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Knowledge of Sexually Transmitted Infections Among Secondary Schools Students in Ebonyi State, Nigeria

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Abstract
This study was carried out to determine the knowledge of sexually transmitted infections among secondary school students in Ebonyi State. The cross-sectional survey research design was used to study 645 (male, 335, female, 310) SS2 students drawn through the systematic simple random sampling technique. Knowledge of Sexually Transmitted Infections Questionnaire (KSTIQ r = 0.82) was used to collect data. Frequencies, percentages and chi-square statistic were used to analyze the data. The results showed secondary school students in Ebonyi State had high (73.0%) knowledge of STIs; males had higher (60.9%) STI-related knowledge than females (39.1%) had. Students below age 15-19 years had higher (67.8%) knowledge than those 20 years and above (32.3%) had. The findings further indicated there was a significant association between gender ($\chi^2 = 9.505$, $p = 0.002$); age ($\chi^2 = 25.347$, $p = 0.000$) and knowledge of STIs among the secondary school students. Based on these findings, it was concluded that secondary school students in Ebonyi State had high knowledge of STIs. It was therefore recommended among others that basic information on STIs should be provided to the students through in-class and out–of class activities to sustain the high knowledge of STIs already acquired.
Keywords: Knowledge, sexually transmitted Infections, secondary school students

1. Introduction

Sexual Transmitted Infections (STIs) has been identified as public health problems among secondary school students worldwide. For example, Lazarus, Sihvonen- Riemenschneider, Laukamm-Josten, Wong and Liljestrand, (2010) reported that approximately one million people contract sexually transmitted infections every day and 50% of them are secondary school students aged 15-24 years and above. Sexually transmitted infections are one of the types of reproductive tract infection that may be transmitted primarily through sexual contact with an infected partner (Chandrashekar, 2018). Rating (2015) saw STIs as disease that passed on from one person to another through sexual contact and sometime by genital contact. Myless (2001) asserted that sexually transmitted infections are those diseases caused by variety of organisms which are capable of being transmitted sexually. In this study, sexually transmitted infections are contagious diseases that can be transmitted from person to person by direct sexual contact and non-sexual contact.

The diseases can be contracted through kissing, vaginal intercourse, oral sex, anal sex, blood transfusions, or in the use of un- sanitized hypodermic syringes, mother to her child before or at birth if the mother is positive. Such diseases include syphilis, gonorrhea, HIV/ AIDS, or a genital form of herpes simplex. Syphilis is caused by the bacterium Treponema pallidum. Signs and symptoms include rashes commonly on the palm and sores, generalized lymphadenophy, mucous patches, condyloma lata and alopecia (Billings, 2008). Syphilis is transmitted by direct contact with a sore. Gonorrhoea is caused by gonococcus bacterium (Neisseria gonorrhoeae) and is one of the best-known sexually transmitted infections. Its signs and symptoms include abnormal vaginal discharge, intermenstrual bleeding and lower abnormal pain. Volker (2017) reported that HIV/AIDS as STIs is caused by virus. Kehinde (2017) indicated that the following symptoms could indicate AIDs infection: an unusual discharge in both men and women, in women- bleeding after intercourse or between periods, sores, blisters warts, rashes, irritation or itching near the genital or anus, pain on intercourse, pelvic or lower abdominal pain and inflammation of testicles.

STIs can lead to salpingitis for women and to epididymidis for men, which can affect fertility and also lead to premature deaths, and in worst cases lead to sterility (Lazarus, Sihvonen-Riemenschneider, Laukamm-Josten, Wong, and Liljestrand, 2010). Poulin, Alary and Bernier (2001) report that the surest way to prevent STIs are to abstain from sexual intercourse and from sharing needles and "works" if you use steroids, hormones, or other drugs. Many people have been infected with STIs by sharing needles. Other preventive measures are never share needles, get into a needle-exchange program, be sure to disinfect the needles you use (CDC, 2006),do not share personal items that may have blood on them. This includes toothbrushes, razors, needles for piercing or tattooing, and blades for cutting or scarring. If one choose to have sex, have safer sex to reduce the risk of exchanging blood, semen, or vaginal fluids with your sex partner(s) (Centers for Disease Control and Prevention, 2006). Kaestle, Halpern and Miller (2005) further note that the preventive measures could also be to avoid contact with infected semen or vaginal fluid, use condom , abstinence, and to be faithful to one partner.

