

# Original Article: Socio-demographic Determinants of Sexual Risk Behavior among Senior Secondary Schools Students in a Military Barracks in Nigeria

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**Abstract Context:** Social, economic and political factors are rapidly changing the ways that young people must prepare for adult life. These changes have enormous implications also for their sexual health and behaviors. **Objective:** To determine the socio-demographic factors associated with sexual risk behaviors among senior secondary schools students in Ojo military barracks, Lagos. **Materials and methods:** This was a cross-sectional study of 400 senior secondary schools students in Ojo military barracks, Lagos, selected using multistage sampling technique. Data was collected using pretested, self-administered semi-structured questionnaires and analysed using statistical package for social sciences version 17. Chi-square test was used to identify statistically significant associations between sexual behavior and socio-demographic variables. Logistic regression was used to estimate the probability of ever had sex, adjusted for thirteen design effects. A p value of < 0.05 was considered significant. **Results:** Respondents from the boys single-sex school 44(55.7%) were most likely to engage in sexual intercourse (p= 0.000). Those from polygamous settings 101(42.8%) were more likely to engage in sexual intercourse (p= 0.034). Low socio-economic background for both parents and doing income earning jobs were associated with sexual intercourse (p= 0.008; p= 0.021; p= 0.000). Living with single parent is a very strong predictor of ever had sex (p=0.000). **Conclusions:** Sexual risk behavior was found to be associated with increasing age, living with one parent, polygamy, low educational cum socio-economic statuses. We recommend formal comprehensive sex education programs for the students and improved conditions of service for the military personnel.

**Keywords:** students, determinants, sexual risk behavior, military barracks, Lagos

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## 1. Introduction

Sexual risk behaviors are defined as sexual activities that may expose an individual to the risk of sexually transmitted infections (STIs) including HIV and unplanned pregnancies. [1] Such behaviors include: unprotected sexual intercourse, multiple sexual partners, forced or coerced sexual intercourse and transactional sexual intercourse. Sexually active adolescents and young people—defined as those who have had sexual intercourse in the past three months—are at immediate risk of unplanned pregnancy and STIs [2].

Adolescents' sexual health thus remains a concern because of these attendants. [3] Also if their problems are not properly addressed they become more compounded

and the cycle becomes more vicious. To this end, in 2000 Nigeria developed a national health policy aimed at preventing behavior among adolescents leading to STIs (including HIV), unplanned pregnancies, and dropout from school [4,5].

Effective interventions in Nigeria have been hindered by dearth of information on contextual factors influencing sexual behavior of adolescents. [5,6] In Nigeria and elsewhere, factors such as diminishing traditional, cultural and religious influences on premarital sexual behavior, child labor, poverty and inadequate parental supervision, have been identified as having led to young people's involvement in risky sexual behavior. [7] However, the high rates of adolescent pregnancy, STIs (including HIV) and unsafe abortions in Nigeria indicate the need for a clearer understanding of the factors associated with adolescent sexuality [3].

With institutionalization in the barracks, it is important to create a supportive environment that would effectively promote positive attitude and healthy sexual behavior among adolescents and youths living in there. It is against this backdrop that we set out to determine the socio-demographic factors associated with sexual risk behaviors among senior secondary schools students in Ojo military barracks, Lagos.

## 2. Methodology

### 2.1. Description of Study Setting

Ojo military cantonment is one of the military barracks in Nigeria. It is located in Ojo local government area of Lagos state in south western Nigeria. The barracks has an estimated population of over 30,000 inhabitants comprising military personnel from various army units, their families and dependants.

Three secondary schools are located within the barracks. The schools include: one army- owned co-educational school (Command Day Secondary school) and two Lagos state owned schools, Cantonment Girls' Secondary and Cantonment Boys' High schools. There are two churches (one Catholic and one Protestant), a mosque and a Medical Centre that offers curative services, immunization and family planning services to the families and dependants of military personnel.

### 2.2. Study Design

This is a cross sectional descriptive survey.

### 2.3. Study Population and Selection Criteria

The study population comprises senior secondary schools (SS) students (SS1-3) of the three secondary schools. The three schools have a total population of 2903 senior students (SS1-3); a breakdown of this population is as follows:-Command Day Secondary School=1512; Army Cantonment Boys' Senior Secondary School=671; Army Cantonment Girls' Senior Secondary School=720. Each class (SS1-2) is made up of between 5-7 arms in each of the three schools while SS3 classes have 3-4 arms.

