



Research Article

Hong Kong J Obst Gynae
2021; 4(1): 1-8
ISSN (e): 2663-8088
ISSN (p): 2663-8177
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Adolescents' views of Sexually Transmitted Infections' Preventive Measures in Nigeria

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Abstract

Objectives: To determine the adolescents' views of sexually transmitted diseases preventive measures. **Methods:** This was a cross-sectional descriptive study of 310 adolescents in Atani, Nigeria. All unmarried sexually active adolescent living in the community was included in the study while all married and menopausal non sexually active adolescents were excluded in the study. The respondents were selected using the random sampling technique. Data was collected using semi-structured self-administered questionnaires and was analyzed using SPSS 22. **Results:** A total of 310 questionnaires were appropriately completed. Only 27.6% of the 310 youths are sexually active. 11.4% were females while 16.1% were males. The mean age of respondent was 20.6±2years. About 9% had multiple sexual partners. Contraceptive awareness was 80.1% while contraceptive use was 51%. The result of analysis revealed that most respondents who were sexually active engaged in high risk sexual practices such as multiple sexual partners and inconsistent condom use. It was clear that the youths have very high knowledge of key concept on HIV/AIDS, syphilis, gonorrhoea, but there is a difference in the overall practice of safe social and sexual behavior amongst these youths which clearly shows that females are more careful and health conscious than their male counterparts which was statistically significant: knowledge of Gonorrhoea as a type of STI (36.7% for females and 54.4% for males, P= 0.039), knowledge of blood transfusion as a risk factors (19.5% for females and 21.9% for males; P= 0.03), practice of having multiple sexual partners (5.2% for males and 3.8% for females; P= 0.05). **Conclusion:** High knowledge of STIs has no correlation with subsequent sexual behavior among the youths, as a large number of youths still engage in risky sexual behavior. Policies and programs that can transform the sexual life of the youths or reduce their risk behavior should be put in place while prevention message should be consistent, clear and effective to counteract other unreliable sources of information.

Keywords: Dyspareunia, Pelvic inflammatory disease, Sexually transmitted diseases, Sexual behavior, Venereal disease.

INTRODUCTION

The World Health Organization estimates that 20% of people living with HIV/AIDS are in their 20s and one out of twenty adolescents' contract sexually transmitted infections (STIs) each year [1, 2]. Adolescents are more likely to practice unprotected sex, have multiple sexual partners. In addition, they may have problems getting the required information, services, and supplies they need to avoid STIs. They may also experience difficulties in assessing STI prevention services because they do not know where to find them, do not have transportation to get there, or cannot pay for the services. Even if they can obtain STI prevention services, they may not feel comfortable in places that are not adolescent friendly [3].

However, untreated or poorly treated STIs are associated with some complications. In males, gonorrhoea as well as chlamydia trachomatis infection causes epididymitis which can result in infertility in the future. In addition, inflammatory urethral stricture may arise from poorly treated gonococcal urethritis in the future. This may lead to urinary retention and possibly chronic renal failure if not properly managed. For the females, pelvic inflammatory disease, dyspareunia, infertility, chronic pelvic pain, increased risk of ectopic

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pregnancies, abortions, stillbirths, and perinatal and neonatal morbidities can occur, jeopardizing their future reproductive competences [4].

Despite efforts to control the spread of STIs, reports indicate an upward surge in the incidence of new cases. This situation is explained by a number of factors including, growing resistance to the common treatment regimens, lack of prioritization of management of STIs with the exception of HIV, STI surveillance, prevention and treatment programs are generally under staffed and poorly resourced undermining the quality of services rendered by most National programs [5].

Knowledge of STI and their complications is important for adequate prevention and treatment, as people who do not know the symptoms may fail to recognize their need and so may not seek help. Knowledge of other STIs apart from HIV/AIDS is low in the low-income countries [6].

The impact of peers on reproductive and sexual behavior of young people has particularly been documented to be strong. Among others, beliefs of young people as regards to behavior of their peers have shown to have impact on their actions in various spheres of health behavior. Some studies have shown that young people who believe that their peers were using condoms were more likely to use condoms compared to those who had contrary beliefs. Importantly, literatures on the awareness of STIs in Nigeria are quite scanty if any. To our knowledge, no studies have comprehensively evaluated the perceptions and expectations of STIs in south-east Nigeria. The aims of the present study were therefore to identify adolescents' views of sexually transmitted infections' preventive measures as well as identifying their specific health educational needs so as to make appropriate recommendations.

