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Awareness and perception of prevention and management options of sexually transmitted infections among students at secondary school in Rivers State, Nigeria

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Abstract

Introduction: Investments in programs to increase sexual health awareness among young people is ongoing; however, they continue to be exposed to sexually transmitted infections (STIs) and remain vulnerable to risky sexual practices, such as multiple sexual partners and unprotected sexual intercourses, predisposing them to STIs and subsequent treatments from informal and formal health providers. There is limited research on the management practices of young people in Port Harcourt; hence, the study aimed to assess respondents' awareness and perception of prevention and management options of STIs.

Material and methods: A descriptive cross-sectional survey was conducted among 1,140 secondary school students, but 325 were selected using simple random probability sampling method. Ethics Committee of the University of Port Harcourt Rivers State Nigeria issued an ethical approval for the study. Data were collected in September 2021 using a 4-point Likert's scale questionnaire. During break periods, classrooms of participants were visited to administer questionnaires after obtaining permission from the head teacher and class teachers. Content of the instrument was explained to participants in simple English language. Data were analyzed using statistical package for social sciences (SPSS) version 26.0, and presented in frequency distribution table. A total of 300 questionnaires were properly completed.

Results: 99.3% of participants agreed that STIs can be treated with pharmaceutical drugs, 33% believed in the effectiveness of local concoctions, while 68.3% indicated that divine intervention of prayers offers a cure. 290 (96.6%) participants strongly agreed that young people should be educated on STIs in schools. Overall positive perception of prevention among respondents was worthy of note. A total of 88.3% agreed that they would see a healthcare provider if symptoms of STIs arise; however, their perception of the management of STIs options were poor, as most believed in management methods that do not have empirical back up. It was observed that 3.3% of respondents would choose to ignore symptoms, which could be an interpretation of normalization of ill health experience.

Conclusions: The perception of STIs management practice is low. Therefore, there is the need to create the most basic level of the awareness on availability of services offered at youth-friendly healthcare services and department to facilitate its utilization.

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Key words: sexually transmitted infections, perception, secondary school students, young people, management and interventions, herbs and concoctions.

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Introduction

Sexually transmitted infections (STIs) are a public health discourse all over the world that affects both developed and developing countries. According to the World Health Organization (WHO) 2019, worldwide, over 1 million individuals get infected with STIs every day, and there are about 376 million new infections a year [1].

One-third of new cases of treatable STIs affects youths aged less than 25 years. STIs can lead to severe problems beyond the immediate effect of infections, as noted by Oluwole *et al.* [2]. Young people are usually in transition period, from the dependent phase of infancy to inter-dependence of maturity (United Nations, Educational, Scientific and Cultural Organization – UNESCO, 2018) [3]. STIs are recurrent among young people, with approximately 26 million new STIs patients being reported yearly in the United States, of which the majority occurs among people aged between 15 and 24 years (according to Centers of Disease Control and Prevention – CDC, 2021) [4].

There are no official data on STIs prevalence in Nigeria; however, previous surveys conducted by National Population Commission (NPC) [5] and ICF Macro in 2009 reported that 16% of young women and 6% of young men aged between 15 and 24 years had first sexual intercourse before the age of 15 years. A survey in Nigeria on the prevalence and predictors of early sexual debut among adolescents revealed that an average of 18.6% had first sexual intercourse before their 15th birthday: 16.6% of boys and 20.2% of girls. This is significantly one of the reasons for the high prevalence of STIs among young people. STIs can cause grievous complications beyond instant impact of infections. In addition, a study by Nwadike *et al.* [6] reported the prevalence of STIs, including gonorrhea 3 (0.6%), candidiasis 55 (10.9%), and syphilis 2 (0.4%). Some STIs, such as herpes and syphilis, can expand the risk of human immunodeficiency virus (HIV) acquisition threefold or more. Gonorrhea and chlamydia are utmost etiologies of pelvic inflammatory disease and infertility in women (CDC, 2021). Information on the incidence and prevalence of STIs in Nigeria are scarce due to under-reporting of STIs, particularly among young individuals that is attributable to insufficient number of diagnostic services and limited accessibility to treatment facilities, asymptomatic incidents of infections, and shame associated with STIs [7].