#### 2.3.1. Inclusion Criteria

Senior secondary schools students of the three secondary schools who consent to this study.

#### 2.3.2. Exclusion Criteria

Students residing outside the barracks and students whom none of the parents is a military personnel are excluded from this study. This group may not be influenced by enclosed environment as well as the way of life within the barracks.

### 2.4. Sample Size Determination

In a previous study in Nigeria among similar population, level of sexual activity (p) was 52.0%. [8] Therefore,  $p = 0.52$ . The sample size was determined using the Leslie Fischer's formula for the calculation of sample size in populations greater than 10,000,  $n = z^2pq/d^2$ , [9] where  $n$  = minimum sample size;  $p$  = proportion of sexually active;  $d$

= desired precision at 5%;  $z$  = a constant at 95% confidence interval  $z = (1.96)$ . Substituting values,

$$n = \frac{(1.96)^2 \times 0.52 \times 0.48}{(0.05)^2} = 383.55$$

Then a conversion was made using the formula for the calculation of minimum sample size in populations less

than 10,000  $nf = \frac{n}{1 + n/N}$  [9], where  $N$  = target

population= 2,903.

$nf = 340$  students.

Anticipating a response rate of 90%, an adjustment of the sample size estimate to cover for non- response rate was made by dividing the sample size estimate with a factor  $f$ , i.e.  $n/f$ , where  $f$  is the estimated response rate. [9] Thus the calculated sample size =  $340/0.90 = 378$  students. However, 400 questionnaires were distributed.

### 2.5. Sampling Technique

A multistage sampling technique was used.

Firstly, simple random sampling technique was used to select three arms from each of the classes (SS1-2) and 2 arms of the SS3 classes.

Secondly, stratified sampling technique was used to allot respondents according to relative school populations.

- Command Day Secondary school (CDSS) = 232 =58.0%
- Cantonment Girls' High school = 95 =23.8%
- Cantonment Boys' High school = 73 =18.2%

Total minimum sample size=400=100%.

Thirdly, the class registers were used as the sampling frame. For the single sex schools, simple random sampling technique was used to select eligible and consenting students until the required number allotted to the selected arms in each class (SS1-3) has been obtained. For CDSS (which is a co-educational school), the class registers were initially stratified by sex into males and females before proportionate sample of each sex was taken using simple random sampling technique was used to select eligible and consenting students until the required number allotted to the selected arms in each class (SS1-3) was obtained.

### 2.6. Data Collection Technique

Data collection in this study employed pre-tested, self-administered semi- structured questionnaires developed from review of relevant literatures and interview of some adolescents. All questions were written in English language and pre-tested in similar schools in Navy Barracks Ojo. This was done, to check for its reliability and validity. Also determined were the appropriateness of format and wording of the questionnaire as well as time needed to carry out interviews. Thereafter the instruments were reviewed by colleagues, necessary adjustments and corrections were effected before administering the questionnaire to the study population.

The questionnaire is divided into four sections (A-D) to obtain data on A) the socio- demographic characteristics of the respondents; B) the socio- demographic and socio-economic characteristics of respondents' family; C) socio-demographic characteristics and ever had sex cum sexual activity of respondents three months prior to study and D)

predictors of ever had sex. On the administration of the questionnaires, time was taken to explain the questions to avoid ambiguity. Respondents who could not fill the questionnaires immediately were given a minimum of two days before collection.

## 2.7. Data Management and Statistical Analysis

The data were scrutinized and entered into the computer. Data cleaning was done by carrying out range and consistency checks. Data were analyzed in respect to the socio-demographic characteristics of the respondents; the socio-demographic and socio-economic characteristics of respondents' family as well as the relationships between socio-demographic characteristics and sexual activity of respondents.

Descriptive and analytical statistics of the data were carried out using statistical package for social sciences (SPSS) Windows version 17.0.<sup>10</sup> Chi-square test was used to identify statistically significant associations between ever had sexual intercourse/sexual activity and the socio-demographic variables. We used logistic regression to estimate the probability of sexual activity/predictors of ever had sex adjusted for the thirteen design effects: age, sex, school type (co-educational, same sex), residence, religion, number of parents respondent is living with, family type (monogamous or polygamous), living arrangement (sharing room or not), engagement in earning income job, fathers' educational status, mothers' educational status, fathers' socio-economic status, mothers' socio-economic status. A p value of < 0.05 was

considered significant. Descriptive data were presented as simple frequencies and percentages.