Knowledge is factual information that is learned initially and then remembered. Knowledge can as well be considered as the sum of what is known. It can also be inferred that knowledge is the sum of one's conceptions, views, and propositions which have been established and tested as correct reflections as far as they are of objective reality (Bloom, 1999). This assertion could imply that the root of knowledge lies in the sense of perception. The World Health Organization viewed knowledge in relation to health as a prerequisite to any health action (World Health Organization, 2001). Rowntree (2001) continued that knowledge is the body of information and understanding, which individuals acquire through life experiences and sometimes through education. Applied in this study knowledge is the ability to reproduce the memory, facts and information related to sexually transmitted infections. However STIs knowledge is the knowledge about the causes, signs/symptoms, mode of transmission, preventive measures, and complications associated with sexually transmitted infections, especially among secondary school students in Ebonyi State.

Weinstock, Berman and Cates (2004) noted that gender and age are variables of importance in determining level of knowledge of sexually transmitted infections. Studies across the globe suggest males and females differ greatly in knowledge acquisition with regard to sexually transmitted infections with females exhibiting more knowledge towards STIs than males. This is because parents, female parents, are always more conscious of educating their girl child on issues of sex and STIs than the male child. Onyekanmi (2004) reported that secondary school students he studied had high knowledge of STIs. On the contrary, a study by Tinuola (2006) among secondary school students in found both male and female student's knowledge on STIs was low. Separating the two genders, Barbin (2005) reported males had higher knowledge of STIs than females because naturally boys are more active in sexually relationship and this scenario pushes them into search for information which directly or indirectly exposes them more facts. Studies (WHO, 2004; Senderwitz, 2005; Zimet, 2006; Handsfield, 2007; Joseph, Okyemin Yinusa and Akoh, 2015) on knowledge of sexually transmitted infections among adolescents reported low to high knowledge of STIs among the subjects in relation to gender and age.

This scenario has made STIs to remain a major public health problem among adolescents, especially the school going. While substantial progress has been made in preventing, diagnosing, and treating certain STIs, the rate of contraction of STIs among secondary school students is still high (Sunmola, Dipeolu, Babalola, & Adebayo, 2003).

In Ebonyi, it was observed that majority of young people diagnosed of STIs were secondary school students between ages 15-24 years despite substantial progress made in preventing certain STIs. The rate at which STIs is reported among secondary school students in this part of the globe might be as a result of insufficient knowledge of the subject matter. Based on the above, it becomes imperative to carry out this study among secondary school students in Ebonyi State so as to establish their knowledge level on STIs. Three specific objectives and corresponding research questions guided the study. Furthermore, two hypotheses ($p > 0.05$) in relation to gender and age of subjects provided more guide.

2. Methods

Between April and July 2017 a descriptive cross-sectional survey was adopted to study knowledge of sexually transmitted infections among 675 (Male, n = 337; Female, n = 338) senior secondary (SS) 2 students (11^{th} graders) randomly selected from 15 co-educational secondary schools in Ebonyi State. The cross sectional survey used a researchers-developed questionnaire, called Knowledge of Sexually Transmitted Infection Questionnaire (KSTIQ)., which consisted of 14 items arranged in two sections A and B. Section A contained two questions about the gender and age of respondents. Section B, comprised 12 'true or false' (e.g., sexually transmitted infections can be contracted through unprotected sex; sexually transmitted infections include HIV/AIDS) on knowledge of STIs. Three experts in Health Education from one institution of higher learning in Enugu State were used for validating the KSTIQ. Thirty 11^{th} grade secondary school students of both genders in Ebonyi Central Education zone, not included in the study were used for test of reliability. The data yielded a reliability of r = 0.82 on the KSTIQ. The reliability coefficient was high enough considering Ogbazi and Okpala's (1994) criteria of 0.60 acceptable for good instruments.

The permission to use the students for the research from the head teacher in each secondary school included in the study was obtained before data collection. A consent note with the explanation of the research purpose, method of response and assurance of anonymity was attached to each copy of the KSTIQ. Because of the knowledge questions, copies of the KSTIQ were administered on the respondents in their respective classrooms during break period. The researchers stayed with the respondents while they were completing the questionnaire copies. This method was adopted in order to avoid any possible interaction during the process of responding to the questionnaire. The respondents were allowed 30 minutes to respond to the copies of the KSTIQ and return them immediately.

