



(RESEARCH ARTICLE)



## Knowledge, understanding, and healthcare seeking behaviour of adolescent schoolgirls on sexually transmitted infections in Jalingo Taraba State

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### Abstract

**Background:** Sexually transmitted infections are communicable infections acquired through sexual contact. They remain a major public health problem associated with high mortality and morbidity globally with an estimated 499million new infections each year globally influencing the quality of life, sexual, reproductive health including maternal and child health and affecting mostly young people especially in low- and middle-income countries from which adolescent female are most vulnerable and affected.

**Methodology:** A descriptive cross sectional study design was conducted where a multistage sampling was used in selecting a total of 317 study participants. A structured self-administered questionnaire was utilized in this study. Data collected was analyzed and results were presented using appropriate tables and charts. Chi square test was carried out to check association between some socio-demographic characteristics and knowledge, understanding and healthcare seeking behaviours at P<0.05 level of significance.

**Result:** A total of 317 adolescent schoolgirls from 2private and 2 public secondary school participated in the study. Majority of the study participants had heard about STIs 267(90.2%) with teachers and the media as their major source of information for STIs. Overall, 33.1% of the participant had good knowledge, 48.3% are fairly knowledgeable while 18.6% had poor knowledge of STIs. Understanding of information about STIs was limited where majority of the participants do not perceive themselves to be at risk of contracting STIs. The proportion of healthcare seeking among participants was low and care seeking was majorly from informal sources 36 % (traditional healer) participants also, pointed out confidentiality as major barrier to seeking healthcare.

**Conclusion:** Knowledge among the study participants was fair for general knowledge but lacked depth, thus pointing out the need for a culturally appropriate comprehensive sexuality educational curriculum, that will improve the overall knowledge of STIs since adolescence provide opportunity to mitigate risk. Another need highlighted by this study is that of a youth friendly affordable sexual and reproductive health service free of discrimination that is accessible to adolescents especially girls.

**Keywords:** STIs; Adolescent; Health-Seeking Behaviour; Schoolgirl

### 1. Introduction

Sexually transmitted infections (STIs) are communicable infections that are acquired mainly through sexual contact [1].

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They are among the major public health issues that threaten the socioeconomic status of many families and communities globally [1, 2]. These infections are categorized as curable (gonorrhoea, syphilis, chlamydia) and incurable (HIV/AIDS, Hepatitis) forms [1,2]. These different forms of infections can be contracted through other means such as blood transfusion and mother-to-child transmission during child delivery apart from sexual activity [1, 3]. Sexually transmitted infections constitute a public health challenge as they are listed among the major causes of morbidity and mortality globally [3]. These infections influence the quality of life, sexual and reproductive health as well as maternal and child health worldwide [1, 2, 3]. Some of the STIs when not treated or poorly managed can cause serious medical complications such as permanent infertility, cancer, and complications during pregnancy [1,2,3].

Some STIs may be asymptomatic, or the symptoms may be moderate in most cases. In cases where there are symptoms, the symptoms may be mistaken for other infections such as urinary tract or yeast infections [2,3]. Some of the common symptoms when present include genital discharge in both males and females, genital ulcers, and abdominal pains [3, 4]. The infections are a major concern not only because of the pains related to the severity and complications but also because the level of understanding and knowledge associated with the infections is also a major concern [4]. Some viral STIs can result in death while most bacterial infections can be cured when diagnosed and treated early [3, 5]. The infections affect all groups of individuals (both males and females) but complications as a result of untreated STIs are more common in females [4]. Averagely, female adolescents are more likely to be infected than males [4, 5].

According to the World Health Organization (WHO) report [1], there are about 499 million new cases of curable STIs recorded annually, additionally, an estimated 536 million people are reported to be living with incurable STIs (such as herpes simplex virus type 2) across the globe [1,5]. Annually, about 376 million new cases of four curable STIs (chlamydia, gonorrhoea, syphilis, and trichomoniasis) are reported among individuals aged 15 to 45 years globally [1, 5]. More than 1 million new cases occur daily, and more than 500 million individuals are infected with genital herpes infection. Low and Middle-Income countries (LMICs) carry larger proportions (80% to 90%) of the estimated global burden of STIs [3, 6]. The higher prevalence of LMICs is connected to the unavailability of diagnostic equipment and issues related to affordability and accessibility of health care services. A larger proportion of the new cases of these infections occurred in sub-Saharan Africa, and southeast Asia [3, 6]. The burden of curable and incurable STIs recorded in Africa is placed between 20-30% [6]. These prevalence rates reported in African settings may be due to poorly treated or untreated infections which enhanced the transmission [6].

In most LMICs, STI complications are among the most common diseases for which people seek care [6]. Although there is no exact figure for the prevalence of STIs in Nigeria, some studies showed a prevalence of 0-18% among the low-risk settings and 23% among commercial sex workers [7]. Factors that hinder the availability and reliability include under-reporting, under-diagnosis, or asymptomatic manifestation and the stigmatization associated with these infections [3,6,7].

