

# KNOWLEDGE OF SEXUALLY TRANSMITTED INFECTIONS AMONG SENIOR SECONDARY SCHOOL STUDENTS IN JOS NORTH LOCAL GOVERNMENT AREA OF PLATEAU STATE

---

Elizabeth O. Okoh,<sup>1,2\*</sup> Mathilda E. Banwat,<sup>1,2</sup> Adakole F. Okoh,<sup>3</sup> Chikaike Ogbonna<sup>1,2</sup>

<sup>1</sup> Department of Community Medicine, College of Health Sciences, University of Jos, Plateau State, Nigeria.

<sup>2</sup> Department of Community Medicine, Jos University Teaching Hospital, Plateau State, Nigeria.

<sup>3</sup> Department of Internal Medicine, Jos University Teaching Hospital, Plateau State, Nigeria.

\*Corresponding Author: Elizabeth O. Okoh

nyeche4jc@gmail.com

---

## ABSTRACT

### Background

Young people are particularly vulnerable to sexually transmitted infections. Most senior secondary students fall within this age group and their knowledge base is an important precursor in the reduction of risky sexual behavior among them. This study was conducted in Jos North LGA, Plateau State, with the aim of assessing the knowledge of senior secondary school students on sexually transmitted infections.

### Methods

A descriptive cross-sectional study was carried out among 200 senior secondary students selected from three private and three public schools. A self-administered questionnaire was used to collect information. Knowledge was scored and graded as poor, fair and good. Analysis was carried out using SPSS 20 and statistical significance set at a  $p$  value  $\leq 0.05$  and a confidence level of 95%.

### Results

Mean age of respondents was  $16.2 \pm 1.6$  years. Eleven percent of respondents had never heard of sexually transmitted infections and among those who have, HIV/AIDS was the most commonly mentioned infection. A mean knowledge score of  $13.91 \pm 6.25$  out of a total of 42 was found. Specifically, 56.8% had poor knowledge, 41.6% had fair knowledge and 1.6% had good knowledge of sexually transmitted infections. Knowledge was found to be statistically associated with the type of school ( $p < 0.001$ ) and student type ( $p < 0.001$ ). The major sources of knowledge were school and mass/social media.

### Conclusion

Senior secondary school students in Jos North LGA were found to have poor knowledge of sexually transmitted infections. There is need to adopt strategies of delivering correct STI information to this group of young people which is an essential starting point in their behavior change process.

Key words: Sexually Transmitted Infections, secondary schools, knowledge

## **INTRODUCTION**

Sexually Transmitted Infections (STIs) are among the most common causes of illness globally and remain endemic in all societies. The public health, social and economic consequences of STIs are extensive, both for the acute infection and its long-term sequelae. There has been a steady rise in the incidence of STIs in recent times. These increased numbers may reflect recent public health campaigns promoting STI screening and the use of increasingly sensitive diagnostic tests. Substantial rises in Human Immunodeficiency Virus (HIV) infection have further heightened awareness of STIs.<sup>1</sup> STIs are the most important causes of loss of healthy productive life in developing countries. Many of the STIs can cause long-term morbidity. If untreated, some infections can lead to infertility or cause miscarriage, premature birth, infection of the newborn and many other complications. Prompt diagnosis and appropriate management are crucial in reducing these complications. This may be difficult as some infections such as *Chlamydia trachomatis*, are often asymptomatic until complications arise.<sup>2,3</sup>

The World Health Organization (WHO) estimated that 333 million curable STIs occur each year with more than two thirds occurring in the developing world and affecting mainly young people.<sup>4</sup> Many young people engage in sexual risk behaviors that can result in unintended health outcomes and these sexual risk behaviors place adolescents at risk of STIs.<sup>5</sup> By age 24, one in three sexually active people will have contracted an STI. Though the WHO describes 'young people' as 10 to 24 years old, the youths which make up the 15 to 24 age group represents the largest risk category in contracting STIs.<sup>6,7</sup> Despite these facts, young people are less likely to access STI services. Youths account for half of the 20 million STI cases that are reported every

year worldwide.<sup>5</sup> It is estimated that 2,500 new infections of STIs occur each day among youths, 79% of which occur in sub-Saharan Africa.<sup>8</sup> In Nigeria, STIs have constituted a silent epidemic and a major health problem as documented in some reports in the country.<sup>7,9</sup>

Young people are particularly vulnerable to STIs and consequent health problems for a number of reasons, one of which includes lack of information about the disease.<sup>6</sup> Most secondary students fall into the age group of those at risk of STI. This study involved this group because their knowledge base is an important precursor to the reduction of risky sexual behavior among them. Generally, knowledge of STIs has always been very low, even in high prevalence areas. To reduce risky sexual behaviors and STIs among youths, it is important that they are properly informed and knowledgeable about the causes, types and prevention of the disease. The main aim of this study is therefore to determine the knowledge of sexually transmitted infections among senior secondary school students in Jos North Local Government Area (LGA).

