Original Article

Knowledge of sexually transmitted infections and practice of risky sexual behaviours among senior secondary school students in Jos North local government area, Plateau State, Nigeria

Sunday Asuke, Jesse Musa Kurya, Bisola Tolu Olusanmi, Yvonne Ajikini Hikon, Patricia Eseigbe[1]

Departments of Community Medicine and [1]Family Medicine, College of Health Sciences, Jos Campus, Bingham University, Karu, Nassarawa State, Nigeria

Abstract

Background: Sexually transmitted infections (STIs) are diseases of public health concern among adolescents and young adults and occur in a quarter of teenagers who are sexually active. This study assessed the knowledge on STIs and the practice of risky sexual behaviours among senior secondary school students in Jos North Local Government Area, Plateau State, Nigeria.

Methods: This was a cross-sectional study in which a structured, self-administered questionnaire was used to collect data on sociodemographical characteristics, knowledge on STIs and risky behaviours associated with STIs. Multistage sampling technique was used. Analysis was done using SPSS software version 20.

Results: A total of 398 adolescents aged 13–20 years with a mean age of 15.5 (1.37) years participated in the study. About 50% were females and 90% of them were Christians. A majority (99.2%) of them had heard about STIs, and the major sources of information were from schools (21.7%), radio (13.7%) and television (13.2%). In all, 19.8%, 65.6% and 14.7% of the respondents had poor, fair and good knowledge of STIs, respectively. Of the 54 (14.7%) students that were sexually active, 48% practiced unprotected sex, 63% had more than one sexual partners and 25.9% had traded sex for money. Knowledge was not statistically significantly associated with the practice of risky sexual behaviour ($\chi^2 = 5.381$, $P = 0.250$).

Conclusion: The study found out that the participants generally had a fair knowledge about the types of STIs and they were found to exhibit worrisome risky sexual behaviour (having multiple sexual partners and recurrent STIs). Reinforcement of the current secondary school curriculum to emphasise comprehensive health education on STIs and dangers of the practice of risky sexual behaviour is needed.

Keywords: Adolescents, Jos, knowledge, Nigeria, sexually transmitted infections

Address for correspondence: Dr. Sunday Asuke, Department of Community Medicine, College of Health Sciences, Jos Campus, Bingham University, Karu, Nassarawa State, Nigeria.
E-mail: sundayasuke@gmail.com
Received: 14.06.2019, **Accepted:** 06.11.2019

Access this article online

Quick Response Code:

Website: www.phmj.org

DOI: 10.4103/phmj.phmj_14_19

How to cite this article: Asuke S, Kurya JM, Olusanmi BT, Hikon YA, Eseigbe P. Knowledge of sexually transmitted infections and practice of risky sexual behaviours among senior secondary school students in Jos North local government area, Plateau State, Nigeria. Port Harcourt Med J 2019;13:87-92.

INTRODUCTION

Sexually transmitted infections (STIs) are diseases of a grave public health concern particularly among adolescents and young adults and occur in a quarter of teenagers who are sexually active.[1] About thirty different organisms including bacteria, viruses and parasites have been incriminated as being transmitted sexually. A lot of complications including acute illnesses, inability to conceive and its associated mortality have been linked to STIs, and it affects millions of men, women and infants.[2]

In 2008, an estimated 498.9 million new cases of four STIs (*Chlamydia*, gonorrhoea, syphilis and trichomoniasis) were reported among adults between the ages of 15 and 49 years, with greater than half of this population occurring in the age range of 15–24 years.[3] The Committee on the Prevention and Control of STIs has estimated the economic burden of major STIs with HIV inclusive as $17 billion.[4]

Prevention and control of STIs is associated with a lot of public health gains. A number of STIs if not properly managed have been incriminated in worsening the spread of HIV in unprotected sex and of particular importance are syphilis and herpes simplex virus type 2.[2] This has given rise to complications such as 'pelvic inflammatory disease, infertility, ectopic pregnancy, miscarriages, foetal deaths and congenital infections'. There have been 300,000 cervical cancer deaths annually as a result of human papillomavirus infection.[4]