In developed settings, appropriate diagnostic tests for STIs are widely used [8]. In LMICs, diagnoses for STIs are insufficient. In places where the testing is available, the financial implication, location, and delay by the health care workers serve as a barrier to accessing the services needed [3,7].

The age group considered to be more vulnerable to STIs is 15-24 years [3,5]. According to WHO estimates one in every twenty adolescents are infected with an STI every year and 20% of individuals living with HIV/AIDS are in their twenties [1,3].

The vulnerability of adolescents to STIs may be connected to the rate at which they change partners or the improper and inconsistent use of contraceptives [9]. For females, their anatomical features expose them to certain STIs at an early age [9].

The risk and protective factors of STIs among adolescents as identified by many authors include sexual behavior and practices, socioeconomic factors, family factors as well as the characteristics of the partner [3,9]. There seems to be limited knowledge and understanding of STIs in many LMICs including Nigeria. Also, there are low Studies on knowledge, understanding, and health-seeking behavior of STIs in Taraba State if any.

Data from previous studies show that STIs constitute socioeconomic and public health threats in LMICs including in Nigeria and the infections are prevalent in both urban and rural settings [3]. According to some authors, STIs pose a major challenge faced by individuals regarding sexual and reproductive health such as genital discharge, itching, of the private part, rashes, eye inflammation, pelvic inflammation, arthritis, and HIV/AIDS [6,7,9]. Sexually transmitted infections are also responsible for other complications such as infertility and ectopic pregnancy, cervical cancers, and an increased risk of contracting HIV/AIDS [3,5].

With the increase in the number of new STI cases globally, the limited availability of data from previous studies shows that there is a level of ignorance associated with the knowledge and existence of STIs in Nigeria [9,10].

However, under-reporting limits the accuracy of the data on the prevalence, knowledge, and level of understanding of STIs in Nigeria. This could be a result of the shortage of diagnostic equipment, stigmatization associated with the infection, and social or cultural belief.

This study will assess the knowledge, understanding, and healthcare-seeking behaviour of adolescent school Girls on STIs in Jalingo, Taraba State. Data that will be obtained from this study will be important to channel interventions to the appropriate areas, determine the best treatment provisions that will be made available and supervise the effect of such intervention strategies.

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## **2. Material and methods**

### **2.1. Study Area**

The study was conducted in Jalingo Local Government the capital city of Taraba State, in northeastern Nigeria, which has a population of 140,318 according to the Taraba State Government (11)

### **2.2. Study Design**

A descriptive cross-sectional study on the knowledge, understanding, and healthcare-seeking behaviour of Adolescent school girls on STIs in Jalingo Taraba State.

### **2.3. Study Population**

The study population for this research was female secondary school students, from the two (2) public and two (2) private schools in Jalingo. Namely: Magami Government Day Secondary School, Government Science Secondary School, Raddai metropolitan Academy, and UMCN Junior Seminary.

### **2.4. Inclusion Criteria for the Study**

The study included only female students at the secondary schools selected for the study that fall between the age of 12-19 and consented to participate in the study.

### **2.5. Exclusion Criteria**

Female students who do not fall within the age of 12-19 and those that have not consented to the study either through parental consent for those below 18years of age and self-consent for 18years and above were excluded.

### **2.6. Sampling Technique**

A multi-stage probability sampling was employed to select the schools and participants for the study.

### **2.7. Data Collection Tool**

To achieve the purpose of this study a semi-structured questionnaire was adopted from a similar study's questionnaire for Sexual Health Surveys and was modified to fit adolescent girls in Jalingo (12,13) was used to collect relevant data.

### **2.8. Data Collection Procedure**

A structured questionnaire was used to collect data with the assistance of a trained research assistant, the assistant was trained prior to the commencement of the study on how to administer the questionnaire to the student participating in the study as well as the need to keep every information confidential. The questionnaire was self-administered to students who consent to participate in the study in their classrooms after informing them of the purpose of the study, assuring them of the confidentiality of the information provided.

### **2.9. Data Analysis Plan**

Data collected was collected and analysed using the Statistical Package for the Social Sciences (SPSS®) version 23. [14]. Descriptive statistics were used to examine the demographic characteristics of the respondents. A Chi-square test was used to check the association between knowledge, understanding, and healthcare-seeking behaviour of STIs based on

class and age group. Frequency tables, charts, and graphs were used for better representation of data. A statistical Significance of 0.05 was used.

### 2.10. Ethical Consideration

An ethical approval was obtained from the research and ethics board of Bingham University Teaching Hospital. Written and official authorization was sought from Taraba State Post Primary School Management Board, approval was also sought from the principals of the selected schools. A written informed consent was obtained from both the students and parents of minors prior to sample collection and completion of the questionnaires which were labelled with unique study numbers to maintain anonymity.

