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THE ROLE OF ADOLESCENT SCHOOL HEALTH CLUBS ON SEX AND CONDOM USE AMONG JUNIOR HIGH SCHOOL STUDENTS IN THE TEMA EAST SUBMETROPOLIS

BY

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DECLARATION

I, Nana Akosua Konadu Darko hereby declare that this dissertation is a result of my independent work. References to other works have been duly acknowledged. I further declare that this dissertation has not been submitted for award of any degree in this institution and other universities elsewhere.

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ABSTRACT

Background: Negative outcomes pertaining to sexual and reproductive health such as teenage pregnancy, unsafe abortions, STI's and HIV/AIDS can have devastating effects on education, physical and psychosocial wellbeing of adolescents. Various studies in adolescent reproductive health show that school-based programs have potential for improved knowledge, attitudes and behaviour. Ghana began the Adolescent Health Clubs (AHC) in 2014 to help improve outcomes regarding sexual and reproductive health of adolescents but the incidence of teenage pregnancy and conditions such as HIV and STI's are high among adolescents in the Tema East Sub-Metropolis compared to the other Sub-Metropolitan areas within the Tema Metropolis.

Objectives: The purpose of this study was to examine the role of adolescent health clubs on sex and condom use among junior high school students in the Tema East Sub-Metropolis. The study hypothesised that there will be differences in knowledge, attitudes and behaviours regarding sex and condom use between students in schools with AHC's and students in schools without AHC's.

Methodology: A cross-sectional study design was used with data collected using a questionnaire which was modified from a combination of previously validated questionnaires. Statistical analysis was conducted using STATA 15. Chi square tests, Fisher's Exact tests as well as one-way analysis of variance were used in the analysis.

Results: A total of 424 students participated in the study. Sources of information on puberty, sexual and reproductive health and relationships for adolescents in the Sub-Metropolis were mainly mothers, school teachers, friends and health personnel. Majority of adolescents had at least average level of knowledge on reproductive physiology was and condom use. There was a significant difference in level of knowledge on reproductive physiology ($F(2,421) = 10.14$, $p<0.001$), level of knowledge on condom use ($F(2,420) = 14.72$, $p<0.001$), attitudes to sex ($F(2,421) = 10.90$, $p<0.001$) and behaviour regarding sex (χ^2 (2, N = 424) = 10.17, $p<0.01$) between schools with AHC's and schools without AHC's. There was no significant difference regarding attitudes to condom use and condom use behaviour between schools with AHC's and schools without AHC's.

Conclusion: The Adolescent school health club has had some positive role with regards to sex but less so with regards to condom use. Further inputs and improvements such as including more practical sessions and including peer educators should be considered. The program is however beneficial and as such should be rolled out to all Junior High Schools in the Tema Metropolis.

DEDICATION

I dedicate this work to all the women in my life who have inspired and shown me that anything is possible despite all the odds. To my mother, Prof Eva Tagoe-Darko and my mother-in-law Mrs. Grace Brew-Appiah, for their loving support. To my father for always putting me at ease. Finally, to my husband, Nanabanyin Brew-Appiah and my children Yoofi and Kobina, for your patience and love. Thank you all for believing in me.

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LIST OF ABBRAVIATIONS

AHC	Adolescent Health Club
AIDS	Acquired Immune Deficiency Syndrome
CSE	Comprehensive Sexuality Education
GDHS	Ghana Demographic and Health Survey
HIV	Human Immunodeficiency Virus
JHS	Junior High School
MOE	Ministry Of Education
MOH	Ministry Of Health
NGO	Non-Governmental Organisation
SDGs	Sustainable Development Goals
SHEP	School Health Education Program
SRH	Sexual and Reproductive Health
STI	Sexually Transmitted Infection
TMA	Tema Metropolitan Assembly
UK	United Kingdom
UNAIDS	United Nations Program on HIV And AIDS
UNESCO	United Nations Educational Scientific and Cultural Organization
UNFPA	United Nations Population Fund
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

Good habits formed at youth make all the difference (Aristotle, 384-322 BC). It was not until 1994 during the International Conference on Population and Development that the reproductive health needs of adolescents gained an exclusive place on the global stage. During this conference, international as well as national agencies were given a mandate to create programs and policies that specifically addressed the health needs of adolescents (UNFPA, 1994).

Adolescence is a transition stage between childhood and adulthood whereby the determinants of behaviour such as values, beliefs, concepts of self and philosophies of life are crystallized (Coleman, 2011). Changes are occurring physically, psychologically and socially as well and though these may be universal, they do not occur at the same time nor the same rate. Both the characteristics of an individual and external factors (e.g. education, nutrition and environment) influence these changes (Coleman, 2011). For the purpose of this research, the chronological definition of adolescence applied by the WHO was used.

Adolescents are subject to a myriad of health problems particularly concerning issues on sexual and reproductive health. The interactions between individuals and their families and society as a whole has the potential to create the conditions for both positive and negative health outcomes (Dixon-Mueller, 2011). The early adolescent years offer a unique opportunity for building a good foundation concerning sexual and reproductive health and empowering these adolescents towards making safe and informed decisions in their lives (Dixon-Mueller, 2011). Nonetheless, many young people face obstacles with regards to access to reproductive health information and care (UNFPA, 2014).

Early sexual initiation has been found to be associated with numerous negative consequences. Studies show that it increases the likelihood for sexual violence, multiple partners and non-use of condoms (Pettifor, Brien, Phail, & Miller, 2009). Young people between the ages of 15-24 account for 45% of all new HIV cases worldwide (UNESCO, 2009). It has also been found to have to be associated with increased risk of contracting an STI as well as psychological effects such as depression. Early sexual initiation alone even has implications for continuing education as it has been found that such persons are less likely to pursue post-secondary education (Bengesai, Khan, & Dubes, 2018). It is well known that condom use can protect against unwanted pregnancy, STI's and HIV/AID (Chandra-Mouli, Camacho, & Michaud, 2013). Hence, early sexual initiation and condom non-use can result in a myriad of short term as well as long term consequences including physical, psychological, social and economic consequences. This has negative implications on the attainment of the sustainable development goals.

The 2012 Ghana Education Service Annual report identified school health education services as one of the major routes of strengthening health promotion among adolescents. The Ghana Education Service in collaboration with the Ghana Health Service runs the School Health Education Program (SHEP) Unit. The Unit is under the Ministry of Education (MOE) with the Ministry of Health (MOH) providing technical support. Interventions under SHEP include skills-based health education, disease prevention and control, nutrition control and education and safe and healthy school environment. The program targets Pupils/students and teachers in public and private basic schools and second cycle institutions; students in teacher training colleges and school community health workers.

Effective sexual and reproductive health education would need to begin in early childhood and continue through adolescence and adulthood (UNESCO, 2009). UNAIDS and the African Union have recently cited comprehensive, age-appropriate sexuality education as one of five key recommendations concerning the HIV epidemic in Africa. Many countries in the Asia-Pacific region, West Africa and Europe are also revising their policies and approaches to scale up sexuality education (UNESCO, 2015).

In Ghana, sexual and reproductive health (SRH) topics are taught as part of the Primary, Junior and Senior High School curriculum. For primary schools (primary 4-6) topics are taught as an aspect of citizenship. In JHS, topics in SRH are taught in moral education, social studies and integrated science (Ministry of Education, 2010) but have a limited scope and focus mainly on reproductive physiology and anatomy, issues of peer pressure and how to say no to sex, abstinence and sometimes a negative or more conservative perspective of sexuality.

Many programs have been implemented to reduce unintended pregnancies among teens. Such interventions include: curriculum-based sex and STD/HIV education programmes; abstinence-alone; comprehensive programmes - a combination of multiple components; sex and STD/HIV education programmes for parents and teens; interactive video-based and computer-based interventions; clinical protocol and one-on-one programmes, which include advance promotion and provision of emergency contraceptives; clinic-based programmes; youth development programmes; and vocational education (Oringanje et al., 2016). A review of various interventions in reproductive health shows that school based programs showed positive outcomes in forming and changing knowledge, attitudes and behaviour related to sexual and reproductive health outcomes (Salam et al., 2016).

The School Health Education Program (SHEP) was implemented in 1992 by the Ghana Education Service as a collaboration with the Ghana Health Service and other donor agencies to promote the health of school going children and adolescents (Ghana Education Service, 1992). In the program, topics concerning sexual and reproductive health are taught within other subjects such as environmental health and life skills. This however has been found to have numerous challenges (Keogh et al., 2018). In 2014, with support from the UNFPA, through SHEP, Ghana began school based adolescent health clubs with an initial twelve schools in the Greater Accra Region. This was later scaled up to 110 across the country. The Tema Metropolitan Health Directorate inaugurated its first adolescent school health club in June 2016. The adolescent health clubs fall under the purview of abstinence plus programs. Abstinence plus programs are those that promote sexual abstinence but at the same time provide information and positive outlooks to the use of contraceptives such as condoms (Underhill et al, 2008).

The overall goal of the adolescent health clubs is to contribute to the improvement of adolescents and young people's health status in Ghana. Its objectives are to provide information on health, promote healthy behaviour and increase utilization of health services by adolescents. This is done through capacity building, seminars, club meetings, monthly visits by health providers and health camps. Of the expected outcomes, the clubs seek to improve knowledge of sexual and reproductive health issues, reduce incidence of STI's and HIV, reduce unplanned pregnancies, reduce unsafe abortions and sustain increased patronage of reproductive health services by adolescents. The main target of the adolescent school health club is second cycle institutions. Studies have however shown that young adolescents are talking about sexual and reproductive issues and some, though few, are actually having sex (Bankole, Biddlecom, Guiella, Singh, & Zulu, 2008).

1.2 PROBLEM STATEMENT

The major health challenges of adolescents include unwanted pregnancy, exposure to STI's and HIV/AIDS (UNFPA, 2014). These can be gotten through sexual initiation and not using condoms. Teenage pregnancy can have devastating effects on girls not just on education but psychological, social and economic as well (Black, Fleming, & Rome, 2012). The leading cause of death among adolescent girls stem from complications from pregnancy and childbirth (UNFPA, 2013). The incidence of teenage pregnancy in the Tema East Sub Metropolis is 14%, the highest in the Tema Metropolis (Tema Metropolitan Health Directorate, 2016). Studies in Sub Saharan Africa show that as high as 26% of males and 27% of females reported having age at first sexual intercourse before the age of 15 (Doyle, Mavedzenge, Plummer, & Ross, 2012). The evidence shows that in Ghana the percentage of both males and females who are having sex before the age of 15 is on the rise (GDHS, 2014). Contraceptive use is relatively low among adolescents in Ghana (Awusabo-asare, Biddlecom, Kumi-Kyereme, & Patterson, 2006). Condom use was only 20% and 40% among females and males respectively between ages 15-24 who had had sex in the last year (Ghana Statistical Service, 2014). Condom use is one of the most effective and efficient strategies for combating the spread of HIV(Chandra-Mouli et al., 2013).

Following the start of the adolescent health clubs in the Tema-East Sub-Metropolis, it would be prudent to ascertain whether it is changing knowledge and attitude towards sex or condoms, two areas that would lead to a decline in teenage pregnancy rates. It is therefore imperative to assess the knowledge, attitudes and behaviour related to sex and condoms so as to ascertain the gaps and use those to strengthen existing programs and consideration in the creation of new programs and policies.

1.3 RESEARCH QUESTIONS

1. What are the sources of information on puberty, SRH and relationships among students in schools with and schools without adolescent health clubs?
2. What is the level of knowledge on reproductive physiology among students in schools with and schools without adolescent health clubs?
3. What is the level of knowledge on condom use among students in schools with and schools without health clubs
4. Are there differences in knowledge, attitudes and behaviours concerning sex and condom use among students in schools with and schools without adolescent health clubs

1.4 GENERAL OBJECTIVE

To examine the role of adolescent health clubs on perceptions on sex and condom use among junior high school students in the Tema East Sub-Metropolis.

1.5 SPECIFIC OBJECTIVES

1. To examine the information sources of students on puberty, SRH and relationships among students in schools with and schools without adolescent health clubs
2. To examine the level of knowledge on reproductive physiology among students in schools with and schools without adolescent health clubs
3. To examine the level of knowledge on condom use among students in schools with and schools without adolescent health clubs
4. To examine differences in level of knowledge, attitude and behaviour concerning sex and condom use between schools with and schools without adolescent health clubs

1.6 HYPOTHESES

1. Students in schools with Adolescent Health Clubs (AHC) have the same sources of information as students in schools without AHC's.
2. Students in schools with Adolescent Health Clubs (AHC) have a higher level of knowledge on reproductive physiology than students in schools without AHC's.
3. Students in schools with Adolescent Health Clubs (AHC) have a higher level of knowledge on condom use than students in schools without AHC's.
4. There will be a relationship between having a school with an AHC and level of knowledge, attitude and behaviour with regards to sex and condom use.