METHODS

Study Area

The study was conducted in Atani, Ogbaru LGA, Anambra South East, Nigeria. Atani is a city on the eastern bank of the Niger River in Anambra state, Nigeria. It was a town populated by early fishermen and migrant settlers. Atani is the rice, fish, yam and cassava basin of Anambra state, producing most of the food sold in Anambra and delta markets. The population has grown to an estimated 230,000 [7].

The location of Atani is within the tropical rainforest gives it the ecological basis for production of a wide range of tropical agriculture crops with widespread potential for industrial convention.

Study Population

Sexually active adolescents residing in Atani, Ogbaru LGA, Anambra State in South East Nigeria.

Inclusion Criteria

Sexually active adolescents.

Exclusion Criteria

All married, menopausal and non-sexually active population in Atani, Ogbaru LGA, Anambra State in South East of Nigeria.

Study Design

The study was a cross-sectional study.

Sample Size Determination

The sample size for this study was determined using Cochran Equation;

$$N = \frac{Z^2 p q}{D^2}$$

D^2

Where:

N; is the minimum sample size

Z: The confidence limit, taken as 1.96 at 95% confidence level

p: prevalence of high risk sexual behavior and practice amongst undergraduates = 34%

q: Proportion of those who practice safe sex in the population

$$q = 1 - p = 1 - 0.34 = 0.66$$

D: Precision of 90%; the acceptable degree of accuracy desired (0.05 error)

$$N = \frac{Z^2 p q}{D^2} = \frac{1.96^2 \times 0.34 \times 0.66}{(0.05)^2} = 344 \text{ people}$$

$$D^2 = (0.05)^2 = 0.0025$$

Hence, Minimum Sample size is 344.

Anticipating non response of 10% (f)

Adjusted Sample size

$$10\% \text{ attrition risk} = 10/100 \times 344 = 34$$

$$344 + 34 = 378$$

Sampling Technique

The convenient sampling technique was used in this study, randomly selecting eligible participants from the various villages and markets in Atani who will be present within the sampling time.

Research Instruments

The instrument for data collection was a semi structured questionnaire. The questionnaire was divided into four sections (A-D).

Section A has questions on biodata/demographic characteristics

Section B has questions on the knowledge of STIs

Section C has questions on attitude of STIs preventive measures

Section D has questions on practice of STIs preventive measures.

Data Collection and Analysis

The data for this study was collected through self-administered questionnaire Data analysis was done using Statistical Package for Social Sciences (SPSS) version 22.

Ethical Considerations

The nature, objectives and process of the study was explained to every respondent, after which a verbal consent was obtained. Confidentiality, privacy and anonymity of the information provided were assured to all respondents. Necessary steps such as avoiding asking for names and secured storage source of data was taken.

RESULTS

A total of 374 adolescents were given the questionnaire and 310 filled and returned their questionnaire making it 82% response rate.

Table 1: Sex distribution of respondents

Sex	Frequency (N=310)	Percentage (%)
Female	118	46.5
Male	192	53.5

The table and figure show an almost equal respondent with females (46.5%) and males (53.5%)

