	68 (100)
Age group						
<10 years						
11 – 15 years	25 (16.0)	131 (84.0)	156 (8.3)	1 (50.0)	1 (50.0)	2 (2.9)
>15 years	148 (15.7)	795 (84.3)	943 (50.0)	18 (64.3)	10 (35.7)	28 (41.2)
Total	171 (21.7)	616 (78.3)	787 (41.7)	23 (60.5)	15 (39.5)	38 (55.9)
Ethnic group						
Yoruba						
Hausa	49 (12.7)	337 (87.3)	386 (26.1)	12 (75.0)	4 (25.0)	16 (32.7)
Ibo	97 (23.8)	310 (76.2)	407 (27.5)	5 (45.5)	6 (54.5)	11 (22.4)
Others	71 (17.3)	340 (82.7)	411 (27.8)	7 (63.6)	4 (36.4)	11 (22.4)
Total	266 (18.0)	1212 (82.0)	1478 (100)	31 (63.3)	18 (36.7)	49 (100)
State						
Akwa Ibom	58 (18.4)	257 (81.6)	315 (16.6)	7 (70.0)	3 (30.0)	10 (14.7)
Enugu	67 (21.8)	241 (78.2)	308 (16.2)	5 (62.5)	3 (37.5)	8 (11.8)
Gombe	81 (25.4)	238 (74.6)	319 (16.8)	1 (25.0)	3 (75.0)	4 (5.9)
Kaduna	48 (14.8)	280 (85.2)	324 (17.1)	8 (66.7)	4 (33.3)	12 (17.6)
Osun	38 (11.9)	262 (88.1)	318 (16.7)	11 (91.7)	1 (8.3)	12 (17.6)
Plateau	54 (17.1)	262 (82.9)	316 (16.6)	10 (45.5)	12 (54.5)	22 (32.4)
Total	346 (18.2)	1554 (81.8)	1900 (100)	42 (61.8)	26 (38.2)	68 (100)

Table 6. Cont.

Religion						
Christianity	223 (17.6)	1042 (82.4)	1265 (68.1)	28 (58.3)	20 (41.7)	48 (71.6)
Islam	105 (18.2)	471 (81.8)	576 (31.0)	13 (72.2)	5 (27.8)	18 (26.9)
Traditional	5 (35.7)	9 (64.3)	14 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)
Others	2 (0.6)	0 (0.0)	2 (0.1)	1 (100)	0 (0.0)	1 (1.5)
Total	335 (18.0)	1522 (82.0)	1857 (100)	42 (62.7)	25 (37.3)	67 (100)
Location						
Rural	181 (20.1)	721 (79.9)	902 (47.5)	25 (65.8)	13 (34.2)	38 (55.9)
Urban	165 (16.5)	833 (83.5)	998 (52.5)	17 (56.7)	13 (43.3)	30 (44.1)
Total	346 (18.2)	1554 (81.8)	1900 (100)	42 (61.8)	26 (38.2)	68 (100)

*Missing data have been excluded.