The completed copies of the KSTIQ were examined for completeness of responses and copies that had incomplete responses were discarded. Out of 675 copies of the KSTIQ administered; 645 (male 335, female 310) representing about 95.6% return rate, were used for analysis. Percentages were used to describe the respondents'

knowledge of STIs. In describing the respondents' knowledge of STIs, a proportion of less than 20% correct responses was considered "very low" level of knowledge 21-39%, 'low'; 40-59% 'moderate'; 60-80% 'high', and above 80%; 'very high' (Ashur, 1977; Okafor, 1997). Chi-square statistic was used to test the two hypotheses. An alpha level of 0.05 was set for the sets of chi-square tests. All data analyses were done with IBM SPSS version 23.0 for windows.

3. Results

Table 1: Knowledge of STIs among secondary school students in Ebonyi State

S/N	Knowledge Statement on STIs	% Correct Responses	Dec.
1.	Sexually transmitted infection means a group of infections in which the principal mode of spread or transmission is by sexual contact.	85.8	VHK
2.	Virus causes Sexually Transmitted Infections	63.0	HK
3.	Sexually Transmitted Infections can be contracted through unprotected sex.	66.3	HK
4.	Sexually transmitted infections include HIV/AIDS	86.2	VHK
5.	Having vaginal or anal intercourse without a condom with someone who is infected can lead to STI	73.9	HK
6.	Abdominal pains, discharge from penis/vulva are signs and symptoms of sexually transmitted infections	72.2	HK
7.	Itching in genital area and burning pain during urination are signs and symptoms of sexually transmitted infections.	68.0	HK
8.	Period of persistent, deep and dry coughing are signs and symptoms of STIs	66.3	HK
9.	Abstinence is the best way to prevent sexually transmitted infections.	69.4	HK
10.	Premature birth and infertility are complications of sexually transmitted infections.	68.7	HK
11.	Sexually transmitted infections can lead to death	77.1	HK
12.	Sexually transmitted infections can cause still births if untreated.	79.5	HK
	Overall %	**73.0**	**HK**

VHK = Very high knowledge, HK = High knowledge, Dec. = Decision

Data in Table 1 indicate that overall, the secondary school students have high knowledge of STIs. However, the knowledge possessed by the students ranges from high to very high. For example, the students know that sexually transmitted infection means a group of infections in which the principal mode of spread or transmission is by sexual contact, having vaginal or anal intercourse without a condom with someone who is infected can lead to STI, abstinence is the best way to prevent sexually transmitted infections and sexually transmitted infections can cause still births if untreated.

Table 2: Knowledge of STIs among Male and Female Secondary School Students in Ebonyi State

S/N	**Knowledge Statement on STIs**	**% Correct Responses Gender**		**χ^2-value**	**p-value**	**Dec.**
		Male (n = 335)	Female (n = 310)			
1.	Sexually transmitted infection means a group of infections in which the principal mode of spread or transmission is by sexual contact.	58.7	41.3	42.336	0.000	S
2.	Virus causes sexually Transmitted infection	67.7	32.3	88.127	0.000	S
3.	Sexually Transmitted Infections can be contracted through unprotected sex.	64.1	35.9	56.854	0.000	S
4	Sexually transmitted infections include HIV/AIDS	54.7	45.3	2.293	0.130	NS
5.	Having vaginal or anal intercourse without a condom with someone who is infected can lead to STI.	61.7	38.3	48.858	0.000	S
6.	Abdominal pains, discharge from penis/vulva are signs and symptoms of sexually transmitted infections	60.8	39.2	35.476	0.000	S
7.	Itching in genital area and burning pain during urination are signs and symptoms of sexually transmitted infections.	57.7	40.3	21.255	0.000	S
8.	Period of persistent, deep and dry coughing are signs and symptoms of STI.	62.9	37.1	44.945	0.000	S
9.	Abstinence is the best way to prevent sexually transmitted infections.	60.1	39.9	25.416	0.000	S
10.	Premature birth and infertility are complications of sexually transmitted infections.	61.8	38.2	38.830	0.000	S
11.	Sexually transmitted infections can lead to death	59.7	40.3	33.288	0.000	S
12.	Sexually transmitted infections can cause still births if untreated.	59.1	40.9	31.385	0.000	S
	Overall %	60.9	39.1	9.505	0.002	S

S = Significant at $p < 0.05$

Data in Table 2 indicate that, in overall and specific aspects, male students have better knowledge of STIs that their female colleagues. When chi-square statistic was run significant association exist in knowledge of overall and most specific aspects of STIs between male and female students expect in knowledge of 'sexually transmitted infections include HIV/AIDS' where no significant association (χ^2-value = 2.293, $p > 0.05$) was not observed.