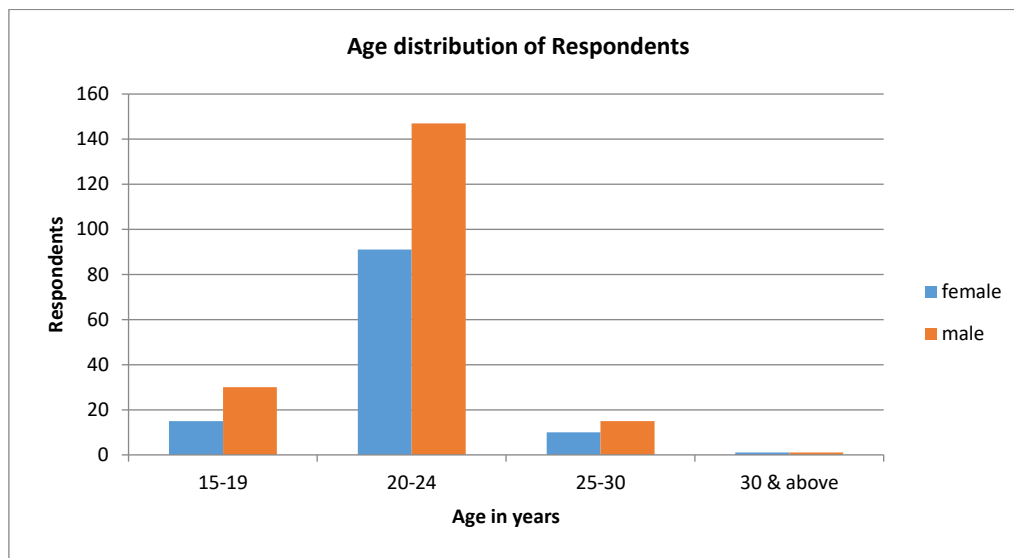


Figure 1: Age distribution of respondents

The table and figure show that majority of the respondents (76.8%) fall within the age range of 20-24 years.

Table 2: Other socio-demographic data

Data	Female	Male	Total Frequency (n=310)	Percentage (%)
Marital status				
Married	5	9	14	4.5
Single	112	184	296	95.5
Highest level of education				
FSLC	68	83	151	48.8
SSCE	28	44	72	23.2
Undergraduates	17	40	77	24.8
Graduates	14	16	30	9.7

FSLC: First School Leaving Certificate; SSCE: Senior Secondary School Certificate

The table shows that majority of the respondents (95.5%) are single, 14 respondents (4.5%) are married it also shows that majority of the respondents 100(32.3%) have FSLC as their highest educational qualification and the graduates 30(9.7%) responded the least.

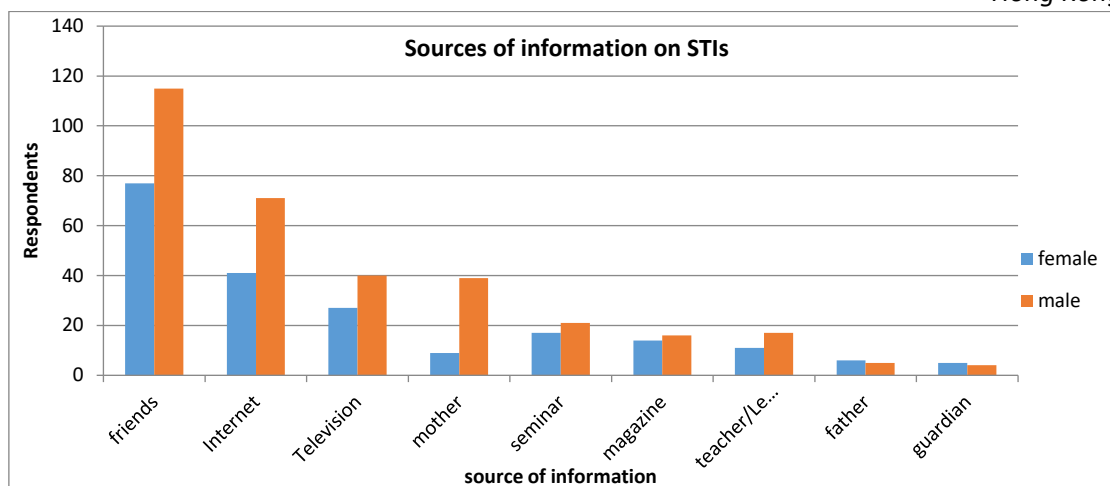


Figure 2: Source of Information in STI

Multiple responses were obtained. This table shows that majority of the respondents (61.9%) had their sources from their friends.

Table 3: Knowledge of different forms of STIs amongst respondents

Knowledge of STIs	Female	Male	Total frequency (n=310)	Percentage (%)	P- value (Chi square test)
General knowledge	115	189	304	98.1	0.83
Syphilis	99	163	262	85.9	0.541
Gonorrhoea	112	166	278	91.1	0.039
Tetnus	3	9	12	3.9	0.652
HIV/AIDS	97	159	256	83.9	0.574
Genital herpes	54	83	137	44.9	0.238
Leprosy	3	3	6	2	0.783
Chlamydia	27	51	78	25.6	0.655
Trichomonas	10	27	37	12.1	0.299
Tuberculosis	4	10	14	4.6	0.767
Human papilloma virus	29	69	98	32.1	0.087
Malaria	0	2	2	0.7	0.534

Multiple responses were obtained. This table shows that majority of the respondents 91.1% (p-value = 0.039), 85.9% (p-value = 0.541), and 83.9% (p-value = 0.574), knew gonorrhoea, syphilis and HIV/AIDS as common types of STI respectively. 3.9% (p-value = 0.652), and 0.7% (p-value = 0.534) of the respondents choose tetanus and malaria respectively as examples of STIs.