## 3. Results

Three hundred and seventeen (317) questionnaires were distributed to the participant, and two hundred and ninety-six (296) were completed and returned, making a total of 93.4% return rate. The result shows that 80(27.0%) of the students were in Senior Secondary School (SS1), 79(26.7%) were in Junior Secondary School (SS3), 79(26.7%) were in SS2 and 58(19.6%) were in SS3. Majority of the students (23.3%) were 16 years old while the least 10 (3.4%) were 19 years old. One hundred and fifty-four (52%) were in public schools whereas 142(48%) attended private schools. 74(25%) were in UMCN, 74(25%) were in MGDSS, 80(27%) were student of GDSS Jalingo while 68(23%) attended Raddai Metropolitan Academy. It also indicated that 198(66.9%) are Christian, 96(32.4%) are Muslim, whereas 2(0.7%) practiced other religion. It further revealed that majority 168(56.8%) of the participant belongs to the minority ethnic groups in Nigeria, 112(37.8%) were Hausa, 10(3.4%) were Igbos, whereas 6(2%) were Yoruba (Table 1.0).

**Table 1** Sociodemographic Characteristics of the Study Participants

| Variables             | Frequency | Percentage (%) |
|-----------------------|-----------|----------------|
| <b>Class</b>          |           |                |
| JSS3                  | 79        | 26.7           |
| SS1                   | 80        | 27.0           |
| SS2                   | 79        | 26.7           |
| SS3                   | 58        | 19.6           |
| Total                 | 296       | 100%           |
| <b>Age</b>            |           |                |
| 12                    | 11        | 3.7            |
| 13                    | 26        | 8.8            |
| 14                    | 44        | 14.9           |
| 15                    | 56        | 18.9           |
| 16                    | 69        | 23.3           |
| 17                    | 45        | 15.2           |
| 18                    | 35        | 11.8           |
| 19                    | 10        | 3.4            |
| Total                 | 296       | 100%           |
| <b>Type of School</b> |           |                |
| Private               | 142       | 48.0           |
| Public                | 154       | 52.0           |
| Total                 | 296       | 100%           |

| <b>Name of School</b>       |     |      |
|-----------------------------|-----|------|
| UMCN                        | 74  | 25.0 |
| MGDSS                       | 74  | 25.0 |
| GDSS Jalingo                | 80  | 27.0 |
| Raddai Metropolitan Academy | 68  | 23.0 |
| Total                       | 296 | 100% |
| <b>Religion</b>             |     |      |
| Christianity                | 198 | 66.9 |
| Islam                       | 96  | 32.4 |
| Others                      | 2   | 0.7  |
| Total                       | 296 | 100% |
| <b>Ethnic group</b>         |     |      |
| Yoruba                      | 6   | 2.0  |
| Igbo                        | 10  | 3.4  |
| Hausa                       | 112 | 37.8 |
| Others                      | 168 | 56.8 |
| Total                       | 296 | 100% |

### Knowledge of Sexually Transmitted Infection

**Table 2** Knowledge of Sexually Transmitted Infection among study participants

| <b>Variables</b>   | <b>Frequency</b> | <b>Percentage (%)</b> |
|--|------------------|-----------------------|
| <b>Have you ever heard of Sexually transmitted infection</b> |                  |                       |
| Yes  | 267              | 90.2                  |
| No   | 29               | 9.8                   |
| Total  | 296              | 100%                  |
| <b>How did you hear about STIs</b>                           |                  |                       |
| TV/Radio   | 52               | 17.5                  |
| Internet   | 48               | 16.2                  |
| Newspaper  | 39               | 13.2                  |
| Teacher  | 78               | 26.4                  |
| Friends and relations  | 41               | 13.9                  |
| Others   | 38               | 12.8                  |
| Total  | 296              | 100%                  |
| <b>Do you know any sexually transmitted infection?</b>       |                  |                       |
| Yes  | 206              | 69.60                 |
| No   | 90               | 30.4                  |
| Total  | 296              | 100%                  |
| <b>If yes mention the ones that you know</b>                 |                  |                       |

|   |     |      |
|---|-----|------|
| Gonorrhoea  | 68  | 23.0 |
| HIV/AIDS  | 126 | 42.6 |
| Syphilis  | 43  | 19.9 |
| Chlamydia   | 59  | 14.5 |
| Total   | 296 | 100% |
| <b>How can STIs be contacted?</b>   |     |      |
| Through unsterilized needles and syringes   | 44  | 14.9 |
| Blood and blood product   | 56  | 18.8 |
| Sharing the same plate with infected person   | 2   | 0.7  |
| Unprotected sex   | 158 | 53.4 |
| Through childbirth  | 36  | 12.2 |
| Total   | 296 | 100% |
| <b>Can a healthy-looking person have sexually transmitted infection?</b>                  |     |      |
| Yes   | 229 | 77.4 |
| No  | 54  | 18.2 |
| N/R   | 13  | 4.4  |
| Total   | 296 | 100% |
| <b>All sexually transmitted infection can be cured except HIV/AIDS</b>                    |     |      |
| Yes   | 184 | 62.2 |
| No  | 162 | 37.8 |
| Total   | 296 | 100% |
| <b>If a woman with HIV is pregnant, could her baby become infected with HIV?</b>          |     |      |
| Yes   | 176 | 59.5 |
| No  | 120 | 40.5 |
| Total   | 296 | 100% |
| <b>Are condoms an effective way of protecting against sexually transmitted infection?</b> |     |      |
| Yes   | 130 | 43.9 |
| No  | 166 | 56.1 |
| Total   | 296 | 100% |
| <b>Chlamydia can lead to infertility among women</b>                                      |     |      |
| True  | 134 | 45.3 |
| False   | 162 | 54.7 |
| Total   | 296 | 100% |
| <b>Gonorrhoea can be transmitted during oral sex</b>                                      |     |      |
| True  | 115 | 61.1 |
| False   | 181 | 38.9 |
| Total   | 296 | 100% |