## 2.8. Ethical Consideration

Written permission to carry out this study was sought and obtained from the barracks' commander and the principals of the three schools. Consent and co-operation of the respondents was solicited and obtained for the conduct and publication of this research study. All authors hereby declare that the study has been examined and approved by the University of Ibadan and University College Hospital ethics committee, Nigeria and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

## 3. Results

A total of 400 respondents participated in the study. This was made up of representative samples from the co-educational school and the two single- sex schools. The response rate was 100%. Table 1 shows the socio-demographic distribution of the respondents. The majority of the students 391(97.8%) were in the adolescent age group (10-19 years); all the respondents above 19 years were from the girls' school. The mean age of the respondents was 15±2.4 for males and 15±2.2 for females. A higher proportion of them 258(64.5%) reside in the quarters for the 'non-commissioned' soldiers while 215(54.5%) of them did some form of income earning jobs.

**Table 1. Distribution of respondents' socio-demographic characteristics**

Characteristics	Male n (%)	Female n (%)	Total n (%)
<b>School</b>			
Co-educational school	148 (67.0)	84 (47.0)	232 (58.0)
Girls' school	0 (0.0)	95 (53.0)	95 (23.7)
Boys' school	73 (33.0)	0 (0.0)	73 (18.3)
<b>Total</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>
<b>Age group (yrs)</b>			
10 – 14	88 (40.0)	63 (35.0)	151(37.8)
15 - 19	133 (60.0)	107 (60.0)	240 (60.0)
20 – 24	0 (0.0)	9 (5.0)	9 (2.2)
<b>Total</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>
<b>Sex</b>			
	<b>221(55.3)</b>	<b>179(44.7)</b>	<b>400 (100.0)</b>
<b>Religion</b>			
Christian	130 (59.0)	119 (66.0)	249 (62.3)
Moslem	91(41.0)	60 (34.0)	151 (37.7)
<b>Total</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>
<b>Residence</b>			
Officers' Quarters	84 (38.0)	58 (32.0)	142 (35.5)
Other ranks Quarters	137 (62.0)	121 (68.0)	258 (64.5)
<b>Total</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>
<b>Doing income job</b>			
Yes	119 (54.0)	99 (55.0)	215 (54.5)
No	102 (46.0)	80 (45.0)	185 (45.5)
<b>Total</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>

Table 2 shows the socio-demographic and socio-economic characteristics of respondents' family. More than half of the respondents 236(59.0%) were from polygamous families, 204(51.0%) were from families where both parents were living together; while 10(2.5%) were from single parents. More than half 215(53.8%) of the respondents had family arrangement where they

shared the same room with either their parents, siblings of opposite sex or other older relations of opposite sex. The highest proportion 167(41.8%) of the respondents' mothers had post-secondary education. One hundred and seventy (42.5%) of fathers have post- secondary education. Ninety (22.5%) mothers were in the high socio-economic bracket, while 128(32.0%) fathers were in the high bracket.

Table 2. Socio-demographic and socioeconomic characteristics of respondents' family