Young adults, as recorded by Oluwole *et al.* [2], are also exposed to diverse sources of domination and supremacy (e.g., multiple sexual partners, lack of condom use), overlapping different intensities of causation. The understanding of non-HIV origin STDs is still lacking, and the risky behavior performed by sexually active young adults is on the rise. Preventive interception of STIs includes counseling, behavioral mediation, full-scale sexual education, STIs and HIV pre- and post-test counseling, condom use promotion, and management measures targeted at risk populations. Oluwole *et al.* [2] further stated that the prevention of STIs, especially in the areas where they are endemic, propelled mainly by heterosexual (opposite) transmission, includes vaccination (for vaccine-preventable diseases) and implementation of the ABC approach (i.e., Abstinence, Be faithful to one partner, and use of Condom). In the absence of good treatment seeking behavior, patients will contain the infection for prolonged periods, which often leads to increased likelihoods of co-morbidities or consequences, such as infertility, low birth weight, and neonatal infections.

There is paucity of research on the management of STIs among young men and women. Based on evidence, the advancement of prompt and suitable health-seeking behavior among Nigerian youths should be of collective concern. In developing countries, there are competing structures of traditional, informal, and western medicine co-occurrents, including purchasing power, availability, and accessibility of treatments [8, 9]. Recommendations were made concerning some developing countries about young people who tested positive for STIs or reported symptoms of STIs, to first attempt a remedy for their infections, or seek a treatment from non-professional providers, such as traditional healers, patent medicine sellers, etc. In a study carried out in Iran, participants experienced delay in seeking care and treatment with self-medication [10]. There are specific reasons why it may be difficult for adolescents to seek treatment for STIs, particularly in formal healthcare facilities. Therefore, this study aimed to explore the awareness and perceptions of prevention and management options of STIs.

Material and methods

This descriptive cross-sectional study was carried out among Community Secondary School students of Abuloma, Rivers State, Nigeria. A total of 325 students were selected from the study population of 1,140 using simple random probability sampling technique. The instrument for data collection was a researcher-structured questionnaire designed to stimulate responses in line with study objectives. Face and content validity of the questionnaire was ensured by assessing a judgmental validity. In addition, validity was ensured by assessing the agreement of experts on appropriate utilization of conceptual definition on the research instrument. Data were collected using a pre-tested self-administered questionnaire, with a reliability coefficient of 0.84. Completed questionnaires were collected by trained research assistants. After obtaining the permission, the course of the study (for research purposes only) and its objectives were explained to the respondents. They were informed that participation was voluntary, they were free to withdraw from the study at any time, and that their names will not be mentioned. Any information provided by the respondents was treated as confidential. Oral consent was obtained from the participants, while the Ethical Review Committee of the University of Port Harcourt, Rivers State, Nigeria issued an ethical clearance for the study (approval No.: UPH/CEREMAD/REC/MM83/014). Completed questionnaires were collected by trained research as-

sistants. Data collection was supervised by the authors. Data were analyzed and descriptives (mean, standard deviation, and percentage) were calculated using SPSS version 26.0.

Results

Socio-demographic data

Table 1 shows that more than half (58%) of the respondents were females, 109 (36.3%) were between 19 and 21 years old, with a mean age of 17 years, 145 (48.3%) were in Senior Secondary School 2, 194 (64.7%) had both parents as caregiver, 274 (91.3%) were Christians, 18 (6%) were Muslims, and 8 (2.7%) were either Atheist, Jehovah Witness or Pagan.

Awareness of STIs prevention and treatment

Table 2 shows that 287 (95.6%) participants indicated STIs can be prevented by abstinence, 253 (84.3%) noted that having only one sexual partner is a means of preventing STIs, and 297 (97.7%) specified that engaging in protected sexual intercourse (using condom) is a preventive measure. Furthermore, 298 (99.3%) respondents stated that STIs can be treated with pharmaceutical drugs, while 205 (68.3%) believed that divine intervention by prayers is necessary for treating STIs.