Adolescents and young adults aged 15–24 years who are sexually active practice risky sexual behaviours; this has contributed to the high prevalence of STIs. This group tend to have multiple sexual partners, are more likely to have sex without condom and have partners who have double the risk of having STIs.[4,5] The practice of this risky sexual behaviour is partly due to the fact that the general awareness and knowledge concerning these STIs is significantly low;[2] also, other studies on HIV/AIDS among secondary school adolescents revealed that increased knowledge resulted in a decrease in the practice of risky sexual behaviours.[6-9]

Knowledge of STIs and its sequelae among adolescents and young adults is very pertinent in its prevention and control, and this will contribute to the achievement of Sustainable Developmental Goal 3.[10] However, the knowledge of these STIs outside HIV and AIDS has been reported to be low among adolescents,[11-15] and this will invariably affect their ability to recognise these STIs and consequently fail to seek medical help.

Despite the social, health and economic burden of this menace, knowledge concerning this disease in this part of the country is quite scanty. This study was conducted to assess the knowledge of STIs and sexual behaviours among senior secondary (SS) school students in Jos North local government area (LGA), Plateau State, Nigeria. This will generate information that could be of help against future intervention by the State Ministry of Health.

METHODS

Jos North LGA is one of the 17 LGAs in Plateau State. It has an estimated population of 439,217 based on projection from the 2006 census.[16] It is the most populated LGA in the state. Jos North shares boundaries to the west with Bassa LGA, to its north with Toro LGA of Bauchi State, to its east with Jos East LGA and Jos South LGA to its south. Jos North consists of twenty political wards, and it is inhabited by diverse ethnic groups. The major occupation in this region includes farming, mining and trading. It has 232 secondary schools (23 public and 209 private).

This was a cross-sectional, descriptive study conducted to assess the knowledge and risky sexual behaviours associated with STIs among SS school students. The study population comprised of SS school students (SS1-SS 3) in Jos North LGA.

The sample size for the study was determined using Kish's formula: $n = Z^2pq/d^2$,[17] where n = minimum sample size, $Z\alpha$ = standard normal deviant at 95% confidence interval = 1.96, d = level of precision which is usually set at 5% (0.05) and P = proportion of the population having the characteristic of interest = 34% (obtained from the prevalence of STI from a previous study);[18] $n = 1.96^2 \times 0.34 \times 0.66/0.05^2 = 345$. To correct for non-response, 10% of the minimum sample size was added to 345, which resulted in a sample size of 389.

A multistaging sampling technique was used for this study:

- Stage 1 – This stage involved the use of simple random sampling by the way of balloting to get 10% of public schools (total 23) and 10% of private schools (total 209) in Jos North LGA, yielding 21 private schools and 3 public schools. By the way of proportional allocation, the students were shared among the private and public schools based on the minimum sample size. This gave 16 students per private school and 13 students per public school
- Stage 2 – In each of the three senior classes in the private schools, five students were picked through simple random sampling by the way of balloting in

SS1 and SS2 and then six in SS3. However, in the public schools, SS1, SS2 and SS3 got four, four and five students, respectively, through simple random sampling.

Data were collected using a pre-tested, self-administered questionnaire. The questionnaire contained the following sections namely, sociodemographic factors, knowledge of STIs and practice of risky sexual behaviours associated with STIs.

The data collected were cleaned, coded and analysed using IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp. Microsoft Office Excel 2013 was used for the construction of charts and presentation of tables and figures. Chi-square test was used to test for statistical significance at $P < 0.05$. Knowledge was the dependent variable and the practice of risky sexual behaviour was the independent variable.

Ethical clearance was obtained from the Ethics and Research Committee of Bingham University Teaching hospital (NHREC/21/05/2005/00560). Permission to carry out the study was sought from the Plateau State Ministry of Education and approval was obtained from the principals of various schools in which the study was carried out. Oral informed consent was obtained from the students prior to the administration of the questionnaire, and anonymity was maintained. For those aged <16 years, permission was also obtained from the class teacher. Any respondent who answered in the affirmative at least six out of the nine questions was considered to have good knowledge, whereas anyone that answered three or less correctly was considered to have poor knowledge.