Characteristics	Male n (%)	Female n (%)	Total n (%)
<b>Type of family</b>			
Polygamous	132 (60.0)	104 (58)	236 (59.0)
Monogamous	89 (40)	75 (42)	164 (41.0)
<b>TOTAL</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>
<b>Family Background/Situation</b>			
Living with both parents	119 (54.0)	85 (47.0)	204 (51.0)
One parent absent for >3yrs	88 (40.0)	81 (45.0)	169 (42.3)
Parents divorced/separated	10 (5.0)	7 (4.0)	17 (4.2)
Single parent family	4 (2.0)	6 (3.0)	10 (2.5)
<b>TOTAL</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>
<b>Living arrangement</b>			
Sharing room with opposite sex	104 (47.0)	101 (56.0)	205 (53.8)
Not sharing room	117 (53.0)	66 (37.0)	183 (43.2)
No response	0 (0.0)	12 (7.0)	12 (3.0)
<b>TOTAL</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>
<b>Mother's Educational Level</b>			
No formal education	8 (4.0)	18 (10.0)	26 (6.5)
Primary education	36 (16.0)	34 (19.0)	70 (17.5)
Secondary education	78 (35.0)	59 (33.0)	137 (34.3)
Post secondary education	99 (45.0)	68 (38.0)	167 (41.8)
<b>TOTAL</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>
<b>Father's Educational Level</b>			
Primary education	12 (5.0)	52 (29.0)	64 (16.0)
Secondary education	106 (48.0)	60 (68.0)	166 (41.5)
Post secondary education	103 (47.0)	67 (15.0)	170 (42.5)
<b>TOTAL</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>
<b>mother's socio-economic status</b>			
Low	70 (31.7)	32 (18.0)	102 (25.5)
Medium	87 (39.3)	121 (68.0)	208 (52.0)
High	64 (29.0)	26 (15.0)	90 (22.5)
<b>TOTAL</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>
<b>father's socio-economic status</b>			
Low	60 (27.2)	38 (21.2)	98 (24.5)
Medium	107 (48.4)	67 (37.4)	174 (43.5)
High	54 (24.4)	74 (41.3)	128 (32.0)
<b>TOTAL</b>	<b>221 (100.0)</b>	<b>179 (100.0)</b>	<b>400 (100.0)</b>

Table 3 shows the socio-demographic characteristics and ever had sexual intercourse among respondents. Respondents from the boys single- sex school 44(55.7%) were most likely to engage in sexual intercourse, while those from the co-educational school were least likely to have sex 67(28.9%) compared to the single-sex schools ( $\chi^2 = 25.20$ ,  $df=2$ ,  $p= 0.000$ ). The likelihood of having sex increased with age among the students ( $F=48.37$ ,  $df=1$ ,  $p= 0.000$ ). Seventy three (42.2%) females and 81(35.7%) males were found to engage in sexual intercourse ( $\chi^2 = 0.7126$ ,  $df=1$ ,  $p= 0.398$ ). Christians were more likely to have sexual intercourse than Moslems ( $\chi^2= 6.617$ ,  $df= 1$ ,  $p= 0.010$ ). One hundred and three (39.9%) students residing in the high-density quarters and 51(35.9%) of those in the low-density quarters were found to engage in sexual intercourse ( $\chi^2= 2.713$ ,  $df=1$ ,  $p= 0.099$ ). Students who lived with one parent 97(47.5%) were much more likely to engage in sexual intercourse than those living with both parents 50(29.6%), ( $\chi^2=34.414$ ,  $df=1$ ,  $p= 0.000$ ). Students from polygamous homes 101(42.8%) were more likely to engage in sexual intercourse than those from monogamous homes 53(31.4%), ( $\chi^2=4.488$ ,  $df=1$ ,  $p= 0.034$ ). As the educational status of the parents increased the chances of the respondents engaging in sexual intercourse decreased, ( $\chi^2=69.66$ ,  $df=2$ ,  $p= 0.000$ ) for mothers and ( $\chi^2= 42.42$ ,  $df=2$ ,  $p= 0.000$ ) for fathers.

Those from low socio-economic background for both parents were more likely to engage in sexual intercourse ( $\chi^2=7.12$ ,  $df=2$ ,  $p= 0.008$ ) for mothers and ( $\chi^2=5.355$ ,  $df=2$ ,  $p= 0.021$ ). Doing income earning jobs predisposes to sexual intercourse ( $\chi^2= 12.09$ ,  $df=1$ ,  $p= 0.000$ ), while sharing room with parents or adults of opposite sex ( $\chi^2=1.646$ ,  $df=1$ ,  $p= 0.199$ ) does not.

Table 4 shows the socio-demographic characteristics and sexual activity of students three months prior to study. Students from boys' school were found to be most sexually active, followed by the girls' school ( $\chi^2= 14.22$ ,  $df=2$ ,  $p= 0.000$ ). Students' sexual activity in the three months prior to study increased with increasing age ( $\chi^2= 0.014$ ,  $df=2$ ,  $p= 0.907$ ). The male respondents were found to have been more sexually active in the three months prior to this study ( $\chi^2= 4.307$ ,  $df=1$ ,  $p= 0.038$ ). More Moslems were found to be sexually active than the Christians ( $\chi^2=0.452$ ,  $df=1$ ,  $p= 0.501$ ). More students residing in the low density quarters were found to be sexually active than those residing in high density quarters ( $\chi^2= 0.01$ ,  $df=1$ ,  $p= 0.369$ ). Students who lived with one parents were more sexually active compared to those living with both parent ( $\chi^2=4.093$ ,  $df=2$ ,  $p= 0.043$ ). The rate of sexual activity among students from both polygamous and monogamous families was almost the same ( $\chi^2= 0.001$ ,  $df=1$ ,  $p= 0.993$ ). More students whose