Table 4: Knowledge of symptoms of STIs

Knowledge of Symptoms of STIs	Female	Male	Total frequency (n=310)	Percentage (%)	P- value (Chi square test)
Pain duration urination	99	156	256	82.6	0.640
Vaginal discharge	93	137	238	76.8	0.2
Penile itch	88	123	211	68.1	0.07
Vaginal itch	95	152	247	79.7	0.554
Vomiting	8	7	15	4.8	0.432
Headache	8	18	26	8.4	0.629
Ulcer in genital area	36	56	92	29.7	0.723
Lower abdominal	29	62	91	29.4	0.368
Diarrhoea	10	15	25	8.1	0.719
Pain during sex	55	105	160	51.6	0.326
Discharge from the penis	42	57	99	31.9	0.385
Don't know	5	6	11	3.5	0.829

Multiple responses were obtained. This table shows that majority of the respondents 82.6% (p-value = 0.64), 79.7% (p-value = 0.554), 76.8% (p-value = 0.2), and 68.1% (p-value = 0.07), recognized pain during urination, vaginal itching, vaginal discharge and penile itching as symptoms of STI. 11(3.5%) (P-value = 0.829), of the respondents does not know any symptom of STIs.

Table 5: Knowledge of risk factors of STIs

Knowledge of risk factors of stis	Female	Male	Total frequency (n=310)	Percentage (%)	P- value (Chi square test)
Poor hygiene	11	9	20	6.6	0.246
Multiple sexual partners	102	175	277	91.7	0.455
Unprotected sex	90	149	239	79.1	0.510
Blood transfusion	59	66	125	41.4	0.03
Not using mosquito net	2	5	7	2.3	0.634
Sexual abuse	55	89	144	47.78	0.303
Excessive use of alcohol	2	4	6	2	0.808
Drug abuse	8	7	15	5	0.431
Use of shared sharp objects	20	27	47	15.6	0.222
Don't know	0	1	1	0.3	0.722

Multiple responses were obtained. This table shows that 91% (p-value = 0.455), and 79% (p-value = 0.51), of the respondents recognized multiple sexual partners and unprotected sex respectively as risk factors of STIs. 7(2.3%) (p-value = 0.634), of the respondents chose not using mosquito net as a risk factor for STIs while only 1(0.3%)(p-value = 0.722), respondent does not know any risk factor for STIs. The knowledge of Blood transfusion as a risk factor is 41.4% with a P-value of 0.03.

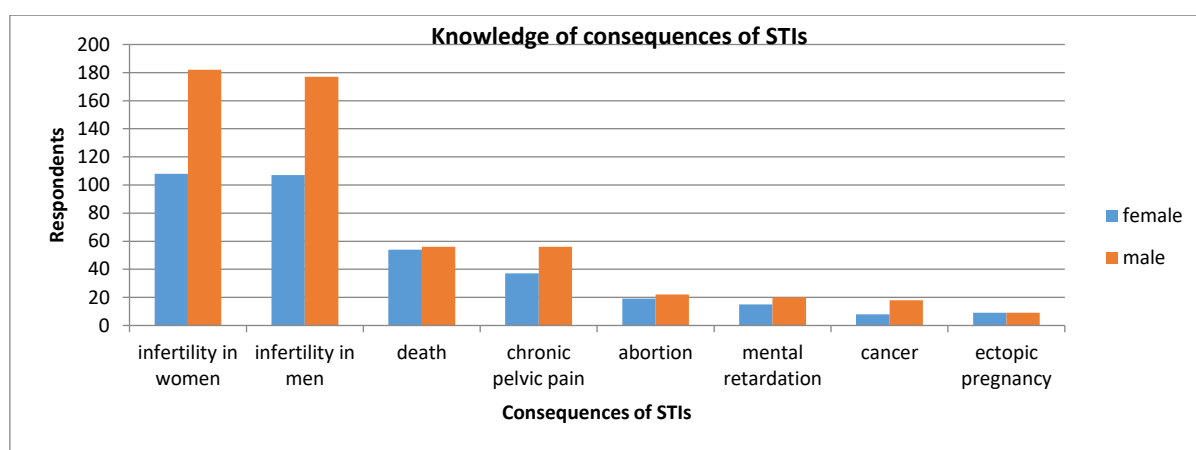


Figure 3: Knowledge of consequences of STI

Multiple responses were obtained. This chart shows that majority of the respondents 95.4% and 93.4% were aware of infertility in women and infertility in men respectively as consequences of STIs. 2(0.7%) of the respondents does not know any consequences of STIs.