RESULTS

A total of 389 adolescents participated in the study. The age range was 13–20 years, with a mean age of 15.5 (1.37) years, out of which 53.8% were female and 90% of them were Christians. Majority (97.9%) lived with their parents [Table 1]. A majority (99.2%) of them had heard about STIs [Figure 1], however the overall knowledge of respondents on STIs was fair [Table 2] Also, the major sources of information and the major sources of information were from schools (21.7%), radio (13.7%) and television (13.2%) [Figure 2]. The most reported STIs among the respondents were HIV/AIDS (32.1%), gonorrhoea (25.9%) and syphilis (24.5%). The most reported methods of transmission were through unprotected sex (30.8%), infected blood (25.8%), sharing of infected sharps (20.3%) and mother-to-child transmission (20.8). Some misconceptions existed that STIs can be transmitted through sharing of clothes (1.6%) and food (0.7%) [Table 3]. The four most commonly reported signs and symptoms of STIs included itching in the genital area (12.3%), burning pain on micturition (10.8%), loss of weight (10.5%) and weakness (11.9%) [Table 4].

In all, 19.8%, 65.6% and 14.7% of the respondents had poor, fair and good knowledge of STIs, respectively, and also the practice of risky sexual behaviours was low among the sexually active 14.7% [Table 3]. Fifty-four (14.7%) respondents were reported to have been sexually active, out of which 48% practiced unprotected sex, 63% had more

Table 1: Sociodemographic characteristics of the respondents (*n*=389)

Variables	Frequency (%)
Age	
13-14	83 (22.6)
15-16	198 (53.9)
17-18	78 (21.3)
19-20	8 (2.2)
Sex	
Males	178 (46.2)
Females	207 (53.8)
Religion	
Christianity	347 (90.4)
Islam	37 (9.6)
With whom do you live	
Parents	375 (97.9)
Family friend	7 (1.8)
By myself	1 (0.3)

Table 2: Overall knowledge of the respondents towards sexually transmitted infections

Variables Knowledge	Frequency (%)
Poor	77 (19.8)
Fair	255 (65.6)
Good	57 (14.7)
Total	389 (100.0)

Table 3: Types and route of transmission of sexually transmitted infections known by the respondents

Variables	Frequency* (%)
Names of STIs	
Tuberculosis	40 (3.5)
Gonorrhoea	297 (25.9)
Syphilis	280 (24.5)
HIV/AIDS	367 (32.1)
Hepatitis B	54 (4.7)
Hepatitis C	19 (1.7)
Chlamydia	29 (2.5)
Herpes	55 (4.8)
Don't know	4 (0.3)
Routes of transmission of STIs	
Sexual intercourse	353 (30.8)
Infected blood	299 (25.8)
Infected sharps	235 (20.3)
Sharing clothes/things	19 (1.6)
Sharing food	8 (0.7)
Mother to child	241 (20.8)
Don't know	2 (0.2)

*There were multiple responses. STIs: Sexually transmitted infections

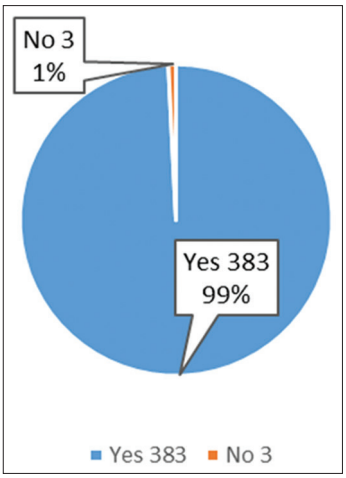

Figure 1: Awareness of sexually transmitted infections

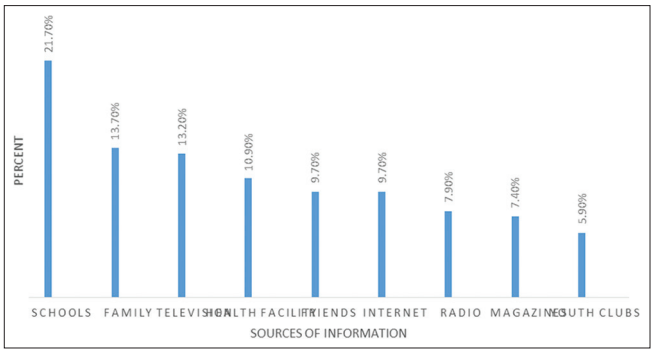

Figure 2: Sources of information on sexually transmitted infections

than a sexual partner, 25.9% had traded sex for money, 31.5% have had STIs in the past and 29.6% currently had STI [Table 5]. Knowledge was not statistically significantly associated with practice ($\chi^2 = 5.381$, $P = 0.250$).