fathers have below secondary education and those in the low/medium socio-economic status were found to be sexually active ( $\chi^2= 2.769$ ,  $df=1$ ,  $p= 0.961$ ;  $\chi^2= 0.001$ ,  $df=2$ ,  $p= 0.974$ ). Mothers educational status varied while their socio-economic status had a similar trend as that of

the fathers ( $\chi^2= 63.15$ ,  $df=1$ ,  $p= 0.000$ ;  $\chi^2= 0.07$ ,  $df=1$ ,  $p= 0.707$ ). Fifty-seven (56.4%) of those doing income-earning jobs had increased sexual activity compared to those 7(13.2%) who did not ( $\chi^2= 26.74$ ,  $df=1$ ,  $p= 0.000$ ).

**Table 3. Socio-demographic characteristics and sexual activity of respondents**

Characteristics	Ever had sexual intercourse				Test statistics $\chi^2$	p- value
	Yes	%	No	%		
<b>SCHOOL *</b>						
Co-educational school	67	28.9	165	76.1	25.20, df=2	0.000
All boys' school	44	60.5	29	39.7		
All girls' school	43	45.5	52	54.6		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>AGE GROUP *</b>						
12-14	3	5.1	98	64.9	F=48.37, df=1	0.000
15-19	94	39.2	146	60.8		
20-24	9	100.0	0	0.0		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>SEX **</b>						
Male	81	35.7	140	64.3	0.7126, df=1	0.398
Female	73	42.2	106	57.8		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>RELIGION *</b>						
Christian	108	43.4	141	56.6	6.617, df= 1	0.010
Moslem	46	31.9	105	68.1		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>RESIDENCE **</b>						
Officer's quarters	47	33.1	95	66.9	2.713, df=1	0.099
Non officer's quarters	107	41.5	151	58.5		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>FAMILY SITUATION *</b>						
Living with one parent	50	24.5	154	75.5	34.414, df=1	0.000
Living with both parents	104	50.1	92	46.9		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>SHARING ROOM SEX**</b>						
Yes	89	43.4	126	56.6	1.646, df=1	0.199
No	65	35.1	120	64.9		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>FAMILY TYPE *</b>						
Polygamous	101	42.8	135	57.2	4.488, df=1	0.034
Monogamous	53	31.4	111	68.6		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>MOTHER'S EDUCATION*</b>						
No formal education	18	69.2	8	30.8	42.42, df=2	0.000
Primary education	43	61.4	27	38.6		
Secondary education	56	40.9	81	59.1		
Post-secondary education	37	22.2	130	77.8		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>FATHER'S EDUCATION*</b>						
Primary education	54	84.4	10	15.6	69.66, df=2	0.000
Secondary education	62	37.3	104	62.7		
Tertiary education	38	22.4	132	77.6		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>MOTHER'S SOCIO-ECONOMIC STATUS *</b>						
High	10	12.5	80	87.5	7.12, df=2	0.008
Medium	91	43.8	117	56.2		
Low	53	52.0	49	48.0		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>FATHER'S SOCIO ECONOMIC STATUS *</b>						
High	8	6.5	120	93.5	5.355, df=2	0.021
Medium	74	42.5	100	57.5		
Low	72	73.5	26	26.5		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		
<b>DOING INCOME JOB*</b>						
Yes	101	47.0	114	53.0	12.09, df=1	0.000
No	53	28.6	125	71.4		
<b>TOTAL</b>	<b>154</b>	<b>38.5</b>	<b>246</b>	<b>61.5</b>		

\* p<0.05 statistically significant. \*\* p>0.05 not statistically significant  
F=Fischers test.