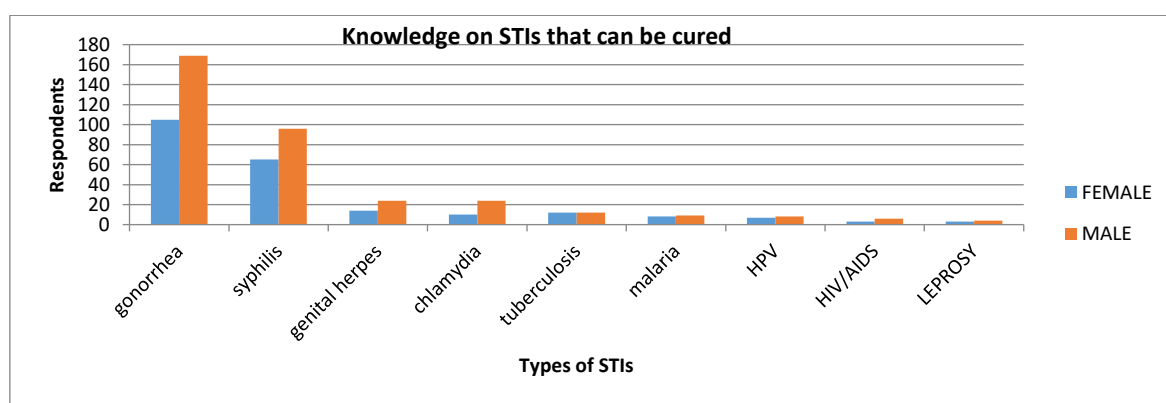


Figure 4: Knowledge on sti that can be cured

Multiple responses were obtained. This chart shows that majority of the respondents (92.3%) were aware that gonorrhoea is curable. Only 3.8% of the respondents chose that HIV/AIDS is curable.

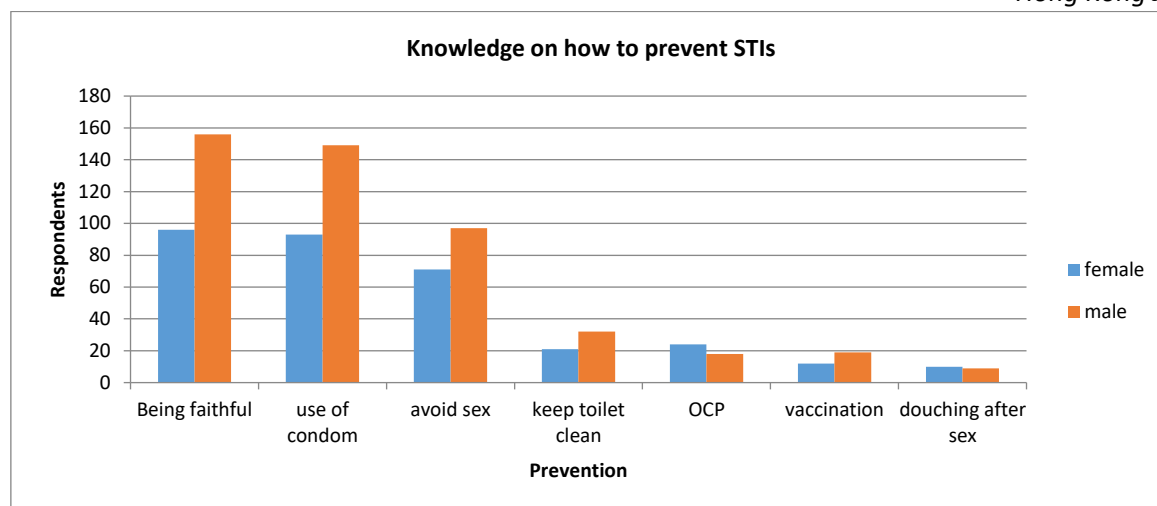


Figure 5: Knowledge of how to prevent STI

Multiple responses were obtained. This chart shows that majority of the participants 83.1% and 80% are aware that being faithful to one partner and the use of condom respectively is a means of preventing STIs.