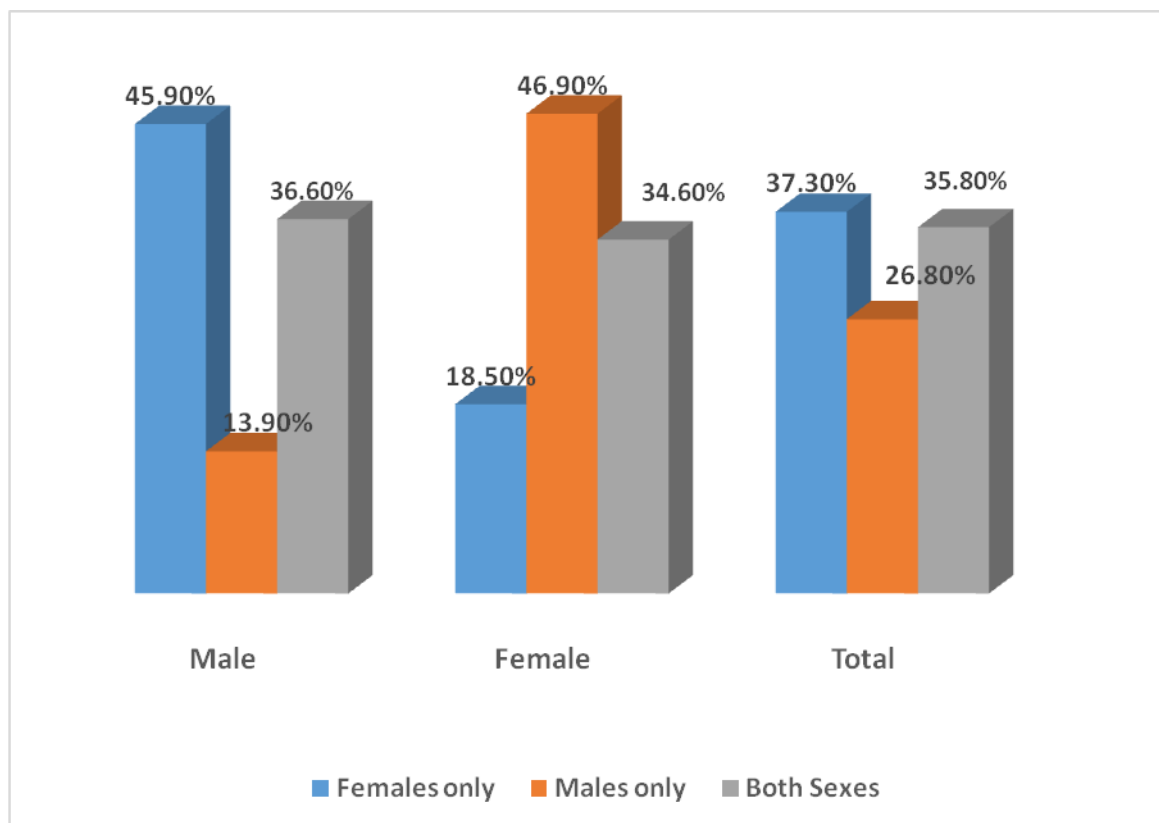


Figure 1. With whom the respondent had ever had sex with.

media than those in the rural area. This finding is consistent with results from the 2013 NDHS (NPC, 2013). Knowledge of reproductive health follows the same trend with that of HIV/AIDS and other STIs. Knowledge on reproductive health among these adolescents was quite high. Again the main explanation for this is that the Family Life and HIV/AIDS Education (FLHE) curriculum has been implemented in some of the schools selected for this study.

Initiation of sexual activity before marriage is common in Nigeria, as expected, considerable proportion of the students irrespective of their sex were sexually experienced. Females were slightly sexually experienced than their male counterparts. Almost a quarter had experienced sexual intercourse with a mean age of sexual debut being 13.5 ± 4.9 years. This is similar to previous findings (Olaleye and Ajuwon, 2011) mean age of sexual debut among females was lower than that of