Table 4. Socio-demographic characteristics and sexual activity of respondents three months prior to study

Characteristics	Had sexual intercourse in the last three months				Test statistics $\chi^2$	p- value
	Yes	%	No	%		
<b>SCHOOL *</b>						
Co-educational school	16	23.9	51	76.1	14.22, df=2	0.000
All boys' school	33	75.0	11	25.0		
All girls' school	15	34.9	28	76.6		
<b>TOTAL</b>	<b>64</b>	<b>41.6</b>	<b>90</b>	<b>58.4</b>		
<b>AGE GROUP **</b>						
12-14 yrs		14 34.1	27	65.9	0.014, df=2	0.907
15-19 yrs	44 44.4	60	59.6			
20-24 yrs	6	66.6	3	33.3		
<b>SEX *</b>						
Male	40	49.4	41	50.6	4.307, df=1	0.038
Female	24	32.9	49	67.1		
<b>TOTAL</b>	<b>64</b>	<b>41.6</b>	<b>90</b>	<b>58.4</b>		
<b>RELIGION ***</b>						
Christian	43	39.8	65	60.2	0.452, df=1	0.501
Moslem	21	45.7	25	54.3		
<b>TOTAL</b>	<b>64</b>	<b>41.6</b>	<b>90</b>	<b>58.4</b>		
<b>RESIDENCE **</b>						
Officer's quarters	17 36.2	30	63.8		0.01, df=1	0.369
Non officer's quarters	47 43.9	60	56.1			
<b>TOTAL</b>	<b>64 41.6</b>	<b>90</b>	<b>58.4</b>			
<b>FAMILY SITUATION *</b>						
Living with one parent	39	40.2	88	59.8	4.093, df=2	0.043
Living with both parents	20	40.0	30	60.0		
Other arrangements	5	71.4	2	28.6		
<b>TOTAL</b>	<b>64</b>	<b>41.6</b>	<b>90</b>	<b>58.4</b>		
<b>FAMILY TYPE **</b>						
Polygamous	42	41.6	59	58.4	0.001, df=1	0.993
Monogamous	22	41.5	31	58.5		
<b>TOTAL</b>	<b>64</b>	<b>41.6</b>	<b>90</b>	<b>58.4</b>		
<b>MOTHER'S EDUCATION *</b>						
Secondary and above	21	20.0	84	80.0	63.15, df=1	0.000
Below secondary	43	87.8	6	19.2		
<b>TOTAL</b>	<b>64</b>	<b>41.6</b>	<b>90</b>	<b>58.4</b>		
<b>FATHER'S EDUCATION **</b>						
Secondary and above	29	35.4	5.3	66.4	2.769, df=1	0.961
Below secondary	35	48.6	37	51.4		
<b>TOTAL</b>	<b>64</b>	<b>41.6</b>	<b>90</b>	<b>58.4</b>		
<b>MOTHER'S SOCIO-ECONOMICSTATUS * *</b>						
High	4	40.0	6	60.0	0.07, df=1	0.707
Medium	14	42.4	19	57.6		
Low	46	41.4	65	58.6		
<b>TOTAL</b>	<b>64</b>	<b>41.6</b>	<b>90</b>	<b>58.4</b>		
<b>FATHER'S SOCIO ECONOMIC STATUS * *</b>						
High	2	25.0	6	75.0	0.001, df=2	0.974
Medium	21	46.7	24	59.4		
Low	41	40.6	60	59.4		
<b>TOTAL</b>	<b>64</b>	<b>41.6</b>	<b>90</b>	<b>58.4</b>		
<b>DOING INCOME JOB *</b>						
Yes	57 56.4	44	43.6		26.74, df=1	0.000
No	7 13.2	46	86.8			
<b>TOTAL</b>	<b>64</b>	<b>41.6</b>	<b>90</b>	<b>58.4</b>		

\* p&lt;0.05 statistically significant.

\*\* p&gt;0.05 not statistically significant.

Table 5 shows predictors of ever had sex. Predictors of ever had sex demonstrated in this survey include: attending single-sex school (OR=3.8 boys and OR= 2.4 for girls, p=0.001), living with single parent (OR=5.98,

p=0.000), social overcrowding (p=0.00001), doing income earning job (OR=1.5, p=0.038) and low socio economic status of parents.