Table 6: Symptoms of STIs experienced by participants

Symptoms of stis experienced	Female	Male	Total frequency (n=94)	Percentage (%)
Pain duration urination	4	2	6	12.2
Vaginal discharge	3	13	26	26.5
Penile itch	6	1	7	14.3
Vaginal itch	2	11	13	26.5
Vomting	3	3	6	12.2
Headache	4	4	8	16.3
Ulcer in genital area	2	0	2	4.1
Lower abdominal	2	4	6	12.2
Diarrhoea	3	0	3	6.1
Pain during sex	2	1	3	6.1
Discharge from the penis	2	0	2	4.1
Don't know	4	8	12	24.5

Multiple responses were obtained. This table shows that 26.5% of the respondents have experienced both vaginal discharge and vaginal itch. 24.5% does not know if they have experienced any of the symptoms in the past.

Table 7: Place of treatment choice by respondents

Where did you seek for treatment?	Female	Male	Total frequency(n=68)	Percentage (%)
Chemist	14	38	52	76.5
Hospital	3	0	3	4.4
Traditional	4	5	9	13.2
No treatment	0	1	1	1.5
Other specify	1	2	3	4.4

This table showed that 76.5% of the respondents sought for help in a chemist shop.

Table 8: Reason for choice of place of treatment

Why is the place chosen?	Female	Male	Total frequency (n=49)	Percentage (%)
Closest	1	1	2	4.1
Most private	1	3	4	8.2
Seek professional assistance	1	1	2	4.1
Less stress	3	0	3	6.1
Affordable	7	31	38	77.6

DISCUSSION

Socio-Demography

The sociodemographic characteristic of the respondents in this study was similar to those of previous study conducted in Nigeria. Majority of the respondents were between 20-24 years of age which correlated with the study by Lagos state ministry of education in 2013 with the highest cases amongst 21-25 years age group. Virtually all (95.5%) of the respondents were single. Here 46.5% were females and 53.5% were males. However, 99% were Christians which is not surprising since the study was conducted in the south eastern part of the country with a predominant Christian religion faith. 48.8%, 23.2%, 24.8% and 9.7% respondents had FSLC, SSCE, Undergraduates and graduates respectively.

Knowledge of STI and its preventive measures

On assessing their understanding of the meaning of STIs, 98.1% believed that it is an infection transmitted from one person to another by sexual intercourse either vaginal, anal or oral sex. This implies that only a few are still ignorant of the meaning of STIs. On their source of information, 15.5% had their source as mother, 3.5% father, 2.9% guardian, 61.9% friends, 9% teacher/lecturer, 21.6% television/ radio, 9.7% magazine, 12.3% seminar, 36.1% internet. This disagrees with the work done in Onitsha, Nigeria amongst adolescents, where 80.6% of the students mentioned school followed by T.V 80.1% and radio 73.1% as source of information. This finding however is contrary to the current trends of the internet age where youths spend the greater part of their day on the internet. Study done amongst Chinese students in the USA showed that the students were more likely to site television as the source of information than their school teachers and it has a sharp contrast.

Of the seven STIs being assessed (syphilis, Gonorrhoea, HIV/AIDS, Genital Herpes, Chlamydia, Trichomoniasis and HPV) awareness was generally high for Gonorrhoea (91.1%), syphilis (85.9%) and HIV/AIDS (83.9%). This corresponds with the high awareness of HIV/AIDS (96.5%) in the work done amongst students in Turkey [8] and also with general awareness of HIV/AIDS 93.6%, Gonorrhoea 78.3%, syphilis 69.1% in the work done in Onitsha, Nigeria among adolescent girls. 44.9% considered Genital herpes, chlamydia 25.6%, HPV 32.1% and trichomoniasis 12.1% as types of STIs which is also in keeping with their high level of knowledge of STIs. This research generally reveals the rise in the awareness of these STIs especially the non-curable ones.

Also 82.6% of the students believed that pain during urination, vaginal discharge 76.8%, penile itching 68.1%, vaginal itching 79.7%, ulcer in the genital area 29.7%, pain during sex 51.6%, penile discharge 31.9% are symptoms of STI. However, 3.5% of the students could not identify symptoms of STIs.

More so 79.1% of respondents believed that unprotected sex is a risk factor, 91.7% knew that multiple sexual partners was a possible route, 47.7% felt that sexual abuse was a risk factor. Only 2% and 5% believed

that excessive use of alcohol and drug abuse were risk factors respectively.

