

KNOWLEDGE ON SEXUALLY TRANSMITTED INFECTIONS AMONG SCHOOL-GOING ADOLESCENTS IN THE SUNYANI WEST DISTRICT OF GHANA

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ABSTRACT

The physiological and behavioural characteristics associated with adolescence increase the risk of contracting HIV and other sexually transmitted infections which may have devastating effects on their sexual and reproductive health. The aim of this study was to assess the knowledge of sexually transmitted infections of school going adolescents in the Sunyani West District of Ghana. A cross-sectional study design was used in gathering appropriate survey data from 316 senior high school students. Descriptive and univariate analyses were conducted using STATA version 14.0 software. The age group 16 - 18 years were the majority of respondents. More male than female adolescents knew about all four areas of knowledge as regards sexually transmitted infections. The study showed a statistically significant association ($P = 0.001$) between level of knowledge of sexually transmitted infections among adolescents and their class/form. Adolescents had good knowledge about sexually transmitted infections despite some misconceptions that could affect their sexual behaviour. Educational levels of students have to be considered in the design of sex education curriculum.

Keywords: Sexually Transmitted Infections, adolescents, HIV, Senior High School, knowledge.

Introduction

Sexually transmitted infections (STI) in adolescence may have adverse effects on sexual and reproductive health in adulthood. However, sexual contact among adolescents is often not protected (Francis *et al.*, 2018). Risks of STI in adolescents encompass both behavioural and biological sexual features. From a behavioural perspective, adolescents are more likely to keep multiple sexual partners. The other dimension is that adolescent females are particularly susceptible to STIs like Chlamydia and human

papillomavirus (HPV) which is attributable to the biological proclivity of the immature cervix for infections. This makes adolescent females more susceptible to STIs than adults (Centers for Disease and Prevention, 2014). Most research is concentrated on infections and treatment among adults (Shannon & Klausner, 2018) with little attention given to the behavioural and biological characteristics that increase the risk of infection among adolescents.

In sub-Saharan Africa, knowledge of HIV is widespread among adolescents.

However, knowledge of other STIs is limited especially for adolescents aged 10 - 14 years (Finlay *et al.*, 2020). This may be due to the widespread publicity accorded HIV, neglecting other STIs which may predispose them to HIV. Adolescents who have little or no knowledge of STIs may not recognize symptoms and may not seek prevention or treatment services. This is reaffirmed by a study which determined that adolescents inferred sexually transmitted infection risk from attractiveness associated with personal profiles in online dating (Krishnamurti *et al.*, 2020). That is, the more attractive a person, the less likely they are to have a STI. Globally, measures have been put in place to improve sexual and reproductive health outcomes of adolescents. The global strategy of every woman, every adolescent and every child address peculiar challenges that adolescents face in relation to achieving the sustainable development goals. Adolescents face serious obstacles such as discrimination when they try to access information and sexual and reproductive health services. The strategy aims to ensure universal access to sexual and reproductive healthcare services which would contribute to increased knowledge on STIs and hence more responsible sexual health behaviour among adolescents (Who & Mathers, 2016). Traditional sources of information, such as parents and schools, play an important role in sexual health education. Sexual communication between adolescents and their parents has been shown to lead to safer sex behavior (Widman *et al.*, 2016). Evidence also shows that adolescents' exposure to school-based sexual education can be linked to sexual and reproductive health knowledge levels and to sexual behaviours and related health outcomes (Li *et al.*, 2017).

In order to properly tackle the high STI rates, it is of paramount importance to understand adolescent infections and then prevent them. An important starting point will be the understanding of their existing knowledge and education on the subject. This paper explores how knowledge of STIs varies across school going adolescents, and how level of education and demographic factors intersect and influence this knowledge.

Experimental

A questionnaire was used for data collection among respondents. A total of 316 questionnaires were printed. Stratified random sampling with proportional allocation was used to select the participants of the study. The target population was divided into different strata (SHS 1, 2 and 3) and the strata further divided into six different sub-strata (General Science, General Arts, Home Economics, Visual Arts, Business, and Agricultural Science). To ensure representativeness, respondents were randomly selected from each sub-stratum (each program of study).

Study population

The study population was all adolescents who attended Odumaseman Senior High School and Chiraa Senior High School (Table 1). These schools were selected for the study as they were in towns with the highest teenage pregnancy rates in the district (Adu-Gyamfi *et al.*, 2017). Adolescents are described as persons within the age bracket of 10 - 19 years (Alhassan *et al.*, 2019), however, the adolescents under study were between 13 - 20 years.

TABLE 1

Sample selection of respondents from Odumaseman and Chiraa Senior High School

SAMPLE SIZE REQUIRED (N=316)				
SCHOOLS	TOTAL	SHS1	SHS2	SHS3
Chiraa Senior High School	106	47	28	31
Odumaseman Senior High School	210	70	59	81

Data collection

Data was collected using a cross-sectional study design. The inclusion criteria were students who attended Odumaseman and Chiraa Senior High Schools. Students below the age of 18 years gave assent and also had consent forms signed by guardians. Students above 18 years gave consent for their participation in the study. The data collection tool was administered to adolescent students in the Sunyani East District of the Bono region to test its reproducibility and precision. This pretesting was done among adolescents who were not eligible to partake in the study. Ambiguities and difficult questions identified in the exercise were corrected.