Table 5. Logistic regression showing predictors of ever had sex

Variable	Odds ratio	95% Confidence interval	p- value
<b>AGE (years)</b>			
13 – 14	0.0001	0.00 – 0.38	0.0002
15 – 19	0.0003	0.00 – 0.78	0.008
20 – 24	1.0		
<b>SEX</b>			
Male	0.78	0.31 – 1.20	0.243
Female	1.0		
<b>SCHOOL</b>			
All boys	3.74	2.09 – 6.71	0.000
All girls	2.35	1.38 – 4.03	0.001
Co- educational	1.0		
<b>RELIGION</b>			
Christianity	1.63	1.04 – 2.57	0.025
Islam	1.0		
<b>RESIDENCE</b>			
Offices Qtrs	0.67	0.42 – 1.05	0.033
Commissioned Soldiers Qtrs	1.0		
<b>FAMILY SITUATION</b>			
Living with One parent	5.98	2.52 – 14.86	0.000
Living with both parents	1.0		
<b>FAMILY TYPE</b>			
Monogamous	0.64	0.41 – 0.99	0.034
Polygamous	1.0		
<b>LIVING ARRANGEMENT</b>			
Sharing room			
Yes	1.0	0.18 – 0.44	0.00001
No	0.28		
<b>DOING EARNING INCOME JOB</b>			
Yes	1.54	1.0 – 2.38	0.038
No	1.0		
<b>FATHERS' EDUCATION</b>			
Below Secondary education	1.17	0.68 – 2.01	0.55
Above secondary education	1.0		
<b>MOTHERS' EDUCATION</b>			
Below secondary education	1.42	0.74 – 2.71	0.26
Above Secondary education	1.0		
<b>FATHERS' SOCIO-ECONOMIC STATUS</b>			
Low/medium	2.38	1.52 – 3.74	0.000
High	1.0		
<b>MOTHERS' SOCIO-ECONOMIC STATUS</b>			
Low/medium	1.92	0.94 – 3.92	0.05
High	1.0		

## 4. Discussion

A major strength of this study is the high response rate (100%) achieved. This is same with the response rate in the study by Oluwatoyin and Oyetunde on risky sexual behavior among secondary school adolescents in Ibadan, Nigeria. [1] Majority of the respondents (97.7%) were aged between 10-19 years. This corresponds to the adolescent age group. [11,12,13] This group is in a transition period to adulthood and is likely to indulge in sexual experimentation. [14,15] Their sexual behavior at this stage is usually sporadic and unplanned.

The findings of this study showed that the likelihood of having sex increased with age among the respondents. This finding is consistent with findings from other studies. [1,3,16] It however differs from the findings of another study which revealed that students between ages 10-14 years were 1.5 more likely to practice risky sexual behavior than those between the ages of 15-19 years. From our study, more female students were found to

engage in sexual intercourse than the males. Though this finding is not statistically significant, it differs from that of a study in Ibadan, Nigeria [1] and another in Northeastern Nigeria, where significantly more males (19%) than females (6%) had engaged in sexual activity ( $p < 0.001$ ). [17] Explanations for these differences could be observed variations in social controls, such as parental supervision, [18] and differences in the opportunity costs of becoming sexually active, [19] probably due to liberal attitude towards negative sexual outcomes [20].

This study found that more students from the single-sex schools had engaged in sexual intercourse compared to those from the mixed school. This could be because the single-sex schools have little or no supervision and education about sexual relationships since there are no students of the opposite sex to mingle with. Slap *et al.*, in a cross sectional survey on the sexual behavior of in-school adolescents in Nigeria reported that sexually active students had lower mean scores for school connectedness, but they did not go further with the gender associations. [5] Further studies are needed in this area.

This study observed increased sexual activity among respondents residing in high density quarters. The high-density environment could be exposing them to situation that put them at risk. For example a large family living in a one or two room apartment by virtue of the parent's rank may have the whole family sharing room with parents or older relations of opposite sex or house-help. They may sometimes observe their parents and older siblings indulge in sexual activity and thereafter practice what they observed, sometimes even among themselves.

This study showed that Christians were more likely to have ever had sexual intercourse than Moslems ( $p=0.010$ ), but also revealed that three months prior to this study, more Moslems were found to be sexually active than the Christians ( $p=0.501$ ). Slap *et al.*, reported that the proportion of students reporting sexual activity did not differ between Christian and Muslim students. [5] They however adduced that religion was very important to them, and the proportion of students reporting sexual activity increased as religious importance decreased ( $P<0.0001$ ).