1.7 JUSTIFICATION

Numerous studies have shown that delaying sexual initiation has positive benefits with regards to sexual and reproductive health outcomes (Chandra-Mouli et al., 2013). The social acceptability of condoms is key to determining the success of condoms in preventing sexual transmission of HIV and other STIs, as well as preventing unintended pregnancy(World Health Organization, 2011). In Ghana, more than half of the adults surveyed believed that children should learn about condoms in order to avoid HIV(Ghana Statistical Service, 2014). One of the outcomes of the adolescent health clubs as stated prior was to improve knowledge on sexual reproductive health issues, reduce incidence of teenage pregnancy and to improve utilization of health services. Most studies use students at senior high school level while only very few involve younger adolescents or junior high school participants. However, numerous studies show that average age of sexual debut occurs as early as 13years and average 15 years (Ghana Statistical Service, 2014) at which age some students may find themselves in Junior High School and may therefore miss out on important interventions targeting sexual and reproductive health.

It is therefore important to ascertain the contribution of the adolescent health clubs among junior high school students to the improvement of sexual reproductive health issues among young adolescents so as to inform policy makers on the way forward.

1.8 CONCEPTUAL FRAMEWORK

The conceptual framework was modified from two concepts. One from an adolescent survey of knowledge attitudes and behaviours with regards to sexual and reproductive health in four African countries (Awusabo-asare et al., 2006). The original framework contained a number of variables, including different contraceptive methods and other sexual behaviour such as touching and kissing, which for the time frame and purpose of this research was scaled down to involve only condom use and sexual activity. Another concept which included an intervention (Devaney, Johnson, Maynard, & Trenholm, 2002) was included so as to be able to factor in the intervention namely the introduction of the adolescent health club.

In Fig 1.1, contextual factors such as demographics and environment (in this case the school) as well as mediating factors such as knowledge and attitude are important determinants of sexual activity and condom use. Contextual factors such as demographics, background characteristics, level of education and educational environment as well as sources of information influence ones knowledge and attitudes. These in turn influence the behaviour intentions towards sexual activity and condom use which eventually determine whether an adolescent would engage in sexual intercourse or use condoms. The health clubs provide the individual with the tools enable them make better and less risky decisions regarding their sexual and reproductive health including improved utilization of health services. The introduction of the adolescent health club into the framework seeks to alter the mediating factors namely knowledge and attitudes therefore giving the health clubs potential to alter behaviour outcomes directly through the alteration of these mediating factors.

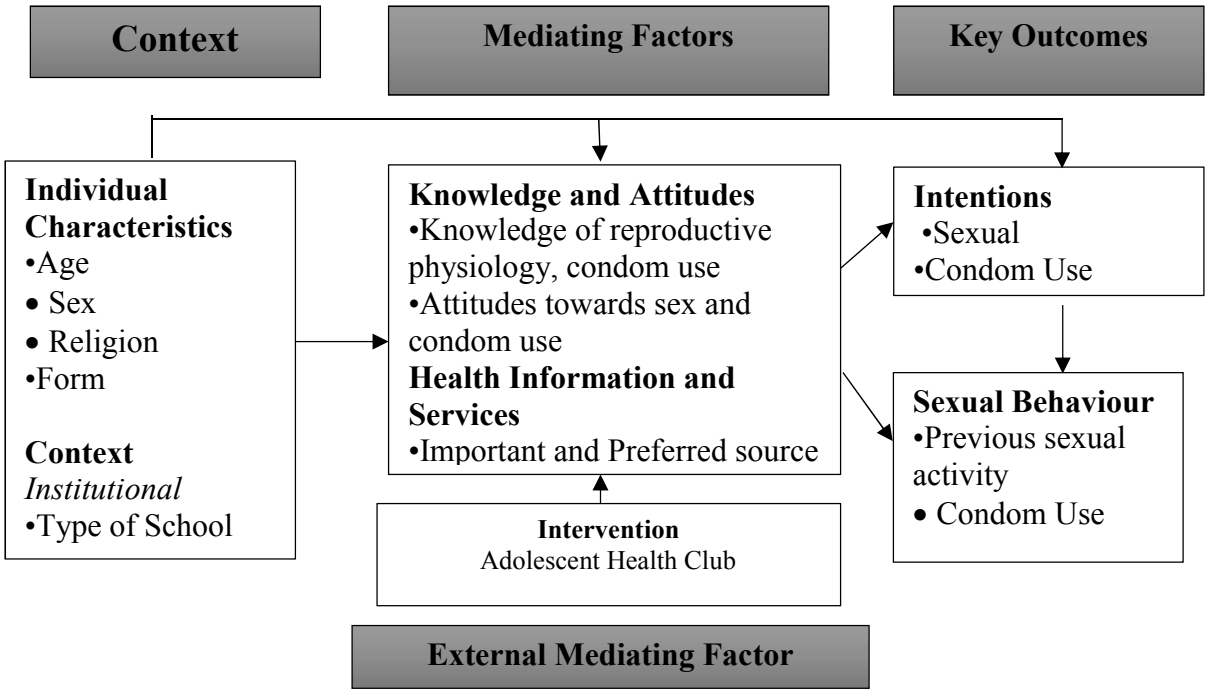

Figure 1.1 Conceptual Framework [Modified from (Awusabo-asare et al., 2006) **and** (Devaney et al., 2002)**]**

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

Numerous studies have been done globally as well as in the sub-region concerning sources of information of adolescents regarding their sources of information regarding various sexual and reproductive health issues and their level of knowledge with regards to reproductive physiology and condom use. School based health programs have been utilized all over the world in an attempt to impact behaviour outcomes in the adolescent population. The ensuing chapter contains recent literature concerning the above from international research as well as studies from the local and sub-regional area as well.

2.2 THEORETICAL FRAMEWORK

Health-related behaviours, like other behaviours, from an ecological perspective, have been found to have multiple levels of influence namely individual; interpersonal; community and organisational; and public policy factors (Sharma, 2016). Behaviour, therefore is influenced by and influences ones social environment. There are numerous socio cognitive theories which explain each level of influence. For the purposes of this research, which focuses on the individual level, a commonly used model, the theory of planned behaviour (TBP) is used for research on younger adolescents (Bayley, Baines, & Brown, 2017). The theory of planned behaviour posits that behaviour can be predicted by behaviour intentions which is in turn directly influenced by an individual's attitude towards the behaviour, subjective norms as well as perceived behavioural control (Ajzen, 2014).

Attitude refers to whether an individual would respond positively or negatively to a behaviour. It is in turn shaped by an individual's belief concerning the behaviour in question as well as consideration of the outcome of the behaviour (Ajzen, 2014). Subjective norms takes into account the individuals social environment (peers, family, significant others) and whether they would encourage a behaviour or otherwise (Ajzen, 2014). Subjective norms are shaped by normative beliefs and an individual's motivation to comply with those beliefs. Perceived behaviour control is extent to which an individual feels the performance of a behaviour is easy or difficult. It is shaped by control beliefs and the individual's perceived power (Ajzen, 2014). The predictive power of the theory of planned behaviour however depends on the context (Ajzen, 2014). It has been found to be useful in research concerning adolescent sexual and reproductive health (Bayley et al., 2017). It has been found to have a significant predictive power when it comes to sexual abstinence and condom use intentions (Sacolo et al., 2013). Intentions have proven significant in predicting adolescent sexual intercourse and other sexual behaviours such as condom use (Brüll, Ruiter, Wiers, Kok, & Brüll, 2016). Adolescents who have positive attitudes about sex and condom use such as prevention of STI's and unplanned pregnancy are more likely to apply behaviours that reduce their risk (Protogerou, Johnson, & Hagger, 2018). Adolescents whose peers are thought to be likely to adopt safe sex practices and abstain from sex are also more likely to do same (Crosnoe & Mcneely, 2008). Adolescents who felt they had confidence in their ability to use condoms were more likely to have intentions to use condoms and actual use of condoms (Brüll et al., 2016).

2.3 ADOLESCENCE

The term adolescence is a dynamic concept with varying definitions encompassing physiologic, psychosocial, cultural and chronological inputs (Curtis, 2015). For the purpose of this research, the chronological definition applied by the WHO shall be used. The World Health Organisation (WHO) defines adolescents as individuals between 10 and 19.

The WHO defines sexual and reproductive health as a state of complete physical, mental and social well-being in all matters relating to the reproductive system. This definition encompasses matters involving having a satisfying and safe sex life, the capability to reproduce, and the freedom to decide if, when, and how often to do so.

Comprehensive sexuality education (CSE) is defined as an 'age-appropriate, culturally relevant approach to teaching about sexuality and relationships by providing scientifically accurate, realistic, non-judgmental information'(UNESCO, 2009). Globally, there are differing names and methods to tackling comprehensive sexuality education. In Ghana, it is referred to as sexual and reproductive health education. The objective of CSE is to ensure that young people are receiving comprehensive, life skills-based sexuality education to gain the knowledge and skills to make conscious, healthy and respectful choices about relationships and sexuality(UNESCO, 2015).

2.4 SOURCES OF INFORMATION ON PUBERTY, SEXUAL AND REPRODUCTIVE HEALTH AND RELATIONSHIPS

On a global scale most adolescents get their SRH information from peers, teachers, health care providers as well as mass media (Dixon-Mueller, 2011). In general, mothers have been the primary source of information of health care information including information on SRH for both boys and girls but even more so for girls (Macdowall et al., 2015).

In recent times, though mass media is a significant source of such information, the most common sources of information are peers and parents (Bleakley et al, 2009). In some poor urban settings however, mass media is not featured as a source of information (Esantsi, Asare, & Tapsoba, 2015). For both male and female adolescents in Ghana, mothers, teachers and friends of the same sex, in that order, were the more common sources of information on matters related to sex (Awusabo-asare et al., 2006). In this study, females were twice as likely to have their mother as their source of information than males. In the national adolescent health survey however, it was found that more than 60-80% of students communicated with neither parent about sex. Adolescents in poor and dense neighbourhoods were found to have school teachers as their main source of information on puberty (79% males and 64% females) and sexual and reproductive health (74% males and 65% females) (Esantsi et al., 2015). Also in Nigeria however, friends were the most common source of information with regards to sex (Morhason-Bello et al., 2018). Peers were thought to be a better source of information for students as they felt uncomfortable communicating with their parents or teachers concerning such matters (Widman et al, 2016). Another study in Ghana however found that approximately 30% of females and 15% of males would prefer to receive information on puberty and sexual and reproductive health from their mothers (Esantsi et al., 2015). Forms of mass media, teachers then friends were the information sources used by adolescents of both sexes concerning sexual and reproductive health issues (Bankole et al, 2008).

Adolescents in urban slums were found to have their current source of information on puberty, pregnancy and SRH issues was mainly from their teachers (more than 70%) and majority(more than 30% for puberty and 60% for SRH issues) (Esantsi et al., 2015). Adolescents find it difficult discussing relationships with adults and as high as 49% of males and 45% of females obtain this information from their friends. Of this group, 29% of females and 15% of males preferred to receive information on relationship from their mother (Esantsi et al., 2015).

2.5 LEVEL OF KNOWLEDGE ON REPRODUCTIVE PHYSIOLOGY

Surveys among 15-19 years olds showed a lack of knowledge about topics such as whether a girl can get pregnant at first intercourse (Dixon-Mueller, 2011). The national adolescent survey provides a wide range of information with regards to knowledge about pregnancy and its prevention. Only 29.8% of females and 15.3% of males knew that a woman is likely to get pregnant halfway between periods. About half of adolescents surveyed were aware that a girl could get pregnant the first time she has sex. Only 30.4% of students knew that a girl could get pregnant standing up. A little more than a third of students were aware that a girl could get pregnant even if she washed herself immediately after sex (Awusabo-asare et al., 2006). This is unlike another study in urban slums where over 60% of adolescents knew that a woman can get pregnant at first intercourse; that a girl is more likely to get pregnant halfway between periods; as well as knowing the fact that it was false that a girl stops growing after her first menstruation (Esantsi et al., 2015). Using a composite measure of pregnancy prevention, only 6-12% of adolescents were found to have adequate knowledge of which girls were found to have a higher knowledge as compared to boys (Bankole et al., 2008). The composite measure included questions concerning the most likely time a girl can get pregnant, whether a girl can get pregnant the first time she has sex and whether a girl can get pregnant standing up.

2.6 LEVEL OF KNOWLEDGE ON CONDOM USE

Numerous adolescents report having heard of condoms and more than 95% said they had seen a condom before (Okanlawon, Reeves, & Agbaje, 2010). There is high awareness of condoms among adolescents in Ghana (83.5%) which is comparable to other sub-Saharan countries (73-90%) (Bankole et al., 2008). According to the national adolescent survey in Ghana, 88% of females and 91% of males were aware about the male condom. More recent studies show that 95% of adolescents in urban slums had heard of condoms (Darteh & Nnorom, 2012).