## **METHODOLOGY**

### **Study Area**

The study was carried out in Jos North Local Government area (LGA), one of the 17 LGAs in Plateau State, Nigeria. Jos North LGA covers a land area of 291km<sup>2</sup> (112.4sqm) and a population of 474,817 for the year 2017. Jos North has 79 registered secondary schools (both public and private), each having the Junior Secondary (JS) 1 to 3 and the Senior Secondary (SS) 1 to 3 classes.

### **Study design and study population**

This was a descriptive cross-sectional study that was conducted among senior secondary students (SS1 to SS3) of selected secondary schools in Jos North

LGA. All students (both boys and girls) in the SS classes who gave consent or assent were included in the study.

### **Sampling Technique**

A multistage sampling technique was used to select respondents. A total of 6 secondary schools were selected after stratifying into public/private. Three schools were selected from each category using simple random sampling technique (by computer generated random numbers). The number of students to be selected from each school and from each arm within the school was determined using proportion to size allocation. Participants were eventually selected from the student list of each arm using the computer-generated random numbering technique. All the students that gave consent/assent were included in the study.

### **Sample Size**

The following formula was used to determine sample size:  $n = z^2 p q / d^2$

A minimum sample size of 181 was calculated which was rounded up to 200 after including a 10% non-response rate.

### **Study instrument**

A self-administered semi-structured questionnaire was used to collect data. The questionnaire covered the following sections: Socio-demographics of respondents, knowledge of STIs (definition, types/examples, risk factors and prevention) and factors affecting knowledge of STIs.

### **Data Collection methods**

Permission was obtained from the school principals and form misters/mistresses before the study was conducted. The participants in the selected classes were given explanations on the objectives of the study and how to fill the questionnaires. Consent (for

those who were 18 years and above) and assent (for those less than 18 years) were obtained before data was collected. Data collection was done in the classrooms with the participants seated comfortably and far apart from one another.

### **Data analysis**

Knowledge was graded thus: Each correct response earned one mark and maximum obtainable score was 42. Students who scored 0-14 points were designated as having poor knowledge, 15-28 as fair knowledge and 29-42 as having good knowledge. Analysis was carried out using Statistical Package for Social Sciences (SPSS) version 21. Chi square test was used to test associations. Statistical significance was set at a p-value of  $\leq 0.05$  with a confidence level of 95%.

### **Ethical Considerations**

Permission was obtained from the school authorities and all respondents gave informed consent/assent before data was collected. Confidentiality was assured and the guidelines for human rights protection were followed strictly.

### **Limitations of Study**

Since some of the questions were sensitive in nature, this could have prevented the respondents from answering confidently. However, the use of the self-administered questionnaire and assurance of confidentiality should have minimized this limitation.

## **RESULTS**

A total of 200 students from SS1, 2 and 3 were surveyed. The responses of 190 participants were valid and the rest of 10 survey forms were rejected because they were not completely filled by the participants making a response rate of 95%.

### Socio-demographic characteristics of the students

The mean age of the respondents was  $16.2 \pm 1.6$  years which ranged from 12 to 23 years. There were more males (61.1%) than females, more Arts (41.6%)

than Science or Social Science students and more respondents in SS2 (40%) than the other arms as depicted in table 1.