The result of the knowledge STIs among the study participants indicated that 267(90.2%) had heard about STIs, whereas 29(9.8%) hadn't heard about it. 17.5% heard about it through TV/Radio, 16.2% through the internet, 13.2% through newspaper, 26.4% heard about it through their teachers in school, 13.9% through friends and relations and 12.8% through other means. It also revealed that 69.6% of the respondents knew about some of the STIs while 30.4% mentioned that they were not familiar with any. Majority of the respondents mentioned HIV/AIDS and Gonorrhoea representing 42.6% and 23% respectively. Others mentioned syphilis 19.9%, and chlamydia 14.5%. It also showed that 44(14.9%) believed STIs can be contracted through unsterilized needles and syringes, 18.8% through blood and blood products, 53.4% through unprotected sex and 12.2% through childbirth with 2(0.7%) of the respondents having the misconception that STIs can be transmitted through eating from the same plate with an infected person. It further shows that 77.4% of the respondents were of the views that a healthy-looking person can have sexually transmitted infection. Whereas 18.2% thought that a healthy-looking person could not have a sexually transmitted infection. Analysis shows that 62.2% agreed that all sexually transmitted infection can be cured except HIV/AIDS, 37.8% disagreed. (Table 2.0)

**Table 3** Level of participant knowledge about STIs

| Level of Knowledge | Frequency | Percentage |
|--------------------|-----------|------------|
| Good Knowledge     | 98        | 33.1       |
| Fair knowledge     | 143       | 48.3       |
| Poor knowledge     | 55        | 18.6       |
| Total              | 296       | 100        |

**Table 4** Association between Knowledge of Sexually Transmitted Infection and Sociodemographic characteristic of Participant

| Variables                   | Have you ever heard of Sexually transmitted infection |          | Chi square | Df | P value |
|-----------------------------|---|----------|------------|----|---------|
|                             | Yes   | No       |            |    |         |
| <b>Age group</b>            |   |          | 17.36      | 7  | 0.000   |
| 12                          | 7(63.6)   | 23(36.4) |            |    |         |
| 13                          | 19(73.1)  | 7(26.9)  |            |    |         |
| 14                          | 36(81.8)  | 8(18.2)  |            |    |         |
| 15                          | 51(91.1)  | 5(8.9)   |            |    |         |
| 16                          | 66(95.7)  | 3(4.3)   |            |    |         |
| 17                          | 45(100)   | 0(0.0)   |            |    |         |
| 18                          | 34(97.1)  | 1(2.9)   |            |    |         |
| 19                          | 9(90.0)   | 1(10.0)  |            |    |         |
| <b>Class of Participant</b> |   |          | 9.66       | 3  | 0.008   |
| JSS3                        | 56(70.9)  | 23(29.1) |            |    |         |
| SS1                         | 72(90.0)  | 8(10.0)  |            |    |         |
| SS2                         | 75(94.9)  | 4(5.1)   |            |    |         |
| SS3                         | 56(96.6)  | 2(3.4)   |            |    |         |

Regarding the knowledge of the participant on STIs, the researcher used scoring method to score the respondents. Twelve (12) knowledge related questions were constructed. One (1) mark was awarded to every knowledge related question and computed. Those that scored below four points (4) were regarded as having inadequate knowledge, those

that scored from 4 -8 points were regarded as having fair knowledge whereas, those that scored above 8 were presumed to be knowledgeable of STIs. The table below indicates that 33.1% of the participants had good knowledge, 48.3% were knowledgeable while 18.6% had poor knowledge of STIs.

Results of the Chi-square ( $X^2$ ) statistics as shown in table 4 above, reflects the relationship between socio-demographic characteristics and Knowledge of Sexually Transmitted Infections. It was observed that the age and class of participants had a significant relationship with knowledge of sexually transmitted infection  $p=0.000$  and  $p=0.008$  respectively.