Condoms are known to protect against not only pregnancy but HIV/AIDS and STI's as well. According to a UNAIDS study among adolescents, about three quarters of males knew that condoms could protect against HIV as compared to only 55% of females (UNESCO, 2009). A study among Junior High School adolescents in Nigeria showed that 47% knew that it was true that condoms could prevent pregnancy while almost half (49%) did not know whether condoms could prevent pregnancy (Morhason-Bello et al., 2018).

According to the Ghana National Adolescent Survey, over 60% of male and female respondents were aware that condoms could be used only once. Awareness of the fact that condoms should always be worn before sexual intercourse starts was on average 69% among females and 80% among males, though older adolescents had more awareness than younger adolescents. About a tenth of students however disagreed with that statement. Less than half of female students (41%) agreed that condoms should be put on only when the penis is erect as compared to 67% of males. It is important to note however that those who agreed were higher among older females (51%) and lower among younger males (54%) (Awusabo-asare et al., 2006).

2.7 ROLE OF SCHOOL BASED SEXUAL EDUCATION PROGRAMS ON KNOWELDGE, ATTITUDE AND BEHAVIOUR ON SEX AND CONDOM USE

According to the UNFPA, Comprehensive sexuality education (CSE) is a

> "*Curriculum-based education that aims to equip children and young people with the knowledge, skills, attitudes and values that will enable them to develop a positive view of their sexuality, in the context of their emotional and social development"*(Bakaroudis et al, 2015).

This type of education is key to achieving a holistic view of sexual and reproductive health. the scope of CSE includes sexual and reproductive physiology; HIV and STI prevention; contraception and unintended pregnancy; values and interpersonal skills and gender and SRH rights (Bakaroudis et al., 2015). The sexual and reproductive health curricula by the Ghana education service for junior secondary schools handles some of the topics stated above within the scope of citizenship in primary school and integrated science and social studies as well as religious and moral education in junior high school (Ministry of Education, 2007). However studies show that though 75% of students had been exposed to topics in at least one of the categories only 8% report having been exposed to all the topics that would entail a comprehensive sexuality program according to international standards (Awusabo-Asare et al., 2017). Teaching also reflects a more moralistic view and students were more likely to learn about abstinence than contraception or communication in relationships (Awusabo-Asare et al., 2017). In general, it has been found that sex education for school going adolescents increases the likelihood for greater knowledge concerning SRH issues and improved behaviour concerning sexual abstinence than those not in school (Rashid & Mwale, 2016). The adolescent health clubs are intended to be a program to help buffer the education provided within the regular GES curricula.

The School Health Education Program (SHEP) was implemented in 1992 by the Ghana Education Service as a collaboration with the Ghana Health Service and other donor agencies. The main objective of the program is to promote the health of school going children and adolescents through education on health related topics including adolescent sexual and reproductive health, adolescent pregnancy, personal hygiene, abortion, premarital sex, rape, and STD's including HIV/AIDS. Under the program, schools are required to teach these topics in the curriculum of subjects such as integrated science, environmental studies, life skills, social studies and religious and moral education.

The program recommends use of participatory methods to teach the above topics (Miedema & Oduro, 2016). A concern raised is that the topics are embedded in different subjects and there is no singular curriculum for population and family health education within the JHS setup (Adda-balinia et al., 2016). As such inadequate attention is given to the teaching of sexual and reproductive health under the program(Keogh et al., 2018). The start of the adolescent health clubs by SHEP in collaboration with other governmental and non-governmental agencies is to address some of these challenges.

While there is a wide range of school based sexual education programs intended to change sexual behaviour, only some programs are effective. In a review of sexuality education programs worldwide, it was found that 34% delayed initiation of sex, 66% had no effect on the timing of the initiation and none hastened the initiation of sex (Kirby, 2011). In the same study it was found that 38% of programs increased use of condoms while 62% had no significant effect and none reduced use of condoms (Kirby, 2011). Effective school based programs were found to increase knowledge concerning reproductive physiology and condoms as well as promote positive attitudes towards condoms use as well as abstinence (UNESCO, 2009). A systematic review of programs in low and middle income countries intended to improve knowledge attitude and behaviour noted that participants of programs where health personnel were facilitators were more likely to have better knowledge (Odds Ratio 1.22, $p<0.001$), use condoms (Odds Ratio 1.64, $p<0.001$), less likely to initiate sex (Odds Ratio 0.66, p-<0.001) and sex efficacy for condom use or to refuse sex (Odds Ratio 0.25, $p<0.001$) (Fonner et al, 2014). A systemic review of sexual and reproductive health programs in sub-Saharan Africa noted that knowledge and attitudes regarding condoms and sex/abstinence improved after the interventions under question. In the same review both intentions towards sex and actual sexual activity as well as intentions towards condom use and actual condom use yielded variable results (Doyle et al, 2012).

2.7.1 Role of School Based Sex Education Programs on Level of Knowledge on Reproductive Physiology

In a study in the United Kingdom, participants in an intervention to improve knowledge and behaviour toward sex and condom use were found to have better knowledge concerning sexual health including reproductive physiology, $p< 0.001$, (Elliott et al, 2013). A school based study in Mexico showed an increase in Knowledge among participants who undertook a school based course(Castro et al., 2018). In a study in Nigeria among JSS students, it was noted that both the intervention group and the control group had adequate knowledge with no significant difference being noted between the groups (Tenkorang et al., 2018). A study in Malawi noted that students in schools had more knowledge on reproductive physiology (Rashid & Mwale, 2016). A study in Tanzania found no difference in knowledge on reproductive physiology between intervention and controls (Mmbaga et al., 2017).

2.7.2 Role of School Based Sex Education Programs on Level of Knowledge on Condom Use

In a study in the United Kingdom, participants in the intervention had improved knowledge on condoms and their use ($p<0.01$) (Elliott et al., 2013). A study in Mexico showed an increase in knowledge on condom use among participants in a school based course (Castro et al., 2018). In a study in Nigeria among JSS students, it was noted that both the intervention group and the control group had adequate knowledge concerning condoms with no significant difference being noted between the groups (Tenkorang et al., 2018). Another study in Nigeria also showed improved knowledge of participants of a school based program as compared to controls(Esere, 2008). A study in Malawi noted that knowledge of condom use was improved among adolescents in school education programs (Rashid & Mwale, 2016). A study in Tanzania using peer education, showed that there was no difference in knowledge concerning condoms between participants in the intervention and other students (Mmbaga et al., 2017).

A study in Malawi showed that members of a youth club were found to have more knowledge on SRH issues, $p<0.001$ (Lusinje, Phiri, Majawa, & Muula, 2015). A study in Tanzania on the PREPARE intervention noted that there was no significant difference between the intervention group and the control group with regards to knowledge on sex and reproductive physiology nor on myths concerning condoms (Mmbaga et al., 2017).

2.7.3 Role of School Based Sex Education Programs on Attitudes to Sex and Condom Use

In a study in the United Kingdom, an intervention to improve attitudes of students to sex and condom use did not yield any results as participants in the intervention group had similar attitudes to those in the control group (Elliott et al., 2013). A longitudinal study in Mexico noted a positive change in attitude with regards to condom use (Givaudan, Leenen, Van De Vijver, Poortinga, & Pick, 2008). In a study in Nigeria among JSS students, participants of interventions were more likely to have attitudes supporting abstinence than those in the control group who had received no intervention. In the same study concerning attitude to condom use the results were variable with males in the intervention study having a more positive attitude than controls. Same could not be said for the females in the intervention group however (Tenkorang et al., 2018). A study of a school based sex education program in Nigeria noted more positive attitudes towards abstaining from sex and condom use for participants as compared to controls (Esere, 2008). In a study in Tanzania among young adolescents, it was found that there was no significant differences in attitudes and social norms concerning sex and condom use between members of the intervention group and that of the control group (Mmbaga et al., 2017). A study among girls in Ghana noted a positive change in attitude to condom use among the participants of the intervention (Fiscian, Obeng, Goldstein, Shea, & Turner, 2009).

2.7.4 Role of School Based Sex Education Programs on Sex and Condom Use

In a study in United Kingdom, in an intervention to improve knowledge, attitude and behaviour toward SRH issues with regards to sexual activity and condom use, there was no significant difference between students in the intervention and the comparison group (Elliott et al., 2013). In a study of an intervention program among JSS students in Nigeria, it was found that male respondents in the intervention were less likely to be abstinent than the control group but female respondents in the intervention were more likely to be abstinent that those in the control group. In the same study, there was no statistically significant difference with regards to condom use between respondents from the intervention group and the control group (Tenkorang et al., 2018). A study in Tanzania on the PREPARE intervention noted that there was a significant effect of the intervention on sexual initiation ($p<0.05$). However on condom use, an effect was only seen in males ($p<0.01$) (Mmbaga et al., 2017). A study of a school based sex education program in Nigeria noted reduces likelihood of participants to have sex or use condoms as compared to controls (Esere, 2008).

2.8 CONCLUSION

Early sex and lack of condom use is a global problem especially in developing countries. Contributory factors are numerous and include ineffective reproductive health education and other factors such as poverty, peer pressure and lack of access to reproductive health services(Kirby, 2002). Sexual and reproductive education in schools should be comprehensive and appropriate (UNESCO, 2015). Numerous studies have shown the possibility of a positive impact of programs targeted at changing knowledge, behaviour and attitudes towards reproductive health issues (UNFPA, 2015). This dissertation seeks to examine such perceptions and the role, if any the adolescent health clubs have had and compare its findings to other similar studies.

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

The methods used in this research were purely quantitative. Below are details with regards to study design and methods used. The chapter ends with details concerning quality control as well as ethical considerations applied in the study.

3.2 TYPE OF STUDY

A comparative cross-sectional study design was conducted using a quantitative method. This design was chosen because of the nature of the study which needed data to be collected and analysed within a short time frame. The study was comparative since it compared three different population groups-one being the group of private schools with adolescent health clubs, the group of private schools without adolescent health clubs and the last group being public schools without adolescent clubs to ascertain differences between the three groups. At the moment no public school has an adolescent health club

3.3 STUDY AREA

Tema East is one of the three Sub-Metropolitan areas of Tema. It shares boundaries with Tema Community Two on the west, Kpone on the East, Tema Industrial Area on the north and the Atlantic Ocean on the south. It is a densely populated poor urban community with numerous slum areas. Out of the three Sub-Metro areas in Tema, Tema East has consistently had the highest incidence of teenage pregnancy in the Tema Metropolitan area (Tema Metropolitan Health Directorate, 2016). The predominant economic activities include fishing and petty trading.

There are 48 junior high schools in the Sub-Metropolis. Private schools account for two-thirds of schools but only a little over one third of the total student population (Ghana Education Service, 2017). Only three (3) of the private schools have the adolescent school health clubs. There are two government health facilities in the Tema East Sub-Metropolis. Both have adolescent health services in the form of adolescent health corners (Tema Metropolitan Health Directorate, 2016). These services are available to all adolescents regardless of having the adolescent health club or not. The Ghana Health Service also has provided an adolescent health app available free on the google play store which is also available to all adolescents.

3.4 STUDY POPULATION

The study population includes all the Junior High School students in the Tema East Sub-Metropolis. This population numbers approximately 7,361 in school adolescents (Ghana Education Service, 2017). Out of all the Junior High Schools, only three private schools have adolescent health clubs. There is no public school within the sub metropolis that has an adolescent health club. However, public schools make up more than half the student population therefore to exclude them would not give a holistic assessment. In order to give a holistic picture of occurrences within the sub metropolis, two schools from each category were chosen. Namely two private schools with health clubs, two private schools without health clubs and two public schools without health clubs.

3.5 SAMPLING

3.5.1 Sample Size

Sample Size calculated using Cochrane Formula with 95% CI with 0.05 margin of error (Kadam & Bhalerao, 2010). Prevalence of sexual intercourse used from study of adolescents in urban slums in Accra being 34% (Esantsi et al., 2015). Nonresponse used was 20% as some research shows that surveys among adolescents concerning sensitive issues may yield higher levels of non-response (National Research Council, 2013). The formula used is as follows:

$n = \frac{Z^2pq}{d^2}$, Where

n= sample size

p= probability of the event occurring, in this study the expected prevalence for sexual intercourse is 0.34 (34%)

q= 1-p= probability of the event not occurring, in this case 1-0.34= 0.66

d= Precision/margin of error (0.05)

Z= 1.96 (95% confidence interval for a two-tailed test)

The sample size was estimated as follows = $(1.96^2 * 0.34 * 0.66)/0.05^2 = 345$

Non response- 20%= 79

- 424 [345 + 79 (20% non-response rate)]

A total of 424 students were obtained.

3.5.2 Inclusion Criteria

All Junior High School students who had their parental consent form signed appropriately and provided assent participated in the study.

3.5.3 Exclusion Criteria

Adolescents who had not attained appropriate parental consent and out of school adolescents.