Data on the respondents' perception of STIs prevention and treatment, as shown in Table 3, revealed that 290 (96.6%) of them strongly agreed young people should be educated on STIs in schools, 193 (64.3%) declared that condoms protect people against STIs, 170 (56.7%) strongly agreed that in case of unprotected sexual intercourse, one should be concerned about getting HIV, while 210 (70.0%) indicated that the concern should be about getting STIs apart from HIV. Moreover, 275 (91.7%) strongly agreed that in case of STIs symptoms noticed, one should seek treatment.

Perception of management options of STIs

In Table 4, 265 (88.3%) individuals strongly agreed that one should seek a healthcare provider when experiencing symptoms of STIs, and 264 (88.0%) strongly declared that one should visit government hospital in order to get treatment. Moreover, 128 (42.7%) disagreed that church should be visited for treatment, while 169 (56.3%) disagreed to patronizing patent medicine store for health services or treatment.

Table 1. Socio-demographic data of respondents (*N* = 300)

Variable	*n* (%)
Gender	
Male	126 (42.0)
Female	174 (58.0)
Age (years)	
10-12	26 (8.7)
13-15	54 (18.0)
16-18	98 (32.7)
19-21	109 (36.3)
22-24	13 (4.3)
Mean age, ± SD	17 ± 3.08
Class of study	
JSS 1	23 (7.7)
JSS 2	45 (15.0)
SSS 1	87 (29.0)
SSS 2	145 (48.3)
Caregiver	
Both parents	194 (64.7)
Mother	67 (22.3)
Father	21 (7.0)
Relative	18 (6.0)
Others	0 (0.0)
Religion	
Christian	274 (91.3)
Muslim	18 (6.0)
Others (Atheist, Jehovah Witness, Pagan)	8 (2.7)

JSS – junior secondary school, SSS – senior secondary school

Discussion and findings

Socio-demographic data

The result of this study showed that the mean age of the participants was 17 ± 3.08 years. Regarding age, it was also reflected that 36.3% of the respondents were between 19 and 21 years old, 32.7% were between 16 and 18 years old,

Table 2. Respondents' awareness of sexually transmitted infections (STIs) prevention and management (*N* = 300)

Variable	*n* (%)
How can STIs be prevented?	
Avoiding sexual intercourse (abstinence)	287 (95.6)
Vaccination	20 (6.7)
Having only one sexual partner	253 (84.3)
Douching after sexual intercourse	69 (23.0)
Engaging in protected sexual intercourse (using condom)	297 (97.7)
Keeping toilets clean	153 (51.0)
Avoiding excessive intake of alcohol	9 (3.0)
How can STIs be treated?	
Pharmaceutical drugs	298 (99.3)
Local concoction (herbs)	99 (33.0)
Divine intervention by prayers	205 (68.3)

Table 3. Respondents' perception of sexually transmitted infections (STIs) prevention and treatment

Variable	SA (%)	A (%)	DA (%)	SDA (%)	Mean	Interpretation
Young people should be educated on STIs in schools	290 (96.6)	10 (3.3)	0	0	3.96	Positive
It is necessary to avoid a person who contracted an STI because it can be transmitted to other people	5 (1.6)	12 (4.0)	82 (27.3)	200 (66.7)	1.40	Negative
I feel condoms protect people against STIs	79 (26.3)	193 (64.3)	20 (6.7)	7 (2.3)	3.14	Positive
I believe it is not necessary to use condoms during anal sex	55 (18.3)	49 (16.3)	155 (51.7)	35 (11.7)	2.37	Negative
If both partners are infected with STIs, I think there is no need of using condom	44 (14.7)	110 (36.7)	132 (44.0)	14 (4.7)	2.61	Positive
If I have unprotected sexual intercourse, I am concerned about getting:						
HIV	170 (56.7)	90 (30.0)	26 (8.7)	0	3.34	Positive
STIs apart from HIV	210 (70.0)	70 (23.3)	20 (6.7)	0	3.63	Positive
Unplanned pregnancy	136 (45.3)	89 (29.7)	42 (14.0)	0	2.98	Positive
If I noticed symptoms of STIs, I should seek treatment	275 (91.7)	25 (8.3)	0	0	3.92	Positive
Total					3.13	Positive