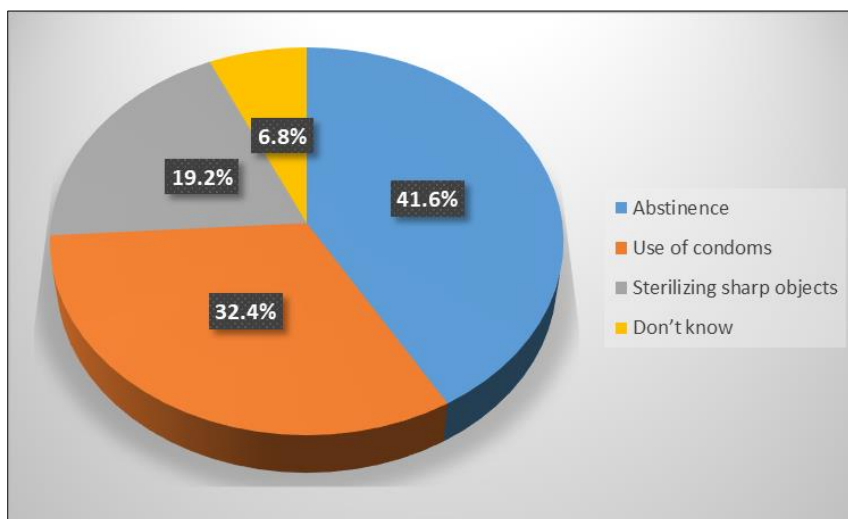
**Table 5** Understanding of STIs among study participants

| Variables   | Frequency | Percentage (%) |
|---|-----------|----------------|
| <b>How much do you understand the information on sexually transmitted infection?</b>              |           |                |
| Very much   | 67        | 22.6           |
| Not so much   | 125       | 42.2           |
| I didn't understand   | 104       | 35.2           |
| Total   | 296       | 100%           |
| <b>Is there a cure for sexually transmitted infection?</b>  |           |                |
| Yes   | 184       | 62.2           |
| No  | 112       | 37.8           |
| Total   | 296       | 100%           |
| <b>Can a healthy-looking person have sexually transmitted infection?</b>                          |           |                |
| Yes   | 162       | 54.7           |
| No  | 134       | 45.3           |
| Total   | 296       | 100%           |
| <b>How can sexually transmitted infection be treated?</b>   |           |                |
| Drugs   | 96        | 32.4           |
| Herbal remedies   | 101       | 34.1           |
| Prayer house  | 65        | 22.0           |
| Others  | 34        | 11.5           |
| Total   | 296       | 100%           |
| <b>How can STIs be prevented?</b>   |           |                |
| Abstinence  | 123       | 41.6           |
| Use of condoms  | 96        | 32.4           |
| Sterilizing sharp objects   | 57        | 19.2           |
| Don't know  | 20        | 6.8            |
| Total   | 296       | 100%           |
| <b>Which of the following are possible symptoms of sexually transmitted infection in a woman?</b> |           |                |
| Vaginal discharge   | 146       | 49.3           |
| Pain and discomfort while urinating   | 62        | 20.9           |
| Severe headache   | 20        | 6.8            |
| Ulcers and sores in genital area  | 68        | 23.0           |



|  |     |      |
|--|-----|------|
| Total  | 296 | 100% |
| <b>Have you ever had sexuality or relationship education at school?</b>                                |     |      |
| Yes  | 134 | 45.3 |
| No   | 162 | 54.7 |
| Total  | 296 | 100% |
| <b>How likely do you think you are personally to get infected with sexually transmitted infection?</b> |     |      |
| Never  | 268 | 90.5 |
| Very Likely  | 9   | 3.0  |
| Unlikely   | 16  | 5.4  |
| N/R  | 3   | 1.0  |
| Total  | 296 | 100% |

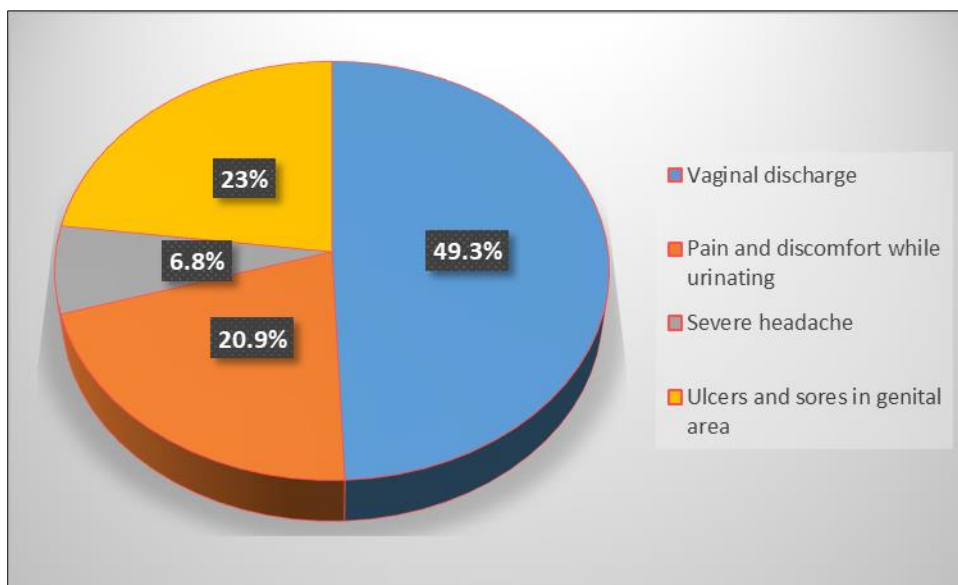
On the understanding of STIs among the study participants, Table 5. above reflects that 125(42.2%) had some understanding of the information about STIs, and 67(22.6%) understood the information adequately. 62.2% were of the view that some STIs curable, 37.8% said it has no cure. 54.7% understood that healthy looking person can have STIs, 45.3% were of the opinion that healthy looking person cannot have STIs. 32.4% stated that STIs can be treated via drugs, 34.1% via herbal remedies, 22% through prayer houses, 11.5% through other means. On the prevention method, 41.6% stated that STIs can be prevented through abstinence, 32.4% via the use of condoms, 19.2% via the use of sterilized sharp objects, and 6.8% don't know. 49.3% identified that vaginal discharge is one of the symptoms of STIs, 20.9% stated pain and discomfort while urinating, 6.8% said severe headache, and 23% were of the view that ulcers and sores in genital area.