3.5.4 Sampling Method

There are three different categories of schools with respect to the adolescent school health clubs. Private schools with health clubs, private schools without health clubs and public schools none of which have health clubs. A multistage sampling method was used. Schools were divided into those with the adolescent health club and those without. Those without the adolescent health club were further divided into private and public schools. Two schools were chosen from each group without adolescent health clubs at random. Schools were assigned numbers per their category and placed in separate containers. Two numbers were picked at random and the corresponding school chosen. The number of students were selected from the schools based on the population of the school, hence schools with larger populations had a higher representation and vice versa. The population of JHS 3 students were excluded as they could not partake in the questionnaire due to having finished school at the time the questionnaires were administered.

Students were chosen from two schools within each category all within the Tema East Sub-Metropolis. Private School 1 and 2 were private schools with adolescent health clubs and had a total of 88 students and 115 students respectively. Private School 3 and 4 were private school without adolescent health clubs and had a total of 96 students and 91 students respectively. Public school 5 and 6 were public schools without health clubs and had a total of 116 and 105 students respectively.

The sample taken from each school was weighted based upon the total population of the JHS students within the school. All the six schools had a total combined population of 607 students. A total of 424 valid questionnaires were to be obtained. As such, the number required from each school was calculated as follows

Private School 1 = 88/607 * 424= **62 students**

Private School 2= 115/607 * 424= **80 students**

Private School 3= 96/607 * 424= **66 students**

Private School 4= 91/607 * 424= **63 students**

Public School 5=116/607 * 424= **80 students**

Public School 6=101/607 * 424= **73 students**

3.6 DATA COLLECTION TOOLS

A questionnaire was adapted based on the Illustrative Questionnaire for Interview- surveys with young people by the World Health Organization (Cleland, 2001), the Fog Zone by the Guttmacher Institute (Kaye, SuellenTrop, & Sloup, 2009), Questions from the Ghana 2004 National Survey of Adolescents (Awusabo-asare et al, 2006) and Sex Education Inventory (Sümer, 2015). Questions were modified to suit the Ghanaian society and culture.

The questionnaire was made up of seven sections namely Demographics; Information Sources; Knowledge on Reproductive Physiology; Knowledge on Condoms; Attitudes Regarding Sex; Attitudes Regarding Condoms; Intentions and Behaviour concerning Sex; Intentions and Behaviour concerning Condoms. Full questionnaire and questions may be seen in appendix 3.

3.7 VARIABLES

3.7.1 Independent Variables

Demographics

Students were asked information pertaining to age (age of last birthday), sex, education level (JHS 1 or 2), religion (Christian, Muslim or Other), name of school, type of school (public or private) and whether school had an adolescent health club. Variables were reported in percentages of frequencies observed.

3.7.2 Intermediate Variables

Source of Information on Puberty, SRH and Relationships

Students were asked to choose one each, from a list of nine possibilities, their most important source of information as well as their preferred source of information with regards to puberty, SRH and Relationships.

Knowledge on Sex and Reproductive Physiology

Knowledge on sex was assessed by asking students to respond to six statements regarding when a girl can get pregnant and other questions pertaining to reproductive physiology using a five-point Likert scale from strongly agree (5), agree(4), don't know(3), disagree(2) and strongly disagree(1). Questions asked in the negative were reverse. Items were then scaled by summing the responses. Higher scores indicated higher knowledge. Cronbach's alpha for this scale in this study was 0.703.

Knowledge on Condom Use

Knowledge on condom use was assessed by asking students to respond to first to statements regarding whether they had ever heard of condoms and whether they had seen a condom before.

Students were then asked seven items regarding the appropriate use of condoms and what condoms confer protection on using a five-point Likert scale from strongly agree (5), agree(4), don't know(3), disagree(2) and strongly disagree(1). Questions asked in the negative were reverse coded so that all questions had strongly agree corresponding to the correct answer. Items were then scaled by summing the responses. Higher scores indicated higher knowledge. Cronbach's alpha for this study was 0.713.

Attitude towards Sex

The attitudes of students toward premarital sex included items regarding beliefs, subjective norms and perceived control. It was measured initially by 14 items measured on a 5 point Likert scale from strongly agree (5), agree(4), don't know(3), disagree(2) and strongly disagree(1). Questions asked in the negative were reverse coded. Items were then scaled and the mean scores were then calculated. High scores were indicative of positive attitudes towards abstinence. The highest Cronbach's alpha obtained was 0.700 after two items was deleted making a total of 12 items.

Attitude towards Condom Use

The attitudes of students toward condom use contained items regarding beliefs, subjective norms and perceived control. It was measured initially by 11 items measured on a 5 point Likert scale from strongly agree (5), agree(4), don't know(3), disagree(2) and strongly disagree(1). Questions asked in the negative were reverse coded. Items were then scaled and the mean scores were then calculated. High scores were indicative of positive attitudes towards condom use. The highest Cronbach's alpha obtained was 0.606 after four items were deleted making a total of seven items.

3.7.3 Dependent Variables

Behaviour Concerning Sex

Behaviour concerning sex was measured using two items. The first being whether students had friends who had had sex before and the second being whether students themselves had had sex before. Response options were dichotomous (yes or no)

Behaviour Concerning Condom Use

Behaviour concerning condom use was measured using one item being whether a students had used a condom before to which response options were dichotomous (yes/no)

3.8 PROCEDURE

Self- administered questionnaires were used to collect the data. A pre-test was conducted in two different schools, one with an adolescent health club and another without an adolescent health club within the same Sub-Metropolis and ambiguous questions were modified. Final questionnaires (Appendix 3) were then administered to the schools selected. Questionnaires were administered to students in classrooms with only either the principle investigator or the research assistant but without teachers present. Students were seated as far from each other as practicable to ensure privacy. Questions were read out loud by PI or research assistant and students ticked where appropriate. Any requests were directed to either the PI or the research assistant and answered privately. Upon completion questionnaires were collected and packaged. An exit talk was then given on the subject to answer questions pertaining to the questionnaire filled. Some of the topics that came up during the exit talk not directly in the questionnaire include pornography, anal sex, and female condoms.

3.9 QUALITY CONTROL

One research assistant was engaged, an enrolled nurse from the Manhean Health Centre Adolescent Centre, the government hospital in the Sub-Metropolis. Training was done on the 18th of July where a brief overview of the objectives of the research was given as well as method in which the questionnaire was to be administered. She was given a per diem for her assistance.

3.10 DATA PROCESSING AND ANALYSIS

Data entry was done using Statistical Product and Service Solutions (SPSS) version 22. Statistical analysis was conducted using STATA 15. Descriptive statistics were computed with the demographic characteristics of the sample and percentage of frequencies tabulated. Sources of information on puberty, SRH as well as relationships were also computed and percentages of frequencies per category of school tabulated for both most important source of information and preferred source of information. The items pertaining to knowledge on reproductive physiology and knowledge on condom use were scaled by summing the responses to individual questions in the scale. Percentages of frequencies per category of school were tabulated. The items pertaining to attitude towards sex and condom use were scaled by finding the mean of the responses to individual questions in the scale. A one way ANOVA was used to determine differences in level of knowledge as well as attitude by the three categories of schools. Ad hoc tests using Bonferroni were then used where significant values obtained. A Pearson Chi square test was used to determine the presence of a relationship between the items pertaining to sexual intercourse then a binary logistic regression performed both by category of school. A Fisher's Exact test was used to determine the presence of a relationship between the items pertaining to condom use by category of school.

3.11 ETHICAL CONSIDERATIONS

Ethical clearance was obtained from the Ghana Health Service Ethical Review Committee (GHS-ERC 145/12/17). As the adolescent health clubs involve a collaboration between both Ghana Health Service and Ghana Education Service, introductory letters were sent to both the Tema Metropolitan Director of health and as well as the District Director of education for the Tema Metropolitan area. Letters were sent to heads of the various schools where the study took place informing them about the research and requesting their assistance. Authorization from the school head was obtained before entering the schools to conduct the research.

3.11.1 Informed Consent

Informed consent was sought from parents or guardians of all participants (Appendix 1) and assent sought from participants themselves (Appendix 2). These two documents included an information sheet (Appendix 1 and Appendix 2) containing the relevant information concerning the research. Students were made aware that participation completely voluntary and responses anonymous. Students were given the option to withdraw from the research at any time and skip any question they did not wish to answer.

3.11.2 Anonymity

Anonymity was maintained by coding questionnaires instead of using names. A code was provided for the school and individual questionnaires were numbered.

3.11.3 Confidentiality

All information provided by students were treated as strictly confidential and were only accessible to the principal investigator and supervisor. Questionnaires were administered with supervision by principal investigator. Upon completion, questionnaires were filed in storage boxes in a secure location. Data inputs from questionnaire on computer were password protected.

3.11.4 Risks of Study

This study did not pose any risk to participants. Potential risks included participants feeling embarrassed because the questions on the questionnaire related to sexual and reproductive health issues

3.11.5 Benefits of Study

This research stands to benefit the society as a whole by adding to scientific knowledge. It would also benefit the Ghana health service and the Ghana education service by providing insight as to whether the adolescent health clubs are achieving their objectives.

3.11.6 Compensation to Participants

There was no compensation provided to participants.

3.11.7 Conflict of Interest

There were no conflicts of interest in conducting this study.

CHAPTER FOUR

RESULTS

4.1 INTRODUCTION

In this chapter, the results from the analysis of the data obtained is presented per the specific objectives of the study. The results from the study confirm some aspects of the theory of planned behaviour but did not align with others. Students who had positive attitude, subjective norms and perceived behaviour control leaning towards sexual abstinence were less likely to have intentions to have sex and less likely to have had sex. However, the same did not apply to condom use where the use of condoms did not necessarily emerge from attitudes, subjective norms and perceived behaviour control leaning towards condom use. This shows that the theory of planned behaviour alone does not account for all aspects of behaviour with regards to sexual and reproductive health in adolescents.

The chapter begins with a profile of the students who filled the questionnaires. Findings pertaining to the sources of information of students on puberty, SRH and relationships are then provided. This is followed by findings on the level of knowledge on reproductive physiology and condom use. Distribution tables are provided for these findings by category of school. The chapter concludes with findings regarding the differences in level of knowledge, attitude and behaviour with regards to sex and condom use by category of school. These findings are accompanied by tables illustrating the respective analysis used to determine the differences between variables by category of school.

4.2 DEMOGRAPHICS

Female students were more than half of the total (53.1%) and public schools without adolescent health clubs had the highest percentage of females (39.6%). Students ranged from 11 to 18 years of age. The mean age of students was 14.40 ± 1.502. Almost two-thirds of all students were within the range of 14-16 years of age. Older students, within the age bracket of 17-19, were comprised mainly of persons from public schools without adolescent health clubs (78.3%) while the youngest, 11-13, were mostly from private schools with adolescent health clubs (51.6%). Students in JHS 2 (52.3%) were slightly more than those from JHS 1 (47.7%). There were no students from JHS 3 as they had completed school after having written their BECE as at the time of data collection. Almost all students were Christian (96.9%) with the remainder being Muslim. Characteristics of students can be seen in Table 4.1.

Table 4.1 Distribution of adolescents by background characteristics

Characteristics	Private School With Adolescent Health Club N=142 (%)	Private School Without Adolescent Health Club N=129 (%)	Public School Without Adolescent Health Club N=153 (%)	All Schools N=424 (%)
Sex				
Male	77(54.2)	58(45)	64(41.8)	199(46.9)
Female	65(45.8)	71(55)	89(58.2)	225(53.1)
Age				
11 – 13	63(44.4)	37(28.7)	22(14.4)	122(28.8)
14-16	76(53.5)	85(65.9)	95(62.1)	255(60.1)
17-19	3(2.1)	7(5.4)	36(23.5)	46(10.8)
Form				
JHS 1	70(49.3)	63(48.8)	73(47.7)	206(48.6)
JHS 2	72(50.7)	66(51.2)	80(52.3)	218(51.4)
Religion				
Christian	140(98.6)	121(93.8)	150(98)	411(96.9)
Muslim	2(1.4)	8(6.2)	3(2)	13(3.1)

4.3 SOURCES OF INFORMATION ON PUBERTY, SEXUAL AND REPRODUCTIVE HEALTH AND RELATIONSHIPS

With regards to puberty, generally, mothers were relied upon most as most important information source (43.4%) as well as preferred information source of puberty (42.5%). Approximately two-thirds of students in schools without adolescent health clubs chose teachers as their most important source of information on puberty. Same was found with regards to most important (35.3%) and preferred information (37.2%) sources on SRH, where mothers were more relied upon closely followed by teachers (30.1%) as most important sources of information. Concerning information sources on relationships however, friends were the most preferred source of information (32.9%) while mothers were the most important information (36.2%). Sources of information per category of school can be found in table 4.2.

