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UNIVERSITY OF GHANA, LEGON**



**KNOWLEDGE OF SEXUALLY TRANSMITTED INFECTIONS AND ITS
ASSOCIATION WITH THE REPRODUCTIVE HEALTH BEHAVIOUR OF
ADOLESCENTS AT AMASAMAN SENIOR TECHNICAL HIGH SCHOOL**

BY

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**THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA,
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DEGREE**

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DECLARATION

I, Barbara Amankwa Opam hereby declare that except for the references cited in this thesis which have been duly acknowledged, this dissertation is a product of my own research work conducted under the supervision of Dr. Irene Kretchy. I further declare that no part or whole of this thesis has ever been submitted for the award of any degree in any University.

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Date

(Supervisor)

DEDICATION

This work is dedicated to God for accomplishing His purpose in my life, my family and loved ones who have genuinely wished the best for me.

ACKNOWLEDGEMENTS

I wish to thank the Almighty God for being with me closely each step of the process.

My profound gratitude goes my supervisor Dr. Irene Kretchy. Also, to Prof. Philip Baba Adongo and the entire staff of the Department of Social and Behavioural Sciences and Dr. Philip Tabong.

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ABSTRACT

Background: Sexually Transmitted Infections are a burden among adolescents. Records from the Adolescent Friendly Reproductive Health Services in Ga West Municipal Health Directorate revealed that there were 302 STI reported cases among adolescents from January 2014 to September 2017 within the Municipality. It was however not established what adolescents knew about STIs except for those who reported to the facility. This study therefore assessed the knowledge level, sources and availability of services on sexually transmitted infections and its association with reproductive health behavior among adolescents.

Methodology: A cross-sectional study was conducted on a sample of 295 adolescents in Amasaman Senior Technical High School. Participants were sampled using simple random sampling from SHS 1 and SHS 2 students between the ages of 14-17 years. They were provided with questionnaires to gather information on knowledge, sources of information, availability of services and their behaviours toward STIs. Data collected were analysed using Stata IC 15.

Results: It was found that participants had inadequate knowledge on STIs specific to the following: - Trichomoniasis (3.1%), Hepatitis B (13.4%), HPV (8.2%) and Chlamydia (14.4%). The following were known:- Syphilis (80.8%), Gonorrhoea (88%) and HIV/AIDS (93.2%). The sources of information on STIs were: Teachers (77.1%), Television (73.3%), Radio (72.3%), Social media (63.7%), Health workers (59.3%), Parents (59.3%) Friends (40.1%) and the Church (11%). In terms of STI services available, participants knew about the Adolescent-Friendly Reproductive Health Services 26.7%, had STI counselling services in their school 49% and subjects that taught them about reproductive health 97.6%. Also, Reproductive Health Behavior of adolescents towards STIs indicated that 77% adolescents will seek treatment from the hospital if they had an STI, 48.3% will buy medications from the

pharmacy and 36.6% will use herbal medications. About 78.8% will seek treatment together with their partners and 35.6% will have sex if their partners refused to use a condom. Also, students in SHS 2 had more knowledge 70.7% than those in SHS 1 60.3%. The same was observed in relation to their reproductive health behaviour, SHS 2 had less risky behaviour, 28.6% and SHS 1, 37.7%. There was a strong association between knowledge and reproductive health behaviour such that an increase in an adolescent's knowledge by 1% reduced their risky behaviour by 0.31%. Adolescents who had good sources of information and services on STIs had less risky or good reproductive health behaviour as compared to those who did not.

Conclusion: Adolescents were aware of some of the STIs, but knowledge on STIs was not in-depth. Most of the participants knew the common STIs such as HIV/AIDS, Gonorrhoea and Syphilis, while the other STIs were poorly known. Some of the participants knew some signs and symptoms such as vaginal itching, and pain and difficulty when urinating. Most of the signs and symptoms were not well known or not known at all. Adolescents knew the commonest mode of transmission, having unprotected sexual intercourse with an infected person 99.3%. Knowledge was associated with reproductive health behaviour. The higher the knowledge, the better the reproductive health behaviour and this depended on the age and class of the adolescent.

It will be helpful in future that adolescents are provided with comprehensive knowledge on all STIs, paying particular attention in guiding them on the decisions and behaviours to adopt towards reproductive health.

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LIST OF ABBREVIATIONS

| Abbreviation | Meaning |
|---------------------|--|
| AFRHS | Adolescent Friendly Reproductive Health Services |
| ASTHS | Amasaman Senior Technical High School |
| GWMA | Ga West Municipal Assembly |
| GWMHD | Ga West Municipal Health Directorate |
| RH | Reproductive Health |
| RHB | Reproductive Health Behaviour |
| RHF | Reproductive Health Facility |
| STIs | Sexually Transmitted Infections |
| UNFPA | United Nations Population Fund |
| WASSCE | West African Senior School Certificate Examination |
| WHO | World Health Organisation |

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Globally, Sexually Transmitted Infections (STIs) are a major cause of acute illness, infertility, long-term disability and have serious medical and psychological effects on both young and adult population (WHO, 2012). STIs are also epidemics that have both health and economic consequences among human populations in many countries (Gottlieb et al., 2014). Sexually transmitted infections (STIs) are conditions of the reproductive tract that are usually acquired through intimate contact anally, orally and per vagina. Also, it can be transmitted through infected body fluids and vertical transmission from mother to child (Centers for Disease, 2010). There are different types of STIs, some of which are treatable and others untreatable. Some examples of the treatable ones are gonorrhoea, chlamydia and syphilis. The ones that cannot be treated but are managed by medications are Human Immuno Virus (HIV), Herpes Simplex Virus and Hepatitis B Virus (Amu & Adegun, 2015). Some STIs do not always manifest which sometimes makes it difficult to diagnose and control (Gottlieb et al., 2014). When these infections are not managed appropriately, they can lead to long-term effects such as infertility in both men and women (Amu & Adegun, 2015).

Adolescents are people between ages 10-19 years (WHO, 2006). About 1.5 billion of the world's population are between ages 10-24 years and of which 85% are found in the developing countries (WHO, 2006). About 25% of adolescents and the youth form the sexually active population and 50% of all newly acquired STIs are found among them (Da Ros & Da Silva Schmitt, 2008). During the adolescent period, the changes that occur in their body predisposes them to sexual and reproductive health problems (Abajobir & Seme, 2014) such as STIs. In the general population, adolescents and young adults are more prone to STIs than older adults and 1 in 20 adolescents contract an STI every year (WHO, 2013). Other

reasons adolescents acquire STIs may be due to the regular change in sexual partners on the part of adolescents and young adults and the irregular use of contraceptives to prevent STIs (Kan, Cheng, Landale, & McHale, 2010).

In the U.S.A, adolescents form 25% of the sexually active population and contribute to 48% of STIs (Kurkowski et al., 2012). A study on the knowledge of STIs showed that though adolescents claimed they had knowledge of STIs, they did not know about the specific types of STIs (Clark, Jackson, & Allen-Taylor, 2002).

In Ghana, young people between the ages of 10-24 years make about 27.3% of Ghana's population as reported by the 2010 Population and Housing Census and they usually have problems with HIV/STIs and other sexual and reproductive health issues (Renzaho et al., 2016). The percentage of new HIV infections in people aged 15-24 years in Ghana was 28% and 13.5% of 15-19 year olds mentioned acquiring STIs in the last 12 months (Survey, 2014). In the national adolescent health survey in 2006, 25% of adolescents aged 12-14 years and 48% of adolescents aged 15-19 years had an idea about STIs. This proportion was lesser than those who were aware of HIV/AIDS. It was also observed that knowledge of other STIs increased with age. Adolescents who could not recognize any symptoms of STI were about one third of the population (Awusabo-asare, Biddlecom, Kumi-Kyereme, & Patterson, 2006).

In Ghana, HIV/AIDS is the commonest and most frequently discussed STI and this has made the other STIs seem unimportant. The availability of information to adolescents is usually less because of cultural perceptions concerning sexuality. Issues pertaining to reproductive health are sensitive and are not usually discussed openly especially those related to the external reproductive organs (Richard, Asare, Paul, & Senior, 2017).

This also makes it difficult for adolescents to know the symptoms which leads to delayed treatment. In a survey in Ghana, 41% of females and 46% of male adolescents had heard of

gonorrhoea. Also, one out of ten of these adolescents had heard about syphilis (Awusabosare, Abane, & Kumi-Kyereme, 2004).

Reproductive health (RH) is the total physical, mental and social well-being in all aspects of the reproductive system (UNFPA, 2016). This means that people are able to have a healthy sex life and are capable of reproduction when the time is right. Reproductive Health Behaviour (RHB) refers to either negative or positive actions towards RH. Adequate knowledge of sexually transmitted infections influences the reproductive health behaviour of adolescents such that they will be able to make decisions about their sexual and reproductive health. This will also help reduce the prevalence rates and complications of STIs.

1.2 Problem Statement

Adolescents constitute about 1.2 billion of the world's population (United Nations, Department of Economics and Social Affairs, 2009) and one-third of Ghana's population (UNFPA, 2008). A fourth of all adolescents were reported to have experienced sex in sub-Saharan Africa and education on sexual and reproductive health and STIs were low (Ayalew, Mengistie, & Semahegn, 2014). In Ghana, young people between ages 15-24 acquire half of all new STIs (STI Surveillance, Ghana 2012). Sexually active adolescents aged 15-19 years and other younger adults are more likely to acquire STIs because of behavioural, biological and cultural reasons (STI Surveillance, Ghana 2012). Since 2004, there has been an increased rate of sexual activity among Ghanaian adolescents to 61.5% as compared to 7.3% in 1998 and 11.8% in 2014 (Renzaho et al., 2016).

Knowledge has been very low even in communities that have high rates of STIs (Anwar et al, 2010). Young people are at risk of STIs because they lack information on how to prevent STIs and may not seek treatment due to inexperience, ignorance and fear (Ramiro & Reis,

2000). Increase in adolescent knowledge level on STIs has been found to affect their perception about premarital sex with many reporting having unprotected sexual practices (Nair, Paul, et al., 2012).

In the Ga West Municipality, males between the ages of 15-49yrs form 23.7% and females within ages 15-49yrs form 24% of the population. Reports from the Adolescent-friendly Reproductive Health Service (AFRHS) unit at the Ga West Municipal Health Directorate (GWMHD) indicated that there were 302 STI cases among adolescents from January 2014 to September 2017. The number of cases may seem averagely low in comparison with the three year period in which these cases were reported. This, however, does not reflect whether adolescents have good or bad knowledge of STIs which could be responsible for the number of reported cases. There was also inadequate information as to whether in-school and out-school adolescents were well informed on STIs which may lead to either good or bad reproductive health behaviour. This provided an opportunity to assess the level of knowledge on STIs and its association with RHB in Amasaman Senior Technical High School (ASTHS) found within the Ga West Municipal District.

1.3 Study Objectives

1.3.1 General Objective

The general objective of the study was to determine the Knowledge of STIs and its association with the Reproductive Health Behaviour among adolescents in Amasaman Senior Technical High School.