Data analysis

The collected data were checked to ensure completeness and consistency before analysis. All completed questionnaires were entered using excel and analysis of data was done using STATA software, version 14 (StataCorp. LP, College Station, USA) (StataCorp, 2015). Data analysis began with the coding of items in the questionnaires. Descriptive statistics (frequencies and percentages) were used to illustrate the four aspects of adolescents' knowledge of STI: transmission, clinical disease, prevention and complications. Chi Squares were done to provide additional context for observed frequencies. Statistical significance for the study was set at 5% ($P < 0.05$).

Results

Characteristics of study participants

The study yielded a response rate of 99.9% and the analysis of data was based on the 314 respondents who completed the questionnaire. The majority of respondents came from the age group 16-18 years. Only about 9.6 % of the population was below 16 years and 59.6 % were male. 52.9% of participants lived with only their mothers at the time.

More males (85%) than females (75%) responded that they knew unprotected sex was a mode of transmission of sexually transmitted infections (Table 2). Blood transfusion was also reported as a mode of transmission by 76% of males and 75% of females. Needle exchange was reported as a mode of transmission by fewer females than males (70% vs 63%) (Table 2).

TABLE 2

Adolescents' knowledge of transmission modes

Knowledge of Transmission	Total	Male	Female
	N	N (%)	N (%)
Unprotected Sex	254	159 (85)	95 (74.8)
Blood Transfusion	239	143 (76.5)	96 (75.6)
Hugging	34	21 (11.2)	13 (10.2)
Sharing Personal Items	126	78 (41.7)	48 (37.8)
Kissing	173	106 (56.7)	67 (52.8)
Needle Exchange	203	133 (70.1)	70 (63.4)

In addition, about 89% each of males and females knew that HIV is a sexually transmitted infection. Candidiasis was named as a sexually transmitted disease by 57.2% of males and 63% of females. The least known STI was Genital Herpes (Table 3).

TABLE 3

Adolescents' knowledge of clinical disease			
Knowledge of Disease	Total N	Male N (%)	Female N (%)
Genital Herpes	34	23(12.3)	11(8.7)
Chlamydia	66	48 (25.7)	18(14.2)
HIV	280	167(89.3)	113(89.0)
Hepatitis B	99	57(30.5)	42(33.1)
Candidiasis	187	107(57.2)	80(63)

Overall, the use of condoms was the best-known prevention method stated by 77.5% of males and 75.6% of females. Also, the respondents indicated that avoiding multiple sexual partners was an effective STI prevention method (Table 4).

TABLE 4

Adolescent knowledge of prevention and control methods

Knowledge of Prevention	Total N	Male N (%)	Female N (%)
Use of Condoms	241	145 (77.5)	96 (75.6)
Avoiding Multiple Sexual Partners	232	144 (77)	88 (69.3)
Timely Treatment	81	53 (28.3)	28 (22)

Generally, the respondents were knowledgeable about the effects and complications related to the Sexually Transmitted Infections. STIs enhancing HIV transmission was reported by 72.2% of males and 61.4% of males (Table 5).

TABLE 5

Adolescent knowledge of complications

Knowledge of Effects and Complications	Total N	Male N (%)	Female N (%)
Discomfort in Genital Area	179	112(59.9)	67(52.8)
Infertility	155	101(54.3)	54(42.5)

Pregnancy Complications	176	110(58.8)	66(52.0)
Enhanced transmission of HIV	213	135(72.2)	78(61.4)

Level of knowledge of Sexually Transmitted Infections among respondents

In addition to assessing basic knowledge of STIs, this study assessed the level of knowledge of each respondent about STI, using a 17-point scale from the 22-stem knowledge section of the questionnaire developed by the researcher. The first question with only one stem, question 2 with 6 stems on STI transmission modes, question 3 with 5 stems on names of STIs, question 4 with 4 stems on knowledge of complications resulting from STIs, question 5 with 3 stems on prevention/control of the questionnaire and question 6 with 3 stems about common complaints in people with STIs were scored. Each correct response was scored one point and nonresponse or wrong response was scored zero points. Hence, the aggregate score for all 6 knowledge questions would range from 0 to 17 points. Those who scored six points or less (≤ 6) were considered as having poor knowledge, those who scored between seven and twelve (7–12) were considered as having fair knowledge, while those who scored between thirteen and seventeen (13–17) were considered as having good levels of knowledge. In this study, 65.3% of individuals had knowledge of sexually transmitted infections as good (Table 6).

TABLE 6

Adolescents level of STI knowledge

Level of Knowledge	Frequency	%
Poor Knowledge	26	8.3
Fair Knowledge	83	26.4
Good Knowledge	205	65.3
Total	314	100

A statistically significant association ($P = 0.001$) was found between level of knowledge and class/form. No associations were found

between level of knowledge and sex of respondents, religion, information source and other variables that were assessed (Table 7).