**Table 1: Socio-demographic characteristics of respondents**

Characteristics	Frequency	%
<b>Age group</b>		
<15 years	62	32.6
16-20 years	126	66.3
>20 years	2	1.1
<b>Gender</b>		
Female	116	61.1
Male	74	38.9
<b>Ethnicity</b>		
Plateau Indigenous	82	43.2
Non-Indigenous	108	56.8
<b>Marital status</b>		
Single	189	99.5
Married	1	0.5
<b>Type of school</b>		
Public	96	50.5
Private	94	49.5
<b>Type of student</b>		
Day student	112	58.9
Boarding student	78	41.1
<b>Class</b>		
SS1	49	25.8
SS2	76	40.0
SS3	65	34.2
<b>Course stream</b>		
Science	56	29.5
Arts	79	41.6
Social science	55	28.9

### Knowledge of STIs

A total of 11 of the participants (5.8%) had never heard about STIs and HIV/AIDS was found to be the most commonly mentioned STI among the students who have heard of STIs. The overall knowledge

scores of the students showed that over half of them (56.8%) had poor knowledge. The mean knowledge score of the students was found to be  $13.91 \pm 6.25$  out of 42 points which showed a generally poor knowledge level (Table 2).

**Table 2: Respondents' knowledge of STIs**

Parameter	Frequency	%
<b>Ever heard of STI</b>		
Yes	179	94.2
No	11	5.8
<b>Definition of STI</b>		
Correct	141	74.2
Wrong	49	25.8
<b>Number of STIs mentioned</b>		
None or 1	74	38.9
2-5	108	56.8
> 5	8	4.2
<b>Overall knowledge level</b>		
Poor	108	56.8
Fair	79	41.6
Good	3	1.6

**Factors associated with knowledge of STIs among respondents**

The relationship between type of school and student type with knowledge level were found to be statistically significant as shown in table 3.

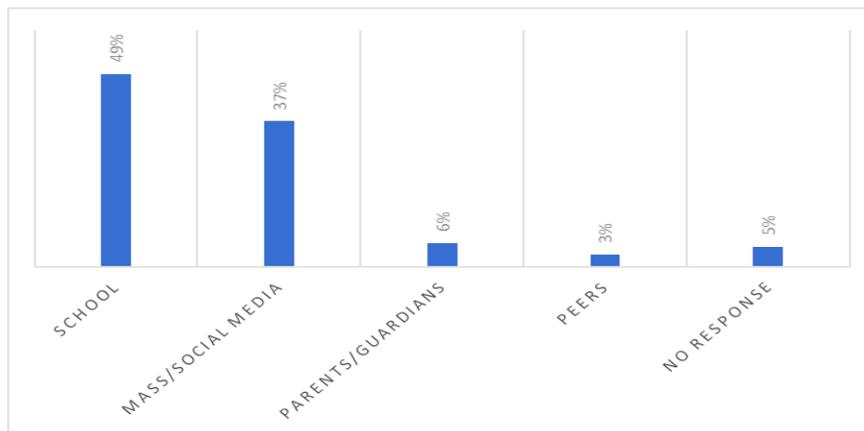
**Table 3: Factors affecting knowledge level of respondents**

Factors	Poor knowledge n=108 freq (%)	Fair/Good knowledge n=82 freq (%)	$\chi^2$	df	p-value
<b>Age group</b>					
<15 years	30 (48.4)	32 (51.6)	3.94	2	0.139
16-20 years	76 (60.3)	60 (39.7)			
>20 years	2 (100.0)	0 (0.0)			
<b>Sex</b>					
Female	64 (53.8)	55 (46.2)	1.22	1	0.270
Male	44 (62.0)	37 (38.0)			
<b>Ethnicity</b>					
Plateau Indigenous	50 (61.0)	32 (39.0)	1.01	1	0.316
Non-Indigenous	58 (53.7)	50 (46.3)			
<b>Type of school</b>					
Public	78 (81.3)	18 (18.7)	47.12	1	<0.001*
Private	30 (31.9)	64 (68.1)			
<b>Type of student</b>					
Day student	87 (77.7)	25 (22.3)	48.28	1	<0.001*
Boarding student	21 (26.9)	57 (73.1)			
<b>Class</b>					
SS1	32 (65.3)	17 (34.7)	3.76	2	0.153
SS2	73 (48.7)	39 (51.3)			
SS3	39 (60.0)	26 (40.0)			
<b>Course stream</b>					
Science	26 (46.4)	30 (53.6)	3.86	2	0.146
Arts	50 (63.3)	29 (36.7)			
Social science	32 (58.2)	23 (41.8)			

\*Significant

## Sources and of knowledge

As shown in Fig 1, the main source of STI knowledge was school followed by mass and social media.