DISCUSSION

Findings from this study revealed that the mean age of the respondents was 15.5 + 1.37 years. This is similar to the findings of a study conducted in Ado Ekiti,[11] South-West Nigeria, and Zaria,[19] Northern Nigeria, though slightly lower. This is the age at which young people practice a lot of risky sexual behaviours.

Majority of the respondents were aware of STIs. This is similar to the findings of the studies conducted in Ado Ekiti,[11] Zaria,[19] Malaysia[20] and India,[21] where quite a significant number of the respondents have heard about STIs. This awareness has been disproportionately higher for HIV/AIDS than other STIs with reasons not farfetched. The major sources of information were basically from schools, family and television. This highlights the important role school lessons and the mass media play in creating awareness, particularly with respect to HIV/AIDS, which has afflicted a number of communities. This finding is slightly different from that of studies conducted in Ado Ekiti[11] and India,[21] which reported the major sources of information being the print and electronic media and teachers. In current times, the advent of phones and the wider coverage of the Internet has made it easier for adolescents to access information on STIs more readily.

The most known STIs were first HIV/AIDS, followed by gonorrhoea and syphilis. Numerous campaigns about HIV/AIDS because of its scourge have made it the most known STI among others. This finding is similar to that of studies done in South Western and Northern Nigeria,[11,19]

Table 4: Knowledge of the respondents about the signs and symptoms of sexually transmitted infections

Signs and symptoms	Frequency* (%)
Abdominal pain	160 (8.2)
Discharge from the penis/vulva	186 (9.5)
Itching in the genital area	241 (12.3)
Burning pain on urination	212 (10.8)
Pain during intercourse	125 (6.4)
Genital ulcers/sores	137 (7.0)
Swelling in the genital area	163 (8.3)
Blood in urine	143 (7.3)
Failure to urinate	95 (4.9)
Loss of weight	243 (12.5)
Weakness	232 (11.9)
Don't know	17 (0.9)

*There were multiple responses

Table 5: Practice of risky sexual behaviour among the respondents who are sexually active

Variables	Frequency (%)
Sexually active	
Yes	54 (14.7)
No	313 (85.2)
Do you practice the usage of condom?	
Yes	28 (51.9)
No	26 (48.1)
Do you have sex with more than one partners?	
Yes	20 (37)
No	34 (63)
Have you ever traded sex for money?	
Yes	14 (25.9)
No	40 (74.1)
Do you have sex because of peer pressure?	
Yes	25 (46.3)
No	29 (53.7)
Have you ever had an STI?	
Yes	17 (31.5)
No	37 (68.5)
Do you currently have an STI?	
Yes	16 (29.6)
No	38 (70.4)
Intercourse with a new partner without condom	
Yes	18 (33.3)
No	36 (66.7)

STI: Sexually transmitted infection

Italy,[15] India[21] and Ethiopia.[22] All of these studies reported HIV/AIDS as the most known STI. Knowledge concerning other STIs outside HIV/AIDS was low in this study; it is quite worrisome when one thinks of how uninformed

the adolescents are concerning complications from their STIs. Similar finding was also reported in the studies mentioned (Nigeria, Italy and India). This finding suggests a possible area where the key stakeholders like the government have to come up with a meaningful intervention to change the orientation of these adolescents about other STIs.

The most known routes of transmission by a significant number of the respondents were via unprotected sex, infected blood, infected sharp and mother-to-child transmission. This is similar to the findings from other studies on STIs[11,21,23] and other studies on HIV/AIDS stand alone.[24] There was a misconception that STIs could be transmitted through clothes and sharing of food. Similar finding was also documented by a study conducted in Thai.[23] This erroneous belief could probably be due to the fact that the respondents' knowledge on STIs outside HIV/AIDS was poor; hence, they are not knowledgeable about the route of transmission of most of these STIs. Considering the adventurous nature of adolescents and the risky sexual behaviours they exhibit, this finding further buttresses the need for an intervention regarding STIs.