Table 4. Perception of management options of sexually transmitted infections (STIs)

Variable	SA (%)	A (%)	DA (%)	SDA (%)	Mean	Interpretation
If I get symptoms of STIs, I should:						
Seek a healthcare provider	265 (88.3)	35 (11.7)	0	0	3.88	Positive
Ignore it	10 (3.3)	0	63 (21.0)	225 (75.0)	1.30	Positive
Perform vaginal douching	95 (31.7)	75 (25.0)	70 (23.3)	42 (14.0)	2.62	Positive
Sit in hot water	96 (32.0)	47 (15.7)	79 (26.3)	67 (22.3)	2.50	Positive
In order to get treatment, I should visit:						
Government hospital	264 (88.0)	33 (11.0)	0	0	3.85	Positive
Private hospital	272 (90.7)	16 (5.3)	0	0	3.79	Positive
Private pharmacy	126 (42.0)	65 (21.6)	73 (24.3)	0	2.82	Positive
Religious clinics	47 (15.7)	29 (9.7)	83 (27.7)	69 (23.0)	1.70	Negative
Church	26 (8.7)	15 (5.0)	97 (32.3)	128 (42.7)	1.57	Negative
Traditional healer	30 (10.0)	59 (19.7)	78 (26.0)	99 (33.0)	1.84	Negative
Patent medicine store 'chemist'	0	41 (13.7)	77 (25.7)	169 (56.3)	1.49	Negative
Total					2.36	Negative

and 18% were between 13 and 15 years old. A few (8.7%) were between 10 and 12 years old, and 4.3% of the students were between 22 and 24 years. The age categories are appropriate for this survey, as Shannon and Klausner [11] reported that STIs increase is mostly evident among adolescents. The study shows that majority of the respondents were females (58.0%), with 42.0% of males. The class with the most respondents was SS2 class (48.3%), while 29.0% were in SS1 class. These groups of youths are believed to be mentally able to provide responses to random survey, as supported by Annang *et al.* [12]. Moreover, there were 15.0% of the respondents in JSS2 class, with the least being in JSS1 class (7.7%). Only 64.7% of the students reported having both parents as their caregivers, although the influence of co-parenting and STIs is yet to be establish. Furthermore, 22.3% showed mother as a caregiver, 7.0% reported father, and 6% had relatives as their caregivers, similar to Okpara *et al.* [13] suggesting varied reasons for findings. Majority of the respondents were Christians in different denominations, including Catholic (17.7%), Anglican (25.6%), and Pentecostal (48.0%), while Muslim constituted 6.0% and other religions 2.7%. The relationship between religion and

perception of STIs prevention and management is scarcely reported.

Perception of STIs prevention

Majority of the respondents knew that STIs can be contracted via unprotected sexual contact, which agree with a study carried out by Gupta *et al.* [14]. As expected, 95.6% agreed that one way STIs can be prevented is through abstinence. This is supported by Santelli *et al.* [15] who reported that reducing the risk of adverse outcomes from STIs requires adolescents to engage in a variety of risk reduction and risk avoidance (i.e., abstinence) behaviors. Research evaluating the association of douching and STIs is scarcely reported; however, 23% of the respondents believed douching after sex can prevent STIs. Contrary to this opinion, Blair *et al.* [16] observed that 16.5% of their cohort were STI-positive despite constant douching following anal sex. Empirical findings are yet to proof the likelihood of contracting STIs through contact with a toilet seat, but 51% respondents perceived that keeping toilets clean can prevent STIs, while 3.0% believed that avoiding excessive intake of alcohol can prevent STIs, as seen in Table 2. Notably, 253 (84.3%) students declared that having only one sexual partner is a means of preventing STIs, which agrees with Marrazzo and Cates [17], while 297 (97.7%) believed that engaging in protected sexual intercourse (using condom) is a preventive measure. This is in line with Marrazzo and Cates [17] who reported that available information on male condom efficacy have emerged in several research areas.