**Fig.1:** Sources of STI knowledge among respondents

## DISCUSSION

The aim of this study was to assess the knowledge of secondary school students in Jos North LGA on STIs. Up to 89% of the students had heard of STIs compared to studies conducted in South Africa where 44% of secondary school students had never heard of STIs.<sup>10</sup> In other studies conducted in Edo-Ekiti, Nigeria,<sup>11</sup> Tanzania<sup>12</sup> and Germany<sup>13</sup> majority of the students were aware of STIs. It is possible that some schools are yet to adopt the syllabus or that some students may have missed the lecture series when they were being taught at school. Many of the respondents mentioned only HIV/AIDS as the only STI they knew, which is similar to what has been observed among many adolescents within and outside Nigeria.<sup>11,13,14</sup> This could be explained by the existence of numerous HIV awareness campaigns

especially on the Mass media and social networks which young people have easy access to. Emphasizing that STIs increase the likelihood of HIV transmission may increase people's concern about STIs and lead to better knowledge and less risky behavior.

The overall mean score of  $13.91 \pm 6.25$  (out of a total of 42) on knowledge shows that respondents generally have poor knowledge of STIs and less than 2% had good knowledge. The reason for this finding may be due to lack of proper education on STIs in schools and other educational outlets for young people and adolescents. Comparison could be made to a study conducted in Edo state where most of the students had poor knowledge of STIs<sup>15</sup> and to another in Ado-Ekiti where only 6.9% had good knowledge.<sup>11</sup>

These findings show that secondary school students across the country need to be better educated on STIs if considerable progress in combating this menace is to be achieved. Similarly, a review of studies carried out among school-attending adolescents in a European country showed that they had low levels of awareness and knowledge of STIs with the exception of HIV/AIDS.<sup>16</sup> Considering the difference in youth literacy levels between regions (72% in Sub-Saharan Africa compared to 100% in Europe),<sup>17</sup> this is quite alarming. But the similarity in findings may have resulted from similarity in methodologies used. Contrary to our finding however, a Malaysian study demonstrated that secondary school students had a moderate level of knowledge, and a survey of high school students in an urban United States school district found that the mean knowledge score was 3.65 (range: 0 to 6; median: 4.00).<sup>3,18</sup> The difference may be due to the fact that these countries have better standards of education, and their scales of measuring knowledge may also be different from that used in this study.

The type of school (public or private) and student type (boarding or day) were factors found to be associated with the knowledge level of STIs. The boarding students and private schools had better knowledge level than day and public schools respectively. This may be because boarding students are likely to be more studious and less distracted

from studies, and private schools have better standards of education than public schools in this environment.<sup>19</sup> Although not statistically significant, more science students had better knowledge than students from other course streams in this study. This is not surprising as the topic of STIs is more of science-related. A study conducted among secondary school students in Malaysia also showed that education level and course stream were important factors to determine the knowledge level, with the science group having the higher knowledge level.<sup>3</sup> Another study carried out in India also showed higher knowledge of STIs among science students.<sup>14</sup> However, knowledge score among high school students in the United States was significantly associated with female gender and higher educational level<sup>18</sup> But gender and class/educational level were not statistically significant in this study.

Many students had multiple sources of information on STIs with majority indicating their school, followed by the mass and social media as the major sources of information. Few students were informed by their parents. A study conducted in Zaria similarly demonstrated that school lessons, mass media and social media were the main sources of information.<sup>20</sup> Whereas in another study in South Africa, the major sources of information were health care workers, the media, the school and friends.<sup>10</sup> These studies showed that parents or guardians contributed little or

nothing in educating their children/wards on STIs. Probably, many parents also lack knowledge on STIs. Health workers also play a major role in educating young people about STIs and this role needs to be encouraged in this community.

## CONCLUSION AND RECOMMENDATIONS

The findings of this study show that senior secondary school students in Jos North LGA of Plateau State are poorly informed about STIs. Boarding students and students in private schools are better informed about STIs. Since the school plays a major part in adolescent education, all secondary schools whether day or boarding, public or private, should adopt methods of educating these students on STIs. Parents, public health practitioners, adolescent-friendly organizations and the government should ensure that this group of young people receive the right information as they constitute a major part of those at risk of STIs.

