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## Sexual risk behavior and HIV infection among adolescents in secondary schools in Jos, Nigeria

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**Abstract Background:** In adolescents sexual risk behaviours are believed to enhance the transmission of HIV infection. This study, therefore aims to examine prevalent sexual risk behaviours of adolescents in secondary schools in a town in northern Nigeria and its relation to HIV infection.

**Method:** A total of 883 subjects drawn from 10 schools out of 37, were recruited for the study. Structured self administered questionnaire was given to each subject. Consenting subjects received group pretest counseling and had HIV screening using Determine HIV test kits. HIV positive subjects had confirmatory test using Unigold test kit.

**Result:** Males accounted for 42.5% (374) out of the 883 students studied. Of this, 169 (19.2%) were sexually active. Mean age at sexual debut was 13.8±2.9 years; 13.3±2.7 years for males and 14.6±3.2 years for females,  $p=0.006$ . Males 101 (27%)

were more sexually experienced as against 13.4% of the females,  $p<0.0001$ . Among the sexually active 37.6% had two or more sex partners, and 63.9% of them never used condoms.

In the sexually active, 54 (42.5%) had nonconsensual sex (NCS), with more of NCS occurring in younger subjects  $p<0.0001$ , more females  $p<0.0001$ , associated with less condom use ( $p=0.02$ ).

Nine (eight females and one male) of the 883 subjects tested HIV positive. among the sexually active subjects, only four tested HIV positive. Condom use among the sexually active, HIV positive subjects was 25%.

**Conclusion:** Prevalent sexual risk behaviors noted were early sexual debut, nonconsensual sex, unprotected sex and multiple sex partners.

**Key words:** Adolescents, Sexual risk behavior, HIV infection, Jos

### Introduction

The first case of AIDS was reported in Nigeria in 1987 in a sexually active 13-year-old girl.<sup>1</sup> Since this first report, the prevalence rate of HIV infection has been on the increase in Nigeria; from 1.9% in 1993 to 5.8% in 2001<sup>2</sup> and with a decline to 4.6% in 2010<sup>3</sup> In youths, 15-24 years rates declined from 6.0% in 2001<sup>2</sup> to 4.1% in 2010.<sup>3</sup> One third of currently infected individuals are youths aged 15 to 24 years, and half of all new infections occur in this same age.<sup>4</sup>

Factors associated with increased HIV transmission includes; early sex, multiple sexual partners and unprotected sex. Others are sexual practices such as forced sex and female genital mutilation.<sup>5,6</sup>

Among adolescents, early sex, multiple sexual partners, and unprotected sex as well as traumatic sexual practices such as forced sex have been reported.<sup>7,9</sup> Unprotected

sexual intercourse among adolescents is prevalent, placing them at risk for HIV infection, other sexually transmitted disease and unintended pregnancy.<sup>10</sup>

Hormones have effects on sexual motivation and behavior and in both sexes these effects are primarily androgenic in origin. Adolescence is characterized by upsurge of such hormones as they begin puberty.<sup>11</sup> This hormonal surge and the sexual exposures put adolescent at risk of HIV, other STI and unwanted pregnancy.

This study was aimed at determining the sexual risk behaviours of adolescents in secondary schools and the relationship between these risk behaviours and HIV infection among adolescents.

### Method

The study was a descriptive cross sectional study conducted among secondary school students aged 10-19

years in Jos metropolis, capital of Plateau state in northern Nigeria. A multistage random sampling technique was employed in the selection of the participants in this study. A list of all secondary schools in the metropolis and environ was obtained from the state ministry of education and a random sample of 10 schools out of 37 schools with both junior and senior secondary classes was selected. In each school, from JSS 1-3 and SSS 1-3 forms, two arms each were randomly selected and from each an equally proportioned sample size of nine students were randomly selected to participate in the study. A parental consent form was given to each student to receive parental/guardian consent. A self-administered structured questionnaire was administered to adolescent whose parents/guardians gave consent for HIV screening.

The questionnaire collected information on socio-demographic characteristics, age at sexual debut, number of life time sex partner, nature of first sexual exposure, and use of condoms, among others.

Group pretest counseling was given to the sampled student while post test counseling was given individually. HIV test was done using Abbott Determine<sup>12</sup> rapid test strips. HIV positive test by Abbott was re-tested using Unigold antibody test<sup>13</sup> in line with the UNICEF recommendation for the use of two rapid tests as confirmatory test. Those who tested positive were referred for further management.