1.3.2 Specific Objectives

The specific objectives of the study were:

1. To determine knowledge of STIs among adolescents.

2. To determine the association of their knowledge with their reproductive health behaviour.
3. To assess the sources and availability of information on STIs to adolescents and its association with their reproductive health behaviour.

1.4 Research Questions

1. What is adolescent knowledge of various sexually transmitted infections?
2. How is their knowledge of STI associated with their reproductive health behavior?
3. What are the sources and information available to them on STIs and its association with their reproductive health behaviour?

1.5 Justification

Several studies on knowledge of STI among adolescents in developed countries have been done, most of which have emphasized HIV/AIDS. The information acquired by adolescents has been described to be inadequate and inaccurate in many studies, especially from Africa (Chacko, Kipp, Laing, & Kabagambe, 2007).

However, statistics also show that there is a knowledge deficit in the area of STIs among adolescents (Nsuami, Sanders, & Taylor, 2010). This may be due to the fact that adolescents do not really understand what STIs are, how they are acquired and may still have unanswered questions. Generally, as children move into the period of adolescence, they may have issues on how to deal with body changes and other issues in adolescence. Data from the Adolescent Friendly Reproductive Health Services unit at the Ga West Municipal Health Directorate indicated that there was indeed the prevalence of STIs among adolescents in the Municipality. However, it was not well established whether there is adequate knowledge of

STIs among these adolescents, because it is only those who report to the unit that get some information. For this reason, this study was conducted to determine whether adolescents have adequate knowledge of STIs and its association with reproductive health behaviour at Amasaman Senior Technical High School.

1.6 Conceptual Framework

The sources of information can influence the knowledge of adolescents of STIs and their reproductive health behaviour. This is because the sources of information and the quality of information they provide can improve adolescents' knowledge on STIs and shape their reproductive health behaviour. Some socio-demographic characteristics such as ethnicity and religion can influence the reproductive health behaviour and information provided to adolescents on STIs, hence the knowledge acquired on STIs. The level of knowledge of STIs can also influence sexual and reproductive health behaviour such as abstinence, use of condoms and seeking treatment for STIs. For example, an adolescent who has quality information on STIs will make good decisions or choose the appropriate behaviour when faced with reproductive health issues. Also, the availability of information of STIs improves knowledge and reproductive health behaviour. Information that is readily available to adolescents improves on knowledge and serves as guidance in making healthy choices on reproductive health. Such information could be acquired from services such as Adolescent-friendly Reproductive Health Services. Utilization of services plays a role in knowledge and reproductive health behaviour such that adolescents who have easy access to services and are encouraged to use such services stand a better chance of making healthy decisions and adapting good behaviours. The conceptual framework below was designed by the researcher based on the concepts of literature reviewed on the research topic.

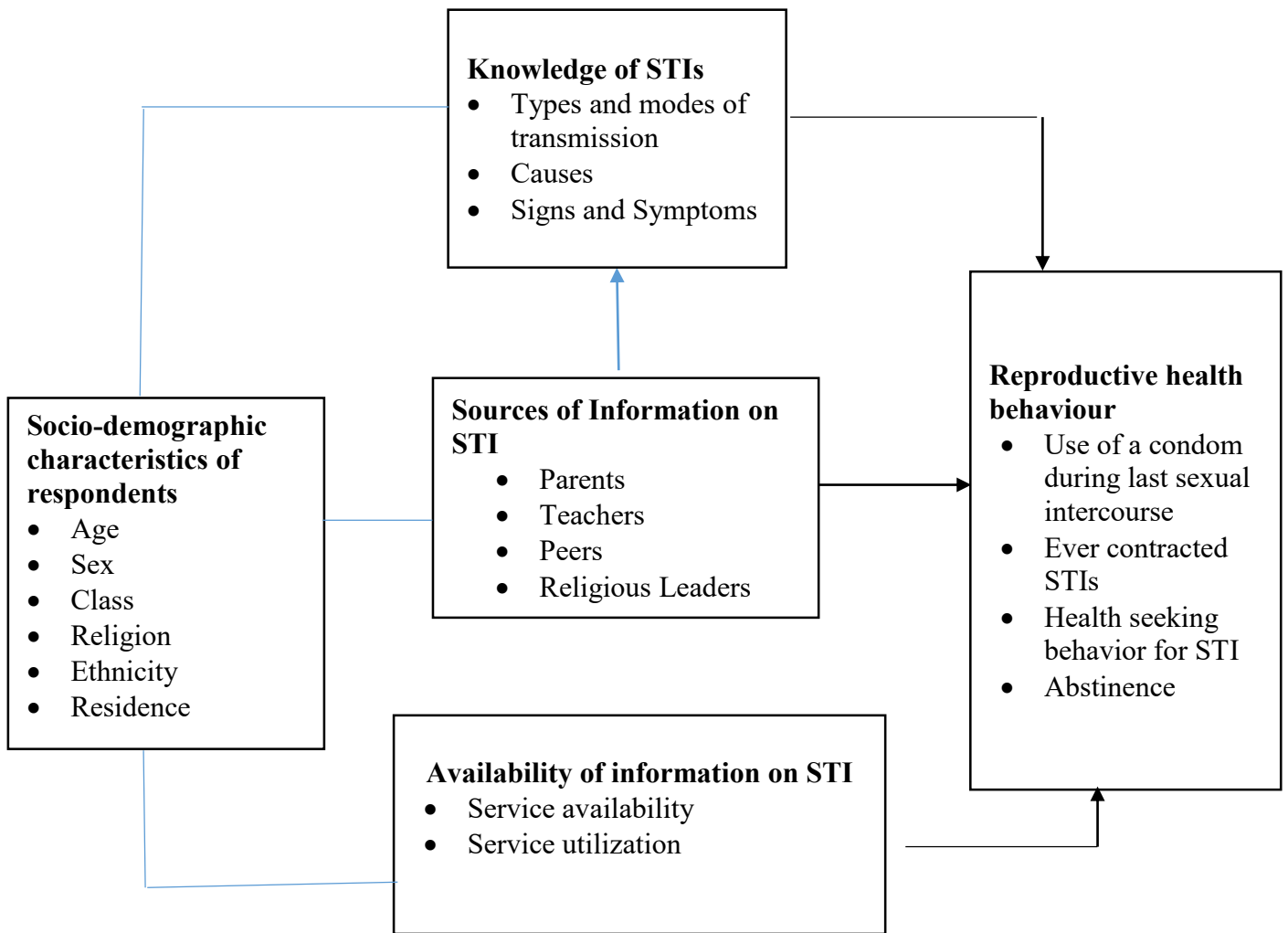


Figure 1: Conceptual Framework for Knowledge of adolescents on STIs and its association with their Reproductive health behaviour.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Burden of STI among Adolescents

About 333 million new cases of curable sexually transmitted infections (STIs) happen globally with adolescents having the highest prevalence (WHO, 2012). One in twenty of the youth is known to contract an STI each year, apart from HIV and other viral infections (Matkins, 2009). According to the Center for Disease Control and Prevention (CDC), 6.8% of females who engaged in sexual intercourse reported chlamydia infections from 1998 to 2008 and 556.5 cases of gonorrhoea in 2011 (Cheung, Montgomery, & Benjamins, 2015). An earlier study also in the United States found that the prevalence of STIs was 24.1% among all adolescents and 37.7% among sexually experienced female adolescents (Forhan et al., 2009).

A study in Panama found that people aged 15–19 years accounted for 6.8% of all new diagnoses of STIs from 2010–2015 (Johnson, Ghanem, Zenilman, & Erbelding, 2011). In Ireland, it was found that about 42% of adolescents had one form of STIs among first-time hospital attendants between 1999-2009 (Davoren, Hayes, Horgan, & Shiely, 2014). In Brazil, it was indicated that 20.6% of adolescents reported signs and/or symptoms of STIs with a higher proportion in females (dos Santos Carvalho, Guimarães, Ávila Moraes, Araujo Teles, & de Matos, 2015). In South Africa, the prevalence of STIs (Chlamydia, Gonorrhoea, *Trichomonas vaginalis* and Syphilis) was 13% among adolescents who were screened (Naidoo, Wand, Abbai, & Ramjee, 2014).

In Ghana, the 2012 annual report of the National AIDS/STIs Control Programme (NACP) showed that the HIV prevalence among adolescents in urban and rural areas was about 1%. In the urban areas 0.8% and rural areas 0.6% respectively. This indicated that HIV/AIDS was decreasing in the adolescent population. The GDHS 2014 also indicated that a self-reported prevalence of sexually transmitted infections and its symptoms were quite low among young

women aged 15-19 years. Among the 383 women interviewed; 4.9% reported STI, 27.2% presented with bad smelling/abnormal genital discharge, 8.4% complained of genital sore or ulcer and 29.1% reported STI/ genital discharge/sore or ulcer. In males of the same age group 200 were interviewed; 2% had STI, 6.6% complained of foul-smelling / abnormal genital discharge, 1% genital sore or ulcer and 7.4% reported STI/genital discharge/ sore or ulcer (Ghana Statistical Service & Macro, 2014).

STIs that have no symptoms or present as urethral or vaginal discharge, genital ulcers, inguinal lymphadenopathy and abdominal pain and are associated with infertility, disability, gestational complications, and death (Borhart & Birnbaumer, 2011; Lanjouw, Ossewaarde, Strydom, Boag, & van der Meijden, 2010; Trigg, Kerndt, & Aynalem, 2008).

2.2 Knowledge about STIs

In a review on adolescent awareness of STIs, it showed that more than 90% of them knew HIV/AIDS and (5.4%-66%) HPV (Samkange-Zeeb, Spallek, & Zeeb, 2011). Studies in Africa countries also show that the proportion of sexually active 12–19 year olds who have not heard of an STI was highest in Burkina Faso (65% of females and 50% of males), moderate in Ghana and Uganda and lowest in Malawi 14% of females and 20% of males (Biddlecom, Munthali, Singh, & Woog, 2007).

In Burkina Faso, researchers reported that adolescents did not know about the symptoms of sexually transmitted infections and hence, could not recognize the symptoms. They also had the pseudo-idea that gonorrhoea could only be contracted from urinating around the same place where an infected person had urinated (Neema, Moore, & Kibombo, 2007).

A study from Malaysia by Awang, Wong, Jani and Low (2013) found that 92% of adolescents had heard of at least one STI (syphilis, gonorrhoea, chlamydia, yeast infection,

herpes, genital warts, trichomoniasis and HIV/AIDS). A study in Addis Ababa among high school students on knowledge on STIs and barriers to seeking health services revealed that 17.9% of them knew a minimum of two symptoms. Most of them were unaware of symptoms and did not seek treatment (Cherie & Berhane, 2012). Another study in Sicily, Italy found that high school adolescents had minimal knowledge about STIs (Visalli, Picerno, Vita, Spataro, & Bertuccio, 2014).