TABLE 7
Level of knowledge against explanatory variables

	Poor knowledge		Fair knowledge		Good Knowledge		Chi Square	P-value
	No.	%	No.	%	No.	%		
Gender								
Male	13	50	43	51.8	131	63.9	4.6625	0.097
Female	13	50	40	48.2	74	36.1		
Class								
SHS 1	16	61.5	46	55.4	68	33.2	17.6025	0.001*
SHS 2	3	11.5	16	19.3	64	31.2		
SHS 3	7	26.9	21	25.3	73	35.6		
Source of Information								
Teachers	1	3.8	6	7.2	7	3.4	0.087	
Media	2	7.7	4	4.8	9	4.4		
Friends	18	69.2	50	60.2	138	67.3		
Parent/Other Relations	1	3.8	4	4.8	17	8.3		
Other (e.g. Church, Nurse)	0	0	10	12	12	5.9		

*Significant (<.001)

Discussion

Overall, knowledge of STIs among high school adolescents in the two schools was good. This finding is similar to findings from studies conducted in Malaysia that stated that 92% of adolescents knew of at least one STD and about 95% of them knew of at least

one STI transmission method (Awang *et al.*, 2014). It is also consistent with research done among female senior high school students in the Akuapem North Municipality of Ghana that showed that knowledge of STIs is high (Yeboah & Appai, 2017). Concerning transmission, a high percentage of males and

females were aware that STIs are transmitted through sexual intercourse, sharing of infected sharps and blood transfusion. A study conducted among adolescent students in a municipal school in Brazil showed that the majority of respondents knew that STIs were transmitted through sex (Genz *et al.*, 2017). Some of the respondents had misconceptions about the transmission of STIs. Adolescents misconstrued hugging and sharing personal items as routes of transmission that lead to acquiring STIs. However, these misconceptions were not held by many. Unfortunately, because some adolescents are misinformed about hugging and sharing personal items as modes of transmission of STIs, they may be demotivated from practicing safe sexual behaviours. These delusions on the transmission of STI may also promote stigma amongst young people which may prevent them from seeking proper healthcare.

With respect to clinical disease, almost all the respondents identified HIV as a STI. This puts emphasis on the fact that HIV awareness creation is effective among the general public. This is consistent with a systematic review of literature in Europe where 90% of young people were able to identify HIV as a STI (Samkange-Zeeb *et al.*, 2011). In Ghana, a study by Odonkor *et al.* (2012) showed that adolescents were aware of HIV and other STIs like Gonorrhoea. Fewer than 50% of both males and females knew that Hepatitis B is an STI and Chlamydia and Herpes were recognized by even fewer of the respondents. This is consistent with a study conducted among adolescents in Ado Ekiti, South Western Nigeria where only 3% of the respondents identified four other STIs besides HIV/AIDS (Amu & Adegun, 2015). This suggests that sexual health programs for young people are mainly focused on HIV with little regard for other STIs.

Interestingly, 57% of males and 80% of females identified Candidiasis as a STI. This disease is not necessarily transmitted by sexual contact. The fungi *Candida albicans* is normally found in the mucous membrane of the vagina. A change in a woman's condition may lead to an overgrowth of *Candida* species leading to the candidiasis infection. Some of these changes include pregnancy, use of oral contraceptives and poor hygiene habits (Itriyeva, 2020). This type of infection which is common in adolescent girls may cause shame and alarm. However, these ideas and notions may be cleared up through proper health education.

The adolescents had very good knowledge of the health complications arising from STIs. This finding supports observations made among secondary school students in Nigeria who reported that untreated chlamydia and gonorrhoea could result in infertility and perhaps sterility (Lawson *et al.*, 2020). In this study, SHS 1 students had the poorest knowledge of STIs. SHS 3 students, in contrast, had the best knowledge of these infections. There was a significant association between knowledge level and class/form of the student. This highlights the importance of ensuring high health literacy among students based on their level of education.

Improvements in health outcomes begins with good knowledge of health. Adolescents are empowered to take control of their own bodies and make informed decisions concerning sexual debut and condom use when they are well educated on sexual reproductive and health topics. SRH education continues through adolescence into adulthood. It begins with basic knowledge of the reproductive system in early adolescence and develops into advanced knowledge of risky sexual behavior (Finlay *et al.*, 2020). Accurate knowledge alone is inadequate for producing behavioural

change (González *et al.*, 2019). It is however an essential tool for developing the drive to change behaviour (Mmari & Sabherwal, 2013) and reduce the risk of STIs among adolescents.

Conclusion

The findings of the study illustrate that the selected population knows about HIV and some other STIs. Adolescents are aware of transmission and prevention methods of sexually transmitted infections. Young people are also knowledgeable of the effects associated with becoming infected with a STI. Knowledge of STI was associated with the adolescents' educational level (SHS 1, SHS 2, SHS 3), with the older adolescents being more knowledgeable than the younger ones. Adolescents may also not have matured enough cognitively to properly understand effects of their knowledge on their sexual behaviour. This information may be key when designing the senior high school educational curriculum.

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