**Figure 1** Percentage distribution of prevention methods of STIs among study participants

**Table 6** Percentage distribution of symptoms of STIs among study participants

|                                     |     |      |
|-------------------------------------|-----|------|
| Vaginal discharge                   | 146 | 49.3 |
| Pain and discomfort while urinating | 62  | 20.9 |
| Severe headache                     | 20  | 6.8  |
| Ulcers and sores in genital area    | 68  | 23.0 |



**Figure 2** Percentage distribution of symptoms of STIs among study participants

**Table 7** Association between Understanding of STIs and Sociodemographic characteristic of Participant

|                    |    | Can a healthy-looking person have sexually transmitted infection? |       | Chi-square          | Df | p-value |
|--------------------|----|---|-------|---------------------|----|---------|
|                    |    | No  | Yes   |                     |    |         |
| Age of Respondents | 12 | 0.7%  | 0.7%  | 15.808 <sup>a</sup> | 6  | .015    |
|                    | 13 | 0.7%  | 4.1%  |                     |    |         |
|                    | 14 | 3.7%  | 16.6% |                     |    |         |
|                    | 15 | 4.4%  | 14.5% |                     |    |         |
|                    | 16 | 3.4%  | 31.1% |                     |    |         |
|                    | 17 | 1.0%  | 10.5% |                     |    |         |
|                    | 18 |   | 8.8%  |                     |    |         |
| Total              |    | 13.9%   | 86.1% |                     |    |         |

Results of the Chi-square ( $X^2$ ) statistics in Table 6. above shows that, the relationship between socio-demographic characteristics and understanding of sexually Transmitted infection. It was observed that the age of participant had a significant relationship with understanding of sexually transmitted infection  $p=0.015$ .

**Table 8** Health care seeking Behaviour of study participants

| Variables   | Frequency | Percentage (%) |
|---|-----------|----------------|
| <b>Have you ever visited any health facility or health care provider to receive services or information on contraception or sexually transmitted disease?</b> |           |                |
| Yes   | 108       | 36.5           |
| No  | 188       | 63.5           |
| Total   | 296       | 100%           |
| <b>Did you feel comfortable enough to ask questions?</b>  |           |                |
| Yes   | 124       | 41.9           |
| No  | 172       | 58.1           |
| Total   | 296       | 100%           |
| <b>Have you ever been diagnosed with a sexually transmitted infection (STIs)?</b>   |           |                |
| Yes   | 38        | 12.8           |
| No  | 258       | 87.2           |
| Total   | 296       | 100%           |
| <b>If yes to 30 above, have you sought for treatment?</b>   |           |                |
| Govt hospital /health Centre/clinics  | 5         | 13.2           |
| Private clinic  | 9         | 23.7           |
| Traditional healer  | 14        | 36.8           |
| Others (Pharmacy)   | 10        | 26.3           |
| Total   | 38        | 100%           |
| <b>Have you experienced any barrier to seeking treatment for STIs? If yes tick appropriately</b>  |           |                |
| Long-time wasting   | 6         | 15.8           |
| Judgmental attitude   | 9         | 23.7           |
| Lack of money   | 8         | 21.0           |
| Lack of confidentiality   | 15        | 39.5           |
| Total   | 38        | 100%           |

Source: Field Survey, 2021

Regarding the health seeking behaviour, 188(63.5%) of the study participants had never visited a health facility for STIs, 108(36.5%) had ever sought for treatment, whereas 172(58.2%) were not comfortable to ask questions while seeking for care. It further revealed that 12.8% agreed that they were diagnosed with STIs, while 87.2% were not. Another revelation indicated that among those that had STIs, 13.2% sought medical attention in the Government hospital /health Centre/clinics, Private clinics 23.7%, 36.8% from traditional healers, and from Pharmacies 26.3%. It implies that majority of the respondents who had STIs sought medical care at herbal outlets. About 77(26.0%) of the students have ever had an STI while 15(39.5%) mention lack of confidentiality as a major barrier they experienced while seeking for treatment on STIs.