Table 4.2 Distribution of most important and preferred source of information of students

Characteristics	Private School With Adolescent Health Club N=142 (%)		Private School Without Adolescent Health Club N=129 (%)		Public School Without Adolescent Health Club N=153 (%)		All Schools N=424 (%)	
Puberty	Most Important	Preferred	Most Imp	Preferred	Most Imp	Preferred	Most Important	Preferred
School Teacher	25(17.6)	17(12)	44(34.1)	18(14)	55(35.9)	27(17.6)	124(29.2)	62(14.6)
Mother	61(43)	62(43.7)	59(45.7)	63(48.8)	64(41.8)	55(35.9)	184(43.4)	180(42.5)
Father	9(6.3)	9(6.3)	5(3.9)	4(3.1)	7(4.6)	11(7.2)	21(5)	24(5.7)
Sibling	1(0.7)	7(4.9)	0(0)	6(4.7)	0(0)	10(6.5)	1(0.2)	23(5.4)
Friends	3(2.1)	28(19.7)	0(0)	26(20.2)	2(1.3)	28(18.3)	5(1.2)	82(19.3)
Health Worker	37(26.1)	14(9.9)	19(14.7)	10(7.8)	25(16.3)	22(14.4)	81(19.1)	46(10.8)
Books	1(0.7)	2(1.4)	0(0)	0(0)	0(0)	0(0)	1(0.2)	2(0.5)
Internet	5(3.5)	3(2.1)	2(1.6)	2(1.6)	0(0)	0(0)	7(1.7)	5(1.2)
SRH								
School Teacher	37(26.1)	10(7)	34(26.6)	26(20.3)	56(36.8)	37(24.3)	128(30.1)	73(17.3)
Mother	43(30.3)	61(43)	54(42.2)	43(33.6)	52(34.2)	53(34.9)	150(35.3)	158(37.2)
Father	4(2.8)	3(2.1)	1(0.8)	7(5.5)	3(2)	9(5.9)	8(1.9)	19(4.5)
Sibling	2(1.4)	9(6.3)	1(0.8)	8(6.3)	0(0)	8(5.3)	3(0.7)	25(5.9)
Friends	2(1.4)	20(14.1)	1(0.8)	18(14.1)	3(2)	20(13.2)	6(1.4)	58(13.7)
Health Worker	47(33.1)	21(14.8)	36(28.1)	8(6.4)	37(24.3)	25(16.4)	120(28.4)	67(15.9)
Books	5(3.5)	8(5.6)	1(0.8)	0(0)	1(0.7)	0(0)	7(1.7)	8(1.9)
Internet	2(1.4)	10(7)	0(0)	5(3.9)	0(0)	0(0)	2(0.5)	15(3.6)
Relationships								
School Teacher	30(21.1)	6(4.2)	31(24)	19(14.7)	45(29.6)	26(17.1)	106(25.1)	51(12.1)
Mother	46(32.4)	31(21.8)	58(45)	45(34.9)	49(32.2)	38(25)	153(36.2)	114(27)
Father	6(4.2)	3(2.1)	8(6.2)	10(7.8)	4(2.6)	5(3.3)	18(4.3)	18(4.3)
Sibling	12(8.5)	14(9.9)	7(5.4)	11(8.5)	8(5.3)	16(10.5)	27(6.4)	41(9.7)
Friends	10(7)	64(45.1)	10(7.8)	26(20.2)	31(20.4)	49(32.2)	51(12.1)	139(32.9)
Health Worker	25(17.6)	11(7.7)	12(9.3)	14(10.9)	13(8.6)	17(11.2)	50(11.8)	42(9.9)
Books	7(4.9)	5(3.5)	1(0.8)	0(0)	1(0.7)	0(0)	9(2.1)	5(1.2)
Internet	6(4.2)	8(5.6)	2(1.6)	4(3.1)	1(0.7)	1(0.7)	9(2.1)	13(3.1)

4.4 LEVEL OF KNOWLEDGE ON REPRODUCTIVE PHYSIOLOGY

Table 4.3 gives an overview of the results with regards to knowledge on sex and reproductive physiology. More than half of students agreed that a girl can get pregnant the very first time she has sex with most strongly agreeing (41.5%). Private schools in general, had a higher percentage (with clubs=54.3%; without clubs=55.1%) agreeing to this statement as compared to public schools without adolescent health clubs. Almost half of students did not know if a girl could have sex standing up. Schools with adolescent health clubs had the highest percentage of those who agreed with the statement (47.2%) while public schools without adolescent health clubs had the highest percentage of those who disagreed with the statement (17.0%). Almost one fifth of total students disagreed with the fact that a girl can still get pregnant even if she washes herself thoroughly after sex with most coming from public school without health clubs (21.6%) and least coming from private schools with health clubs (17.6%). Only about half of students agreed that a girl can get pregnant if she has sex during her menstruation while one fifth of students did not know. About two thirds of students from private schools with adolescent health clubs agreed with this statement while only about half of students from the other categories of schools agreed with this statement. Almost two-thirds of all students agreed that a girl does not stop growing after she has sex for the first time. More than four fifths of students from private schools with adolescent health clubs agreed with this statement. About two fifths of students from private schools without health clubs responded as not knowing whether a girl stops growing after first sexual intercourse compared to one third of students from public schools without health clubs. Three-fifths of students did not know whether a girl is more likely to get pregnant if she has sex during ovulation more than any other time. To the contrary more students in public schools without health clubs agreed with this statements (36.6) as compared to private schools with health clubs (30.2%) and private schools without health clubs (28.7%).

Table 4.3 Distribution of Students by Level of Knowledge on Reproductive Physiology

Indicator	Private School With Adolescent Health Club (%)	Private School Without Adolescent Health Club (%)	Public School Without Adolescent Health Club (%)	All Schools (%)
	142	129	153	424
A girl can get pregnant the very first time she has sexual intercourse				
Strongly Agree	61(43)	66(51.2)	49(32)	176(41.5)
Agree	16(11.3)	5(3.9)	25(16.3)	46(10.8)
Don't Know	33(23.3)	24(18.6)	38(24.8)	95(22.4)
Disagree	28(19.7)	15(11.6)	21(13.7)	64(15.1)
Strongly Disagree	4(2.8)	19(14.7)	20(13.1)	43(10.1)
A girl can get pregnant if she has sex standing up				
Strongly Agree	63(44.4)	39(30.2)	41(26.8)	143(33.7)
Agree	4(2.8)	3(2.3)	9(5.9)	16(3.8)
Don't Know	62(43.7)	68(52.7)	77(50.3)	207(48.8)
Disagree	10(7)	16(12.4)	10(6.5)	36(8.5)
Strongly Disagree	3(2.1)	3(2.3)	16(10.5)	22(5.2)
A girl can get pregnant even if she washes herself thoroughly after sex				
Strongly Agree	65(45.8)	59(45.7)	45(29.4)	169(39.9)
Agree	7(4.9)	2(1.6)	7(4.6)	16(3.8)
Don't Know	5(3.7)	44(34.1)	68(44.4)	157(37)
Disagree	22(15.5)	8(6.2)	16(10.5)	46(10.8)
Strongly Disagree	3(2.1)	16(12.4)	17(11.1)	36(8.5)
A girl can get pregnant if she has sex during her menstruation				
Strongly Agree	78(54.9)	60(46.5)	74(48.4)	212(50)
Agree	9(6.3)	5(3.9)	12(7.8)	26(6.1)
Don't Know	29(20.4)	35(27.1)	24(15.7)	88(20.8)
Disagree	19(13.4)	17(13.2)	17(11.1)	53(12.5)
Strongly Disagree	7(4.9)	12(9.3)	26(17)	45(10.6)
A girls does not stop growing after she has sexual intercourse for the first time				
Strongly Agree	110(77.5)	64(49.6)	74(48.4)	248(58.5)
Agree	11(7.7)	5(3.9)	15(9.8)	31(7.3)
Don't Know	16(11.3)	53(41.1)	44(28.8)	113(26.7)
Disagree	3(2.1)	4(3.1)	8(5.2)	15(3.5)
Strongly Disagree	2(1.4)	3(2.3)	12(7.8)	17(4)
A girl is more likely to get pregnant if she has sex halfway between periods (ovulation) than at any other time				
Strongly Agree	35(24.6)	34(26.4)	46(30.1)	115(27.1)
Agree	8(5.6)	3(2.3)	10(6.5)	21(5)
Don't Know	95(66.9)	79(61.2)	69(45.1)	243(57.3)
Disagree	3(2.1)	6(4.7)	8(5.2)	17(4)
Strongly Disagree	1(0.7)	7(5.4)	20(13.1)	28(6.6)

4.5 LEVEL OF KNOWLEDGE ON CONDOM USE

The vast majority of students (97.6%) had ever heard of condoms. The category with the highest percentage was private schools without health clubs (98.4%) followed by private schools with health clubs (97.9%) then public schools without health clubs (96.7%). Almost four fifths of all students had seen a condom before (Table 4.4). The category with the highest percentage of students who had ever seen a condom was public schools without health clubs (82.4%) followed by private schools with health clubs (78.3%) then private schools without health clubs (77.5%).

More than two thirds of private schools with health clubs agreed that condoms cannot be used more (Table 4.5). About half of schools without health clubs agreed to the statement (private=51.9%; public=51.6%). Almost three quarters of students in private schools with health clubs agreed that condoms should always be put on before sex starts compared to private schools without health clubs (62.8%) and public schools without health clubs (59.8%). As many as 43.7% of students from private schools with health clubs did not know if condoms should only be put on if penis is erect or stiff as compared to 39.5% of students from private schools without health clubs and 45.8% of students from public schools without health clubs. Most students knew that condoms could help prevent pregnancy with private schools with health clubs (82.4%) having the most students agreeing to the statement followed by private schools without health clubs(71.3%) then public schools without health clubs(70.2%). A good number of students did not know whether condoms helped to prevent HIV/AIDS with most coming from schools without health clubs (public=30.9%; private=29.5%). An almost equal number disagreed that condoms could prevent HIV/AIDS with most coming from private schools without health clubs (28.7%).

Likewise when students were asked if condoms could help prevent STI's as many as 26.8% of students in public schools without health clubs did not know as compared to 24.8% of those in private schools without health clubs and 16.2% of those in private schools with health clubs. As many as 67.4% of students in private schools without health clubs did not know whether a condom could disappear inside a girl's body during sex as compared to 44.4% of those in public schools without health clubs and 33.8% of those in private schools with health clubs.

Table 4.4 Distribution of Students by Knowledge of Condom Use

Indicator	Private School With Adolescent Health Club (%)	Private School Without Adolescent Health Club (%)	Public School Without Adolescent Health Club (%)	All Schools (%)
	142	129	153	424
	Have you ever heard of condoms			
Yes	139(97.9)	127(98.4)	148(96.7)	414(97.6)
No	3(2.1)	2(1.6)	5(3.3)	10(2.3)
	Have you ever seen a condom before			
Yes	110(77.5)	101(78.3)	126(82.4)	337(79.5)
No	32(22.5)	28(21.7)	27(17.6)	87(20.5)

Table 4.5 Distribution of Students by Level of Knowledge on Condom Use

Indicator	Private School With Adolescent Health Club (%)	Private School Without Adolescent Health Club (%)	Public School Without Adolescent Health Club (%)	All Schools (%)
	142	129	153	424
Condoms cannot be used more than once				
Strongly Agree	93(65.5)	52(40.3)	66(43.1)	211(49.8)
Agree	5(3.5)	15(11.6)	13(8.5)	33(7.8)
Don't Know	34(23.9)	42(32.6)	55(35.9)	131(30.9)
Disagree	8(5.6)	11(8.5)	14(9.2)	33(7.8)
Strongly Disagree	2(1.4)	9(7)	5(3.3)	16(3.8)
Condoms should always be put on before sexual intercourse starts				
Strongly Agree	97(68.3)	64(49.6)	80(52.6)	242(57)
Agree	9(6.3)	17(13.2)	11(7.2)	37(8.7)
Don't Know	19(13.4)	28(21.7)	33(21.7)	80(18.9)
Disagree	9(6.3)	7(5.4)	15(9.9)	31(7.3)
Strongly Disagree	8(5.6)	13(10.1)	13(8.6)	34(8)
Condoms should be put on only if the penis is fully erect or stiff				
Strongly Agree	53(37.3)	42(32.6)	50(32.7)	145(34.2)
Agree	4(2.8)	12(9.3)	8(5.2)	24(5.7)
Don't Know	62(43.7)	51(39.5)	70(45.8)	183(43.2)
Disagree	20(14.1)	14(10.9)	14(9.2)	48(11.3)
Strongly Disagree	3(2.1)	10(7.8)	11(7.2)	24(5.7)
Condoms can help prevent pregnancy				
Strongly Agree	109(76.8)	77(59.7)	94(61.6)	280(66.1)
Agree	8(5.6)	15(11.6)	13(8.6)	36(8.5)
Don't Know	14(9.9)	16(12.4)	27(17.9)	57(13.5)
Disagree	4(2.8)	7(5.4)	4(2.6)	15(3.6)
Strongly Disagree	7(4.9)	14(10.9)	14(9.3)	35(8.3)
Condoms can help prevent HIV/AIDS				
Strongly Agree	65(45.8)	44(34.1)	58(38.2)	167(39.5)
Agree	4(2.8)	10(7.8)	7(4.6)	21(5)
Don't Know	34(23.9)	38(29.5)	47(30.9)	119(28.1)
Disagree	32(22.5)	29(22.5)	24(15.8)	85(20.1)
Strongly Disagree	7(4.9)	8(6.2)	16(10.5)	31(7.3)
Condoms can help prevent sexually transmitted infections				
Strongly Agree	93(65.5)	62(48.1)	72(47.1)	227(53.5)
Agree	4(2.8)	15(11.6)	7(4.6)	26(6.1)
Don't Know	23(16.2)	32(24.8)	41(26.8)	96(22.6)
Disagree	14(9.9)	10(7.8)	15(9.8)	39(9.2)
Strongly Disagree	8(5.6)	10(7.8)	18(11.8)	36(8.5)
Condoms cannot disappear inside a girl's body during sex				
Strongly Agree	84(59.2)	21(16.3)	42(27.5)	147(34.7)
Agree	5(3.5)	3(2.3)	12(7.8)	20(4.7)
Don't Know	48(33.8)	87(67.4)	68(44.4)	203(47.9)
Disagree	3(2.1)	15(11.6)	20(13.1)	38(9)
Strongly Disagree	2(1.4)	3(2.3)	11(7.2)	16(3.8)