Data collected was analysed using EPI info statistical software. Frequencies were run for all categorical variables and means and standard deviation were calculated for continuous variables to examine sample characteristics. We examined differences between proportions using Chi square test and Student t-test was used to compare differences between means. P value was set at <0.05 for significance

#### Ethical approval

The Jos University Teaching Hospital Ethical Committee; Plateau State Ministry of Education; the Chief Inspector of Education, Jos North Local Government Area, and the various schools' Principals gave approval for the study.

## Result

A total of 883 adolescents in secondary schools within Jos metropolis and environ were involved in the study. of these, 243 (27.5%) were between the ages of 10 and 14 years and 374 of the students were males. Out of the 883 subjects studied, 169, (19.2%) were sexually active, with more males, 101 (27%), than females, 69(13.4%). Mean age at first sex was 13.8±3.0 years overall; In males 13.3±2.7 years and females 14.6±3.2 years, p=0.006. Condom usage was 36.1% among the sexually active subjects. Of these also, 37.6% had more than one sex partner. Table 1.

Variables	Female	Male	Overall	P value
<i>Age</i>				
10-14	137 (26.9)	106 (28.3)	243 (27.5)	0.64
15-19	372 (73.1)	268 (71.7)	640 (72.5)	
Total	509 (57.6)	374 (42.4)	883 (100.0)	
<i>History of sex</i>				
No	440 (86.5)	273 (73.0)	710 (80.8)	0.000
Yes	69 (13.5)	101 (27.0)	169 (19.2)	
Total	509 (57.6)	374 (42.4)	879 (100.00)	
Mean age first sex	14.6 ±3.2yrs	13.3 ±2.7yrs	13.8 ±3.0yrs	0.006
<i>Condom usage</i>				
No	38 (62.3)	61 (64.9)	99 (63.9)	0.7
Yes	23 (37.7)	33 (35.1)	56 (36.1)	
<i>Sex partners</i>				
One	40 (66.7)	58 (59.8)	98 (62.4)	0.4
More than one	20 (33.3)	33 (40.2)	59 (37.6)	

Sexual relationship was consensual in 73 (57.5%) of sexually active subjects while 42.5% was nonconsensual, with more of the nonconsensual sex (NCS) occurring in the younger age group, 47.1% as against 40.9% in the older age group, p<0.0001. Mean age in consensual sex was higher than in NCS, p<0.0001

Those who had consensual sex were more likely to use condoms (49.3%) than those who received NCS (28.3), p=0.02. Number of sex partners were not significantly different in both groups p=0.12. Table 2

Variables	Consensual	Non consensual	P value
<i>Age group</i>			
10-14yrs	8 (52.9)	9 (47.1)	<0.0001
15-19yrs	65 (59.1)	45 (40.9)	
All total	73 (57.5)	54 (42.5)	
<i>Sex</i>			
Males	60(78)	17 (22)	<0.0001
Females	13(26)	37(74)	
Mean age at first sex	14.4±2.6 yrs	13.5±3.3 yrs	0.1
<i>Use of condom</i>			
No	37(50.7)	38(71.7)	0.02
Yes	36(49.3)	15(28.3)	
<i>Number of partners</i>			
One	38 (52.8)	36 (66.7)	0.12
>One	34 (47.2)	18 (33.3)	

Nine (eight females and one male) of the 883subjects, (1%), tested positive to HIV infection.

Four (2.4%) of the 169 sexually active subjects were HIV positive while five (1.0%) out of 710 of those not sexually active were HIV positive, p=0.054.

Mean age at first sex of the HIV positive subjects is 16.8±2.1 years while that of the HIV negative sexually active was 13.8±3.0 years, p=0.047.

Of those who had one sexual partner two percent tested HIV positive, while 3.4% of those with more than one sex partner tested HIV positive, p= 0.6.