The four most common signs and symptoms mentioned in this study were itching in the genital area, burning pain on micturition, loss of weight and weakness. This is similar to the findings from studies in India[21] and Kwara, Nigeria,[25] which reported major symptoms as painful micturition, genital itch and ulcer, vaginal discharge and abdominal pain. It, however, contrasts findings from a study in Kampala, Uganda,[26] whose major symptoms included skin rash, lower abdominal pain, swelling in the groin and off and on fever. A possible reason for the disparity in the types of STI symptoms mentioned could be the local experience and the understanding of the questions asked in the questionnaire.

Nearly 14% of the respondents were sexually active, out of which about half did not use condom during sexual intercourse and about a quarter of this active teens have more than one sexual partners. Having multiple sexual partners on its own is a risk for acquiring STIs including HIV/AIDS. This risky behaviour is consistent with findings from other studies[19,26,27] and has been documented to be associated with substance use such as alcohol use, cigarette smoking and drug use.[22,27]

This study also found that out of the sexually active teens, a quarter has traded sex for money. This is not surprising as socioeconomic status has been linked to risky sexual behaviours among adolescents and young adults. This is consistent with findings from another study.[22] Furthermore, another possible explanation is that some adolescents may have to sell sex for their financial reward. Still, among the sexually active teens in this study, a third had STI in the past and a third is currently still having STI. This is very worrisome when one considers the effect of recurrent STIs and its attendant health complications not forgetting the increased risk of acquiring HIV/AIDS.

In this study, generally, only about a tenth of the adolescents had good knowledge of STIs, and majority had a fair knowledge of STIs; hence, knowledge was not significantly associated with the practice of risky sexual behaviour. Good knowledge of STIs is paramount at mitigating the effects of the practices of risky sexual behaviours among adolescents and young adults, hence creating a window of opportunity to increase the awareness on STIs and improve their behaviours concerning STIs. No major limitations were encountered.

CONCLUSION

The study found that the level of awareness of SS school students in Jos North LGA of STIs was high. However, their knowledge about the types of STIs, routes of transmission and signs and symptoms was poor; they were also found to exhibit risky sexual behaviour.

There is a need for the state government through the Ministry of Education to reinforce the existing curriculum in secondary schools so that comprehensive health education on STIs continues at all levels. Non-governmental organisations should also be involved in creating awareness through the use of media on the dangers of the practice of risky sexual behaviours.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Yarber WL, Parrillo AV. Adolescents and sexually transmitted diseases. J Sch Health 1992;62:331-8.
2. World Health Organization. Sexually Transmitted Infections Facts. Available from: https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis). [Last accessed on 2019 Apr 25].
3. World Health Organization. Global Prevalence and Incidence of Selected Curable Sexually Transmitted Infections: Overview and Estimates. Geneva: World Health Organization; 2001.
4. Eng TR, Butler WT. The Hidden Epidemic: Confronting Sexually Transmitted Diseases. Committee on Prevention and Control of Sexually Transmitted Diseases, Institute of Medicine Division of Health Promotion and Disease Prevention. Washington, D.C: The National Academy Press; 1997.
5. Olasode OA. Sexual behaviour in adolescents and young people