The 2008 Demographic Health Survey in Ghana reported that out of the 1,025 women interviewed about 97.6% had heard of AIDS but comprehensive knowledge on AIDS was low 27.7% and that prevention was possible using condoms 73.8%, reducing intercourse to one negative partner 80.6%, and abstaining from sexual intercourse 78.7%. Knowledge of 911 men between ages 15-19 years who had heard about AIDS was 98.2% but comprehensive knowledge on AIDS was low, 30.4%. Knowledge on prevention using condom 82.4%, reducing intercourse to one negative partner (85.9%), and abstaining from sexual intercourse 80.5% (Ghana Statistical Service (GSS) & Macro, 2009).

Generally, most previous studies on the knowledge of STIs among adolescents have shown wide awareness of the a few common STIs particularly HIV/AIDS and Gonorrhoea. This is due to the intensive focus on these STIs especially HIV/AIDS because of its poor prognosis. Adolescents also know some of the signs and symptoms and preventive methods, however adolescents knowledge with regards to other issues such as complications of STIs are not usually looked out for. Subsequent studies may be aimed at enquiring about other STIs and stakeholders must aim at education on other STIs.

2.3 Sources of Information on STIs/HIV

In a survey of awareness of sexually transmitted diseases among 487 adolescents in Saudi Arabia aged 18 to 25 years, the most common sources from which they had information was

basically through mass media rather than school curriculum. The main sources from mass media were, Internet 87%, Books 73%, TV/Radio 62%, Friends 55%, Newspapers/Magazines 50% and Family 37% (Fageeh, 2008). In a study in Southern Nigeria, Radio and Television (electronic media), Teachers, and Newspapers were the biggest source of information on STIs. This is slightly different from findings of a study among adolescents in North Western Nigeria in which the main sources of information were School lessons, Mass media, and Health magazines (Aliyu et al., 2013).

Results from the survey by Awusabo-Asare and colleagues in Ghana indicated that the main sources of information on HIV/AIDS and contraceptives among adolescents were Mass media, School (teachers) Health workers, Friends and Family in order of descending preference. While the main source of information was the mass media, younger adolescents, preferred teachers and health workers as sources of information (Awusabo-asare et al., 2006). This asserts that adolescents were more comfortable receiving and discussing information on STIs and other reproductive health issues with their teachers and health workers rather than their parents or relatives and friends. In a study in Zimbabwe, adolescents admitted having information from Teachers, Radio, Television programs and Guidance and Counseling centers (Kurebwa, 2017).

Another study in Harar in East Ethiopia showed that 31.5% of students had information from the School, Radio 22.8%, Television 13.5%, Friends 19.7%, Relatives 2.1% and Health providers 8.7% (Motuma, Syre, Egata, & Kenay, 2016).

It has been well established in previous studies that adolescents have identified significant sources of information on STIs, however, there is still a knowledge deficit on STIs. This could be due to information not packaged well enough for the adolescent target group. In African countries like Ghana, there persists the issue of culture that puts a limit to information on sexual and reproductive health available to adolescents. This situation could

also be a likely cause of lack of in-depth knowledge of STIs and other sexual and reproductive health issues. It will be helpful if upcoming researchers probe to find out other barriers on sources of information on STIs among adolescents.

2.4 Reproductive Health Behaviour

2.4.1 Premarital sexual intercourse

Adolescence is a traditional but important stage in the life of an individual which is characterized by doubts related to their growth, development and matters related to reproductive and sexual health. They are prone to health risks, especially those related to unsafe sexual activity and related reproductive health outcomes (Nair, Leena, et al., 2012).

Culturally, sexual intercourse is reserved for marriage; however, issues of delay in marriage due to education and career increase the probability for premarital sex. In a study to explore the relationship between age at first sexual intercourse and some indicators of sexual behavior among adolescents aged 14 to 19 years in Burkina Faso, Malawi and Uganda, the initiation of sexual activity before age 14 years was associated with having a casual sex partner, (Yode & Legrand, 2012).

In a study of males and females aged 10–19 years on sexual risk-taking when HIV/AIDS was highly prevalent, the median ages for first sexual intercourse in Ketu South, Upper Denkyira, and Offinso was 10-19 years. The mean ages in these three areas in Ghana was 16 years (Sallar, 2001). Similarly, the findings of Oljira and colleagues in Ethiopia showed that the age at first sexual intercourse was 13 to 19 years, with the mean age of 15.6 years. Males had lower, 15.5 years mean age as compared with females 16.0 years (Oljira, Berhane, & Worku, 2012). Scanty or no difference was observed on the average age at sexual intercourse from the 2008 GDHS. For example, among 15-19 years females, about 8.5% had first sexual intercourse at age 15 years compared with 3.6% of males of the same age (15 years). However,

equally important and unavailable was data on the other ages 10 -14 years for both sexes in the survey.

Pre-marital sex among adolescents seems to be a common activity in developing countries. In a cross-sectional study of 1,001 out-of-school adolescents on their reproductive health needs in North East Ethiopia, Seifu and colleagues found that about 45% of the participants recounted having had sexual experience of which 31% were males (Seifu, Fantahun, & Worku, 2006). Oljira and colleagues findings also showed one in four, (24.8%) of 686 in-school adolescents who were not married mentioned that they have sexual experiences. More males (28.8%) than females (14.7%) reported premarital sex (Oljira et al., 2012). Also, a study in the Dodowa community in Ghana revealed that about 88% of all sexually experienced adolescents were never married. Out-of-school adolescents who were never married but had sexual intercourse were 54% males and 32% of the females. Afenyadu and Goparaju further indicated that adolescents had different reasons for engaging in the practice of pre-marital sex. They had pre-marital sex for money, pleasure and peer pressure (Afenyadu & Goparaju, 2003).

In-school females engaged in sex with men in exchange for money to buy ingredients for the food dishes they made for their home economics course and other items such as biscuits and drinks (Geugten, Meijel, Uyl, & Vries, 2013). Others engaged in unprotected sex, within or outside of marriage, especially under pressure to prove their fertility. Some indulged in unprotected sex because they did not consider contraception, (Gomes, Speizer, Oliveira, Moura, & Gomes, 2008) for fear of possible side effects, (Abiodun & Balogun, 2009). Adolescents were misinformed about the risk of pregnancy or STIs posed by unprotected sex (Adedimeji, Omololu, & Odutolu, 2007). Also the survey conducted by Awusabo-Asare and colleagues (2006) in Ghana, showed that 30% of females and 16% of males 15–19 years had

sex, with the reasons for sexual intercourse being they “had the urge to have sex”, wanted money or they were coerced, especially for the females.

A number of studies argue that premarital sexual activity is linked to living in rural areas and older female adolescents who have no parental control because they are not living with their parents (Jimmy-Gama, 2009). A study in Ethiopia revealed that premarital sex was frequent among adolescents who had their parents in urban areas, those who received high monthly allowances, who had low education and those who lived in rented houses. However, the females and others who had little external pressure were protected from having pre-marital sex than their colleagues in urban areas (Oljira et al., 2012).

2.4.2 Abstinence from sexual intercourse

Abstinence from sex before marriage is the idea that has been emphasized among adolescents over the past years till presently in our Ghanaian culture. Abstinence before marriage is still a cultural prerequisite which agrees with the vision of the Christian and Islamic religions in Ghana (Geugten et al., 2013). The government of Ghana with its policy of the ABC approach for abstinence for premarital sex is an encouragement, and also in support of the traditional and religious view of sex as being legal only for married couples. The ABC approach stands for ‘Abstinence’, ‘Being faithful to your partner’ and ‘Condom use if you are not faithful’ (GHS and MOH, 2008). A qualitative study among the youth of Bolgatanga on sex, virginity and money revealed that unmarried males and females of ages 14-22 years adhered to their belief of maintaining their virginity until marriage. They also believed that virginity is held in high esteem by their in-laws and for the females, the men they marry also place value on that. Some of the females said that virginity protects them from unwanted pregnancies, STIs and wear and tear of the womb from abortions which also leads to infertility (Geugten et al., 2013).

2.4.3 Having Sexual Partner (s)

The tendency for female adolescents to engage in risky sexual behaviours is lesser than in adolescent males (Hindin & Fatusi, 2009). In Latin America, about 5% of women reported more than one partner except in Colombia, where 8% of women mentioned they had multiple partners in the past year. On the other hand, 19% of Guyanese men, and more than 30% of Bolivian and Dominican men reported multiple partners (Khan & Mishra, 2008).

Minimal research in Ghana has explored the sexual activities of adolescents, in a study in 1999 of adolescents' risky sexual behaviour during the peak time of HIV/AIDS in three local areas in Ghana revealed that among adolescents aged 10–19 years with previous sexual experience, 77% reported one sexual partner, and 15% reported 2–4 partners within the 12 months prior to the survey. The study further revealed that those who had sex, 63% of the males and 61% of the females were aware that their regular sexual partners had different partners. Though they were aware of this situation, they still stayed in their relationship (Sallar, 2001). Similarly, the 2008 GDHS reported that females who had sexual intercourse within the past twelve months were in the age group 15-19 years, 4.1% had two or more partners and their male counterpart showed that 19.4% had two or more partners (Ghana Statistical Service (GSS) & Macro, 2009).

According to Afenyadu and Goparaju (2003), adolescent males have twice the probability of keeping multiple sex counterparts than females i.e. 55% and 26% respectively with a higher proportion of male in-school adolescents having multiple sex partners than male out-of-school adolescents. The assertion is that, though the periods and samples for the various studies are different, Ghanaian young men have a fairly high level of having more than one sexual partner. The available evidence also indicated that some of the first sexual experiences of female adolescents were unplanned and they were unable to protect themselves from pregnancy and STIs.

2.4.4 Outcome of sexual behaviours

As adolescents grow, they consider sexual relations, marriage and parenthood as signs of maturity (GHS and MOH, 2008). Generally, adolescents are not keen on reproductive health issues and do not really place value on reproductive health (Mohammadi et al., 2006). Adolescents encounter multiple sexual and reproductive health problems including; possible early pregnancy, childbearing, STIs/HIV/AIDS, unsafe abortion and its complications, social rejection, school dropouts, drug peddling, high morbidity and mortality rates, increase in street children and joblessness as a result of being sexually active (UNFPA, 2004; GHS and MOH, 2008; Okereke, 2010).

Among adolescents, apart from HIV/AIDS, other sexually transmitted infections are not seen as harmful or threatening (Kurebwa, 2017). The adolescent girl often prioritized preventing unwanted pregnancy over sexually transmitted infections and boys were concerned about reproductive health (Morris & Rushwan, 2015). In Kenya, adolescent boys believed that having STIs made you a grown man and it was a normal process, however, girls were the ones who harbored sexually transmitted infections (Wambui, 2012).

In a study on STIs and health-seeking behaviour among women in Accra, only 35% of the women with STI symptoms accessed treatment and advice. Those who went for treatment and advice were elite people who found the situation of foul vaginal discharge embarrassing. The challenge in STIs prevention is that a woman may know that her partner has several other sexual partners, but may be unable to control that situation (Adanu et al., 2008).

2.4.5 Pregnancy and Abortion

In the national survey of adolescents' sexual and reproductive health in Ghana (Awusabosare et al., 2006), adolescents' knowledge about how pregnancy occurs was low. For example, only 37% of females aged 12–14 years and 60% of those aged 15–19 years were aware that having sex once and for the first-time results in pregnancy; 22% of females and 26% of males 12–19 years said having sex while standing results in pregnancy.