## REFERENCES

1. Kumar P and Clark M. Infectious diseases, tropical medicine and sexually transmitted infections. In: Clinical Medicine. 7<sup>th</sup> ed. Edinburgh. Elsevier. 2009: pp 175-200.
2. Pitkin J, Peattie AB, Magowan AB. Genital infections. In: Obstetrics and Gynecology. 1<sup>st</sup> ed. United Kingdom. Churchill Livingstone. 2003: pp 102-104.
3. Anwar M, Sulaiman SA, Ahmadi K, Khan TM. Awareness of school students on sexually transmitted infections and their sexual behavior: a cross-sectional study conducted in Pulau Pinang, Malaysia. *BMC Public Health*. 2010;10:47.
4. Dehne Karl, L. & Riedner, G. (2005). Sexually transmitted infections among adolescents (the need for health services). Available from <http://www.who.int/child-adolescenthealth>.
5. Centers for Disease Control and Prevention. Sexual Risk Behavior can lead to HIV, STD, & Teen Pregnancy. Available from <https://www.cdc.gov/healthyouth/sexualbehaviors/index.htm>. Last assessed 8/05/20.
6. Ramoro L, Reis L, Matos MG, Diniz JA. Knowledge, Attitude and Behaviour related to sexually transmitted infections in Portuguese school (adolescent) and college students. Available from <https://www.intechopen.com/books/>. Last assessed 09/03/20.
7. Omobude-Idiado, SN, Bazuaye GN. Patterns of Sexually Transmitted Infections (STIS) reported among students in a federal university in midwestern Nigeria. *College Student Journal*; 2009;43(4): 384-390.
8. Lee L. The impact of HIV on the sexual health of Kenya's young generation. 2009. Available from <http://www.africaportal.org/articles/2012/05/09/impact-hiv-sexual-health-kenyas-young-generation>. last assessed 10/05/20.
9. Obiajuru, OC and Jude NO. The prevalence of sexually transmitted infections among post primary and tertiary school students in Imo State, Nigeria. *Nigerian Journal of Health and Biomedical Sciences*. 2007; 6(2):90-95.
10. Bana A, Bhat VG, Godlwana X, Libazi S, Maholwana Y, Marafungana N, et al . Knowledge, attitudes and behaviours of adolescents in relation to STIs, pregnancy, contraceptive utilization and substance abuse in the Mhlakulo region, Eastern Cape. *SA Fam Pract*. 2010;52(2):154-158.
11. Amu EO, Adegun PT. Awareness and Knowledge of Sexually Transmitted

- Infections among Secondary School Adolescents in Ado Ekiti, South Western Nigeria. *Journal of Sexually Transmitted Diseases*. 2015; 2015:1-7.
12. MwambeteKD, Mtaturu Z. Knowledge of sexually transmitted diseases among secondary school students in Dar es Salaam, Tanzania. *Afr Health Sci*. 2006; 6(3): 165–169.
  13. Samkange-Zeeb F, Mikolajczyk R, Zeeb H. Awareness and Knowledge of Sexually Transmitted Diseases Among Secondary School Students in Two German Cities. *Journal of Community Health*. 2012; 38(2): 1-7.
  14. Ruikar HA. Knowledge, Attitude and Practices about Sexually Transmitted Infections- A Study on Undergraduate College Students of Mumbai. *Webmed Central REPRODUCTION*. 2013;4(3): WMC004166.
  15. Ekop EP, Ande OO, Ande ABA. Sexual exposure and knowledge of sexually transmitted infections among senior secondary school students in an urban local government area of Edo state. *Annals of Biomedical Sciences*. 2011;9(2).
  16. Samkange-Zeeb FN, Spallek L, Zeeb H. Awareness and Knowledge of Sexually Transmitted Diseases (STDs) Among School-going Adolescents in Europe. *BMC Public Health*. 2011;11(727): 1-12.
  17. World Bank. Education. Available from <http://data.worldbank.org/topic/education>. Last assessed 17/05/13.
  18. Nsuami MJ, Sanders LS, Taylor SN. Knowledge of Sexually Transmitted Infections among High School Students. *Am J Health Educ*. 2010;41(4):206-217.
  19. Okoye FO, Nnamani PC. Extent of academic achievement of day and boarding secondary schools students in Anambra State, Nigeria. *International Journal of Scientific Research and Management*. 2018; 6(1):20-25.
  20. Aliyu A, Dahiru T, Ladan A, Shehu A, Abubakar A, Oyefabi A, et al. Knowledge, Sources of information, and Risk Factors for Sexually Transmitted Infections among Secondary School Youth in Zaria, Northern Nigeria. *Journal of Medicine in the Tropics*. 2013;15(2):102-6.