4.6 DIFFERENCES IN LEVELS OF KNOWLEDGE, ATTITUDE AND BEHAVIOUR ON SEX AND CONDOM USE BETWEEN CATEGORIES OF SCHOOLS

4.6.1 Difference in Level of Knowledge on Reproductive Physiology between Categories of Schools

Schools with adolescent health clubs were found to have the highest mean score on knowledge on reproductive physiology (23.3±3.7, $p<0.001$) while public schools without adolescent health clubs were found to have relatively less knowledge (Table 4.6). A one-way between subjects ANOVA was conducted to compare the effect of the various categories of schools on the level of knowledge on reproductive physiology (Table 4.7). There was a significant effect of category of school on knowledge on reproductive physiology at $p<0.05$ among the three categories of schools ($F(2,421) = 10.14$, $p<0.001$).

Table 4.6 Means and Standard Deviations of Level of Knowledge and Attitude by Category of School

	School Type		
	Private with health club Mean ± SD	Private without health club Mean ± SD	Public without Mean ± SD
Knowledge on Reproductive Physiology	23.3 ± 3.7***	21.7 ± 4.7	20.8 ± 5.6
Knowledge on Condom Use	28.5 ± 5***	25.5 ± 5.2	25.6 ± 5.6
Attitude to Sex	4.0 ± 0.6***	3.9 ± 0.7	3.7 ± 0.7
Attitude to Condom Use	3.1 ± 0.7	2.9 ± 0.6	3.1 ± 0.7

***p<0.001

Table 4.7 One Way Analysis Of Variance of Level of Knowledge on Reproductive Physiology by Category of School

Source	Df	SS	MS	F
Between groups	2	458.50	229.25	10.14***
Within groups	421	9520.79	22.62	
Total	423	9979.28		

***p<0.001

4.6.2 Difference in Level of Knowledge on Condom Use between Categories of Schools

Private schools with adolescent health clubs were found to have the highest mean score on knowledge on condom use (28.5 ± 5, p<0.001) while private schools without health clubs were found to have the lowest mean knowledge (table 4.6). A one-way between subjects ANOVA was conducted to compare the effect of the various categories of schools on the level of knowledge on condom use (table 4.8). There was a significant effect of category of school on knowledge on condom use at p<0.05 among the three categories of schools (F (2,420) =14.72, p<0.001).

On further analysis of the results using Bonferroni, private schools with adolescent health clubs were more likely to have higher knowledge scores than private schools without adolescent health clubs (p<0.001) as well as public schools without health clubs (p<0.001). However, between private schools without health clubs and public schools without health clubs, the difference seen was not significant (p=1.000).

Table 4.8 One Way Analysis of Variance of Level of Knowledge on Condom Use by Category of School

Source	Df	SS	MS	F
Between groups	2	814.28	407.14	14.72***
Within groups	420	11614.97	27.66	
Total	422	12429.25		

***p<0.001

4.6.3 Difference in Attitudes to Sex between Categories of Schools

Private schools with adolescent health clubs were found to have attitudes that leaned more towards abstinence (4.0±0.6, $p<0.001$) while public schools without adolescent health clubs were found to be relatively less likely to have abstinent attitudes (Table 4.6). All schools however had a mean attitude on condom use which was more towards abstinence. A one-way between subjects ANOVA was conducted to compare the effect of the various categories of schools on the attitudes of students to sex (Table 4.9). There was a significant effect of category of school on attitudes to sex at $p<0.05$ among the three categories of schools ($F(2,421) = 10.90$, $p<0.001$).

On further analysis of the results on attitudes towards sex using Bonferroni, it was found that private schools with adolescent health clubs were more likely to have abstinent attitudes than public schools without adolescent health clubs ($p<0.001$). However, the difference between private schools with health clubs and those without health clubs was not significant ($p>0.05$). Between private schools without health clubs and public schools without health clubs, the difference seen was found to be significant as well with students from private schools without health clubs having more abstinence attitudes that students from public schools without health clubs ($p>0.05$).

Table 4.9 One Way Analysis ff Variance of Attitude to Sex by Category of School

Source	Df	SS	MS	F
Between groups	2	8.80	4.40	10.90***
Within groups	421	170.01	0.40	
Total	423	178.81		

***p<0.001

4.6.4 Difference in Attitudes to Condom Use between Categories of Schools

Both private schools with adolescent health clubs and public schools were found to have more positive attitudes to condom use (3.1 ± 0.7, $p>0.05$) while private schools without health clubs were found to have a relatively less positive attitude to condom use (Table 4.6). Private schools without adolescent health clubs were found to be relatively less likely to have abstinent attitudes. All schools however had a mean attitude on condom use which was more towards abstinence. A one-way between subjects ANOVA was conducted to compare the effect of the various categories of schools on the attitudes of students to condom use (Table 4.10). There was not a significant effect of category of school on attitudes to condom use at $p<0.05$ among the three categories of schools ($F(2,421) = 2.64$, $p<0.05$).

Table 4.10 One Way Analysis Of Variance of Attitude to Condom Use by Category of School

Source	Df	SS	MS	F
Between groups	2	2.23	1.12	2.64
Within groups	421	178.25	0.42	
Total	423	180.48		

*$p<0.05$

4.6.5 Differences in Behaviour With Regards To Sex between Categories of Schools

Students from schools with adolescent health clubs were least likely to have had sex and least likely to have friends who have had sex. A chi-square test of independence was performed to examine the relation between the various categories of schools and engagement in sexual intercourse (Table 4.11). The relation between these variables was significant, χ^2 (2, N = 424) = 10.17, $p<0.01$. Same can be said for the relation between the categories of schools and having friends who have had sex χ^2 (2, N = 424) = 19.40, $p<0.001$.A binary logistic regression model was then run on the two variables (Table 4.12).

It was found that private schools without health clubs (OR=1.56, p>0.5) and public schools without health clubs (OR=2.44 p<0.01) were more likely to have had sex than private schools with health clubs. Private schools without health clubs (OR=1.15, p>0.5) and public schools without health clubs (OR=2.75 p<0.001) were more likely to have friends who have had sex than private schools with health clubs. However, when the regression model was adjusted for age, both findings were proven not significant.

Table 4.11 Chi square analysis showing relationship between category of school and sexual intercourse

	School Type			$\chi 2$
	Private with health club N (%)	Private without health club N (%)	Public without N (%)	
Friends who have had sex before?				19.14***
Yes	72(50.7)	70(54.26)	113(73.86)	
No	70(49.3)	59(45.74)	40(26.14)	
Ever had sex?				10.17**
Yes	23(16.2)	30(23.26)	49(32.03)	
No	119(83.8)	99(76.74)	104(67.97)	

**p<0.01 ***p<0.001

Table 4.12 Odds ratio and adjusted odds ratio from binary logistic regression model predicting Sex Behaviour and Condom Use

	Unadjusted		Adjusted[a]	
	OR	95% CI	AOR	95% CI
Likelihood of Having Had Sex	ref			
Private School with Health club	1			
Private school without health club	1.56	0.85-2.87	1.42	0.77-2.62
Public school without health club	2.44**	1.39-4.27	1.81	0.99-3.34
Likelihood of Friends Having Had Sex				
Private School with Health club	1			
Private school without health club	1.15	0.72-1.85	1.06	0.65-1.73
Public school without health club	2.75***	1.68-4.47	2,19	1.30-3.70

[a] adjusted odds ratio by age

*p<0.5 **p<0.01 ***p<0.001

4.6.6 Differences in Behaviour With Regards To Condom Use between Categories of Schools

Students from schools with adolescent health clubs were least likely to have had sex and least likely to have friends who have had sex while students from public schools with health clubs were most likely to use a condom. A Fishers Exact test of independence (Table 4.13) showed that there is no significant relationship between the various categories of schools and having used a condom. Another chi square test of independence was performed to measure the relation between those who have had sex as well as used a condom before by the various categories of school and again there was significant relationship between the measures.

Table 4.13 Fischer's Exact Test showing relationship between category of school and condom use

	School Type			$\chi 2$	p^a
	Private with health club N(%)	Private without health club N(%)	Public without N(%)		
Ever used a condom?				5.48	0.08
Yes	4(2.82)	5(3.88)	13(8.5)		
No	138(97.18)	124(96.12)	140(91.5)		
Ever had sex and Ever Used a condom?				1.38	0.57
Yes	23(16.2)	30(23.26)	49(32.03)		
No	119(83.8)	99(76.74)	104(67.97)		

[a] Fisher's Exact test $p<0.05$

CHAPTER 5

DISCUSSION

5.1 INTRODUCTION

The main aim of this research was to determine the role played by the adolescent school health club in perceptions on sex and condom use among JHS students in the Tema East Sub-Metropolitan area. It also sought to ascertain the sources of information of the students as well as their level of knowledge on reproductive physiology and condom use. Overall, this research has implications on future research concerning the adolescent health clubs as well as towards the implementation of the adolescent health clubs among all JHS schools in the Sub-Metropolitan area.

The following sub-sections detail the discussions from each specific objective of this research. The chapter ends with a review of the conceptual framework and an overview of the limitations of the study conducted.

5.2 SOURCES OF INFORMATION ON PUBERTY, SEXUAL AND REPRODUCTIVE HEALTH AND RELATIONSHIPS

The trends were similar for all three categories of schools regarding sources of information on puberty, SRH as well as relationships. Overall, mothers were the most important as well as preferred source of information for puberty and sexual and reproductive health. With respect to relationships mothers were the most important source but came second to friends as the preferred source of information. This is comparable to global studies where mothers were found to be the primary source of information (Macdowall et al., 2015). The importance of female education is thus reinforced as they are the mothers of the future and once empowered through education they are more likely to pass on this information to their children.

Similar to other studies, aside from mothers, teachers, health workers and friends were amongst the more popular sources of information with regards to most important and preferred source (Awusabo-asare et al, 2006; Esantsi, Asare, & Tapsoba, 2015). Literature shows that curriculum based sexual education has a role to play in preventing negative SRH outcomes (Awusabo-Asare et al, 2017), hence the importance of teachers as a source of information. Health workers and friends are important as a source of information as studies have shown that programs involving peers educators or healthcare workers were found to have positive outcomes (Fonner et al, 2014). Currently, the adolescent health clubs in Junior Secondary Schools involve teachers and healthcare workers as facilitators. Including members of the community, especially mothers as sources of information as well as peer educators especially for issues concerning relationships could improve outcomes. Studies have shown that members of the community in urban slums are open to and recognize the importance of involving multiple stakeholders in the education of their children with regards to SRH issues (Esantsi et al., 2015). Books and magazines as well as other forms of mass media like the internet were the least popular as sources of information, consistent with other studies (Esantsi et al, 2015). As such the use of reading materials and internet apps as part of the adolescent school health club program, may not yield the desired results.

5.3 LEVEL OF KNOWLEDGE ON REPRODUCTIVE PHYSIOLOGY

Though the evidence showing that knowledge can influence sexual behaviour is debatable (Paul-ebhohimhen, Poobalan, & Van, 2008), the importance of education on sexual and reproductive health issues is well documented (Kirby, 2011). The Tema East Sub-Metropolis is known for having the highest incidence of teenage pregnancy in the Tema Metropolis. For each question regarding knowledge on reproductive physiology, no more than approximately half of students from either category of school agreed with the correct answer.

This is higher than that found in the national adolescent health survey (Awusabo-asare et al, 2006) but slightly less than the 60% average in a survey among adolescents in urban slums (Esantsi et al, 2015). Between 20% and as many as 57% of students did not know the answers to the questions with regards to reproductive physiology. As many as 57.3% of all students did not know that ovulation was the most likely time a girl can get pregnant, with the highest percentage (66%) coming surprisingly from private schools with health clubs. This is a cause for concern as knowledge of the fertile period is important in the prevention of teen pregnancy(Ncube, 2009). Another cause for concern is the fact that a quarter of students disagreed with the statement that a girl can get pregnant the very first time she has sexual intercourse. This could have implications with regards to willingness to use protection.