**Table 9** Association between socio demographic characteristics and Health care seeking Behaviour of participant

| AGE   |     |      |       | Chi-square           | Df | P value |
|-------|-----|------|-------|----------------------|----|---------|
| 12    | 10  | 32.9 | -22.9 | 193.770 <sup>a</sup> | 8  | 0.000   |
| 13    | 26  | 32.9 | -6.9  |                      |    |         |
| 14    | 50  | 32.9 | 17.1  |                      |    |         |
| 15    | 44  | 32.9 | 11.1  |                      |    |         |
| 16    | 95  | 32.9 | 62.1  |                      |    |         |
| 17    | 34  | 32.9 | 1.1   |                      |    |         |
| 18    | 25  | 32.9 | -7.9  |                      |    |         |
| 19    | 9   | 32.9 | -23.9 |                      |    |         |
|       |     |      |       |                      |    |         |
| Class |     |      |       |                      |    |         |
| Total | 296 |      |       |                      |    |         |
| JSS3  | 79  | 74.0 | 5.0   | 4.622 <sup>b</sup>   | 3  | .202    |
| SS1   | 80  | 74.0 | 6.0   |                      |    |         |
| SS2   | 79  | 74.0 | 5.0   |                      |    |         |
| SS3   | 58  | 74.0 | -16.0 |                      |    |         |
| Total | 296 | 296  |       |                      |    |         |

Results of the Chi-square ( $X^2$ ) statistics in table 4.1 above shows the relationship between socio-demographic characteristics and Health care seeking Behaviour of participants with sexually Transmitted infections. It was observed that the age of participants had a significant relationship with the healthcare seeking behaviour of persons with sexually transmitted infections  $p=0.000$ . However, class of participant reflected no significant relationship ( $p=0.202$ )

#### 4. Discussion

The study examined knowledge, Understanding and Health seeking behaviours among adolescent schoolgirls in Jalingo, Taraba State. Based on the results from this study, most of the study participants had some knowledge on STIs. Findings from the study revealed that 90.2% had heard of STIs which is consistent with the findings of a study that was conducted in Ado-Ekiti, Nigeria which reported 92.4% awareness among study participants slightly lower than another study in Malaysia [15] where 95% of the study participants had some knowledge on STIs and in Lagos state Nigeria, in which 97% of the respondent's reported awareness of STIs [16]. The authors of a study carried out in Zaria, Kaduna State, Nigeria reported that secondary school adolescent had good knowledge about sexually transmitted infections [15]. This finding is slightly higher than other studies carried out in some parts of Nigeria where majority (84.7% and 79%) of the study participants had heard about STI and gotten information about the infection from the internet, teachers and schools and electronic media. Most of the study participants knew that STIs did not have any gender predisposition, and 96.7% knew that STIs were commonly transmitted by unprotected sexual intercourse (17, 18). The study recommended interventions such as periodic publicity awareness and school seminars focusing on STIs prevention for control of the infections among adolescents (17). It is also similar but higher than a study conducted in Ethiopia where the authors discovered that 88.5% of study participants had ever heard about STIs [19]. The result of this study is comparable to another study carried out in Enugu state Nigeria in which 97.80% of the respondents had heard about STIs and only about 23.5% were able to identify at least four types of STIs. In another study conducted in Northern Nigeria 67% of adolescents were aware of STIs [20]. This high knowledge prevalence might be due to study population restriction to secondary school adolescents who constitute the largest proportion of young adults who are sexually active. Unlike the results of a study in Ekiti State [21] where the key sources of information were Television/radio, internet and magazines, findings of other studies carried out among adolescents both within and outside the country reported that major sources of information about STIs were school lessons, hospital/clinic, mass media, and health magazines [20,

22] this study's major source of information for STIs were from Teachers 78(26.4%) followed by Radio/television 52(17.5%) and Internet 48(16.2%) aligns with findings from the study conducted in Zaria(20).

The major types of STIs identified by the participants were HIV/AIDS 126(42.6%) followed by Gonorrhoea 68(23.0%) and Syphilis 59(19.9%). A conflicting report from another study in Nigeria revealed Gonorrhoea as the most identified followed by HIV/AIDS and Herpes (23). Chlamydia was the least identified STI which aligns to a study outside of the country where almost half of the study participants did not know about chlamydia (24). The high rating of HIV/AIDS as most mentioned STI might be due to adequate HIV/AIDS education and communication through media sensitization or publicity campaigns for both the general public and schools. However, a study carried out in South Africa reported low level of Knowledge for HIV/AIDS which was attributed to lack of awareness creation for the disease (18).

Most of the participants in this study knew that unprotected sex was a major mode of transmission of STI 158(53.4%) whereas 18.8% and 14.9% knew about transmission through blood transfusion and use of unsterilized needles and syringes respectively, this finding corresponds with other studies conducted in and outside the country (17,25). However, about 0.7% had misconception that STI can be contacted by sharing same plate with an infected person.

About 62.2% of the study participants did not know that not all STIs are curable which contradicts a previous study that reported 64.7% knew that not all STIs can be cured [16, 21,22]. The result of this study is contrary to the study carried out in Enugu state in which about 33.3% of the respondents stated that STIs can be cured. In this study, knowledge of the study participants that STIs can be cured could have influenced their choices that a healthy-looking person can have an STIs.