Though pregnancy was an issue for adolescents, the question of interest was whether they knew how to prevent unwanted pregnancies'. According to Rondini and Krugu adolescents had different ideas for preventing pregnancy. Their study reported that knowledge in abstinence was lower in males 78.5% and higher in females 87.1% (Rondini & Krugu, 2009). Also in Takoradi, Sunyani and Tamale, a study in adolescents revealed that 95% were aware of at least one way to avoid pregnancy, that is through abstinence, condoms and oral contraceptives (Glover et al., 2003). A few adolescents (5.1% males and 2.9% females) also thought that the withdrawal method or avoiding sex during their safe periods were better ways of preventing pregnancy. Sex education and counselling on the prevention of pregnancy were also low among adolescents (Rondini & Krugu, 2009).

Glover and colleagues indicated that among the youth who were sexually experienced, greater proportions of out-of-school females (45%) than those in school (6%) had never been pregnant. Pregnancies that occurred among in-school adolescents were unwanted so they aborted the pregnancies while for the out-of-school adolescents, 85% of pregnancies were unwanted so 72% of pregnancies were aborted. Even though some parts of the world are not comfortable with abortion, it still remains the right of a woman of childbearing age to make that decision. Abortion is a component of comprehensive reproductive health care (Singh, Wulf, Hussain, Bankole, & Sedgh, 2009).

Termination of pregnancy is legally restricted in many parts of Africa including Ghana. In Ghana, abortion is a criminal offence regulated by act 29, section 58 of the criminal code of 1960, amended by PNDC law 102 of 1985 as cited in Morhee & Morhee, (2006). This law allows safe abortion only if the pregnancy is as a result of incest, rape and mental retardation. It is also applicable when the pregnancy has a severe effect on the general mental and physical well-being of either the mother or the foetus Morhee & Morhee, (2006). Due to the restriction of abortion, adolescents often have limited access to safe abortion services with the

results of unsafe abortions being one of the leading causes of maternal morbidity and mortality in Africa. Abortion is generally stigmatized in Ghana, but many people consider it acceptable under certain conditions. Therefore reports of incidence of abortion by most women are underestimated (Sedgh, 2010), even where the procedure is acceptable by law. In the in-depth interview conducted by Henry and Fayorsey (2002) majority of adolescent females within Ga-Mashi in the Greater Accra Region of Ghana were highly against abortion. However, due to lack of funds, unstable relationships and inability to raise children, they conceded that abortion was a necessary option. The GMHS conducted in 2007 found that only 4% of women thought that abortion was legal in Ghana, while among women with secondary school education, only 11% said that abortion was legal (GSS, GHS, & ICF Macro, 2009).

The Ghana maternal health survey in 2007 showed that about 16% of pregnancies among women under 20years ended in abortion with high obstetric outcomes. However, knowledge of abortion was high (89%), but they were unable to access abortion services (Ghana Statistical Service (GSS) & Macro, 2009).

2.5 Availability of STI services

A study conducted to explore the context of sexual and reproductive health in Kenya revealed that information available to adolescents was inadequate. The study findings stressed the importance of policy formulation, tasking policymakers and significant others such as parents and teachers to improve on the content of sex education in schools. Most importantly, the views, concerns and experiences of these adolescents must be considered (Obare & Birungi, 2013).

In Zimbabwe, an assessment of the utilization of adolescent-friendly health services demonstrated a 30% reduction in the use of services. Also, the youth who were employed and

lived by themselves and knew of a youth corner, Harare and other youth-friendly services had a better chance of visiting such facilities (Mashamba & Robson, 2002). Another study in Harare in East Ethiopia revealed that 82% of adolescents knew where the Youth Friendly Services were offered and only 64% had already used their services (Motuma et al., 2016). Another study by in Nigeria showed that 67% of adolescents knew about reproductive health services and 38.3% had not heard of such services (Abajobir & Seme, 2014).

From these studies above, there is evidence that there are services available for adolescents and some adolescents know where to find these services on STIs and other sexual and reproductive health issues. The question is, what happens to those who are not aware of these services? More work needs to be done by health workers and stake holders of health care to increase awareness of adolescent-friendly reproductive health services. This is because the phase of adolescence happens daily to children at different times and hence the need to prepare for them to help them deal with the problem of STIs.

2.6 Prevention of STIs

Adolescents, in general, do not make sexual and reproductive health their major concern (WHO, 2011). Most often healthy adolescents do not think that adolescent reproductive health is important (Mohammadi et al., 2006). Among adolescents, apart from HIV AIDS which they considered important and can have very bad effects on their lives other sexually transmitted infections did not really matter (Kurebwa, 2017). In adolescent females, preventing pregnancy was more important than STIs (Morris & Rushwan, 2015), however, males were worried about their reproductive health.

Adolescent boys in Kenya had this false idea of girls being the ones who harboured STIs, while as part of growing up and being a boy STIs were part of the process (Wambui, 2012). In Senegal, contracting a syphilis-like disease provided immunity against other illnesses

(Dehne & Riedner, 2001). Another study in Harare revealed that 55.9% of adolescents chose abstinence, condom use 51%, faithfulness 37.4% and avoiding sex with commercial sex workers 6.2% as effective preventive measures (Motuma et al., 2016). In Ghana, adolescents were overwhelmed with guilt and shame when they realised they had an STI and were not confident about telling anyone about it (Balfe, Brugha, O' Donovan, O' Connell, & Vaughan, 2010).

Quite frequently, health providers seem to be the group of people concerned with preventive measures of STIs. Infected persons were usually not worried about seeking professional help and advice but rather resorted to herbal remedies when they suffered from STIs (Kurewa et al., 2010). Study findings on the health-seeking behaviour for STIs of young women in Accra, revealed that only 35% of the study population sought some form of help or advice. Those who sought help were the wealthy women with symptoms such as offensive odour that bothered them. (Adanu et al., 2008).

Most adolescents from previous studies were aware of the preventive measures of STIs. These studies have focused on the preventive of STIs, it will be helpful in future if further studies can determine what adolescents understand by preventive methods and their reasons for the choices they make. This is because the reasons for the prevented methods they choose may not be to prevent STIs but pregnancy especially among females.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This chapter gives a detailed account of the research method and design used in the study, the target population, sampling techniques, setting, procedures for data collection and analysis.

3.2 Study design

A cross-sectional study using a quantitative approach was used. Closed-ended questions were provided in a self-administered questionnaire for students to answer.

3.3 Study area

The Ga West Municipal District forms part of the sixteen (16) Metropolis, Municipalities and Districts in the Greater Accra Region of Ghana. It shares common boundaries with Ga East and Accra Metropolitan Assembly to the East, Akuapem South to the North and Ga South and Ga Central to the South. It occupies a land area of approx. 284.08sqkm with about 412 communities. The district has Ga West Municipal District offices where the Social welfare department among others can be found. It has a Police Station, Fire station, a Library and a District Hospital.

Pokuase is among the communities found in this district and that is where Amasaman Senior Technical High School is situated. The school was established in 1991 by the Provisional National Defensive Council. It started with a class of fifty (50) students, five (5) permanent staff and two (2) national service personnel. The school is a mixed school. The programmes offered at the time were General Arts, Technical Studies, Agricultural Science and Home Economics. Currently, two more courses have been added and they are General Science and

Visual Arts. At the time of the study, the student population was 1,568. The first year students (SHS 1) were 640, second year students (SHS 2) were 490 and the third year students (SHS 3) were 438.

The teaching staff were seventy-six (76) and the non-teaching staff were twenty-three (23).

The school had an area of about 200 acres but due to encroachment, they are left with 80 acres that have been walled. The school is headed by Mr. Vitale the Headmaster assisted by his Deputy, Mr. Adaglo.

3.4 Study variables

The dependent variable was Reproductive Health Behaviour. The independent variables were socio-demographic characteristics (age, sex, ethnicity, religion, class, and residence), knowledge, sources and availability of information on STIs.

3.5 Target and Study Population

The target group were Male and Female Senior High School Students between ages 14-17 years from SHS 1 - SHS 2. Initially, students of SHS 3 were to be included in the study provided they fit into the age range. However, at the time of data collection, the SHS 3 students were unavailable because they were writing their final West African Senior School Certificate Examination (WASSCE). Most of those who had completed had left campus and a brief interaction with the handful still around were ages 18 years and above. For this reason the SHS 3 students were excluded from the study. This resulted in a change of sample size that was initially proposed.

3.6 Sample Size Determination

The sample size for this study was determined using Yamane formula for population proportions (Yamane, 1967).

$$n = \frac{N}{1 + Ne^2}$$

Where n is the minimum sample size

N is the population of the study. The population of SHS 1 and 2 was 1,130

E is sampling error, which was taken as 5% (0.05)

$$n = \frac{N}{1 + N(0.05)^2}$$

Population (N) = 1,130

$$n = \frac{1130}{1 + 1130(0.05)^2} = 295$$

3.7 Sampling of Participants

The total number of students in each class to the total population of the school was determined. Based on the total number of participants in each class to sample, a table was computed (Table 1). A simple random sampling of SHS I and SHS 2 students within the age range was done to select the participants for the study. This was done by writing “Yes” and “No” on pieces of papers and the students were asked to pick. Students who picked “Yes” per the class sample size were sampled to take part in the study.

The formula to select from each class group was:

Class sample size = Total class level size/Total size of target group × Total sample size

Total class level is the total number for each year group.

Table 1: Sampling procedure for the various classes

| Class | Total Number | Proportion to School Population | Number to sample |
|-------|--------------|---------------------------------|------------------|
| SHS1 | 640 | 56.6% | 167 |
| SHS2 | 490 | 43.4% | 128 |
| SHS3 | N/A | N/A | N/A |
| Total | 1130 | 100% | 295 |

3.8 Data collection tool

A pretested self-administered questionnaire with close-ended questions was designed by the researcher and used to collect information from students. The questionnaire had five parts with thirty-two questions. The first part had eight questions on the socio-demographic data of participants, the second part had seven questions on their knowledge on STIs, the third part had questions on reproductive health behaviour, the fourth part had two questions on sources of information on STIs and the fifth part had five questions availability of STI services. To enable the measurement of knowledge and reproductive health behaviour, questions that assessed knowledge and reproductive health behaviour with the desired responses from the participants were credited to the participants. The total number of desired responses were summed and converted into a percentage to make them measurable and rated as low, average or high.

The researcher did not calculate for non-response rate for the sample size, however the researcher printed extra copies of the questionnaire. Also, none of the students declined participation in the study.

3.9 Pretest

The questionnaire was pretested among senior high school adolescents in a local church found within the Ga West Municipality. Pretesting was done in the local church to allow for a variety of responses from adolescents in different senior high schools. The questionnaires completed enabled the researcher to assess whether adolescents understood the set of questions in the questionnaire and appropriate modifications were done.

3.10 Data Analysis

Data collected were analysed using a statistical software program STATA IC 15 to provide statistical results. A One-Way Analysis of Variance was used to determine if there were significant differences in terms of knowledge across each variable category. A linear regression was done to determine the association between knowledge of STIs and reproductive health behaviour. T-tests were used to determine if there were significant differences in terms of reproductive health behaviour between those who received information about STIs and those who did not and also between those with access to services and otherwise.

3.11 Ethical Clearance

Ethical clearance was obtained from Noguchi Memorial Institute for Medical Research Institutional Review Board with protocol number 061/17-18. Letters of introduction were sent to Amasaman Senior Technical High School to seek approval. Consent forms were given to the participants to be given to their parents or guardians to sign and they were also given assent forms to sign. The forms were read and explained to them before distribution. They were assured of the confidentiality of information taken from them. It was explained to them

that the data collected was going to be kept secured by a password. Participants were allowed to ask questions and clarity was provided.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

A total number of 295 adolescents between the ages of 14-17 years in SHS 1 and SHS 2 of Amasaman Senior Technical High school filled out questionnaires on the research topic.

4.2 Demographic Characteristics of Participants

Table 2: Socio-demographic characteristics

| Socio-demographic characteristics (N=295) | n | % |
|---|-----|-------|
| Age (years) | | |
| 14 | 25 | 8.5 |
| 15 | 45 | 15.3 |
| 16 | 97 | 32.9 |
| 17 | 128 | 43.4 |
| Sex | | |
| Male | 140 | 47.5 |
| Female | 155 | 52.5 |
| Class | | |
| SHS 1 | 167 | 56.6 |
| SHS 2 | 128 | 43.4 |
| Programme | | |
| Agric. Science | 29 | 9.8 |
| General Arts | 110 | 37.3 |
| General Science | 61 | 20.7 |
| Home Economics | 13 | 4.4 |
| Visual Arts | 77 | 26.1 |
| Ethnicity | | |
| Akan | 125 | 42.4 |
| Ewe | 58 | 19.7 |
| Ga | 45 | 15.3 |
| Northern | 36 | 12.2 |
| Other | 31 | 10.5 |
| Who they live with | | |
| Both parents | 165 | 55.9 |
| Mother | 69 | 23.4 |
| Father | 25 | 8.5 |
| Other | 30 | 10.2 |
| Religion | | |
| Christian | 241 | 81.7 |
| Muslim | 51 | 17.3 |
| Total | 292 | 100.0 |

*For the variables that did not add up to 295, the respondents did not indicate any answers.

The socio-demographic characteristics are presented in Table 2.

From the table, 43.4% were aged 17 years, 52.5% of them were females and 47.5% were males. 56.6% of them were in SHS 1 and 37.3% of the participants were in the general arts class. Also, 42.4% were Akans, 55.9% lived with both parents and 81.7% of them were Christians.

4.3 Knowledge of Sexually Transmitted Infections

In assessing their level of knowledge, variables such as how STIs are transmitted and types of STIs were used. Participants' knowledge of STIs are represented in table 3.

Table 3: Knowledge of Sexually Transmitted Infections (STIs)

| Knowledge on Sexually Transmitted Infections (STIs) | n | % |
|---|-----|-------|
| Ever heard of STIs (all respondents) | 293 | 99.3 |
| Know what STIs are (if ever heard of it) | 292 | 99.7 |
| Which of the following are STIs* | | |
| Syphilis | 236 | 80.8 |
| Gonorrhoea | 257 | 88.0 |
| Chlamydia | 42 | 14.4 |
| Human Papilloma Virus | 24 | 8.2 |
| HIV/AIDS | 272 | 93.2 |
| Trichomoniasis | 9 | 3.1 |
| Hepatitis B | 39 | 13.4 |
| STIs are transmitted through the following* | | |
| Having unprotected sexual intercourse with an infected person | 290 | 99.3 |
| Kissing an infected person | 143 | 49.0 |
| Hugging | 8 | 2.7 |
| Handshaking | 8 | 2.7 |
| Sleeping on the same bed | 12 | 4.1 |
| Signs and Symptoms of STIs* | | |
| Vaginal itching | 179 | 61.3 |
| Pain and burning sensation when urinating | 158 | 54.1 |
| Difficulty when urinating | 162 | 55.5 |
| Smelly vaginal/penile discharge | 161 | 55.1 |
| Rashes on the genitals | 126 | 43.2 |
| Don't know | 56 | 19.2 |
| One can get an STI from first unprotected sexual intercourse with an infected person | 283 | 96.9 |
| Having multiple sex partners can cause STIs | 266 | 91.1 |
| Total | 292 | 100.0 |

Multiple responses allowed, totals may exceed table total.

Out of the 295 respondents, 293 (99%) had heard of STIs and out of that, 292 (99.7%) claimed to know STIs. For the rest of the table and all other results depending on knowledge of STIs, the percentages are computed based on the 292 and not the entire 295 respondents.

For knowledge on types of STIs, 272 (93.2%) knew HIV/AIDS as the commonest STI and the least known was HPV 8.2%. The symptom that was well known was vaginal itching 179 (61.3%) and the least known was rashes on the genitals 126 (43.2%). Another 19.2% did not know any signs and symptoms of STIs and 96.9% of participants knew that STIs are transmitted through sexual intercourse with an infected person.

Reproductive Health Behaviour

Table 4 presents issues on the reproductive health behaviour of the adolescents such as sexual activity, an experience of STI and perceived management of STIs.

Table 4: Reproductive Health Behaviour

| Reproductive Health Behaviour | n | % |
|---|-----|-------|
| Sexually active | 153 | 52.4 |
| Ever had an STI | 22 | 7.5 |
| Important to use condoms | 267 | 91.4 |
| Will seek treatment from the hospital when with an STI | 227 | 77.7 |
| Will buy medications from pharmacy to treat self when with an STI | 141 | 48.3 |
| Will use herbal medications when with an STI | 107 | 36.6 |
| Will seek treatment together with sexual partner when with an STI | 230 | 78.8 |
| Will you have sexual intercourse if your partner refuses condom | 94 | 35.6 |
| Total | 292 | 100.0 |

Participants who were sexually active were 153 (52%) and those who had suffered an STI before were 7.5%. Furthermore, 91.4% said it was important to use condoms during sexual intercourse and 77.7% will seek treatment from the hospital. Another 48.3% will buy medications from the pharmacy and 107 (36.6%) will use herbal medications. Most of the

participants, 230 (78.8%) said they will seek treatment with their partners if they had an STI, and 35.6% said they will still have sexual intercourse if their partners refused to use a condom.

Prevention of STIs

This graph represents the number of participants and their options which are suitable for the prevention of STIs.

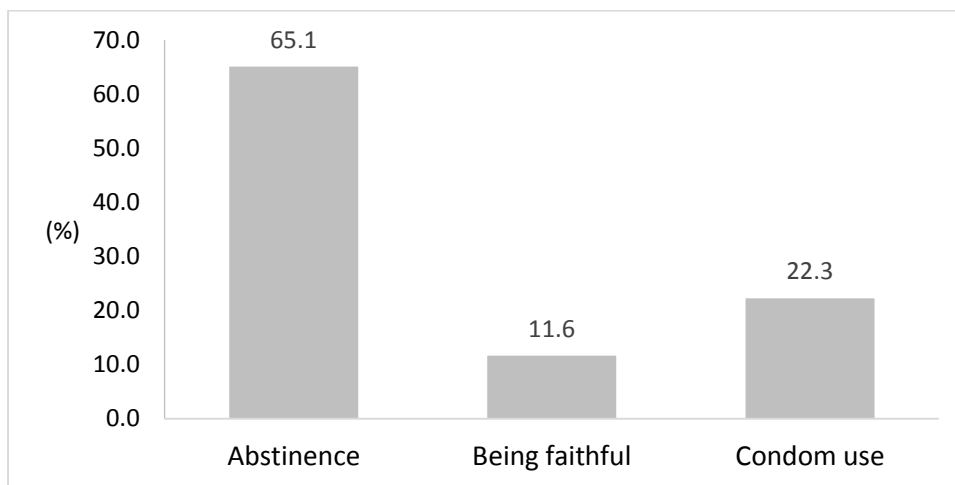


Figure 2: STI prevention options

Abstinence was 65.1%, followed by Condom use 22.3% and Being faithful to one’s partner, 11.6%.

People they will they inform if they have an STI

This graph represents the categories of people that participants will inform or confide in when they have an STI.

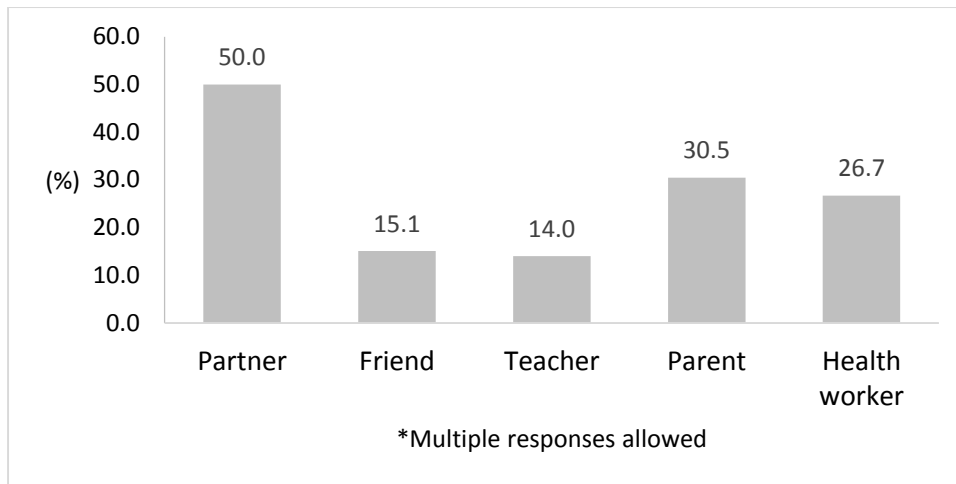


Figure 3: People they will inform when they have an STI

About 50% of participants said they will inform their partners, 30.5% will inform their parents, 26.7% of them will tell health workers, 15.1% will tell their friends and 14% will tell their teachers.

4.7 Sources of information on STIs

Table 5 indicates the sources by which participants claim they are provided information or educated on STIs and their most preferred source of information or education.

Table 5: Sources of Information on STIs

| Sources of information on STIs | n | % |
|----------------------------------|-----|-------|
| Current and past sources* | | |
| Parents | 173 | 59.3 |
| Radio | 211 | 72.3 |
| Television | 214 | 73.3 |
| Social media | 186 | 63.7 |
| Teachers | 225 | 77.1 |
| Friends | 117 | 40.1 |
| Church | 74 | 25.3 |
| Health workers | 173 | 59.3 |
| Preferred sources* | | |
| Parents | 101 | 34.6 |
| Radio | 100 | 34.3 |
| Television | 103 | 35.3 |
| Social media | 97 | 33.2 |
| Teachers | 137 | 46.9 |
| Friends | 38 | 13.0 |
| Church | 32 | 11.0 |
| Health workers | 139 | 47.6 |
| Total | 292 | 100.0 |

*Multiple responses allowed, totals may exceed table total

For the sources of information, teachers had 77.1% and 25.3% chose the church. Participants' preferred health workers 139 (47.6%) to provide the information as compared to 11.0% who chose the church.

4.8 Availability of STI Services

Table 6 presents results on the availability of STI services and whether they had visited any Reproductive Health Facility in the past.

Table 6: Availability of STI services

| | n | % |
|---|-----|-------|
| Heard of Adolescent Friendly Reproductive Services | 79 | 26.7 |
| Know where to get information on Reproductive Health Services | 170 | 57.4 |
| Ever been to a Reproductive Health Service facility for information | 32 | 10.8 |
| Have subjects in school that teach about Reproductive health | 289 | 97.6 |
| There are services in school that offer STI counselling | 143 | 49.0 |
| Total | 295 | 100.0 |

For this table, the questions are not specific to knowledge of STIs so the overall total of 295 was used as the denominator, except for the last question where the percentage is based on the 292 who claimed to know STIs.

Participants who had heard of Adolescent Friendly Reproductive Services were 79 (26.7%). 289 (97.6%) said they have subjects in school that teach reproductive health and 49.0% said they have services in the school that offered STI counselling.

4.9 Socio-demographic characteristics and Knowledge of STIs

The set of questions on the knowledge of STIs that the respondents answered were scored and converted to the percentage scale. The means and standard deviations of the scores were computed for each variable category.

Table 7: Socio-demographic characteristics and Knowledge on STIs

Knowledge score = Lowest (0%) to Highest (100%)

| Characteristic | Knowledge score | | P-value |
|---------------------------|-----------------|------|---------|
| | Mean | SD | |
| Age (years) | | | <0.001 |
| 14 | 57.0 | 12.4 | |
| 15 | 60.1 | 13.9 | |
| 16 | 65.0 | 13.5 | |
| 17 | 67.5 | 12.8 | |
| Sex | | | 0.830 |
| Male | 64.9 | 13.6 | |
| Female | 64.5 | 13.5 | |
| Class | | | <0.001 |
| SHS 1 | 60.3 | 13.0 | |
| SHS 2 | 70.7 | 11.9 | |
| Programme | | | 0.068 |
| Agric. Science | 66.6 | 14.3 | |
| General Arts | 67.0 | 13.2 | |
| General Science | 63.7 | 14.3 | |
| Home Economics | 58.8 | 11.9 | |
| Visual Arts | 62.3 | 13.1 | |
| Ethnicity | | | 0.026 |
| Akan | 67.6 | 13.3 | |
| Ewe | 63.7 | 13.0 | |
| Ga | 62.7 | 11.6 | |
| Northern | 61.7 | 14.4 | |
| Other | 61.0 | 15.2 | |
| Who they live with | | | 0.152 |
| Both parents | 66.1 | 13.3 | |
| Mother | 62.9 | 14.2 | |
| Father | 60.6 | 10.0 | |
| Other | 65.7 | 15.0 | |
| Religion | | | 0.166 |
| Christian | 65.3 | 13.3 | |
| Muslim | 62.5 | 13.5 | |
| Total | 64.7 | 13.5 | |

SD: Standard Deviation

The mean knowledge score for participants in SHS 2 was 70.7% as compared to 60.3% in participants in SHS 1. The overall level of total knowledge was 64.7%. The association between age and the mean level knowledge of knowledge was significant ($p = 0.001$).

4.10 Socio-demographic characteristics and Reproductive Health Behaviour**Table 8: Socio-demographics and Reproductive Health Behaviour**

Reproductive Health Behaviour = Lowest risk (0%) to Highest risk (100%)

| Characteristic | Reproductive Health Behaviour | | |
|---------------------------|-------------------------------|------|---------|
| | Mean | SD | P-value |
| Age (years) | | | 0.028 |
| 14 | 38.5 | 13.2 | |
| 15 | 38.2 | 16.8 | |
| 16 | 33.9 | 15.1 | |
| 17 | 31.4 | 15.4 | |
| Sex | | | 0.187 |
| Male | 35.1 | 14.2 | |
| Female | 32.7 | 16.6 | |
| Class | | | <0.001 |
| SHS 1 | 37.7 | 15.6 | |
| SHS 2 | 28.6 | 14.0 | |
| Programme | | | 0.282 |
| Agric. Science | 35.4 | 14.2 | |
| General Arts | 31.1 | 15.9 | |
| General Science | 35.6 | 16.3 | |
| Home Economics | 37.1 | 19.8 | |
| Visual Arts | 34.7 | 14.4 | |
| Ethnicity | | | 0.670 |
| Akan | 32.7 | 14.5 | |
| Ewe | 33.5 | 15.3 | |
| Ga | 36.8 | 17.0 | |
| Northern | 34.8 | 17.8 | |
| Other | 33.7 | 15.6 | |
| Who they live with | | | 0.009 |
| Both parents | 32.3 | 13.7 | |
| Mother | 38.8 | 18.1 | |
| Father | 37.5 | 19.5 | |
| Other | 30.1 | 12.9 | |
| Religion | | | 0.784 |
| Christian | 34.0 | 15.3 | |
| Muslim | 33.3 | 17.2 | |
| Total | 33.8 | 15.5 | |

SD: Standard Deviation

The table above shows that older adolescents had less risky behaviours/opinions and these differences across age were significant ($p = 0.028$). However, between their various classes, there was a significant difference between SHS 1 and SHS 2 as shown by a p-value (< 0.001)

implying that less risky or good reproductive health behaviour is associated with moving on to the next class which is similar to growing older. Overall, the level of total risk was 33.8%.

4.11 Source of information, availability of STI services and Reproductive Health

Behaviour

T-tests were used to determine if there were significant differences in terms of reproductive health behaviour between those who received information about STIs and those who did not and also between those with access to information and otherwise in Table 9.

Table 9: Source of information, availability of STI services and Reproductive Health Behaviour

Reproductive Health Behaviour = Lowest risk (0%) to Highest risk (100%)

| | No | | Yes | | P-value |
|---|------|------|------|------|---------|
| | Mean | SD | Mean | SD | |
| Current and past sources of information* | | | | | |
| Parents | 37.2 | 16.6 | 31.5 | 14.4 | 0.002 |
| Radio | 32.3 | 14.7 | 34.4 | 15.8 | 0.302 |
| Television | 34.3 | 17.1 | 33.7 | 15.0 | 0.779 |
| Social media | 37.6 | 16.4 | 31.7 | 14.7 | 0.002 |
| Teachers | 38.4 | 17.1 | 32.5 | 14.8 | 0.006 |
| Friends | 34.5 | 15.8 | 32.9 | 15.1 | 0.382 |
| Church | 35.4 | 16.1 | 29.1 | 12.9 | 0.002 |
| Health workers | 39.8 | 15.8 | 29.7 | 14.0 | <0.001 |
| Availability of information on STIs | | | | | |
| Heard of Adolescent Friendly Reproductive Services | 35.2 | 15.6 | 30.4 | 15.0 | 0.018 |
| Know where to get information on Reproductive Health Services | 34.4 | 15.3 | 33.4 | 15.8 | 0.582 |
| Ever been to a Reproductive Health Service facility for information | 34.3 | 15.6 | 30.1 | 15.0 | 0.152 |
| Have subjects in school that teach about Reproductive health | 30.3 | 13.7 | 33.9 | 15.6 | 0.574 |
| There are services in school that offer STI counselling | 36.9 | 15.8 | 30.7 | 14.7 | <0.001 |

SD: Standard Deviation

Those who said they received information from their parents had a lower risk level or good reproductive health behaviour (31.5%) compared to those who did not (37.2%) and this difference was significant ($p=0.002$). From health workers (29.7%) as against (39.8%) at ($p<0.001$) which is significantly different implying that those who had information from health workers had less risky behaviour or good behaviour.

Similar comparisons can be made on the availability of information on STIs.

4.12 Knowledge of adolescents on STIs and its association with Reproductive Health

Behaviour

From the results in the section on socio-demographic characteristics and reproductive health behaviour, the independent variables significantly associated with the outcome. They were put into a linear regression model to investigate how they jointly affect the outcome. E.g. if an adolescent's knowledge score increases by 1%, their reproductive health behaviour risk is reduced by 0.31% (about one-third of a percentage) which was significant ($p<0.001$). After adjusting for the effect of age, class and who they lived with, the risk reduces by 0.18% for every percentage increase in their knowledge level and was still significant ($p=0.009$).

For the other variables with the reference category, the regression shows the average difference in terms of reproductive health behaviour risk from the reference group for each category, so for example, SHS 2 students had on average a risk level 9.05% lower compared to SHS 1 students and after adjusting for the other variables, the difference was 6.83% lower and these differences were both significant. Those who lived with both parents were used as the reference group when it came to who they lived with and it was seen that those with single parents around had a higher

risk compared to the reference group. Age, however, ceases to be significantly associated with the outcome after adjusting for the knowledge, class and who they lived with.

Table 10: Knowledge of STI and its association with Reproductive Health Behaviour

Outcome: Reproductive Health Behaviour = Lowest risk (0%) to Highest risk (100%)

| Characteristic | Unadjusted | | Adjusted | |
|---------------------------|-----------------------------|---------|-----------------------------|---------|
| | Mean difference (95% CI) | P-value | Mean difference (95% CI) | P-value |
| Knowledge score | -0.31 (-0.44, -0.18) | <0.001 | -0.18 (-0.32, -0.05) | 0.009 |
| Age (years) | -2.78 (-4.63, -0.94) | 0.003 | -0.45 (-2.41, 1.51) | 0.652 |
| Class | | <0.001 | | <0.001 |
| SHS 1 | Ref. | | Ref. | |
| SHS 2 | -9.05 (-12.53, -5.57) | | -6.83 (-10.80, -2.86) | |
| Who they live with | | 0.009 | | 0.042 |
| Both parents | Ref. | | Ref. | |
| Mother | 6.51 (2.16, 10.86) | | 5.05 (0.90, 9.21) | |
| Father | 5.19 (-1.28, 11.67) | | 3.46 (-2.75, 9.66) | |
| Other | -2.17 (-8.24, 3.91) | | -2.56 (-8.35, 3.23) | |

CHAPTER FIVE

5.0 DISCUSSION

5.1 Knowledge of Sexually Transmitted Infections among adolescents

This study determined the knowledge of STIs among adolescents. About (99.3%) of the participants had heard of STIs and (99.7%) of them claimed to know STIs. This was similarly the case in a study by Amu and Adegun (2015), where (92.4%) of adolescents said they had heard of STIs. The types of STIs they knew about were HIV/AIDS (93.2%), followed by Gonorrhoea (88%), Syphilis, Chlamydia, Hepatitis B, Human Papilloma Virus and the least known Trichomoniasis (3.1%). A study in Berlin had similarities with this study where 38.2% of adolescents knew about HIV/AIDS with others being Hepatitis B (12.5%), Genital warts (9.7%), Syphilis (7.1%), HPV (5.9%), Gonorrhoea (7.5%) and Chlamydia (5.6%) (von Rosen, von Rosen, Müller-Riemenschneider, Damberg, & Tinnemann, 2018).

A similar study in Houston revealed that (90%) of adolescents knew HIV/AIDS and (6.7%) knew of Trichomoniasis. The older group knew Gonorrhoea and Herpes (80.4%) as compared to the younger group of which (27.6%) knew Chlamydia and (34.5%) knew Gonorrhoea (Kurkowski et al., 2012). Another study in Kwara state in Nigeria among adolescents knowledge on STIs revealed that (66%) of them had heard about STIs with Gonorrhoea having the highest rate of (64%) followed by HIV/AIDS (50%) and Chlamydia (2%) (Oluyemi & Yinusa, 2015). In a national adolescent survey in Ghana, over (96%) of them knew that HIV/AIDS can be transmitted through sexual intercourse with an infected person. Results on their knowledge of other STIs was minimal as compared to those who knew HIV/AIDS (Awusabo-asare et al., 2006). Over the years and even in recent times though adolescents have claimed to know STIs, there is still a knowledge gap in what they know.

About, (99.3%) of adolescents admitted that having unprotected sex with an infected person can cause one to have STIs, (49%) knew that kissing an infected person can cause STIs and only a few mentioned, hugging, handshaking and sleeping on the same bed. Further on, (96.9%) also admitted that having unprotected sex with an infected person once and having multiple sex partners can cause one to have STIs. Similarly, another study among adolescents in Nigeria revealed that sexual intercourse at 51% and handshaking can transmit STIs from one person to the other (Oluyemi & Yinusa, 2015).

The most common signs and symptoms known were vaginal itching, pain and burning sensation during urination. Also, about 19.2% of the participants did not know any of the listed signs and symptoms. Similarly, a study in Nigeria reported that the symptoms identified by secondary school adolescents were painful micturition/urination 68.9% and weight loss (Amu & Adegun, 2015). Generally, adolescents had inadequate knowledge of STIs, despite the education they claimed they had on STIs. Findings of this study and the others compared have proved that, adolescents have a general idea on STIs and the common mode of transmission. Also, it appears that HIV/AIDS, Gonorrhoea and Syphilis are the main STIs that adolescents are educated on and hence the reason for their poor knowledge of the other STIs. For example, Human Papilloma Virus which was poorly known is as deadly as HIV/AIDS because of its long-term effects such as cervical cancer and genital warts but most adolescents are unaware of these effects. It is also a problem that the signs and symptoms that were known were basic and especially for those who did not know. The proportion of those who were unaware are most likely to encounter long term effects such as infertility because they will not bother to seek treatment if they do not know the symptoms. Some STIs such as gonorrhoea are asymptomatic, especially in females. They may experience vaginal discharge and itching which most of them will misconstrue as vaginal

candidiasis or thrush. Most of them will seek all forms of treatment which may attempt to alleviate the signs and symptoms but will not treat the underlying infection. In effect, this makes them susceptible to infertility in their adult years. Education on signs and symptoms should be in-depth including other systemic observations such as fever, weight loss and waist pain and not only those experienced on the genitals.

5.2 Sources of Information on Sexually Transmitted Infections

Participants of this study were asked to identify their sources of information on STIs and their preferred choice. The important sources they mentioned were teachers (77.1%) and television (73.3%) and the church being the least source (25.3%). However, participants preferred, health workers (47.6%) and teachers (46.9%) to educate them on STIs. Although adolescents confirmed having sources of information, their knowledge was inadequate.

Similarly, a study among senior high school students in Nigeria, had mass media (23%), health magazines (19.2%) and parents (7.9%) as their major sources of information (Aliyu et al., 2013). Another study in Italy on current knowledge on sexually transmitted diseases and sexual behaviour revealed that (37%) of participants said that parents and teachers were the most important source of information on sexual issues. Also a larger number of them said their parents talked to them about reproductive issues, however only (7%) said they could do that easily (Drago et al., 2016). A study in Houston, Texas revealed that (92%) of participants said they received STI information from school, parents and peers, meanwhile (30.7%) was from their health classes alone (Kurkowski et al., 2012). A study among adolescents in Ethiopia also reported that information from school was 31.5%, health providers 8.7% and television 13.5% (Motuma et al., 2016).

In a national adolescent survey in Ghana, the main sources of information on STIs were teachers and health providers as represented by (66%) for females and (64%) for males. This was followed by television (43%) for females and (38%) for males. Radio also represented (42%) for females and (38%). The most preferred sources were teachers, health workers and mass media.

The attempts to involve significant others in sex education of adolescents are revealed in this study and other studies. Adolescents have mentioned sources of information and yet there is a knowledge gap in what they know about STIs. This implies the inadequacy of information they are provided with and whether adolescents understand what they are being taught. This situation could be due to sources of information not being updated with emerging and re-emerging STIs. In the past HIV/AIDS, Gonorrhoea and Syphilis were the commonest forms of STIs but currently, there are different types, modes of transmission, symptoms and treatments so people who serve as sources of information should be updated. It is also important that persons responsible for educating adolescents on their reproductive health appreciate that times have changed and children are being transitioned into adolescents faster than in the past. There is also the issue of wrong information provided to adolescents, the myths surrounding STIs must be clarified during education. Reproductive health issues including STIs which are not discussed with adolescents in details may also be responsible for the poor knowledge. For example, an adolescent may be informed on types of STIs but not informed that re-infection may occur if he or she does not seek treatment with his or her partner. In short, sources of information should be open and bare the facts about STIs to improve on the knowledge of adolescents.

5.3 Availability of STI services

In Ghana, the AFRHS are found in various hospitals across the country and are mainly responsible for counselling, treatment and provision of information on reproductive health issues. These services include family planning, voluntary counselling and testing (VCT), safe abortion services and counselling and treatment of HIV and other STIs (Renzaho et al., 2016).

A proportion of (57.4%) participants claimed they knew where to get information on reproductive health. About (10.8%) had been to a reproductive health facility for information and (97.6%) said they had STI counselling services in their school. A majority of participants said they had subjects that taught them reproductive health. The proportion of adolescents who mentioned that they had heard of AFRHS was (26.7%) which was rather low. Similarly, a study in Ethiopia among adolescents revealed that about (82%) of adolescents said that they knew where youth-friendly services were offered and (64%) of them had already benefited from the services however knowledge of the usage of youth friendly services was restricted (Motuma et al., 2016). Another study also revealed that (21.5%) of adolescents said they had used reproductive health services particularly family planning and STI information services (Abajobir & Seme, 2014).

In the Adolescent Health Service Policy and Strategy document, it was asserted that reproductive health services and counselling have not always been in place for everyone, especially for young people. Some of the possible reasons ranged from knowing where exactly to get that information, distance to facilities and the idea of being called 'naughty' (Renzaho et al., 2016).

The International Conference for Population Development (ICPD) held in Cairo in 1994, encouraged governments to establish policies and programmes to address adolescents' health

needs. This included the provision of information and services on the sexual and reproductive health of adolescents to enable them to handle issues of their sexuality carefully (WHO, 2011).

This has been integrated in most developed and developing countries and such facilities have been instituted. This study findings and others have indicated the integration and availability of such services for adolescents, however, some adolescents barely knew or have utilized such services. This may imply that some adolescents are unaware of such facilities and even if they may be aware, they are not comfortable visiting those places. There should be no assumption that all adolescents are aware of these services. Efforts should be channeled at creating awareness of these facilities and encouraging adolescents to visit these facilities.

5.4 Reproductive Health Behaviour

A small percentage of adolescents 7.5% had suffered from STIs. About 91.4% acknowledged that it was important to use condoms; some said they will seek treatment from the hospital 77.4%, buy medications from the pharmacy and 36.6% will use herbal medication. Similarly, a study in Italy among adolescents showed that 22% of them said that condom use and abstinence were helpful ways of preventing STIs (Drago et al., 2016). Another study in Zaria of Northern Nigeria reported that adolescents sought treatment from the chemist 4.8%, government hospital 62.1%, medicine vendors 5.7% and traditional healers 3.3% (Aliyu et al., 2013). In Ghana, the adolescent survey showed that 83% of adolescents opted for monogamy and abstinence and consistent use of condoms as the best ways of STI prevention (Awusabo-asare et al., 2006)

About 50% of participants said they will inform their partners when they have an STI and 35.6% said they will have sex with their partners even if they refused to use condoms. Participants' options on prevention of STIs were abstinence 65.1%, condom use and being faithful to their

partners. From the above, it is obvious that though adolescents will resort to one action or the other. However, they still exhibited some level of confusion as to what to do when they have an STI. For example, buying medications from the pharmacy and the use of herbal medications are not the ideal actions to take, rather visiting the hospital will be the appropriate action. In relation to the preventive measures, participants had their ideal choices, however, a proportion of them said they will still have sex even if their partners refused to use condoms. In an ideal situation, refusal to have sex when your partner refuses to use a condom is safer. This elaborates the assertion that even though adolescents claimed to know what to do, they need further guidance in making the right decisions. Similarly, another study among young people in Houston showed that they were well informed about risky behaviours, however they lacked precise knowledge on ways of reducing these risky behaviours (Kurkowski et al., 2012).

5.5 Knowledge of STIs and its association with Reproductive Health Behaviour

The findings of this study showed that knowledge of STIs was vital in reproductive health behaviour. Having adequate and concise information on STIs will enable adolescents to engage in safe sexual practices. It was realised that if an adolescent's knowledge increased by 1% their reproductive health behaviour risk was reduced by 0.31%. It was also gathered that their knowledge level increased depending on their age. Older adolescents had less risky behaviours or good reproductive health because of their knowledge level.

Also depending on their class or year group, there was a significant difference on knowledge and reproductive health behaviour between SHS 1 and SHS 2. This further illustrated that less risky or good reproductive health behaviour was associated with advancement into the next class or year group.

The knowledge they gathered from their various sources of information and the services they have available also influenced their behaviour positively or negatively. For example, in this study, adolescents who said they received information from their parents had a lower risk level as compared to those who did not.

A study on Current knowledge on STIs and Sexual behaviours among Italian adolescents showed that only 0.5% of adolescents could isolate STIs from the number of diseases they had to choose from. This further demonstrated adolescents' vulnerability and potential risk for physical and mental health consequences such as infertility. They concluded from their findings that adequate knowledge on topics such as STIs, issues related to unsafe sex practices and other risky behaviours will guide young people to comprehend right behaviours to uptake for a better life (Drago et al., 2016). This shows the relationship between knowledge and reproductive health behaviour.

Similarly, a study in Nigeria implied that knowledge of STI may impact sexual behaviours of adolescents (Aliyu et al., 2013). For example, some of the places that adolescents were willing to seek treatment from such as medicine vendors and traditional healers further explained this assertion. According to Kyilleh, Tabong and Konlaan (2018), making meaningful decisions about sexual or reproductive choices is dependent on what they know and the options that are available.