5.4 LEVEL OF KNOWLEDGE ON CONDOM USE

On condom use, almost all participants had heard of condoms and more than 75% had ever seen one. This is consistent with some studies in sub-Saharan Africa (Okanlawon et al., 2010, Bankole et al., 2008). It is also consistent with a study among adolescents in urban slums in Ghana as well (Darteh & Nnorom, 2012). It is however higher than that found in the National adolescent survey in Ghana (Awusabo-asare et al., 2006). The students who were aware of the fact that condoms could only be worn once and should only be worn on an erect penis were consistent with findings in a global study (UNESCO, 2015) but less than that found in the Ghana adolescent health survey (Awusabo-asare et al., 2006). Again as in the knowledge on reproductive physiology, between 20% and 45% of students did not know the answers to questions such as whether condoms can be used more than once and whether condoms should be worn only when the penis is erect. This has implications for the correct use of condoms which is essential in protecting against pregnancy, HIV/AIDS as well as STI's (Yeboah & Appai, 2017). Most participants knew that condoms could protect against pregnancy consistent with a study of adolescents in urban slums (Esantsi et al., 2015).

Surprisingly though, only half knew condoms could help protect against STI's and even less knew that condoms could help protect against HIV/AIDS, most coming from public schools without health clubs and least from private schools with health clubs. The incidence of HIV/AIDS and STI's among the youth is on the rise (Sacolo et al, 2013) and it is essential that they are aware of means to protect themselves.

5.5 DIFFERENCE IN LEVELS OF KNOWLEDGE, ATTITUDE AND BEHAVIOUR ON SEX AND CONDOM USE BETWEEN CATEGORIES OF SCHOOLS

5.5.1 Difference in Level of Knowledge on Reproductive Physiology

Numerous studies have shown that school based programs have potential to increase the level of knowledge of adolescents on sexual and reproductive health issues (Fonner et al., 2014; Tenkorang et al., 2018). Results from this study are consistent with other studies that show an increased in knowledge after exposure to a program (Rashid & Mwale, 2016; Tenkorang et al., 2018; Yeboah & Appai, 2017). Results from this study support the hypothesis that schools with adolescent health clubs have better knowledge on reproductive physiology than schools without adolescent health clubs. The statistical significance of the findings further supports this. The fact that further analysis revealed there was no significant difference between private schools without health clubs and public schools without health clubs further reinforces the fact that it is the adolescent health clubs that most likely accounts for the increased knowledge and not the type of school.

5.5.2 Difference in Level of Knowledge on Condom Use

Numerous studies have shown that school based intervention have been found to have a positive effect on knowledge on condom use (Rashid & Mwale, 2016;). It is different however than studies where the intervention did not result in a difference in knowledge on condom use (Mmbaga et al., 2017).

The statistical significance of the results from this study support the hypothesis that schools with adolescent health clubs have better knowledge on reproductive physiology and condom use than schools without adolescent health clubs. Further analysis reinforces the fact that it is the adolescent health clubs that most likely accounts for the increased knowledge and not whether it is a private or public school.

5.5.3 Difference in Attitudes to Sex and Condom Use

Results from the study show there a significant difference in attitudes with regards to sex but not to condom use. Adolescents from private schools with adolescent school health clubs are more likely to have abstinent attitudes with regards to sex than the other categories of schools. The adolescent school health clubs fall under abstinence plus programs. The results from this research is in line with studies that show that such programs have been found to be more effective than abstinence only programs in improving attitudes to sex(Underhill et al., 2008). It also replicates a study in Nigeria which also found adolescents in a program to be more likely to have abstinent attitudes to sex but did not have positive attitudes about condom use (Tenkorang et al., 2018). the lack of significant difference in attitude to condom use is different from many of the studies reported where interventions had a positive impact on attitude to condom use (Esere, 2008; Fiscian et al., 2009; Givaudan et al., 2008; Tenkorang et al., 2018). However, further analysis of attitudes to sex revealed that there was no statistical significance between private schools with and private schools without health clubs but rather a significant difference between private schools without health clubs and public schools without health clubs. This suggests that the type of school being private or public may have a role to play in attitude to sex rather than the presence or absence of the adolescent school health club.

5.5.4 Differences in Behaviour With Regards To Sex and Condom Use

Only about one third of studies worldwide have been known to have an effect on sex and condom use behaviour (Kirby, 2011). As with attitudes, the results from the study show a significant relationship between schools with the adolescent health club and having had sex but not with condom use. The results are in accordance to other studies that have shown that school based programs have the potential to affect risky behaviour among adolescents((Bakaroudis et al., 2015; Esere, 2008; Mmbaga et al., 2017; Tenkorang et al., 2018). The fact that not all aspects of behaviour were affected by the program is fortified by another study that shows that no single program has the ability to affect sexual behaviour completely(Elliott et al., 2013; Kirby, 2011; Paul-ebhohimhen et al., 2008). Again the difference between private school with and without the health clubs were not statistically significant with regards to having had sexual intercourse. When age was accounted for with regards to sex, the difference seen was no longer significant. Studies show that increase in age is positively related to likelihood to have sex(Awusabo-Asare et al., 2006; Esantsi et al., 2015) and this may account for the differences seen.

5.6 REVIEW OF CONCEPTUAL FRAMEWORK

As the conceptual framework suggests, the adolescent health club has had a role in influencing knowledge for both reproductive physiology and condom use as well as attitudes to sex. However, attitudes to condom use and behaviour with regards to sex and condom use were not significantly affected by the adolescent health clubs alone. Other factors in the framework such as the student demographics may have more of a role in influencing these outcomes. The concept however stands as the analysis supports the fact that the adolescent health club does have some influence on the mediating factors. However further studies would be required to determine the role of independent factors such as context and demographics on the outcome variables within the same framework.

5.7 LIMITATION

The use of self-administered questionnaires and self-report of behaviour by adolescents has been found to be problematic as studies have shown that adolescent students have a tendency to falsely report behaviour with regards to sexual and reproductive health issues (Tenkorang et al., 2018). Thereby leading to self-representation or social desirability bias (Sacolo et al., 2013).

The use of purely quantitative techniques for a study among adolescents on sexual and reproductive health issues may not yield consistent results. Addition of qualitative techniques would have improved triangulation and crystallization of results and made the research more robust. Due to time constraints this was not possible.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

The findings from the study show that all adolescents within the Tema East Sub-Metropolitan area have similar sources of information. From the previous chapters, we can deduce that the adolescent health club, to some extent, has influenced knowledge, attitude and behaviour of the students within the Tema East Sub-Metropolitan area. The adolescent school health clubs are a program in Ghana that is focused mainly on senior secondary schools with little emphasis on junior secondary schools. however studies show that younger adolescents are more likely to be influenced positively by such programs (Dixon-Mueller, 2011). The implications of this study are of consequence to stakeholders from all levels of policy, advocacy and implementation including the community and the family. These have a role to play in ensuring improved sexual and reproductive health outcomes for adolescents within the Tema East Sub-Metropolitan area and indeed that country as a whole. It is imperative as our adolescents are our future. The subsections below detail the conclusions and recommendations based upon the findings and discussions thus obtained from the data per the specific objectives of this research.

6.2 CONCLUSION

6.2.1 Sources of Information on Puberty, Sexual and Reproductive Health and Relationships

Mothers, school teachers and friends were the most common sources of information regarding puberty, sexual and reproductive health and relationships. Together they made up more than 75% of both most important and preferred sources of information regarding these topics. Adolescents depend on multiple sources for information on puberty, sexual and reproductive health and relationships. All avenues should be utilised in order to make maximum output.

Mothers are the primary source of information for most of the adolescents across all categories of schools, making them an essential part of education. Thus underscoring the need for female education as well as the possible involvement of mothers in the implementation of such programs. The fact that school teachers and health providers were also major sources of information concerning puberty and SRH issues suggest the need to utilize school based programs and programs that involve health workers which studies have shown can have positive outcomes (Fonner et al, 2014). Healthy relationships and how to navigate and communicate within relationships has been found to be an important aspect of comprehensive sexuality education (UNESCO, 2015). As friends were found to be the primary preferred source of information for relationships, peer led education programs could be useful to effect change (Bingenheimer, Asante, & Ahiadeke, 2018).

6.2.2 Level of Knowledge on Reproductive Physiology

The level of knowledge was good for both schools without health clubs and those with health clubs. However, schools with health clubs were found to have a slightly better level of knowledge regarding reproductive physiology getting an average of 23/30 as against 21/30. All schools had more than 50% of students having difficulty with identifying ovulation as the most likely time to get pregnant.

In general, the level of knowledge of adolescents in the Tema East Sub-Metropolitan area on reproductive physiology needs improvement as only about half of students agreed with the correct answers to the questions regarding the subject matter. Knowledge of issues such as when a girls is most likely to get pregnant as well as circumstances under which a girl may or may not get pregnant are important aspects of sexual and reproductive health education (UNESCO, 2015) which need to be tackled adequately in order to improve outcomes in the Tema East Sub-Metropolitan area.

6.2.3 Level of Knowledge on Condom Use

While 77% of students in schools with health clubs had seen a condom before, an average of 80% of schools without health clubs had seen a condom before. The average level of knowledge of students in schools with adolescent health clubs were slightly higher than those without adolescent health clubs (28.5/35 against 25.6/35) but both categories scored above average. As with the knowledge in reproductive physiology, only about half of the students agreed with the questions regarding knowledge in condom use especially those pertaining to condoms being able to protect against HIV/AIDS and STI's only about half of students. as the incidence of HIV and STI's in the adolescent population is on the rise (Sacolo et al., 2013), it is important that the students are equipped with accurate knowledge so as to make appropriate decisions concerning their sexual and reproductive health.

6.2.4 Difference in Levels of Knowledge, Attitude and Behaviour on Sex and Condom Use

There is a significant difference between categories of schools with regard to knowledge on both reproductive physiology and condom use. There is no difference with regard to attitude to sex and condom use. There is also no significant difference with regards to sexual intercourse and use of condoms. Early sexual initiation exposes adolescents to a myriad of negative physical, psychological, social and economic consequences particularly females and studies have shown that school based programs have potential in having a positive effect on these outcomes. The results from this study show that the adolescent school health club is improving level of knowledge with regards to both reproductive physiology and condom use. However its role is not as significant when it comes to attitudes and behaviour concerning sex and condom use. These are essential to improving sexual and reproductive health outcomes in the Tema East Sub-Metropolitan area.

6.3 RECOMMENDATIONS

6.3.1 Sources of Information on Puberty, Sexual and Reproductive Health and Relationships

The adolescent health clubs are school based as well as community based with adolescent centres in the health facilities to support the effort. The finding of mothers, school teachers, health workers and friends as important and preferred sources of information, should inform implementers of such programs on the significance of involving these stakeholders.

The Ministry of Education and Ministry of Health should take into consideration and make use of these sources of information when developing policy documents regarding adolescent reproductive health

The Ghana Education Service should strengthen their School Health Education Program (SHEP) seeing that school teachers were found to be one of the three major important as well as preferred sources of information on puberty, SRH and relationships.

Schools and community leaders should communicate to mothers their pivotal role in the provision of information and use their position to positively influence adolescents towards positive outcomes. Parents should make the family unit a safe place where adolescents feel comfortable asking certain questions regarding their sexual and reproductive health

6.3.2 Level of Knowledge on Reproductive Physiology

The Ghana Education Service should lay more emphasis on its curriculum regarding sexual and reproductive health to help correct misconceptions as well as provide accurate information.

School Teachers should find innovative ways to teach sexual and reproductive health so as to help students gain a better understanding of the topic.

The Adolescent health corners of the health institutions and other programs targeting adolescents should also lay emphasis and provide accurate information on reproductive physiology.

6.3.3 Level of Knowledge on Condom Use

The Ghana Education Service curriculum as well as SHEP should emphasize appropriate information on condoms and their use.

Adolescent Corners of health institutions should provide an environment where students are comfortable coming forward to seek information concerning condoms and their use. Information in these institutions should be made readily available and without prejudice and appropriate demonstrations should be given to students.

6.3.4 Difference in Levels of Knowledge, Attitude and Behaviour on Sex and Condom Use

The Ministry of Education as well as the Ministry of Health should collaborate and conduct further studies including qualitative methods to improve upon the robustness of the research as well as refute or support the findings of this research.

The School Health Education Program (SHEP) should take steps to roll out the program to all Junior High Schools as the adolescent school health clubs have been found to be positively influence knowledge, attitude and behaviour especially with regards to sexual intercourse amongst JHS students within the Tema East Sub Metropolitan area.

The Adolescent Health clubs should find innovative ways to address and impact the poor attitude and behaviour towards condom use as the role of the adolescent health club was not significant with regards to attitude and behaviour especially regarding condom use.