Soldiers are often known to be separated from their families, because of the rate of transfer and foreign missions among the military personnel. From our study, students who lived with one parent were much more likely to engage in sexual intercourse than those living with both parents, ( $p=0.000$ ). An assessment of family characteristics in another study established that dysfunctional families had significantly sexually active respondents. [21] This assessment further revealed that adolescents from families with one parent were more likely to have sex; this may be due to diminished parental support and control. In a Nigerian study, sexually active students had lower mean scores for parent-teen connectedness, parent-teen activities and parental presence. [5] Parental monitoring has also been found to be an important correlate of adolescent risk behavior, and the ability to monitor behavior can be reduced if only one parental figure lives with the adolescent. [21] It has also been reported that adolescents and youths who live with two parents (biological, step-parents, other, or any combination thereof) are significantly less likely to engage in risk behaviors [22].

The findings of our study showed that respondents from polygamous homes were more likely to engage in sexual intercourse than those from monogamous homes ( $p=0.034$ ). Another study had reported that sexual activity was more common among students from polygamous families than monogamous families ( $p<0.0001$ ). [5] Polygamy in itself could set examples for the students to have multiple sexual partners which on its own is a risk factor for pregnancy and STIs (including HIV/AIDS). Several studies had concurred that children from polygamous homes have higher rates of behavioral problems [23,24,25,26,27].

From our study it was shown that those respondents doing income generating jobs to support their families and those from low income families were more likely to engage in sexual intercourse. This indicates that young people whose basic needs are hardly met by their parents are at a higher risk of unwanted pregnancy and STIs (including HIV/AIDS). Nzioka, revealed that youths with economic resources and those with less stable living environments are more likely than other youths to engage in sexual behavior. [28] This finding was corroborated by

Ajibade *et al.*, and Radhakrishna who in separate papers adduced that the reason many adolescents engage in sexual relationships is transactional, to satisfy their monetary need. [29,30] This group should be specifically targeted with intervention programs.

From this study, as the educational status of the parents increased the chances of the respondents engaging in sexual intercourse decreased, ( $p=0.000$ ). Those from low socio-economic background for both parents were more likely to engage in sexual intercourse This is consistent with the findings that educational level and occupation of parents were factors that contributed to the exposure to sexual intercourse. [5,31] In addition, Adegoke had documented that the rate of risky sexual behaviors and the spread of STIs continue to be on the increase due to factors such as dearth of information regarding adolescent sexuality. [6] It is believed that the more educated parents are, the more information on adolescent sexuality they are equipped with to pass on to these adolescents. Our finding however differs from the finding that educational level does not have significant influence on the previous sexual exposure [32].

Predictors of ever had sex demonstrated in this study includes: early adolescent period, schools, not living with both parents, low and medium socio-economic class and engaging in income earning jobs. This finding agrees with the findings in another Nigerian study, where the variables independently associated with sexual activity were male sex, older age, lower sense of connectedness with parents, family cohesion, family polygamy, lower sense of connectedness with school, and lower educational level of parents. [5,22] Studies in the developed world also reported strong associations between adolescent sexual behavior and school; interpersonal family relationships as well as the level of education and presence of parents [33,34,35].

## 5. Limitations of the Study

This study is based on self-reported behaviors, and the data is therefore subject to reporting errors. Also a number of the respondents were unable to understand the questions. This was minimized by mandating research assistants to read and interpret aspects of the questionnaire as the need arose; it was also time consuming.

## 6. Conclusions

We examined trends in risky sexual behavior among the respondents which was found to be associated with increasing age, living in high-density area, sharing rooms with parents, living with one parent, polygamy, doing income earning jobs and low educational cum socio-economic statuses of parents. Appropriate interventions and a supportive environment must be instituted to address these factors. The finding that the likelihood of having sex increased with age probably due to environmental and societal influences, underscores the importance of early intervention programs for this group. We therefore recommend an improved multi-sectoral approach in reproductive health and STIs (including HIV/AIDS) education through formal comprehensive sex



education programs. The military authority and government should also review the living condition and conditions of service of the lower level personnel with a view to enabling them meet their family needs.

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## Competing Interests

The authors declare that they have no competing interests.

## Authors' Contributions

Author **CCN** was involved in analysis of data, interpretation of results, write up of this study and editing of the main paper, **UCC** was involved in the design and implementation of the study, **TOO** and **ALI** were involved in the design and editing of the main paper, while **CBD** was involved in analysis of data and editing of the main paper. All authors read and approved the final manuscript.

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