Condom usage was similar in both groups. Table 3

<b>Table 3: Sexual characteristics variable by HIV status</b>				
Variable	Positive	Negative	Overall	P value
<i>History of sex</i>				
Yes	4 (2.4)	165 (97.6)	169 (19.2)	0.054
No	5 (1.0)	705 (99.0)	705 (80.8)	
Mean age 1 <sup>st</sup> sex	16.8 ±2.1	13.8 ±2.9	13.8±2.9	0.047
<i>Condom use</i>				
Yes	1 (33.3)	55 (36.2)	99 (63.9)	1.0
No	2 (66.7)	97 (63.8)	56 (36.1)	
<i>Sex partners</i>				
1	2 (2.0)	122 (98.0)	98 (62.4)	0.6
>1	2 (3.4)	31 (96.6)	59 (37.6)	

## Discussion

This study demonstrates that significant numbers of adolescents are having sex, although this findings, 19.2%, is less than reported earlier by Slap et al<sup>9</sup>, 34% in Jos and as reported by Orji and Esimai, 50%, in Ilesha, South-west Nigeria.<sup>14</sup> In Tanzania, a higher prevalence of 48.7% was noted among adolescents, 16-19 years.<sup>15</sup> This lower levels may not be unconnected with recent upsurge in media campaigns on safe sex and especially the ‘Zip Up’ campaign of a non-governmental organisation in Nigeria. This advert was, from this author’s observation, well received by adolescents interacted with in the school during the study. More of such media campaign will go a long way in tackling issues of sex and the adolescents.

However, age at first sex was earlier in this study than previously reported in Jos<sup>9</sup>, 13.8±2.9 years as against 14.8±2.8 years, with males beginning earlier than the females. Others have reported a later age at first sex, Olugbenga-Bello and co<sup>16</sup> report 15.2 years while 14.7 years was reported by Araoye, though only in females 15-19 years.<sup>17</sup> The implication of these findings are that these adolescents are beginning sexual relationship long before they are sufficiently informed about sexuality issues and therefore putting themselves at risk of unwanted pregnancies and infection with HIV and other STI.<sup>15</sup>

Females as seen in this study were much more engaged in NCS than males. This finding is higher than the 10.2% found among female adolescent hawkers, 15-19 years, in Ilorin<sup>17</sup> and higher than global estimates of 5-15%.<sup>18</sup> In Botswana higher rates of NCS were also reported. This high rate of coercive relationship observed may also be due to a tendency for older men (and women) to seek younger sex partners to satisfy either their lust, or even the mistaken belief that sex with younger people can cure AIDS.<sup>19,20</sup>

Multiple sexual partners have been known to be a risk factor for HIV infection<sup>21</sup> and this finding portray great danger for the adolescents. It was observed that 37.6% have had two or more sexual partners in their life. This is little lower than reported by Slap,<sup>9</sup> 57.1% of males

and 48.3% of female adolescents and as reported by Araoye in Ilorin.<sup>16</sup> It is also lower than has been reported elsewhere<sup>16,22</sup>

Unprotected intercourse greatly enhances the risk of transmission of HIV in sexually active individuals. In the study population, we observed that less than half of the subjects use condom. Slap et al<sup>9</sup>, had reported a higher rate of usage of condoms, and yet others like Osho and Olayinka<sup>7</sup> report much lower rate of use. One percent of the population studied tested positive to HIV. This finding is well below the 2010 National HIV sentinel report<sup>3</sup> in which a median prevalence rate of 4.1% in youths aged 15-24 years was reported.

Eight females against one male were noted to be HIV positive. This finding compares with a UNAIDS report<sup>23</sup> that showed that seventy five percent of young people with HIV/AIDS are females. Although males were noted to be more sexually experienced than females 27% versus 13.4%, only one tested positive.

### *HIV related risk factors*

Among sexually active adolescents, HIV prevalence rate of 2.4% was noted compared with 1.0% in the not sexually active adolescents.

Mean age at first debut of the sexually active HIV positive subjects was noted to be 16.8±2.1 years compared with 13.8±3.0 years in the HIV negative, sexually active subjects, p=0.047. This does not seem to support the thinking that early age at first sexual debut is risk factor for HIV infection<sup>20</sup> even though the number of HIV positive subjects is too few to generalize.

In sexually active HIV positive subjects having more than one sex partners showed a higher association with HIV infection. This thus lends support to known fact that having multiple sex partners is a very highly risky behaviour for HIV infection.<sup>24</sup>

## Conclusion

This study has demonstrated occurrence of risky sexual behaviours among adolescents in secondary schools. It also demonstrates a significant association of this risky behaviour with HIV infection in the subjects.

There is therefore a need to intensify preventive effort in adolescents and empower them on self-defense measures against nonconsensual relations.

**Conflict of interest:** None

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