attending a sexually transmitted disease clinic, Ile Ife, Nigeria. Indian J Sex Transm Dis 2007;28:83-6.
6. Pharr JR, Enejoh V, Mavegam BO, Olutola A, Karick H, Ezeanolue EE. A cross-sectional study of the role of HIV/AIDS knowledge in risky sexual behaviors of adolescents in Nigeria. Int J High Risk Behav Addict 2017;6:1-6.
7. Swenson RR, Rizzo CJ, Brown LK, Vanable PA, Carey MP, Valois RF. HIV knowledge and its contribution to sexual health behaviors of low-income African American adolescents. J Natl Med Assoc 2010;102:1173-82.
8. Berten H, Van Rossem R. Doing worse but knowing better: An exploration of the relationship between HIV/AIDS knowledge and sexual behavior among adolescents in Flemish secondary schools. J Adolesc 2009;32:1303-19.
9. Uwalaka E, Matsuo H. Impact of knowledge, attitude, and beliefs about AIDS on sexual behavioral change among college students in Nigeria: The case of the University of Nigeria Nsukka. West Afr Rev 2002;3.
10. World Health Organization. Report on Global Sexually Transmitted Infection Surveillance. World Health Organization; 2018.
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;Article ID 260126:7. Doi: doi.org/10.1155/2015/260126.
12. Alubo O, Oyediran K, Odiachi A. Adolescent Sexuality and Reproductive Health in Benue State, Nigeria. Centre for Development and Population Activities CEDPA/Nigeria; 2002.
13. National Population Commission (NPC) and ORC Macro. Nigeria Demographic and Health Survey 2003. Calverton, MD, USA: National Population Commission and ORC Macro; 2004.
14. Lal SS, Vasan RS, Sarma PS, Thankappan KR. Knowledge and attitude of college students in Kerala towards HIV/AIDS, sexually transmitted diseases and sexuality. Natl Med J India 2000;13:231-6.
15. Drago F, Ciccarese G, Zangrillo F, Gasparini G, Cogorno L, Riva S, *et al.* A survey of current knowledge on sexually transmitted diseases and sexual behaviour in Italian adolescents. Int J Environ Res Public Health 2016;13:422.
16. National Population Commission. National Population Commission-Federal Government of Nigeria Official Gazette. Vol. 24. National Population Commission; 2007. p. 107-12.
17. Araoye MO. Research Methodology with Statistics for Health and Social Sciences. 2nd ed. Ilorin: Nathadex Publishers; 2004.
18. Shittu LA, Zachariah MP, Ajayi G, Oguntola JA, Izegbu MC, Ashiru OA. The negative impacts of adolescent sexuality problems among secondary school students in Oworonshoki, Lagos. Sci Res Essays 2007;2:23-8.
19. Aliyu AA, Dahiru T, Ladan AM, Shehu AU, Abubakar AA, Oyefabi AM, *et al.* Knowledge, sources of information, and risk factors for sexually transmitted infections among secondary school youth in Zaria, Northern Nigeria. J Med Trop 2013;15:102-6.
20. Awang H, Wong LP, Jani R, Low WY. Knowledge of sexually transmitted diseases and sexual behaviours among Malaysian male youths. J Biosoc Sci 2014;46:214-24.
21. Subbarao NT, Akhilesh A. Knowledge and attitude about sexually transmitted infections other than HIV among college students. Indian J Sex Transm Dis AIDS 2017;38:10-4.
22. Shiferaw Y, Alemu A, Girma A, Getahun A, Kassa A, Gashaw A, *et al.* Assessment of knowledge, attitude and risk behaviors towards HIV/AIDS and other sexual transmitted infection among preparatory students of Gondar town, North West Ethiopia. BMC Res Notes 2011;4:505.
23. Svensson L, Waern S. Knowledge of and Attitudes to Sexually transmitted Diseases among Thai University Students [The Bachelor Programme of Science in Nursing Thesis], Uppsala University, Uppsala, Sweden; 2013.
24. Qian HZ, Wang N, Dong S, Chen H, Zhang Y, Chamot E, *et al.* Association of misconceptions about HIV transmission and discriminatory attitudes in rural China. AIDS Care 2007;19:1283-7.
25. Oluyemi JA, Yinusa MA, Abdullateef R, Sunday A. Knowledge of sexually transmitted diseases among secondary school adolescents in ASA local government area of Kwara State Nigeria. Afr Soc Rev 2015;19:63-76.
26. Sekirime WK, Tamale J, Lule JC, Wabwire-Mangen F. Knowledge, attitude and practice about sexually transmitted diseases among University students in Kampala. Afr Health Sci 2001;1:16-22.
27. Lee LK, Chen PC, Lee KK, Kaur J. Premarital sexual intercourse among adolescents in Malaysia: A cross-sectional Malaysian school survey. Singapore Med J 2006;47:476-81.