Table 3: Knowledge of STIs among secondary school students in Ebonyi State by Age

S/N	Knowledge Statement on STIs	% Correct Responses Age (years)		χ^2-value	p-value	Dec.
		15-19 (n = 409)	20 + (n = 236)			
1.	Sexually transmitted infection means a group of infections in which the principal mode of spread or transmission is by sexual contact.	65.9	34.1	8.178	0.002	S
2.	Virus causes sexually Transmitted infection	66.4	33.6	3.737	0.653	NS
3.	Sexually Transmitted Infections can be contracted through unprotected sex.	68.8	31.2	14.583	0.000	S
4	Sexually transmitted infections include HIV/AIDS	65.2	34.8	4.178	0.041	S
5.	Having vaginal or anal intercourse without a condom with someone who is infected can lead to STI.	68.0	32.0	15.149	0.000	S
6.	Abdominal pains, discharge from penis/vulva are signs and symptoms of sexually transmitted infections	68.5	31.5	17475	0.000	S
7.	Itching in genital area and burning pain during urination are signs and symptoms of sexually transmitted infections.	69.3	30.7	19.336	0.000	S
8.	Period of persistent, deep and dry coughing are signs and symptoms of STI.	67.8	32.2	9.768	0.002	S
9.	Abstinence is the best way to prevent sexually transmitted infections.	70.2	29.8	27.156	0.000	S
10.	Premature birth and infertility are complications of sexually transmitted infections.	68.8	31.2	16.328	0.000	S
11.	Sexually transmitted infections can lead to death	66.7	33.3	9.157	0.002	S
12.	Sexually transmitted infections can cause still births if untreated.	67.9	32.1	19.864	0.000	S
	Overall %	**67.8**	**32.2**	**25.347**	**0.000**	**S**

Data in Table 3 indicate that, in overall and specific aspects, younger students have better knowledge of STIs than their older colleagues. When chi-square statistic was run significant association exist in knowledge of overall and most specific aspects of STIs between younger and older students expect, of course, in knowledge of 'virus causes sexually transmitted infection' where no significant association (χ^2-value = 3.737, $p > 0.05$) was not observed.

4. Discussion

Results of the study indicated that secondary school students in Ebonyi State had high knowledge (73.0%) on sexually formatted infections. This finding is in agreement with Onyekanmi (2004) who reported that secondary school students he studied had high knowledge of STIs. However, the finding does not corroborate what Tinuola (2006) found in Northern Thailand where he observed low knowledge on STIs among students he studied.

The high knowledge of STIs observed among students in the present study may shade light on the value of health education programme that is being encouraged in secondary schools in Nigeria. However, the conflicting results in the Northern Thailand study may down play the efficacy of information delude in the said country. The implication of the finding of the present study is obvious in the light of health education programme in secondary school.

Furthermore, the finding that male students had higher knowledge than their female colleagues was not surprising because in the context human existence males are more prone to experiencing early signs and symptoms of STIs than females. In a bid to resolve their problem, male might be curious to search for information of the particular STIs. This curiosity might have the propensity to increasing their knowledge of STIs. However, no matter how plausible the finding is, it appears to the findings of Rees and Cohen (2007) who observed that across Africa, females have more knowledge than their male counterparts contrary to the finding of the present study.

Results of the study further indicated that respondents younger respondents aged 15-19 years had higher knowledge of STIs than their older counterparts aged 20 years and above. It is expected that older students would have the advantage of possessing an appreciable level because of longer period of exposure to issues relating to sex and other related matters. However, the reason for the difference in the knowledge gap in favour of the younger students may be that they are guided better by parents/guardians because of their age. The older ones may be seen as being old enough to sought things out themselves. The finding seems to contrary to those of

Senderwitz (2005) who reported that students aged 20 years and above they studied had higher knowledge about STIs than those aged 15-19 years. WHO (2004) reported that globally children aged 15-19 years have less knowledge on STIs than their older brothers and sisters aged 20 years above an indication that the results of the present study may not generalize to wider population.

5. Conclusions

Knowledge regarding STI is important in the prevention of the myriad of such diseases. This state of affairs is especially very important among secondary school students who are the leaders of tomorrow. However, the students demonstrated a high level of knowledge concerning STIs. That the students had a high knowledge of STIs does not imply that they are free from infection of the diseases. Alarming gaps in knowledge about STIs still exist among the female which could make the students be at risk of contracting STIs. Since there is some level doubt about the level of knowledge of STIs the students claimed, the present study suggests that a universal health education programme, focusing on STIs education, in secondary school in Nigeria may be necessary to checkmate possible outbreak of STIs among the school population.

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