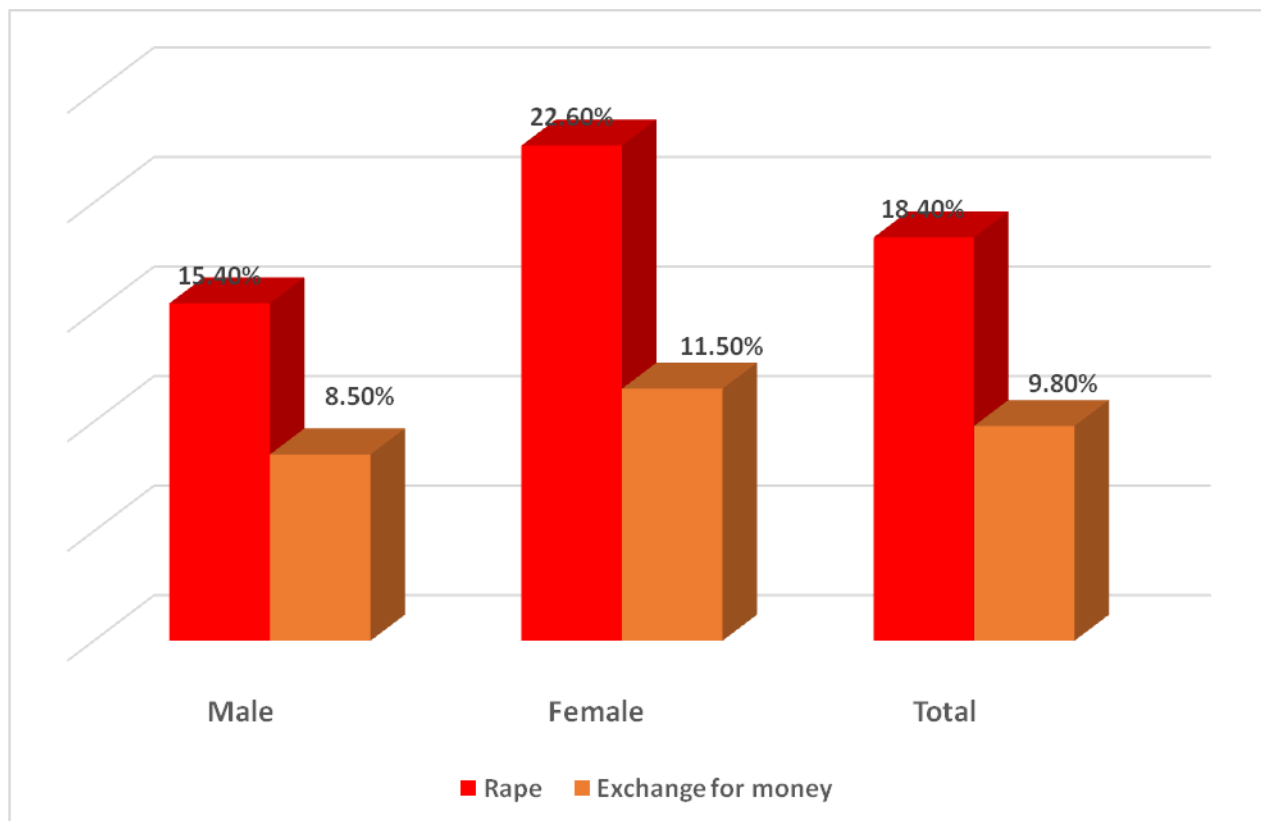


Figure 2. Circumstance of the first sexual intercourse.

males. However, this data should be interpreted with caution as females tend to under-report their sexual activities.

There is concern that some of the respondents reported that their first sexual encounter was due to rape. This cut across both males and female respondents, although the proportion is higher among the females. This is consistent with some previous studies (Ajuwon et al, 2002, Ajuwon et al., 2011, Olaleye and Ajuwon, 2012) in Nigeria in which more females than males reported rape during their first sexual encounter.

The fact that over a quarter of the respondents had more than one sexual partner showed the extent of risky sexual behaviour among these adolescents. This even more pronounced among the males respondents. Despite the knowledge of these adolescents on HIV prevention, it is less a quarter of them have ever gone for HIV test.

Implications for findings

Many interventions are being carried out among secondary schools students in Nigeria such as NYSC peer education and FLHE programme. The goal of these interventions for adolescents are promotion of healthy behaviours including abstinence, correct and consistent

use of condoms, non-penetrative practices such as hugging, holding of hands, adoption of positive attitudes towards People Living With HIV/AIDS (PLWHA), and utilization of HIV Counselling and Testing (HCT) services. These in turn will result in prevention of undesirable consequences of sexual activities including STI, unwanted pregnancy and unsafe abortion. The impact of these interventions was evident from the findings of this study. Hence we recommend such programmes being strengthened and introduced to all secondary schools in Nigeria.

It is recommended that behavioral change interventions be strengthened and incorporated into interventions going in these schools because many are still involved in risky sexual behavior and have never gone for HIV counselling and testing.

CONCLUSION

Secondary schools students in Nigeria are quite knowledgeable about reproductive health and HIV prevention, however many of them still engage in risky sexual practices and have never gone for HIV counselling and testing. Hence, behavioral change communication needs to be strengthened among these adolescents to

ensure safe sex practice and also ensure intermittent HIV testing.

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Competing interests

The authors have no competing interests.

Authors' contributions

Hassan, Oladeji and Ehimatie designed the study and coordinated the survey and participated in manuscript development. Hassan, Ojomo, Ehimatie and Atibioke jointly developed the data collection tools, collected data, analysis and drafted the manuscript. Hassan, Ajuwon, Oladeji and Osinowo participated in manuscript development and editing. All authors read, critically revised and approved the final manuscript. Ladipo is the guarantor and internal reviewer of the paper.

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