A very good number of the study participants knew that condoms are effective protection against STIs and aligns with a study in Ikot Omin, Nigeria where 24.4% felt the use of condom protects against STIs, this slightly lower proportion might be because of level of literacy being that it was a community based study (18), meanwhile 45.3% knew that mother to child transmission is possible; which is consistent with the reports of previous findings [16, 17, 21,26]. The result of the study is also consistent with a study in other parts of Nigeria where more than half (61.9%) of the respondents also acknowledged that blood transfusion is a means of STI transmission; however, less than half of the participants in that study identified 'mother to child' route as a means of STI transmission [16].

The most mentioned possible symptoms of STIs in this study were vaginal discharge, genital ulcers/sores and pains and discomfort while urinating the result is similar to the findings of a study carried out in Nigeria [16]. This is contrary to the study of Amu et al., [21] in which most of the study participants mentioned the possible symptoms as weight loss, painful micturition, and genital ulcer as possible symptoms of STIs. The findings also contrast the report of another finding outside the country where the commonly mentioned symptoms of STI were penile/vaginal discharge and genital itching [22]. The differences in the possible symptoms mentioned could be as a result the type of STI that the students are familiar with or because the questionnaire used were opened ended. Overall, 33.1% of the participant had good knowledge, 48.3% are fairly knowledgeable while 18.6% had poor knowledge of STIs. Majority of the respondents in this study mentioned herbal remedies as the most effective way by which STIs can be treated. This finding is consistent with the reports of some related studies conducted in Nigeria [16, 25] and contrast the reports of previous studies in which most of the respondent's mentioned hospitals and pharmaceutical stores as places of seeking care [26, 27]. This could be because they perceived that the cost of seeking treatment from health care facilities and pharmaceutical stores can be quite expensive, slow service, negative provider attitudes toward young people and a perceived lack of confidentiality. Also, this could be because the traditional healers charge less for their services, they may allow their patients to make part payment for their bills, as opposed to conventional treatment, which require full payment at time of treatment. A previous Nigerian study also reported low cost and speed of both service delivery and cure [28].

Most of the respondents in this study stated that they don't think they can likely be infected with an STI. This is contrary to a related study where 29.6% of the respondents perceived themselves as been at moderate or high risk of contracting an STI [28].

The result on Table 3 showed a large number of the participants have neither visited a health facility for STI nor had the infection,188(63.5%) and 285(87.2%) respectively. This is consistent with reports of studies within and outside the country that highlighted stigma associated with the infection, religion and cultures that considers sexual activities as preserved for the married contributed to reluctance of female adolescents to seek care in health facility since they bear the more of stigma connected with the infection (23, 24). Also, about 58.1% of them do not feel comfortable to ask questions on STIs. This could be due to fear of discrimination and confidentiality associated with these infections.

Treatment seeking among the participants were mostly from traditional healers and pharmaceutical stores which contradicts reported studies where male or men were found to be more likely to seek care from informal sources than females, which was attributed to issues relating to access, speed of service delivery and cost of care but aligns with several studies in LMIC where young people also sought care from informal sources (29, 30). The commonest mention barrier by the study participants is lack of confidentiality, Judgmental attitude, and lack of money.

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## **5. Conclusion**

Knowledge among the study participants lacked depth though fair for general knowledge which pointed the need for comprehensive sexuality education that is culturally appropriate, that will improve the overall knowledge of STIs since adolescence provide opportunity to mitigate risk. Another need highlighted by this study is that of a youth friendly affordable sexual and reproductive health service free of discrimination that is accessible to adolescent especially girls.

### *Limitations*

In view of the sensitivity of the issue the respondents might not give genuine information even though confidentiality was assured, this can affect the reliability of the information in this study. The study focused on only schoolgirls as such knowledge, understanding and health care seeking behavior might be different among boys which would limit generalization of the findings. Approval was denied from an all-girls Secondary school which might have had a different outcome or show some variation of interest.

### *Recommendation*

The outcome of the study shows that knowledge is essential in making informed choice regarding STIs prevention, screening and treatment as such the need to address current knowledge deficit through education on the dangers posed by STIs and available method of prevention, detection and cure which can be done through the following recommendation: Effort should be made to ensure comprehensive health education about other sexually transmitted Infections not just HIV/AIDS through trained health educators and include health education in the secondary school curriculum to improve relevant health information. Government and relevant organization should embark on STI enlightenment campaigns and programs for students to increase knowledge of the problem and dangers associated with it through health professionals, social media channels, mass media and peer education programs. Effective preventive and treatment strategies that influences adolescent health seeking behavior like including adolescent in program planning and training them as health guides to refer and provide education will contribute immensely to the prevention and control of these infections.

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## **Compliance with ethical standards**

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### *Disclosure of conflict of interest*

The authors have no conflicts of interest to declare.

### *Statement of ethical approval*

An ethical approval was obtained from the research and ethics board of Bingham University Teaching Hospital. Written and official authorization was sought from Taraba State Post Primary School Management Board, approval was also sought from the principals of the selected schools.

### *Statement of informed consent*

A written informed consent/assent was obtained from both the students and parents of minors prior to sample collection and completion of the questionnaires which were labelled with unique study numbers to maintain anonymity.

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