Perception of STIs management

Interestingly, 298 (99.3%) respondents stated that STIs can be treated with pharmaceutical drugs, and 205 (68.3%) declared that divine intervention by prayers is necessary for treating STIs. This is in concordance with a study by Newton-Levinson [18] who concluded that youths in developing countries experience barriers in help-seeking for STIs, and often do not seek help at all or postpone medical care. The respondents in the current study were Africans who believe in the efficacy of praying to the Supreme creator and healer; however, wisdom they said is profitable. Worthy of note is that 33% of the respondents agreed that local concoction (herbs) is a measure of treating STIs. The reason for experimenting with non-frontline interventions could be found in a study by Newton-Levinson *et al.* [19]. This similarity can be linked to study methodology and characteristics stating that youths are not adequately informed about STIs and services, while significant barriers in accessing healthcare facilities are related to acceptability of services. It further suggested that adolescence reported avoiding services or having anxiety with confidentiality based on providing demographics and certain behaviors. Finally, experiences of shame and stigma were common barriers to seeking care among the respondents.

Data on the participants' perception of STIs prevention and treatment shown in Table 3 revealed that 290 (96.6%) respondents strongly agreed that young people should be educated on STIs in schools, which is consistent with Adejimi *et al.* [20] who recommended increasing reproductive health education in schools. Our study profiled 193 (64.3%) respondents who declared that condoms protect people against STIs, 170 (56.7%) strongly agreed that in case of unprotected sexual intercourse, one should be concerned about getting HIV. This is in line with a study by Poudel *et al.* [21] reporting that unprotected sexual intercourse among HIV-positive people can negatively impact own health by raising their exposure to multiple strains of HIV-1 or other STIs. In the current study, 210 (70.0%) of the subjects indicated that the concern should be about getting STIs apart from HIV. Moreover, 275 (91.7%) strongly agreed that when symptoms of STIs are noticed, treatment should be sought. Although our study was conducted in a developing country, it is important to mention an observation in Mapp *et al.* research [22] who reported that many STIs in high-income countries go unaddressed, causing diminished sexual health of individuals and their partners.

Overall, the positive perception of prevention among the respondents is worthy of note. A total of 88.3% agreed that they would seek a healthcare provider if symptoms of STIs arise; however, their perception of management options of STIs were poor, as most believed in management methods that do not have empirical back up. It was observed that 3.3% of the respondents will choose to ignore symptoms that could be an interpretation of normalization of ill health experience. Also, in Nyalela *et al.* [23], 23% of 134 participants delayed coming to the clinic after noticing the signs and symptoms of an STI; 31.7% indicated to perform vaginal douching if symptoms arise, a practice yet to be researched; 26.7% chose to sit in warm/ hot water (sitz bath), which in Kapoor and Rita [24] was assessed as a non-medicated intervention for episiotomy wound healing among postnatal women; 10% chose to visit a traditional healer for treatments (in line with Semenya and Potgieter study [25]); 13.7% selected the patent medicine store, which confirms literature claims by Okonkwo and Okonkwo [26] that patent medicine vendors and community pharmacists offer sexual reproductive health services and products to young people, with non-judgmental access to contraceptives, sexual health advice, and post-sexual risk exposure care. 8.7% chose to visit the church, which may be a means of seeking emotional solace and succor in distress. Reports confirming this are scarcely reported, but suggest that sexual health communication is associated with safer sex practice.

Conclusions

The current study showed that the management practices of young adults are very poor regardless of their knowledge on STIs. Therefore, teachers should offer health education on predisposing factors, prevention, and management of STIs, establish a cooperation with healthcare providers, healthcare facilities, and youth-friendly health services in order to improve

the management practices of young adults as well as simplify visits to healthcare facilities and healthcare providers.

Disclosures

1. Institutional review board statement: The study was approved by the Ethical Review Committee of the University of Port Harcourt, Rivers State, Nigeria, with approval number: UPH/CEREMAD/REC/MM83/014.
2. Assistance with the article: The authors sincerely appreciate the respondents for their willingness to participate in the study. The efforts of the University's Research Ethics Committee are also well-appreciated. Many thanks to the research assistant for the coordination during data collection. In addition, we are grateful to various authors whose works were consulted during conducting the survey.
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