Adolescents will adopt good reproductive behaviour if they have adequate information on STIs and vice versa. This study implies that younger adolescents are not well informed and do not understand STIs. The older adolescents may also need clarifications on STIs. It is important to provide quality, in-depth information to all adolescents irrespective of their class or age. This will ensure that knowledge deficit is improved and behaviours enhanced.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

This study concluded that adolescents were aware of STIs and knew a few of them, but overall knowledge on STIs was not in-depth. Participants knew some signs and symptoms while others had no idea. They also had a fair idea on preventive measures. There was an association between knowledge and reproductive health behaviour such that if an adolescent's knowledge increased, his or her reproductive health behaviour risk was reduced. This difference was further illustrated between the younger and older adolescents such that as they aged and advanced into the next class their knowledge and behaviour improved. The sources and availability of information and services were also important in determining their reproductive health behaviour. This implies that comprehensive knowledge of STIs will enable adolescents to make responsible choices about their reproductive health behaviour. There is the need to provide all adolescents with updated, in-depth education on STIs as well as guidance on decision-making.

6.2 LIMITATION

The students in SHS 3 were unavailable at the time of the study, so they were not sampled to take part in the study.

6.3 RECOMMENDATIONS

Based on the results of this study, the following recommendations are made:

1. The findings of this study on the deficit of comprehensive knowledge on STIs and reproductive health behaviour should be discussed with the Ga West Municipal

Health Directorate, Adolescent Friendly Reproductive Health Services, Ghana Education Service and other stakeholders concerned with the sexual and reproductive health of adolescents such as parents and the staff of Amasaman Senior Technical High School.

2. The Ghana Education Service can update teaching curricula to include more topics that teach sexual and reproductive health. Health education and school activities on reproductive health issues especially STIs should be intensified by health workers, the AFRHS unit, teachers and parents for all adolescents.
3. The Ghana Health Service through the District Health Directorate in GWMHD should engage in routine monitoring and evaluation of activities planned to target adolescents' reproductive health issues to enable them to identify gaps and improve on them.
4. Health talks and durbars must address the severe short and long-term consequences of STIs. Creating awareness and giving information is not always enough. Adolescents should be guided in making responsible decisions and adopt behaviours that will enhance their sexual and reproductive health.
5. Persons or sources of information education at home, school and the health facilities must be current and improve upon their knowledge to enable them to educate these adolescents.

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APPENDICES

APPENDIX A: PARENTAL CONSENT FORM

PARENTAL CONSENT FORM

Title: Knowledge of Sexually Transmitted Infections and its association with the Reproductive Health Behaviour of adolescents at Amasaman Senior Technical High School

Principal Investigator: Barbara Amankwa Opam

Address: University of Ghana, School of Public Health, Department of Social and Behavioural Science, P.O. Box LG 25, Legon- Accra

General Information about Research

The aim of this study is to assess the understanding of adolescents on Sexually Transmitted Infections and how it is associated with the behaviors of students with regards to their reproductive health.

Your child has been selected to take part in this study because he or she is between the ages of 14-17 years. Your child will be required to answer a set of simple questions on the research topic.

Your child will answer questions on types and causes of sexually transmitted infections and the questionnaire will be administered and answered over thirty minutes. The entire duration for data collection is over a period of four weeks.

I humbly request that you sign a consent form on behalf of your child to enable him or her partake in the research. Your ward will also be given another form to further give their consent before the study commences.

Possible risks and discomfort

Your ward will not be exposed to any physical danger during the period of study, however the topic of interest may cause a level of discomfort because it is about sexual health. If your ward is uncomfortable, he / she may take a break or choose to opt out.

Benefits

The study may not benefit your ward directly; however it will provide the School, Ghana West Municipal District and Health Directorate with findings that will help policy makers bridge the gaps on sexually transmitted infections and other reproductive health issues in adolescents.

Confidentiality

You are assured that data collected will be coded with a password on a storage device. The password will be known by the researcher and the supervisor. The hard copies will be securely kept in cabinet which will only be accessible to the supervisor and the researcher.

Privacy

Your ward's privacy is assured, there will be no teacher in the room where questions will be answered. The males and females will be separated.

Compensation

Your child will be given snack and water after filling the questionnaire.

Right of Withdrawal

Your ward can withdraw from the study at any time and it will not be used against them.

Contact Details

Principal Investigator

Name: Barbara Amankwa Opam

Telephone: 0549770677

Email: bamankwa_opam@st.ug.edu.gh

Supervisor

Name: Dr. Irene Kretchy

Telephone: 0244217845

Email: iakretchy@yahoo.com

Your rights as a Participant

This research has been reviewed and approved by the Institutional Review Board of Noguchi Memorial Institute for Medical Research Institutional Review Board (NMIMR-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am-5pm through the landline 0302916438 or email addresses: nirb@noguchi.ug.edu.gh

APPENDIX B: VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title **Knowledge of STIs and its association with the Reproductive Health Behaviour of adolescents**, has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction.

I agree that my child should participate as a volunteer.

Date

Name and signature or mark of parent or guardian

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the child's parent or guardian.

All questions were answered and the child's parent has agreed that his or her child should take part in the research.

Date

Name and signature of witness

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Date

Name Signature of Person Who Obtained Consent

APPENDIX C: ASSENT FORM

Introduction

My name is Miss Barbara Amankwa Opam and I am from the department of Social and Behavioural Sciences at the School of Public Health, University of Ghana. I am conducting a study on **Knowledge of Sexually Transmitted Infections and its association with Reproductive Health Behaviour of adolescents**. I kindly ask that you take part in this research because I want to learn more about what you understand by sexually transmitted infections and how it will help you live healthily.

General Information

If you agree to be in this study, you will be asked to fill a questionnaire, or answer a set of questions which will be done over thirty minutes. This research will be done over four weeks. The questions are simple and easy to understand, if you need further clarity do not hesitate to draw my attention. Kindly take note that this is not an examination test.

Possible benefits

The study may not benefit you directly, however it will provide your School, Ghana West Municipal District and Health Directorate with findings that will help policy makers bridge the gaps on sexually transmitted infections and other reproductive health issues in adolescents.

.Possible risks and discomforts

You will not be exposed to any physical danger during the period of study, however the topic of interest may cause a level of discomfort because it is about sexual health. If you feel any discomfort, kindly inform me so that you can take a short break or stop answering the questions.

Voluntary participation and Right to leave

You can leave the study at any time during the study. It will not be held against you. You can take part only if you want to do so.

Confidentiality

You are assured that data collected will be coded with a password on a storage device. The password will be known by the researcher only.

Contact details

You can ask me questions about this study and you can call me on 0549770677 or talk to me the next time you see. Please talk to your parents about the research, however, I will ask for their permission before you can take part.

Your rights as a Participant

This research has been reviewed and approved by the Noguchi Memorial Institute for Medical Research Institutional Review Board (NMIMR-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am-5pm through the landline 0302916438 or email addresses: nirb@noguchi.ug.edu.gh

APPENDIX D: VOLUNTARY AGREEMENT

By making a mark or thumb printing below, it means that you understand and know the issues concerning this research study. If you do not want to participate in this study, please do not sign this assent form. You and your parents will be given a copy of this form after you have signed it.

This assent form which describes the benefits, risks and procedures for the research titled Knowledge of STIs and its association with Reproductive Health Behaviour has been read and or explained to me. I have been given an opportunity to have ask questions about the research and questions have been answered to my satisfaction. I agree to participate.

Child's Name:

Researcher's Name:

Child's Mark/Thumbprint.....

Researcher's Signature:

Date:

Date:

APPENDIX E: QUESTIONNAIRE

DATA COLLECTION INSTRUMENT

QUESTIONNAIRE

Date: Name of Institution:

INSTRUCTIONS: Please do not write your name on the form. Tick only correct responses and Yes or No where applicable in the boxes provided and provide answers where there are no options to choose.

This questionnaire has five parts,

- Socio-demographic data/ Participant characteristics (8)
- Questions on Knowledge of Sexually Transmitted Infections (7)
- Questions on Reproductive Health Behaviour (10)
- Questions on Sources of Information on STIs (2)
- Questions on Availability of services that offer information on STIs (5)

Scale of measurement: Each desired response for questions on knowledge and reproductive health behaviour will be summed and converted into percentages.

Part One

Socio-demographic data/ Participant characteristics. Write or Tick in the box correct answers.

1. Age: () yrs
2. Sex: Male () Female ()
3. Class: SHS 1 () SHS 2 () SHS 3 ()
4. Programme:
5. Ethnicity: Akan () Ewe () Ga () Northner () Other ()
6. Who do you live with? Both parents () Mother () Father () Other specify()
7. Where do you live?
8. Religion: Christianity () Islamic () Traditional () Others

Part Two

Knowledge on Sexually Transmitted Infections (STIs)

1. Have you heard of Sexually Transmitted Infections (STIs)? Yes () No ()
2. Do you know what sexually transmitted infections are? Yes () No ()
3. Which of the following are STI? Please tick all correct answer(s)
 - Syphyllis ()
 - Gonorrhea ()
 - Chlamydia ()
 - Human Papilloma Virus ()
 - HIV/AIDS ()
 - Trichomoniasis ()

- Hepatitis B ()
- Others ()
- I don't know

4. STI's are transmitted through the following. Yes () No ()
- Having unprotected sexual intercourse with an infected person () ()
 - Kissing an infected person () ()
 - Hugging () ()
 - Handshaking () ()
 - Sleeping on the same bed () ()

5. What are some of the signs and symptoms of STIs? (Please tick all correct answers)

- Vaginal itching ()
- Pain and burning sensation when urinating ()
- Difficulty when urinating ()
- Smelly vaginal/penile discharge ()
- Rashes on the genitals ()
- I don't know ()

6. Can one get an STI from first unprotected sexual intercourse with an infected person?

Yes () No ()

7. Having sex with more than one person can cause you to have STI's. Yes () No ()

Part Three

Reproductive Health Behavior

8. Are you sexually active? Yes () No ()
9. Have you had an STI before? Yes () No ()
10. Is it important to use condoms during sexual intercourse? Yes () No ()
11. Will you seek treatment from the hospital when you have an STI? Yes () No ()
12. Will you go to the pharmacy to buy medications to treat yourself when you have an STI?
Yes () No ()
13. Will you use herbal medications when you have an STI? Yes () No ()
14. Will you seek treatment together with your sexual partner when you have an STI? Yes ()
No ()
17. Which of the following is your best option for prevention of STI's?
- Abstinence ()
 - Being faithful to your partner ()
 - Condom use ()
18. Will you have sexual intercourse if your partner refuses to use a condom? Yes () No ()
19. Who will you inform when you realise you have an STI?
- Partner ()
 - Friend ()
 - Teacher ()
 - Parent ()

- Health worker ()

Part Four

Sources of Information on STIs

20. How do you get information on STIs? (Please tick all correct answers)

- Parents ()
- Radio ()
- Television ()
- Social media ()
- Teachers ()
- Friends ()
- Church ()
- Health workers ()

21. What is your preferred source of information on STIs?

- Parents ()
- Radio ()
- Television ()
- Social media ()
- Teachers ()
- Friends ()
- Church ()
- Health workers ()

Part Five

Availability of STI Services

22. Have you heard of Adolescent Friendly Reproductive Services? Yes () No ()

23. Do you know where to get information on Reproductive Health Services? Yes () No ()

24. Have you been to a Reproductive Health Service facility for information? Yes () No ()

25. Do you have subjects in your school that teach you about Reproductive health?

Yes () No ()

26. Are there services in your school that offer STI counselling? Yes () No ()

THANK YOU