On assessment of their knowledge of the consequences of STIs, 95.4% believed that infertility in women, infertility in men 93.4%, cancer 8.6%, ectopic pregnancy 5.9% are consequences. Only a few 13.5% considered abortion as a consequence but 0.7% said they do not know the consequences of being infected with an STIs. Only 3.8% chose HIV/AIDS as curable showing a high knowledge of HIV/AIDS as not curable. However, 92.3% were aware that Gonorrhoea is curable and 7.4% syphilis.

Awareness about the preventive measures showed that 55.6% believe that avoiding sexual intercourse, being faithful to one partner, (83.1%), use of condom (80.1%) and vaccination (10.3%) is preventive. This corresponds with the study done in Onitsha, Nigeria amongst adolescents where abstinence was 67.4%, mutual fidelity 56.7% and condom use 54.8%.

From the above findings, there is an increase in the general knowledge of STIs, its consequences and preventive measures amongst the participants which is also in keeping with all the other literatures reviewed.

Practice of STI's Preventive Measures

In relation to their attitude and practice of STIs preventive measures, only 30.3% of the respondents had experienced any of the symptoms of STIs of which 12.2% had experienced pain during urination, 26.5% had experienced vaginal discharge, 12.2% have had lower abdominal pain, 4.1% had experience discharge from the penis, and 6.1% had experience pain during sex. Of these students 76.5% went to chemist and 4.4% the hospital while just 13.2% sought for treatment at the traditional healers and the remaining 1.5% didn't seek for any help or opted for other options. The reason for choosing patent medicine dealer was mainly because they felt it was affordable in the hospital because it was the best place to seek for cure.

Out of the participants studied 45.6% of females practiced abstinence as against 26.7% of males. In other words 51.6% of females are faithful to one partner against 34% of males, while 29.8% of females use condom as against 22% of males. Moreover, 5.2% of the males have multiple sexual partners as against 3.8% females and this is in keeping with the high number of students with multiple sexual partners in the work done amongst undergraduate students of Wollega university Nekemte, Ethiopia [9]. The mean age range at first sexual intercourse was 15-19 years; this did not correspond with the mean age of 16.83± 2.07 in the work done amongst students at a university in Turkey [8].

In Nigeria and over the world, the long year of continued education has created a big gap between the age of puberty and marriage, thus increasing the likelihood of sexual initiation and unprotected premarital sex, it thus creates a situation where people are students and at the same time sexually active. The study indicated that 27.6% of the respondents were sexually active with 19.8% having one sexual partner,

4.1% have two sexual partners, 1.8% have three sexual partners and 1.8% have more than three sexual partners all within the last six months prior to the survey.

The overall practice of safe social and sexual behavior amongst these youths clearly shows that females are more careful and health conscious than their male counterparts. There was a statistically significant knowledge of Gonorrhoea as a type of STI was 36.7% for females and 54.4% for males (P-value= 0.039). Also, the knowledge of blood transfusion as a risk factor was 19.5% for males and 21.9% for females (P-value=0.03). The practice of having multiple sexual partners was 5.2% for males and 3.8% for females (P-value=0.05).

Limitations of the Study

There was lack of high level co-operation from the respondents because sexual and reproductive health is a very sensitive topic. There was also the issue of recall bias on the part of the respondents. The true number of people with an STI may be unknown because not everyone has been tested; many people with STIs do not get symptoms and so do not get tested. Some STIs are more likely to show symptoms in women and others are more likely to show symptoms in men. This was a community-based study and as such the findings may not be generalizable.

CONCLUSION

This study showed that high knowledge of STIs has no correlation with subsequent sexual behavior among the adolescents, as a large number of adolescents still engaged in risky sexual behavior. Overall, attitude was positive but their practices were different especially between males and females, since females appeared more careful and health conscious than the male counterparts. Policies and programs that can transform the sexual life of the adolescents or reduce their risk behavior should be put in place while prevention message should be consistent, clear and effective to counteract other unreliable sources of information.

Conflict of Interests

The authors declared that they have no competing interests and no funding for this research work.

Author contributions

OC Ekwebene, CN Ogbuagu, EN Ogbuagu and EA Orji were involved in the overall conceptual design and implementation of the project, and overall revision of the manuscript. GU Eleje, UC Ani, CC Umenweke and EA Emeka were involved in the writing of this manuscript and overall revision. The authors read, approved the final manuscript and agree to be accountable for all aspects of the work.

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