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APPENDIX

APPENDIX 1: PARENTAL INFORMATION SHEET AND CONSENT FORM

APPENDIX 1.1 PARENTAL INFORMATION SHEET

Role of Adolescent School Health Club on Sex and Condom Use among JHS Students in the Tema East Sub-Metropolis

Dear Parent\Guardian

My name is Nana Akosua Konadu Darko, currently a Masters student at the School of Public Health, University of Ghana. I am conducting research on sexual reproductive health issues among JHS students. I will ask questions about their knowledge, attitudes and behaviour concerning pregnancy and its prevention. Once a participant is below the age of 18 years, a parental consent is required. Confidentiality will be maintained and information will not be disclosed to anyone. Participants' names will not be used in the study. A summary of the results of the study will be available to you on request and the results will be reported in the form of a thesis submitted to the University of Ghana.

I am therefore asking your permission to allow me to interview your child. If you agree to allow your child to participate in this study kindly sign the attached slip confirming your consent. For further information about the study, please feel free to contact me on 0202536182 or my supervisor, Dr Franklin Glozah on 0572000534.

Upon signing, kindly give this slip to the child who is to return it to the researcher in order to participate in the study.

Thank you.

APPENDIX 1.2 PARENTAL CONSENT FORM

Role of Adolescent School Health Club on Sex and Condom Use among JHS Students in the Tema East Sub-Metropolis

PARENTAL CONSENT FORM

I ……..,……

The parent or guardian of …….

have read and understood the above information and therefore grant my child the permission to participate in the research study.

Signature (Parent\Guardian)……

Date signed……..

Signature (Researcher)……..

APPENDIX 2: PARTICIPANT INFORMATION SHEET AND CONSENT FORM

APPENDIX 2.1 PARTICIPANT INFORMATION SHEET

Role of Adolescent School Health Club on Sex and Condom Use among JHS Students in the Tema East Sub-Metropolis

PARTICIPANT INFORMATION SHEET

My name is Nana Akosua Konadu Darko a Masters student at the School of Public Health, University of Ghana. As part of my study requirements, I'm conducting research on teenage pregnancy and its prevention. The aim of the study is to find out about adolescents' knowledge and awareness about teenage pregnancy and its prevention and if adolescent health clubs have caused improvement. I wish to invite you to participate in my study. Your participation is entirely voluntary and refusal to participate will not be held against you. Apart from this there is no reward or penalty for not participating. If you agree to take part, I shall arrange to interview you at your school. The interview will last approximately 45 minutes. You may withdraw from the study at any time and you may also refuse to answer any question that you feel uncomfortable answering. All data collected through the interview will be treated with confidentiality. The results will be reported in a form of a thesis at the University of Ghana. Please feel free to ask any questions regarding the study. I shall answer them to the best of my ability. I may be contacted on my cell phone, (0202536182). Should you wish to receive a summary of the results of the study, an abstract will be made available on request.

Thank you.

APPENDIX 2.2 PARTICIPANT ASSENT FORM

Role of Adolescent School Health Club on Sex and Condom Use among JHS Students in the Tema East Sub-Metropolis

ASSENT FORM FOR PARTICIPATION IN THE STUDY

I hereby consent to participate in the research project. The purpose and procedures of the study have been explained to me. I understand that my participation is voluntary and that I may refuse to answer any particular items or withdraw from the study at any time without any negative consequences. I also understand that my responses will be kept confidential.

Name of participant:…….

Date:……..

Signature:…….

APPENDIX 3: QUESTIONNAIRE

QUESTIONNAIRE

The purpose of this survey is to understand what you know about pregnancy and condom use and how you feel about premarital sex and condom use. There are also questions sexual behaviour. You do not have to answer any questions that make you feel uncomfortable. Your participation is voluntary. This is not a test so there are no right or wrong answers. It is YOUR CHOICE to answer or not to answer any of the questions. Your answers will be private, no one at your school or elsewhere will know your answers. It is very important that you answer every question truthfully.

CODE	Questionnaire Number	
s0q1	Name of School	
s0q2	Type of School	□ Private □ Public
S0q3	Presence of adolescent center	□ Yes □ No

CODE	**SECTIONA**	
sa	**Demographics**	
	The following are questions about your personal information. Kindly indicate with a tick ✓ the response that applies to you.	
saq1	1. Age (in years)	……..
saq2	2. Sex	□ Male □ Female
saq3	3. Form	□ JHS 1 □ JHS 2 □ JHS 3
saq4	4. Religion	□ Christian □ Muslim □ Other (Specify……..)

CODE	SECTION B			
sb1	**Preferred Information Source on Puberty**			
	Young people get to know about **puberty.** That is, the ways in which boys' and girls' bodies change during the teenage years - from many sources. They may learn from teachers at school, parents, brothers and sisters, from friends, from doctors or they may learn from books, films and magazines.			
sb1q5		5a (tick as many as apply)	5b Most Important(tick **one**)	5c Preferred(tick **one**)
	5. Who or where has been a source of information for you on this topic?	□ School Teacher □ Mother □ Father □ Brother/Sister □ Friends □ Doctor/Nurse □ Books/Magazines □ Internet □ Other (Specify..)	□ School Teacher □ Mother □ Father □ Brother/Sister □ Friends □ Doctor/Nurse □ Books/Magazines □ Internet □ Other (Specify…)	□ School Teacher □ Mother □ Father □ Brother/Sister □ Friends □ Doctor/Nurse □ Books/Magazines □ Internet □ Other (Specify)

CODE	SECTION B			
Sb2	**Preferred Information Source on Sexual and Reproductive Health Systems**			
	Young people learn about **sexual and reproductive health systems of men and women**. That is, where eggs and sperm are made and how pregnancy occurs.			
		6a (tick as many as apply)	6b Most Important (tick **one**)	6c Preferred (tick **one**)
sb2q6	6. Who or where has been a source of information for you on this topic?	□ School Teacher □ Mother □ Father □ Brother/Sister □ Friends □ Doctor/Nurse □ Books/Magazines □ Internet □ Other (Specify)	□ School Teacher □ Mother □ Father □ Brother/Sister □ Friends □ Doctor/Nurse □ Books/Magazines □ Internet □ Other (Specify)	□ School Teacher □ Mother □ Father □ Brother/Sister □ Friends □ Doctor/Nurse □ Books/Magazines □ Internet □Other (Specify)

sb3	Preferred Information Source on Relationships			
	Young people get to know about **relationships**. That is, how boys should treat girls and how girls should treat boys.			
		7a (tick as many as apply)	7b Most Important (tick **one**)	7c Preferred (tick **one**)
sb3q7	7. Who or where has been a source of information for you on this topic?	□ School Teacher □ Mother □ Father □ Brother/Sister □ Friends □ Doctor/Nurse □ Books/Magazines □ Internet □Other (Specify.)	□ School Teacher □ Mother □ Father □ Brother/Sister □ Friends □ Doctor/Nurse □ Books/Magazines □ Internet □Other (Specify.)	□ School Teacher □ Mother □ Father □ Brother/Sister □ Friends □ Doctor/Nurse □ Books/Magazines □ Internet □Other (Specify.)

CODE	SECTION C					
sc	**Knowledge about Reproductive Physiology**					
	The following are questions on sex and reproduction. Kindly read the statements and indicate with a tick ✓ whether you strongly agree, agree, disagree or strongly disagree or whether you don't know.					
		Strongly Disagree 1	Disagree 2	Don't Know 3	Agree 4	Strongly Agree 5
scq8	8. A girl can get pregnant the very first time she has sexual intercourse					
scq9	9. A girl cannot get pregnant if she has sex standing up					
scq10	10. A girl can get pregnant even if she washes herself thoroughly immediately after sex					
scq11	11. A girl cannot get pregnant if she has sex during her menstruation					
scq12	12. A girl stops growing after she has sexual intercourse for the first time					
scq13	13. A girl is more likely to get pregnant if she has sex during ovulation than any other time.					

CODE	SECTION D					
sd	**Knowledge about Condom Use**					
sdq14	14. Have you ever heard about condoms	□ Yes □ No				
sdq15	15. Have you ever seen a condom before	□ Yes □ No				
	The following are questions about condom use. Kindly read the statements and indicate with a tick ✓ whether you strongly agree, agree, disagree or strongly disagree or whether you don't know.					
		Strongly Disagree 1	Disagree 2	Don't Know 3	Agree 4	Strongly Agree 5
sdq16	16. Condoms can be used more than once					
sdq17	17. Condoms should always be put on before sexual intercourse starts					
sdq18	18. Condoms should be put on only if the penis is fully erect or stiff					
sdq19	19. Condoms can help prevent pregnancy					
sdq20	20. Condoms cannot help prevent HIV/AIDS					
sdq21	21. Condoms can help prevent STI's (eg Gonorrhoea)					
sdq22	22. Condoms can disappear inside a girl's body during sex					

CODE	SECTION E					
se	**Attitude towards Premarital Sex**					
	The following are questions on your beliefs about premarital sex. Kindly read the statements and indicate with a tick ✓ whether you strongly agree, agree, disagree or strongly disagree or whether you don't know.					
		Strongly Disagree 1	Disagree 2	Don't Know 3	Agree 4	Strongly Agree 5
seq23	23. There is nothing wrong with unmarried boys and girls having sex if they love each other					
seq24	24. A boy will not respect a girl who agrees to have sex with him					
seq25	25. Girls should remain virgins till they marry					
seq26	26. Boys should not remain virgins until marriage					
seq27	27. It is ok for boys and girls to kiss each other on the mouth					
seq28	28. I feel pressure from my friends to have sex					
seq29	29. Some of my friends have had sex before					
seq30	30. Most of my friends think it is ok for unmarried boys and girls to have sex if they are in love					
seq31	31. Most of my friends think that it is ok to have sex with whoever they like even if they are not in love					
seq32	32. Most of my friends believe unmarried boys and girls should not wait until they are married before they have sex					
seq33	33. I am sure I can keep from sex until I am married					
seq34	34. I am sure that I can keep away from having sex even with someone I love					
seq35	35. Girls who have sex before marriage regret it					
seq36	36. Boys who have sex before marriage regret it					

CODE	SECTION F					
Sf	**Attitudes towards Condom Use**					
	The following are questions on your beliefs about condoms. Kindly read the statements and indicate with a tick ✓ whether you strongly agree, agree, disagree or strongly disagree or whether you don't know.					
		Strongly Disagree 1	Disagree 2	Don't Know 3	Agree 4	Strongly Agree 5
sfq37	37. Condoms reduce sexual pleasure					
sfq38	38. If an unmarried boy and girl who love each other want to have sex, they should use condoms					
sfq39	39. If an unmarried boy and girl who do not love each other want to have sex, they should use condoms					
sfq40	40. Using a condom is a sign of not trusting your partner					
sfq41	41. Most of my friends do not think its ok to use a condom if you are going to have sex if you love each other					
sfq42	42. Most of my friends think its ok to use a condom if you are going to have sex with someone you do not love					
sfq43	43. Most of my friends think its ok to use a condom every time you have sex					
sfq44	44. It would be too embarrassing for someone like me to buy or get a condom					
sfq45	45. It is not ok for a girl to suggest to her boyfriend that they use a condom if they are going to have sex					
sfq46	46. It is ok for a boy to suggest to his girlfriend that they use a condom if they are going to have sex					
sfq47	47. I feel I know how to use a condom properly					

CODE	SECTION G			
sg1	**Intentions about Premarital Sex and Condom Use**			
	The following are questions on premarital sex. Kindly read the statements and indicate with a tick ✓ Yes or No or Don't Know, depending on what applies to you.			
sg1q48	48. I plan to wait till marriage before I have sex	□ Yes	□ No	□ Don't Know
sg1q49	49. If for any reason I have sex before marriage I will make sure I use a condom	□ Yes	□ No	□ Don't Know

CODE	SECTION G			
sg2	**Behaviour about Premarital Sex and Condom Use**			
	The following are questions on condoms. Kindly read the statements and indicate with a tick ✓ Yes or No or Don't Know, depending on what applies to you.			
sg2q50	50. Have you had sex before	□ Yes	□ No	□ Don't Know
sg2q51	51. Have you used a condom before	□ Yes	□ No	□ Don't Know
sg2q52	52. Do you have friends who have had sex before	□ Yes	□ No	□ Don't Know

APPENDIX 4: ETHICAL APPROVAL DOCUMENT

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Tel: +233-302-681109
Fax + 233-302-685424
Email: ghserc@gmail.com

MyRef. GHS/RDD/ERC/Admin/App/13/07
Your Ref. No.

17th March, 2018

Nana Akosua Konadu Darko
University of Ghana
School of Public Health
Legon, Accra

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	**GHS-ERC: 145/12/17**
Project Title	Sexual and Reproductive Health Issues among Junior High School Students in the Tema East Submetro: The Role of the Adolescent Health Clubs
Approval Date	17th March, 2018
Expiry Date	16th March, 2019
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report **after completion** of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....
DR. CYNTHIA BANNERMAN
(GHS-ERC CHAIRPERSON)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra