SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

CONTRACEPTIVE KNOWLEDGE AND PREFERENCES AMONG ADOLESCENTS IN THE LEDZOKUKUKROWOR MUNICIPAL ASSEMBLY

BY

JESSICA OPPONG NYAMEKYE

(10386937)

THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PUBLIC HEALTH DEGREE

JULY, 2017

DECLARATION

I, Jessica Oppong Nyamekye, declare that except for other works which have been duly acknowledged and is indebted to the works of others. As far as I am concerned, this dissertation, either in whole or part has not been submitted elsewhere.

_____

JESSICA OPPONG NYAMEKYE

(STUDENT)

_____

DATE

_____

DR. IRENE KRETCHY

(SUPERVISOR)

_____

DATE

DEDICATION

This dissertation is dedicated to my dear mother, Gifty Doreen Sammah for her support and sacrifice throughout my education from infancy to the university level.

I am forever grateful to her.

ACKNOWLEDGEMENT

I am very grateful to Almighty God for His strength, protection and guidance throughout this course.

I am highly indebted to my academic supervisor, Dr. Irene Kretchy, for her patience and guidance throughout this study and the valuable suggestions she made without which I could not have made any headway.

Finally, I thank my family for enduring my long absence from home during my studies at the School of Public Health. God bless you all.

ABSTRACT

Background

The proportion of unmarried adolescents who are sexually experienced is of public-health interest. These adolescents are at risk of unintended pregnancies and contracting Sexually Transmitted Infections (STIs) during this period. According to the World Health Organization, about 16 million adolescent girls between the ages of 15 to 19 years have unintended pregnancies every year, globally. This study sought to determine the knowledge on contraception and preferred type of contraception among adolescents.

Method

The study was a descriptive cross sectional study. Questionnaires on contraception knowledge and preferences were administered to three hundred and fifty five adolescents between the ages of 15-19. Items on the questionnaire included knowledge on contraceptives, use, preference, sources of contraceptive information, self-efficacy religious beliefs and adolescent contraceptive use.

Results

Three hundred and twenty three adolescents (90.99%) had average knowledge on contraceptives. Teachers were the main source of contraceptive information followed by health workers and parents, accounting for 51.55%, 38.31% and 27.89% of respondents respectively. Mean age at first sex was recorded at 14.73 years (SD 2.27). Choice of contraceptive use was not statistically associated with the following socio-demographic characteristics: age of the respondent at first sex, sex of respondent, educational level and religion ($p>0.05$).

Conclusion

A large proportion of adolescents had average knowledge on contraception and the condom was the most known contraceptive method among the respondents. The main sources of

information on contraceptives and sexual relationships were teachers, parents and health workers who were considered knowledgeable about such topics. Adolescents were also generally confident about discussing contraceptives with others and insisting on its use. There is the need to educate adolescents on sexual and reproductive health issues as well as family planning methods through intensive advocacy.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CDC	Centers for Disease Control and Prevention
HIV	Human Immunodeficiency Virus
LEKMA	Ledzokuku Krowor Municipal Assembly
NGOs	Non-Governmental Organizations
STIs	Sexually Transmitted Infections
UNAIDS	United Nations Programme on HIV/AIDS
WHO	World Health Organization

DEFINITION OF TERMS

Abortion: A premature termination of pregnancy by the removal or expulsion of a fetus or embryo from the uterus prior viability(Hassan, Kashanian, Hassan, Roohi, & Yousefi, 2014). That is, the loss of a pregnancy, it can be spontaneous (miscarriage) or induced.

Adolescent: A person between the ages of 10 to 19.

Teenage Pregnancy: Pregnancy in a female who is between the ages of 13 to 19.

Contraception: They are barrier methods that are used to prevent pregnancies and or the transmission of sexually transmitted Infections.

Self-efficacy: An individual's belief in his or her ability to succeed in a specific situation or accomplish a task.

CHAPTER ONE

INTRODUCTION

1.1 Background

The proportion of unmarried adolescents who are sexually experienced is a public health concern. These adolescents are at risk of unintended pregnancies and contracting Sexually Transmitted Infections (STI) during this period (Bearinger, Sieving, Ferguson, & Sharma, 2007). Adolescents who have several sexual partners are at increased risk of contracting STIs, including Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (Santelli et al., 2017).

A global study on teenage pregnancy rates across countries showed that, despite the recent decline, teenage pregnancy rates remain high in many countries with varying proportions ending up in abortions across countries.(Sedgh, Finer, Bankole, Eilers, & Singh, 2015) According to the World Health Organization (WHO), about 16 million adolescent girls globally, between the ages of 15 to 19 years have unintended pregnancies every year (WHO, 2014). The babies born to these adolescents, account for roughly 11% of the total world births (Sedgh, Henshaw, Singh, Åhman, & Shah, 2007). Of these adolescent births, 95% occur in developing countries (Sedgh et al., 2007).Although knowledge and use of contraception has been increasing globally, many adolescents still have inadequate protection against pregnancy and contraception use. This may be as a result of poor education about contraception, less access to contraceptives and the use of emergency contraception among these adolescents (Chen et al., 2007).

According to Martinez (2011), about 47% (4.6 million) of female adolescents and about 46 % (4.7 million) of male adolescents in the United States had had sex at least once. In a

similar study, 43% (4.4 million) of female adolescents and 42% (4.4 million) of male adolescents have had sex at least once between 2006 – 2010 (Martinez et al., 2011).

The average birth rate per 1000 girls aged 15–19 years in sub-Saharan Africa is 143(Bearinger et al., 2007). This rate is comparably higher than the global average rate of 65(Bearinger et al., 2007). In some sub-Saharan African countries, one in five adolescent girls give birth each year and almost all are likely to have had a child by age 20 (Bearinger et al., 2007). In a global study in sub-Saharan Africa, 30% of all unmarried adolescents have had sexual intercourse apart from Rwanda and Nigeria (Bearinger et al., 2007).

According to Ljubojevic & Lipozencic (2010), adolescents are at a greater risk of STIs because they frequently have unprotected sexual intercourse. Young people who begin to have sexual intercourse in early or middle adolescence are more likely to develop an STI than those who postpone intercourse until late adolescence or adulthood. A study conducted in the United States of America with 838 females aged 14 to 19, on the prevalence of STI's found that, out of five selected STI's (Neisseria gonorrhoeae, Chlamydia trachomatis, Trichomonas vaginalis, herpes simplex virus type 2, and human papillomavirus), prevalence was 24.1% among all females and 37.7% among sexually active females(Forhan et al., 2009). In a national survey of 24 counties in sub Saharan Africa, it was documented that, adolescents between the ages of 15-19 who were sexually active, were at a higher risk of contracting HIV and other STI's due to lack of contraceptive use and through having multiple sexual partners(Doyle et al., 2012).

With the high values in sexual activities among adolescents, governments and institutions in countries around the world put in place measures that can help reduce the risks involved in contraction of STIs and unwanted pregnancies (Westley, Kapp, Pa lermo, & Bleck, 2013). According to Kumi-kyereme et al. (2014), the government of Ghana developed an

adolescent reproductive health policy and a national HIV/AIDS and STI policy in 2000 and 2004 respectively to respond to adolescent reproductive health needs. These measures include sexual and reproductive health education and the use of contraceptives. According to the Ghana Demographic and Health Survey report (2014), these approaches have shown positive results and have helped in reducing teenage pregnancies and the transmission of sexually transmitted diseases but at a slower rate. The number of children born to a mother, decreased from 6.4 children per 1000 births in 1988 to 4.2 children per 1000 births in 2014(GDHS, 2014).

The choice of contraceptives by adolescents vary from country to country. Aside from sterilization, all other contraceptive methods are appropriate for adolescents in all parts of the world(Slater & Robinson, 2014). According to Slater (2014), the type of contraception in adolescents may depend on the frequency of sex and the type of relationship (Slater & Robinson, 2014).

Information about the preferences of contraceptives and the factors that affect decision on choice among adolescents in Ghana is limited and therefore need to be explored. This study aims to explore the knowledge and practice of contraception among adolescents and to provide insight into the views of these adolescent concerning the contraception.

1.2 Statement of the Problem

According to a report on the adolescent sexual and reproductive health in Ghana(Kumi-kyereme et al., 2014), 6.6% of all pregnancies in Ghana are by adolescents. Thirteen percent of adolescents between the ages of 15 – 19 have had a child. This can be as a result of low contraceptive use among sexually active adolescents (Kumi-kyereme et al., 2014). In the Upper East Region, studies show that the percentage of sexually active adolescents who use

contraceptives is very low (Achana et al., 2015; Boamah et al., 2014). Globally the reasons behind these low use of contraceptives are wide-spread from economic constraints, access to healthcare facilities, opposition from partners, fear of infidelity among others(Krugu, Mevissen, Prinsen, & Ruiter, 2016; Wulifan, Brenner, Jahn, & De Allegri, 2016). According to the Ghana Demographic and Health Survey report (2014), the use of contraception by adolescents 15 to 19 had increased by 17percent from the year 1989 to 2014. The increment over a 25 year period is good improvement but a slow rate. According to Yeboah (2008), who conducted a study on the disfranchisement of the Ga of Accra, it was recorded that, adolescent pregnancy was on the increase in the Ga community due to overcrowding. It is therefore necessary to investigate the contraception behavior to help curb the situation. Obtaining this information will add to literature and enhance efforts at eliminating the negative consequences of adolescent sexual activities in Ghana, as well as increase the use of contraceptives by adolescents at a greater percentage. The results will inform interventions targeted at supplying adolescents with their preferred type of contraception education and contraception methods with the goal of reducing or eradicating unintended pregnancies and STI's in general.

1.3 Justification of the Study

Governments spend a lot of money in initiating programs to eradicate adolescent and teenage pregnancies, transmission of sexually transmitted infections, family planning and other sensitive sexual and reproductive health issues. For example the government of Ghana developed an adolescent reproductive health policy and a national HIV/AIDS and STI policy in 2000 and 2004 respectively to respond to adolescent reproductive health needs (Kumi-kyereme et al., 2014). Also in the united states, the government funds family planning clinics to serve millions of women every year by providing a range of critical

preventive services and enable them to avoid unintended pregnancies(Frost, Finer, & Tapales, 2008), these measures have shown to provide some solutions to reducing the outcomes associated with adolescent sexual activities (Salam, Das, Lassi, & Bhutta, 2016). Nonetheless, some companies and Non-Governmental Organizations spend money making and improving the health systems supporting family planning services(Ali, Seuc, Rahimi, & Temmerman, 2014). Even with the present knowledge and systems put in place to curb HIV and other STIs there is still high rates of transmission in some parts of the world. Adolescents form a huge percentage of the sexually active individuals (Slater & Robinson, 2014).

It is relevant for governments and NGOs to know which contraceptives the adolescent prefer. This will inform and help make better decisions in combating teenage pregnancy and the spread of STIs. Individually the adolescent will come to know about the available contraceptive methods and why he/she prefers which contraceptive method.

In the reproductive health education for adolescents, this project will bridge the knowledge gap on adolescents' contraceptive preferences and use, and inform policy and the development of effective strategies to address the contraceptive needs of the adolescents.

1.4 Objectives

1.4.1 General objective

The main objective of this study is to determine adolescent's level of knowledge about contraceptives, as well as their preferences and reasons for the choice of contraceptives.

1.4.2 Specific objectives

1. To determine the level of knowledge of adolescents about contraceptives and the sources of information on contraception.
2. To determine the sources of influence on adolescent's choice of contraception.
3. To determine adolescents access to their preferred contraception method.
4. To determine the self-efficacy of adolescents in their contraceptive decision making.

1.4.3 Research questions

The research questions are:

1) What level of knowledge do adolescents have on contraceptives and what are their sources of information?
2) Do peers, parents, health workers, the media and the school play a role in the contraception choices of adolescents?
3) Do adolescents have access to their preferred contraception methods?
4) What is the adolescents' self-efficacy in contraceptive decision making?

1.5 Conceptual Framework

Adolescent sexual and reproductive health is a major public health concern. Risky behaviors such as engaging in unprotected sexual activities leads to unintended pregnancies and the contraction of STIs. To decrease the number of unintended pregnancies and the risk of contracting STI's, governments have put in place measures such as organizing sex education programs and introducing the use of contraceptives into adolescent societies. Even though contraceptives have been introduced to adolescents, there are several factors that go into the choice of adolescents concerning contraceptives. Such factors include parental involvement in the adolescent's sexual reproductive health issues, and the level of communication about

reproductive health(J K Krugu et al., 2016; Richards & Buyers, 2016; Salam, Faqqah, et al., 2016). An adolescent's religious belief could also influence his or her choice and use of contraception and the regularity of its use(Romo, Berenson, & Segars, 2004). Depending on how religiously committed the adolescent is, it will inform his or her use or non-use of contraception and the type of contraception used as well(Boamah et al., 2014; Macintyre, Montero Vega, & Sagbakken, 2015). The adolescent's preference on contraception will also depend on his or her belief and ability to make decisions on contraception methods available to them(Longmore et al., 2017). Adolescents are also able to make contraception choices based on knowledge acquired from health service providers, parents, peers or the media. Self-efficacy plays a role in the adolescents' contraceptive decision making(Longmore et al., 2017). The adolescent's ability to make contraceptive decision from sources such as past experiences of the adolescent in question, experiences from others or contraceptive information acquired from source.

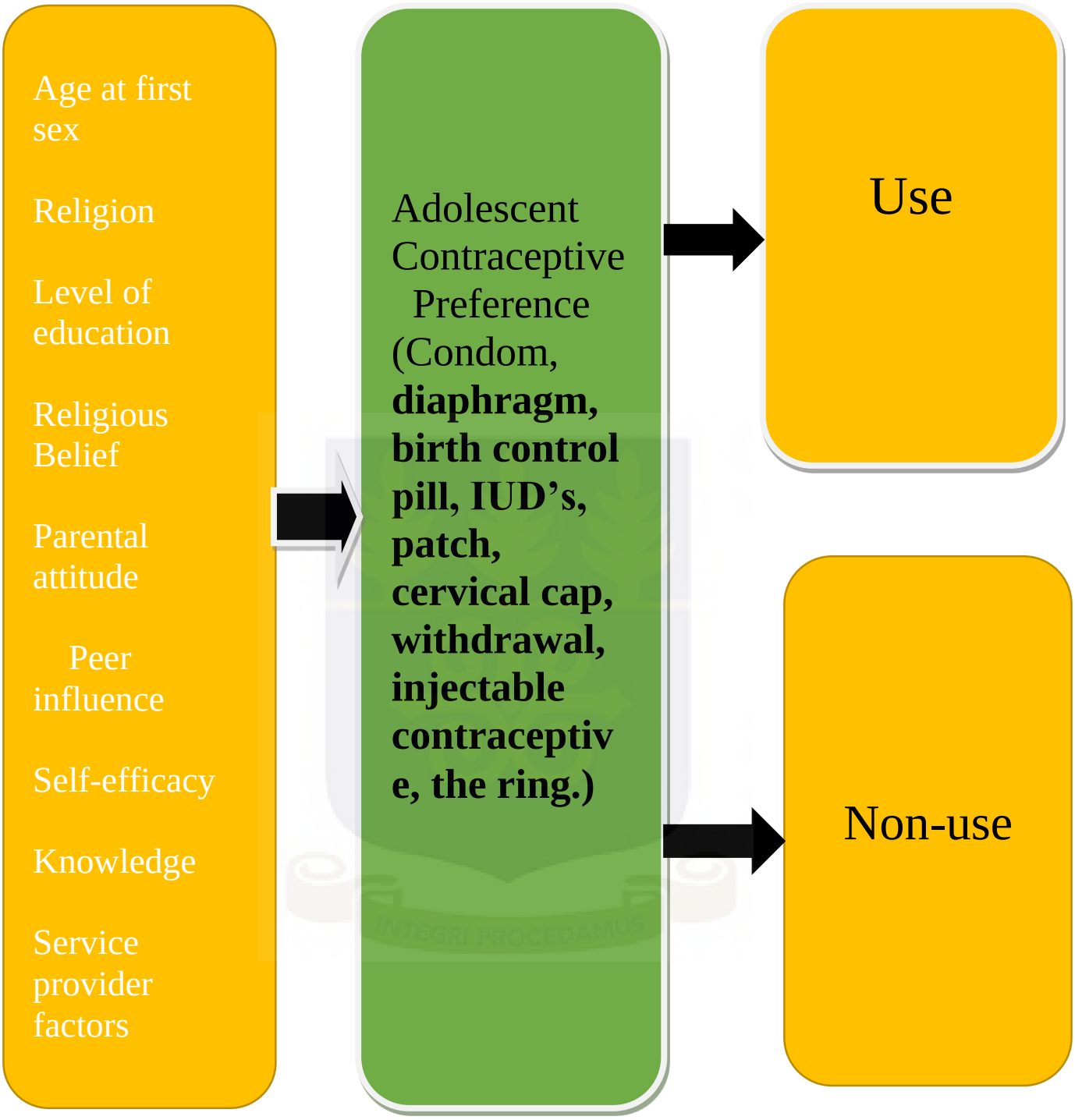

Figure 1: Contraceptive Knowledge and preferences among adolescents

Source: Author's construct

CHAPTER TWO

LITERATURE REVIEW

2.1 Adolescent sexual and contraceptive behavior

Adolescence is the transitional stage of growth between childhood and adulthood. Adolescents are both males and females who are in their adolescence. According to the World Health Organization (WHO) adolescents are people between the ages of 10 to 19 years and they make up about 20% of the world's population (WHO, 2014). At this stage there are changes and development in physical, intellectual and emotional aspects of their lives (Salam, et al., 2016). Adolescents can become violent or present aggressive behaviors, they can be involved in substance abuse, sexual activities, have low body image and decreased performance at school (Bar-On et al., 2001). Positively, adolescents can become self-aware, responsible and highly motivated to achieve their goals in life. In the course of these developments, they discover their sexuality and sexual health (Salam, et al., 2016)

The onset of child bearing at an early age, has adverse health effects on both the mother and the child(Goonewardene & Waduge, 2005). Pregnancy among adolescents is associated with increased risk for pre-term deliveries, low birth weight and neonatal mortality. It is suggested that, adolescents who conceive 2 years after menarche increase their risk of subclinical infection and prostaglandin production due to immature uterine or cervical blood supply (Chen et al., 2007).

According to the Krugu et al. (2016), globally, about 16 million adolescent girls between the ages of 15 to 19 years give birth every year. The babies born to these adolescents, account for roughly 11% of the total world births. Of these adolescent births, 95% occur in developing countries. In 2008, there was about 3 million unsafe abortions from these adolescent pregnancies (WHO 2014). Adolescents are vulnerable to poor sexual health

consequences such as high rates of STI's and unintended pregnancies. Globally, 42% of HIV infections were recorded in 2010 among people within the ages of 15-24 years(Slater & Robinson, 2014). The burden of STI's unduly affects adolescents as numerous factors interrelate to increase adolescents' risk (Slater & Robinson, 2014). A multinational retrospective study to examine the pregnancy rates and trends (births and abortions) by adolescents 10-14 and 15-19, among 21 countries, from 1995 to 2003, which had complete statistical results, it was shown that the United States of America had the highest recorded adolescent pregnancies with 57 pregnancies per 1000 females, and Mexico and sub-Saharan African countries had incomplete statistics (Sedgh et al., 2007). Adolescent abortion was highest in Sweden with 69% and lowest in Slovakia with 17%. Since the 90s however these rates have declined (Sedgh et al., 2015). Also, in the United States, nearly half of pregnancies (49%) in 2006 were unintended; these unintended pregnancies were 48% in 2001. The percentages of these pregnancies ending in abortions were 47% in 2001 and 43% in 2006 (Finer & Zolna, 2011). In South Africa 25% of all girls between the ages of 15 – 19 have been pregnant before (Hoopes, Chandra-Mouli, Steyn, Shilubane, & Pleaner, 2015).

Births to adolescents are a public health matter and due to this, the American Academy of Pediatrics recommends strongly that adolescents abstain from sexual relations until physically, emotional and financially capable of handling the consequences of sex (Blythe, & Diaz, 2007). However, some adolescents will not abstain from sexual intercourse before they are responsible enough to take care of its consequences. This is why it falls on health workers to provide the needed information for adolescents to protect themselves. Measures are put in place by countries to try and reduce the numbers of sexually transmitted diseases, unwanted pregnancies and abortions among adolescents and young adults. Some of these measures include education on sexual and reproductive health (Salam, Faqqah, et al., 2016).

This education can come from sources such as formal education courses, parents, the media and friends. Some of the issues discussed include HIV/AIDs, STIs, reproduction, pregnancy, abstinence, menstrual cycle, birth control, contraception and abortion (Ancheta, Hynes, & Shrier, 2005). According to the United Nations Programme on HIV/AIDS , few countries have managed to reduce the HIV/AIDS infection by encouraging safer sex (Bearinger et al., 2007). In 2005, most participants in a study by Ancheta and colleagues (2005), with adolescent median age of 12, said they have had reproductive health education from both their parents and from formal sources. About 80% of the participants have had this education from their parents though 94% of this education was based on the menstrual cycle. Another 26% of these girls received this education within the first year of their first coitus (Ancheta et al., 2005). Such advances in education have greatly improved contraceptive use at first intercourse, current contraceptive use and the continuous use of contraceptives (Ancheta et al., 2005).

In the United States, the Centre for Disease Control and Prevention (CDC) estimated that in 2010, 1 in 5 teen births was a repeat birth (Gavin et al., 2013). In a study in Georgia, United States, it was observed that induced abortions was more common in women who did not receive any education on contraceptive use as compared to women who received education on the use of contraceptives before they left the hospital. The researchers concluded that low education, high age and parity to the use of contraceptives carry increased risk of repeated induced abortion (Pestvenidze et al., 2016).

In Africa, over 6 million induced abortions occurred in 2008 and out of this, 2 million occurred in East Africa (Maina, Mutua, & Sidze, 2015) and 87,200 were recorded in Burkina Faso (Sedgh, Rossier, Kaboré, Bankole, & Mikulich, 2011). In KwaZulu-Natal, South Africa 17.6% of pregnant teenagers between the ages of 13-19 were having a repeat

pregnancy which was 24 months or less after their previous birth and 82.4% were having their first pregnancy (Mphatswe, Maise, & Sebitloane, 2016).

In Nigeria, sexual activity among adolescents is high. Unwanted pregnancies and illegal abortions are very common among the unmarried population. Abortion prevalence was 100% for females and 87.5% of males that have ever gotten a girl pregnant told the girls to abort the pregnancies. All the abortions were induced and done by unqualified personnel(Adedeji & Corresponding, 2011). According to the Ghana Demographic and Health Survey (2014), 11 percent of women and 5 percent of men aged between 25-49 had their first sex by age 15. The median age for men at first sexual intercourse was 19.8 years, which is higher than women (18.4 years) in the same age group. This shows that, women tend to have sex at an earlier age than men. Comparing data between the 2008 and 2014, the Ghana Demographic Health Survey showed an increase in recent sexual activity among women and men between 15-49 years from 40 percent each in 2008 to 43 and 46 percent respectively in 2014. Also, in Upper Denkyira and Offinso of the Ketu South Constituency, among 1,415 males and females between the ages of 10-19, the mean sexual-active age was 16 years. About 47% of the males and 38% of the females had had sexual intercourse before the age of 15 (Sallar, 2001).

Similarly in a study of 1,782 adolescents in Greater Accra and Eastern Regions, the mean sex-active age was 15.5 for boys and 16.2 for girls. Among these, 67% of the males had had sex compared to 78% of the females (Agyei et al, 2000).

Some policies have been put in place to help minimize adolescent unwanted pregnancies, abortions and early parenthood in Ghana as of 2001 including the 1992 Fourth Republican Constitution, 1998 Children's Act, 1999 National Youth Policy, 2000 Adolescent Reproductive Health Policy and 2001 National HIV/AIDS and STI Policy. According to a

review made by Awusabo - Asare and others titled “Adolescent Sexual and Reproductive Health in Ghana: A Synthesis of Research Evidence”, these policy have had a positive impact on adolescents as of 2004 (Awusabo-Asare, Abane, & Kumi-Kyereme, 2004).

Despite the increase in adolescent sexual and health education, 20% to 50% of adolescents who have had children turn to have another within the next two years(Barnet et al., 2009; Black et al., 2006).. In Australia, the rate of repeated child birth within the next 2 years is 33% among all adolescents who give birth in Western Australia (Lewis, Doherty, Hickey, & Skinner, 2010).

Knowledge on contraception has been available for decades and products have been on the market for over 20 years. Globally, policies support access to emergency contraception. The study also found that, marketing of emergency contraception offers valuable lessons for emerging reproductive health technologies. (Westley et al., 2013)

Absence of the use of contraceptives contributes immensely to repeated child births and repeated abortions. These conditions have economic, health and social constraints on the adolescent or the teen. It prevents the mother from going to school or keeping a job (Gavin, et al., 2013). Induced repeated abortions contribute to maternal mortality (Lamina, 2015). Abortion is one of the leading causes of maternal morbidity and mortality. In Latin America, it is the leading cause of maternal morbidity. It constitutes over 30% of all total maternal deaths while hemorrhage was the leading cause of maternal deaths in Africa (Khan, Wojdyla, Say, Gülmezoglu, & Van Look, 2006). In Kenya, investigations were done to find out why some women aged 15-44 did not have the necessary information to prevent more unwanted pregnancies and induced abortions. Being separated, using traditional methods of contraception, having no education and having an unwanted pregnancy was associated with higher risk of repeated induced abortion (Maina et al., 2015). Increase contraceptive use can

reduce unwanted pregnancies and hence reduce the number of abortions. In Nigeria, after an induced abortion, only 21.5% of women who knew about contraceptives used it for their first intercourse (Lamina, 2015). This was a first step towards avoiding unwanted pregnancies, repeated births or abortions. It is known that, acts such as continuous education on contraceptive use and visitation by community health workers are effective ways in reducing teenage pregnancies and repeated births (Maravilla et al., 2016).

The health of adolescents is greatly determined by their behavior. The adolescent sexual behavior is one of the major contributors to the adolescent's sexual/reproductive health. At different developmental stages in the life of the adolescent, they become curious about sexual behavior and contraception. This however does not imply the adolescent is ready to be sexually active (Richards & Buyers, 2016). Sexual behavior has been associated with a variety of different factors including type of neighborhood, early marriage, friends, families (parent marriage, family stability), individual's characteristics and religious beliefs(Blunch, 2011; Regnerus, 2005). Religion, age sex, and race also influence the adolescent's choice and use of contraception(Regnerus, 2005).

2.2 Factors affecting contraceptive choices of adolescents

2.2.1 Knowledge

Adolescents gain contraceptive knowledge from several sources. Such sources include, the media, peers, parents among others (Bankole, Biddlecom, Guiella, Singh, & Zulu, 2008). The primary source of information on sexual health and sexual information are parents, teachers and friends while the secondary sources are health professionals and the media including the internet (Macintyre et al., 2015). A study conducted in Nigeria found that, contraceptive knowledge was 100% among female University students who partook in the study but consistency in use was low (34.4%)(Akinsoji, Olufunmilola, Idowu, & Pius,

2015). Some adolescents gain knowledge on contraceptives as a result of using them. As they use the contraceptive, they learn more about the type being used and are able to talk to others about it (Nadeem, Romo, & Sigman, 2006). A study conducted in Ghana by Nyarko (2015) showed that female adolescent contraceptive use was significantly determined by the age of adolescent, education, work status, knowledge on ovulation cycle and visits to health facilities.

2.2.2 Religious Beliefs

Some religions accept some form of contraceptives and reject others. Religion plays a key role in guiding adolescents on issues of sexual behavior such as sexual activities, pornography and homosexuality(Regnerus, 2005). Also religion can delay first sexual intercourse for adolescents whereas the adolescent's religiosity can be reduced after first intercourse (Vasilenko & Lefkowitz, 2014). A study conducted in 2007 showed that, adolescents who became more sexually active are more likely to have decreased their attendance to religious services prior to sexual activeness (Uecker, Regnerus, & Vaaler, 2007). The information parents give their children about sex, birth control and contraception are usually based on what the parents believe or accept to be right and appropriate (Jordan, Price, & Fitzgerald, 2000; O'Sullivan, Meyer-Bahlburg, & Watkins, 2001). A study conducted in the United States also found that, women who were engaged in religious activities or went to church still use contraceptives and their religion did not have direct influence on their contraceptive use (Romo et al., 2004)

2.2.3 Family factors

The parent's view on sex education can vary from person to person. Some parents give their children sex education, others do not. However, many parents and adolescents do not talk

about important sexual topics before adolescent sexual debut (Beckett et al., 2010). It therefore falls on clinicians to give parents information on adolescent sexual behaviors (Beckett et al., 2010). In a study involving rural parents and their teenagers about sexual issues, almost all parents believe that the sexual education they give their children should be supplemented by an organization (Jordan et al., 2000). In the same study 94% of parents from rural areas had talked to their teen children about sex. Parents are very influential when it comes to adolescent contraceptive use. It was also reported that parents, especially mothers, can strongly influence their daughters by either discouraging or encouraging long active reversible contraception (LARC) use (Pritt, Norris, & Berlan, 2016)In Bangladesh where adolescent marriages are high, husbands and mother in-laws need to be involved in the adolescent's choice of contraception (Shahabuddin et al., 2016).

2.2.4 Peer influence

One of the primary sources of information on sex are from peers (Macintyre et al., 2015). Adolescents learn a great deal from their friends. Macintyre et al., (2015) report that though the parents, teachers and health workers provide information on sexual health, this information usually centers on STIs, pregnancy and menstruation. Relations, sexual acts, love, pleasure, abstinence and sexual violence are usually learned from friends(Fearon, Wiggins, Pettifor, & Hargreaves, 2015; Macintyre et al., 2015).

In sub-Saharan Africa, peers greatly influence adolescent sexual behavior (Fearon et al., 2015). Some of the influence can be abstinence from sexual activity, and choice of contraception and induced abortion. In Kenya, some adolescent boys will rather have unprotected sex than be called unmanly by their peers (Nzioka, 2001). Peers can also influence adolescents positively and 70% of adolescents in a peer counseling program said that it was very helpful having peers counsel them in making the right choice of

contraception (Wilson, Degaiffier, Ratcliffe, & Schreiber, 2016). For adolescents to select a type of contraceptive, they choose methods that worked for their peers (Melo, Peters, Teal, & Guiahi, 2015).

2.2.5 Service provider factors

Service providers are a source of information for knowledge on contraceptives acquired by adolescents(Bankole et al., 2008). Adolescents who walk into adolescent friendly corners expect to get adequate information on their preferred type of contraception(Kumi-kyereme et al., 2014). A survey also found significant variability in the providers' access to information and training on emergency contraceptives(Westley et al., 2013)The study found that, some health workers refuse to give contraceptive information. Such refusals are a grave violation of women's right to receive the full range of contraceptive information and methods, and indicate the need for additional training and sensitization for service providers(Westley et al., 2013).

2.2.6 Self-Efficacy

Adolescents may or may not be knowledgeable about contraceptives during their sexual reproductive stages. Some adolescents are able to make contraceptive decisions based on information they have acquired either from a source or from multiple sources(Bankole et al., 2008). Adolescents who accurately understand how contraceptives work and are able to describe its use, are reportedly to be associated with high levels of confidence of using contraceptives (Nadeem et al., 2006). In a study to investigate the relationship between contraceptive self-efficacy and contraceptive use, as well as the influence of demographic characteristics on contraceptive self-efficacy. The study found that, females whose mothers approved contraceptive use, reported higher contraceptive self-efficacy. The results of the

study partly supported that adolescents with higher contraceptive self-efficacy, translates into the use of contraceptives compared to adolescents with lower contraceptive self-efficacy(Longmore et al., 2017). In another study with 388 high school students, results showed that males (87%) reported lower levels of self-efficacy compared to females(Rostosky, Dekhtyar, Cupp, & Anderman, 2008).

CHAPTER THREE

METHODS

3.1 Study Design

This was a descriptive cross-sectional study that employed a quantitative approach using questionnaires.

3.2 Study Area

The study area was the Ledzokuku Krowor Municipal Assembly (LEKMA) in Accra Metropolitan area. The total land area of LEKMA is projected at 47.57510 square kilometers. The indigenous people of the Municipality are a segment of the Ga-speaking people of Ghana who fundamentally occupy the stretch from Nyanyano in the west of the Accra Metropolis to Kpone in the East of Tema along the coast of Ghana. On the south of this area is restricted by the Atlantic Ocean and on the north by Akwapin Stool Lands. The Ga-speaking people are made up of the people of Ga Mashie, Osu, La, Teshie, Nungua and Tema (Ghana Statistical Service, 2012)., the population of the municipality is 227,932 representing 5.7 percent of the region's total population. Adolescent males between the ages of 10 to 19, make up 19.1 percent of the total male population while 19.7 percent of females between the ages of 10 to 19 of the total female population. The population of the municipality is youthful depicting a broad base population pyramid which tapers off with a small number of elderly persons(Ghana Statistical Service, 2012). A study conducted by Yeboah (2008), on the disfranchisement of the Ga of Accra, recorded that, adolescent pregnancy was on the increase in the Ga community due to overcrowding.

3.3 Variables

Dependent Variable

a. Adolescent's level of knowledge on contraception

Independent Variables

a. Peer influence on adolescent's contraception choice
b. Parental influence on contraception choice of adolescents
c. Influence of the media on adolescent's contraception decision making
d. Influence of the school on the choice of contraception by adolescents
e. Role of health facilities in the adolescent contraceptive choice

3.4 Study Population

The study population was adolescent students between the ages of 15-19 years in the Ledzokuku Krowor Municipal Assembly. The study participants were students in two randomly selected senior high schools in the municipality; Nungua Senior High School and the Teshie Presbyterian Senior High School. This was done by assigning numbers to all the schools in the municipality and randomly selecting two.

The Nungua Senior High School is located at Nungua Central in the Greater Accra region of Ghana. It was founded in 1958 and was incorporated into the public school system in September 1962. Nungua Senior High School has a school population of about one thousand five hundred with an estimated fifty to sixty teaching and non-teaching staff. The school offers eight courses to its students.

The Teshie Presbyterian Senior High School is located at Teshie in the Greater Accra region of Ghana. It was established in 1981 and has a total student population of about one thousand

seven hundred with an estimated sixty teaching and non-teaching staff. It offers eight courses to its students.

3.5 Sample Size and Sampling

The sample size was calculated with 70% prevalence of adolescents who currently use contraceptives from a study done in the Greater Accra and Eastern regions of Ghana(Agyei et al, 2000). The sample size was calculated using the formula (Naing, Winn, & Rusli, 2006)

$$N = \frac{Z^2 (P)(1-P)}{d^2}$$

Where;

N = minimum sample size required

Z^2= confidence level of 95% (standard value of 1.96)

P = percentage of adolescents perceived to use contraceptives = 70% =0.7

q = proportion of adolescents not using contraceptives = 1-0.7= 0.3

d= margin of error

The sample size is calculated as;

$$N = \frac{1.96^2 (0.7)(1-0.7)}{0.05^2}$$

N =322.69 = 323

Assuming a non- response rate of about 10%, 323 x 0.1 = 32, the actual sample size is 323 + 32 = 355.

The actual sample size was distributed between the two schools based on the total population size. Nungua Senior High School had a total population size of 1,200 students at the time of the study, with 660 students in first year and 540 students in the second year. Teshie Presbyterian Senior High School had a population size of 1,220 students at the time of the

study, with 650 students in the first year and 570 students in the second year. From the sample size calculation, 176 students were selected from Nungua Senior High School and 179 students from the Teshie Presbyterian Senior High School. Samples from each school was then distributed among the two year groups. The sample distribution for Nungua Senior High School was 97 students from first year and 79 students from second year. The sample distribution for Teshie Presbyterian Senior High School was 95 students for first year and 84 students for second year.

At the time of the study, the third year students were not available because, had written their West African Examination Council examination and had completed the Senior High School Years, and therefore could not be included in the study.

The selection of respondents was done using Microsoft Excel to generate random numbers to select participants to partake in the study. The study included in-school adolescents between the ages of 15-19 in the Nungua Senior High School and the Teshie Presbyterian Senior High School. The study excluded out-of-school adolescents between the ages of 15-19 in the Nungua Senior high School and the Teshie Senior High School. Students in the various classes were numbered and students with the random numbers generated from the Microsoft Excel were selected to partake in the study.

To ensure confidentiality of the participants, students who did not qualify to partake in the study were sent to another classroom. Eligible participants were then administered with the questionnaires and then taken through the consent form and the questions on the questionnaire.

3.6 Data collection tool

Data were collected using closed-ended questionnaires. The questionnaire measured items including knowledge, contraceptive preference and factors influencing the choice of

contraceptives by adolescents. The questionnaires were administered to the participants and the researcher with the help of research assistants guided participants through the questions. The consent of the participants was sought before questionnaires were administered. Participants were asked to sign on a consent form after the study was explained to them for them to agree to participate voluntarily. The questionnaire had thirty-four items.

3.6.1 Questionnaire Items

3.6.1.1 Knowledge on contraceptives

Items on knowledge examined adolescents' level of knowledge on contraceptives. It had twelve items which included, what they knew about contraceptives, where they gained information about contraception, from whom they learnt about contraceptives among others.

3.6.1.2 Use of contraceptives

This was a seven-item scale which asked about adolescents' current use of contraceptives. The type of contraception currently being used and the frequency of use were also recorded. Frequency was measured on a 5 point likert scale. Responses were recorded as almost always, frequently, sometimes, occasionally and hardly ever.

3.6.1.3 Contraceptive preference

The questionnaire also enquired on adolescent contraceptive preference. It had two items and asked questions on adolescents' access to their preferred contraception; adolescents answered either "yes" or "no" to the question. The frequency of getting access to the preferred contraception was also recorded.

3.6.1.4 Access to preferred contraceptives

Access to preferred types of contraceptives enquired about adolescents' accessibility to their preferred contraception method given its availability and affordability as well.

3.6.1.5 Self-Efficacy

Items on self-efficacy examined how adolescents were able to confidently and comfortably discuss contraception with others and how confident they were in the use of contraception. It was a five point likert scale. Questions were rated as strongly agreed, agreed, never, disagreed and strongly disagreed. Proportion of participants' response was categorized and recorded.

3.6.1.6 Religious beliefs and contraception use

It was a three item questionnaire and asked questions such as, "Does your religion limit you to the use of contraception", "Does your religion encourage contraceptive use? and "Please specify the one(s) you are limited to.

3.6.2 Data quality control

To ensure quality of the data collection and control, research assistants were engaged and trained by the researcher. The training exercise was necessary to ensure consistency and correct interpretation of the questionnaires to respondents. Research assistants were also trained in data collection techniques as well as how to protect the privacy and confidentiality of the participants. During the data collection process, the researcher went round with the research assistants to ensure quality of work done on the field. To minimize the risk of data loss, all the data collected were double checked.

3.6.3 Pre-Test

The research tool was pre-tested at the Labone Senior High School which had similar socio-demographic characteristics as the Teshie Presbyterian Senior High School and the Nungua Senior High School with 30 adolescents between the ages of 15-19. The purpose of pre-testing the questionnaire was to ensure the questions were clear and could be understood. Also to help identify deficiencies with the tool if any, for additions or amendments. It also informed the researcher the opportunity to know the time to use in administering questionnaires.

After the pretest, attention was drawn to the fact that, final year students (year three) will not be available during the time of the study and therefore it was necessary to redistribute the sample. The various types of contraceptives was also specified for ease during answering of the questionnaires and for the purpose of analysis.

After the pretest, the questionnaire was modified to include certain sources of information on contraceptives that were previously not included in the original questionnaire developed, year three was also excluded from the year of standing.

3.6.4 Data processing and analysis

The chi-square test of independence and the Fishers exact test was used to assess the relationship between each categorical covariate and adolescent choice of contraceptive use at first sex. For continuous covariates the one way analysis of variance (ANOVA) was used to compare means among the various adolescent's choices of contraception.

In determining the effect of peers, parents and health workers on the choice of contraception, the multinomial logistic regression analysis was used.

Frequency distribution analysis was used to evaluate each Likert typed item. To assess knowledge, composite scores were generated and re-categorized as low level of knowledge (0-33%), average level of knowledge (34-66%) and high level of knowledge (67-100%).

3.7 Ethical considerations

Ethical clearance was sought from Ghana Health Service Ethical Review Committee with protocol ID number GHS-ERC 37/12/16. Permission was sought from the heads of the schools to conduct this study with their students. The rational and objectives as well as the benefits of the study was discussed with the study participants and a written consent was given to the participants before questionnaires were be administered. Consent will be sought from the school if participants are below 18 years of age. Names of respondents were not included in the questionnaire to reduce the possibility of relating information to respondents. A computer file was created with a code only known to the researcher to protect respondents' privacy and confidentiality. The research had minimal risk on the participants. Participation was fully voluntary and participants could refuse to, or discontinue from participating in the study at any time without facing any sanctions. Information gained through the study would benefit the larger society by dealing with issues of contraceptive preferences among adolescents. Furthermore, the researcher had no conflicts of interest in the study.

CHAPTER FOUR

RESULTS

4.0 Introduction to results

This chapter presents the results of the study, which includes the demographic characteristics of the respondents, respondents' knowledge on contraceptives, sources of information on contraceptives, contraceptive use by adolescents as well as their preferences.

4.1 Socio-demographic characteristics of respondents

Out of the 355 respondents, the females formed 51.41% (182) while the males were 48.59% (172). The majority of respondents were 15-16 years old, forming 51.54% (183), with 17-19 years having a percentage of 48.45 (172). The majority of respondents were Christians, accounting for 93.47% (329) of the participants, followed by 4.26% (15) who were of the Islamic religion with 2.27% (8) accounting for other religions.

Table 1: Socio-demographic characteristics of respondents

	Frequency	Percentage
Age		
15-16	183	51.54
17-19	172	48.45
Sex		
Male	172	48.59
Female	182	51.41
Religion		
Christian	329	93.47
Islam	15	4.26
Other	8	2.27
Year of study		
Year 1	193	54.37
Year 2	162	45.63
Reside		
Mother	78	21.97
Father	27	7.61
Both parents	164	46.20
Guardian	78	21.97
Alone	8	2.25
Mother's educational level		
No education	29	8.76
Primary	37	11.18
JSS/JHS	111	33.53
SSS/SHS/Vocational	116	35.05
Tertiary	38	11.48
Father's educational level		
No education	21	6.75
Primary	14	4.50
JSS/JHS	76	24.44
SSS/SHS/Vocational	95	30.55
Tertiary	105	33.76
No education	11	6.63
Primary	11	6.63
JSS/JHS	42	25.30
SSS/SHS/Vocational	54	32.53
Tertiary	48	28.92
Ethnic group		
Akan	102	29.06
Ga dangme	159	45.30
Ewe	64	18.23
Guan	5	1.42
Mole-dagbani	14	3.99
Other	7	1.99

Of the 355 adolescents, 46.20% (164) live with both parents while 21.97% (78) live with a guardian, the same proportion (21.97) accounts for respondents living with their mothers.

Respondents in Year one were made up of 54.37% (193) while those in Year two were 45.63% (162).

4.2 Knowledge on contraceptives

A large proportion of the respondents, 90.99% (323) had average knowledge on contraceptives, out of the 355. Low level of knowledge about contraceptives was recorded for 4.79% (17) and the proportion of adolescents with high level of knowledge was 4.23% (15).

Among the respondents, the condom was reported to be the most common forms of contraceptives known to the adolescents, 87.89% (312), the birth control pill was also recorded at 35.49% (126),injectable contraceptive 15.77% (56), withdrawal 12.11% (43), the cervical cap 5.35% (19) with the least common method known to be the diaphragm 4.51% (16).

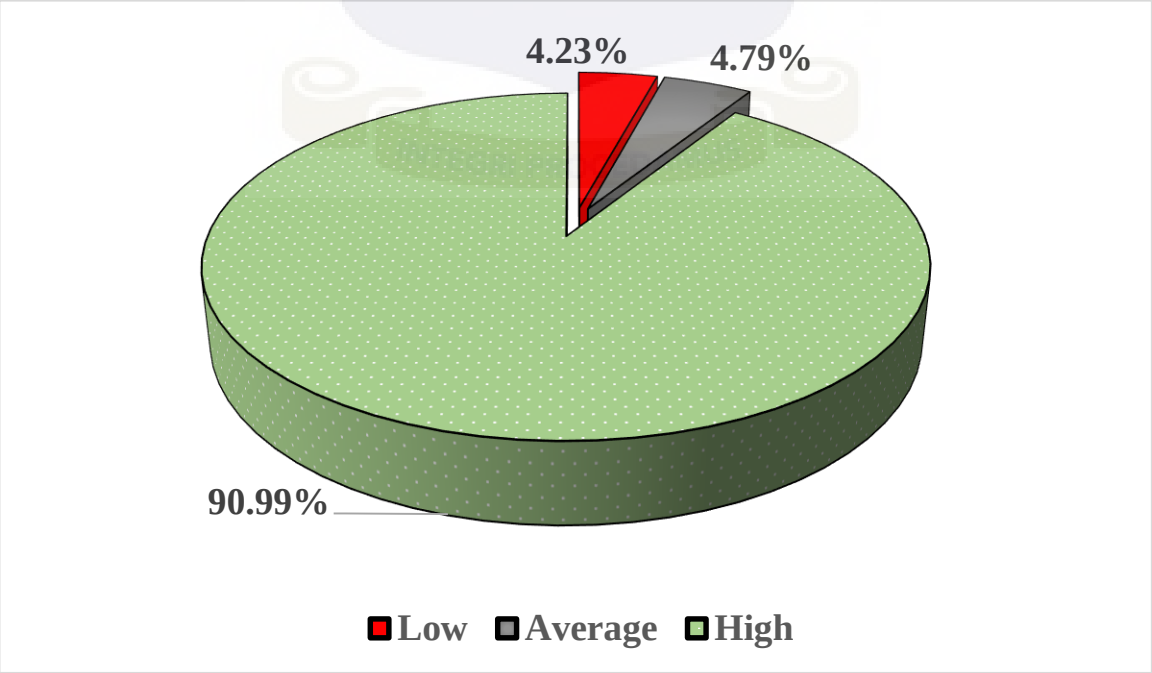

Figure 2: Percentage distribution of adolescent's level of knowledge on contraceptives

4.3 Sources of contraceptive knowledge and information

The majority of respondents, 51.55% (183) reported having gained knowledge on contraception through teachers, 38.31% (136) reported having received knowledge from health workers, 27.89% (99) from parents, 19.72% (70) from peers and 3.66% (13) from siblings. The majority of respondents, 38.87% (138) reported their information on contraceptive use came from the school, and the least proportion being from peers accounting for 11.55% (41) of the respondents. The majority of respondents, 40.28% (143) learn or ask about sexual relationships from parents and the least proportion 6.48% (23) learning about sexual relationships from siblings.

Table 2: Respondents sources of contraceptive knowledge and information

	Frequency	Percentage
Source of knowledge gain on contraceptives		
Health workers (Yes)	136	38.31
Peers(Yes)	70	19.72
Teachers(Yes)	183	51.55
Parents(Yes)	99	27.89
Siblings (Yes)	13	3.66
Source of information on contraceptive use		
Health facilities(Yes)	125	35.21
Home(Yes)	66	18.59
Media(Yes)	117	32.96
Peers(Yes)	41	11.55
School(Yes)	138	38.87
Source of information on sexual relationships		
Peers(Yes)	113	31.83
Parents(Yes)	143	40.28
Teachers(Yes)	132	37.18
Siblings(Yes)	23	6.48
Health facilities(Yes)	67	18.87

4.4 Adolescent contraceptive use

The mean age at first sex was recorded at 14.73 years (SD 2.27) accounting for 18.03% (64) of the respondents. Of the 64 adolescents who had ever had sex, 51.56% (33) reported not using any form of contraceptive during their first sexual intercourse with the remaining 48.44% (31) using some form of contraception during their first sex. The majority of the respondents, 76.32% (29), who used contraceptive during first sex opted for the condoms with the least 2.63% (1), using the diaphragm. Current contraceptive users among the respondents were 13.77% (34) with condoms being the method currently being used at a rate of 74.14% (43), with the intrauterine contraceptive being the least used at 1.72% (1).

Table 3: Contraceptive use of respondents

	Males	Females	Frequency	Percentage
Age at first sex (mean± SD)			N= 64 14.73 ± 2.27	18.03
Use of contraception at first sex			N= 64	
Yes	20	11	31	48.44
No	23	10	33	51.56
Contraception method used at first sex			N=38	
Condoms	19	10	29	76.32
Birth control pill	3	1	4	10.53
Diaphragm	0	1	1	2.63
Withdrawal	2	2	4	10.53
Currently using contraceptives			N= 247	
Yes	25	9	34	13.77
No	98	114	213	86.23
Type of contraception currently being used			N= 58	
Condoms	33	10	43	74.14
Birth control pill	2	3	5	8.62
Diaphragm	0	2	2	3.45
Withdrawal	4	1	5	8.62
Injectable contraceptive	1	1	2	3.45
Intrauterine contraceptive	0	1	1	1.72
Frequency of contraception use			N= 123	
Almost always	2	1	3	2.44
Frequently	8	2	10	8.13
Sometimes	14	11	25	20.33
Occasionally	11	6	17	13.82
Hardly ever	38	29	68	55.28

4.5 Access to preferred contraceptive

The majority of respondents 77.78% (152) reported not having access to their preferred type of contraception in terms of accessibility with the remaining 22.22% (44) having access. Many of respondents 56.39% (75) rated often access to contraceptives as hardly ever, followed by sometimes at a rate of 21.05% (28), occasionally at 9.02% (12), frequently at 8.27% (11) with the least rate 5.26% (7) reporting for almost always access to contraceptives.

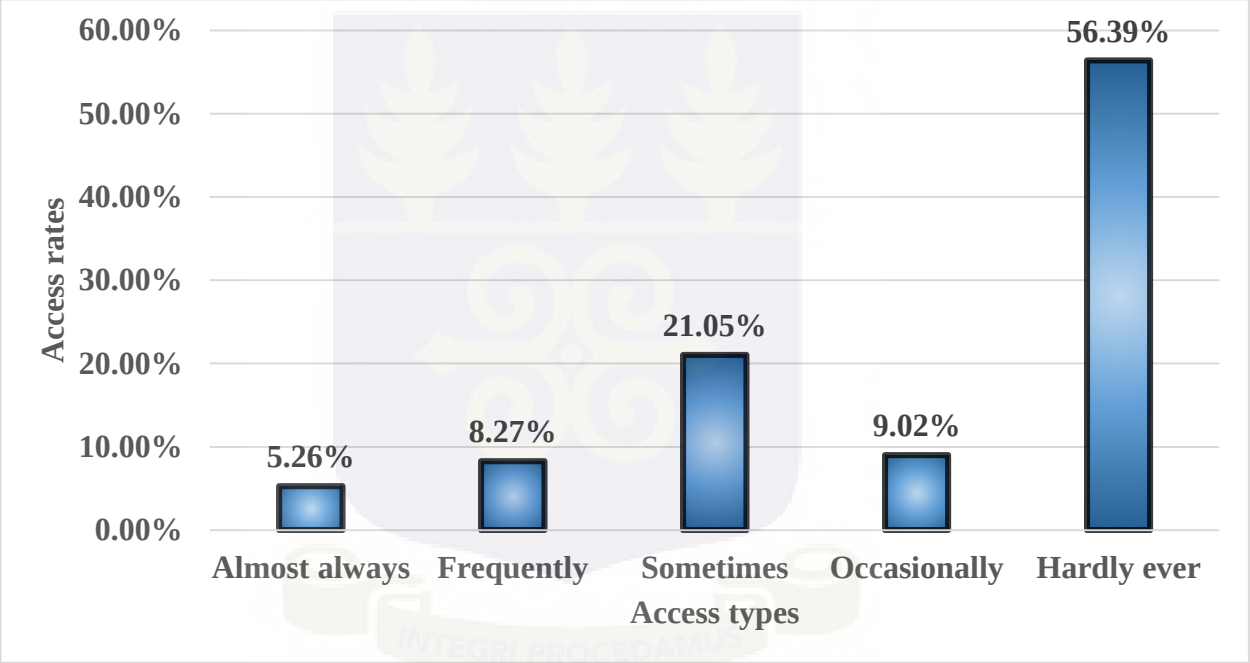

Figure 3: Percentage rate of adolescents' access to preferred contraceptives

4.6 Self-efficacy of adolescents

Out of the 303 respondents, the majority, 68.98% (209) agreed that they could confidently discuss contraceptives with others with females having the highest recorded percentage of 50.72%. Respondents were asked if they could confidently stick to the use of contraceptives to prevent unintended pregnancies, and the majority, 60.50% (170) agreed, with males having the highest proportion (58.82%). The majority of respondents, 53.96% (143), agreed

that, they could confidently insist on the use of contraceptives even if partner does not want to use it, with males recording 55.24% and 44.76% for females.

Table 4: Self-efficacy of respondents

	Males	Females	Frequency	Percentage
Confidence to discuss contraceptives with others			N= 303	
Agree	103	106	209	68.98
Never	13	24	37	12.21
Disagree	30	26	56	18.48
Confidence to stick to the use of contraceptives to prevent unintended pregnancies and STI's			N= 281	
Agree	100	70	170	60.50
Never	14	27	41	14.59
Disagree	31	38	69	24.56
Confident to insist on the use of contraceptives even if partner does not want to use it.			N= 265	
Agree	79	63	143	53.96
Never	15	22	37	13.96
Disagree	46	39	85	32.08

4.7 Religious beliefs and contraceptive use

When participants were asked if their religion encouraged the use of contraceptives by adolescents, 69.20% (200) out of 289 who answered said their religion did not encourage the use of contraceptives by adolescents with the remaining 30.80% (89) agreed their religion encouraged its use by adolescents. The majority of the respondents, 69.84% (176) said their religion does not limit them to the use of contraceptives while the remaining 30.16% (76) reported their religion limits them to its use. A large number of participants

who were limited, 75% (45), reported being limited to the condoms, with the least number 1.67% (1) being limited to the diaphragm and intrauterine contraceptives.

Table 5: Religious beliefs and adolescent contraceptive use

Encouragement of contraceptive use by religion	N= 289	
Yes	89	30.80
No	200	69.20
Limited use of contraceptives by religion	N= 252	
Yes	76	30.16
No	176	69.84
Specification of limitation	N= 60	
Condoms	45	75.00
Birth control pill	8	13.33
Diaphragm	1	1.67
Withdrawal	5	8.33
Intrauterine contraceptive	1	1.67

4.8 Association between the choice of contraceptive at first sex and sociodemographic characteristics and source of information

Choice of contraceptive use was not statistically associated with the following socio-demographic characteristics: age of the respondent at first sex, sex of respondent, educational level and religion ($p>0.05$). The role of health workers, the home, media, peers and the school was also not statistically associated with contraceptive use at first sex ($p>0.05$).

Table 6: Bivariate analysis of association between the choice of contraceptive at first sex and sociodemographic characteristics and source of information

Variables	Other	Condom	P-value
Age at first sex (±SD)	14.44(±2.79)	15.14(±2.15)	0.506
Religion			
Christian	8(22.86)	27(77.14)	
Islam	0(0.00)	1(100.00)	0.567
Other	1(50.00)	1(50.00)	
Sex			
Male	5(20.83)	9(79.17)	
Female	4(28.57)	10(71.43)	0.699
Level of education			
First year	5(29.41)	12(70.59)	
Second year	4(19.05)	17(80.95)	0.703
Information source			
Health facilities	4(30.77)	9(69.23)	
Home	1(33.33)	2(66.67)	
Media	5(26.32)	14(73.68)	0.163
Peers	1(16.67)	5(83.33)	
School	6(42.86)	8(57.14)	

P-values in parentheses; $p<0.05$, $p<0.01$, $p<0.001$ values were based on Fishers exact test for categorical variables, and t-test for comparing the mean ages among condoms and other contraceptive users. SD: Standard Deviation of age. (%) represent row percentage, ǂ estimated p-value from the Welch t-test, § p-value estimate from Fisher's exact test.

CHAPTER FIVE

DISCUSSION

This chapter discusses the key findings of the study. The study sought to investigate adolescent's level of knowledge level, preferences and to find out the role of peers, parents, health workers and religious beliefs in the adolescent's choice of contraception.

Results from the study showed that, the majority of the respondents had knowledge about contraceptives but the level of knowledge was average among the adolescents. Knowledge on contraceptives came from health workers, peers, teachers, parents and siblings. Information on use also came from health facilities, the home, media, peers and the school. Parents, teachers, peers, siblings and health facilities were also sources where adolescents learn about sexual relationships.

5.1 Level of knowledge on contraceptives

The results of the study showed that 90.99% of respondents had average knowledge on contraceptives even though the Ghana Demographic and Health Survey reports for 2014 recorded high level of awareness at 96.5% for all women between the ages of 15-19 years . In a study conducted by Elvis, Corresponding, & Buxton (2012), low level of knowledge of in-school adolescents was attributed to the fact that, adolescents taught contraceptives was meant for adult married people, this could have contributed to its low use as seen from the results of the study. In a similar study conducted in Nigeria with adolescents using focus group discussions to determine what they knew about abortions and contraception, most participants perceived the effects of contraception on fertility to be prolonged and continuous while they viewed abortion to be an immediate solution to unintended pregnancy(Otoide et al., 2001). This is also an indication of low level of knowledge among adolescents. In a study examining the association between contraceptive use and knowledge

among adolescents, greater knowledge was associated with often use of contraception method(Ryan et al., 2007).

In terms of the commonest forms of contraceptives known to adolescents, the results from the study showed that, condoms were the commonest form of contraceptive known to the adolescents, and this is similar to results from Boamah et al. (2014), who found that, knowledge of male condoms were highest (84%) among adolescents aged 19 years in the Kintampo area of Ghana.

5.2 Sources of contraceptive knowledge and information

The results of the study found that, the most common sources of information about contraceptives among adolescents were teachers, health workers and parents, this was in agreement with a study conducted by Ancheta et al., (2005), which concluded that, adolescents received reproductive health education from both parental and formal sources, parents discussed the menstrual cycle more frequently while the formal sources (teachers and health workers) focused more on teachings about Sexually Transmitted Diseases. This was also confirmed in a study by Kumi-Kyereme et al. (2014), on adolescent sexual reproductive health, where researchers pointed out that, teachers and health workers were held in high esteem because they were considered knowledgeable about family planning methods. In a similar study conducted in Nigeria, the main sources of sexual information came from parents and siblings (Akinsoji et al., 2015). The results from the studies show that, adolescents prefer to inquire about sexual and contraceptive knowledge from people they trust and can confide in, thus, parents, siblings, teachers and health workers (Miller et al., 2001). Results from the study also indicated the media was a source of information on contraceptive use by adolescents but not a major source which is similar to a study conducted by Teal & Romer (2013). This is in direct contrast with the GDHS 2014 report,

where the majority of respondents mentioned the television and radio as their major source of information. In another study, 75% of parents reported having discussed relationship, protection and contraception with their adolescents. The results of the study indicate that, adolescents are more likely to discuss sexuality with parents when they become sexually active. (de Looze, Constantine, Jerman, Vermeulen-Smit, & ter Bogt, 2015). Similarly, a South African study on parent-adolescent communication on sexual topics showed that, the level of parent-adolescent communication was found to be low but adolescents reported communication being helpful when it took place (Coetzee et al., 2014).

5.3 Adolescent contraceptive use

According to the results from the study, condoms were the most used method of contraception by adolescents, males (65.52%) reported using condoms more often compared to females (34.48%). Followed by the contraceptive pill, which 75% of females reported using, and 50% of both males and females reported using the withdrawal method. This is in agreement with a study conducted by Whitaker et al. (2008), where most adolescent females relied on condoms and the oral contraceptive pill as their most effective method of contraception. For example, a study conducted on the use of contraceptives among adolescents in Kintampo found that, an estimated 22% of adolescents consistently used contraceptives. This was associated with prior discussion about contraceptive use with partner before sexual initiation (Boamah et al., 2014).

Another study conducted to examine the prevalence of STI's among pregnant adolescent girls in Tanzania found that, herpes Simplex Virus- Type 2 was most prevalent followed by trichomoniasis, chlamydia, gonorrhea, syphilis and HIV (Plummer et al., 2007). This could be as a result of low use of contraceptives to prevent STI's among pregnant adolescent females.

However, according to the GDHS 2014, the use of contraceptives had quadrupled over the past 25 years, from 5 % in 1988 to 22 % in 2014. According to de Looze et al. (2015), parents initiate sexual communication with their adolescents on protection and contraception after adolescent sexual initiation. The studies show that, overall use of contraceptives is low among adolescents.

5.4 Access to contraceptive preference

The results of the study shows that, 22.22% of adolescents have access to their preferred type of contraception. This is a low rate, and due to the decreasing age at menarche and the early onset of sexual behavior, adolescents are exposed to unprotected and unplanned sexual intercourse. This leads to unwanted pregnancies especially in sub-Saharan Africa, where there are high rates of adolescents' unmet need for contraception leading to lower rates of contraceptive use (Elvis, Corresponding, & Buxton, 2012). Another study revealed that, adolescents are aware of where to acquire contraceptives and STI treatments, but they are unable to take full advantage as a result of barriers such as feeling shy, being unable to afford the contraceptive, lack of privacy and inconvenient business hours (Awusabo-Asare et al., 2004), which contributes to the non-use of contraceptives by adolescents leading to increased rates of teenage pregnancy and STI's. These factors may also account for high rates of adolescents' unmet need for contraception resulting in its low use. The high rates of unmet need for contraception by adolescents may also be a contributory factor to the high percentage of adolescents who hardly ever get access to their preferred types of contraception.

5.5 Self-efficacy of adolescents

Generally, self-efficacy of adolescents was high as the majority of respondents agreed they could confidently discuss contraceptives with others but females were more confident in that regard. The majority also strongly agred they could confidently stick to the use of contraceptives and confidently insist on its use even when partner does not want to use it, which according to the study, males were more confident. According to Ryan et al. (2007), whose study was on knowledge, perception and motivation for contraception among adolescents, the results showed that, high contraceptive self efficacy was associated with increased and consistent use of contraceptives. Abousselam, Naudé, Lens, & Esterhuyse (2016), also identified self-efficacy as protecting adolescents from engaging in risky sexual behaviours. In another qualitative study of adolescents learning about sexual health and sexuality, researchers noted the importance of developing self-efficacy skills towards contraceptive use and partner communication to improve adolescent sexual decision making (Macintyre et al., 2015). From the litrature, improving adolescents self-efficacy on contraceptive use and communication will help improve adolescents sexual and reproductive health outcomes.

5.6 Religious beliefs and contraceptive use

Religion did not encourage the use of contraceptives by adolescents for the majority of respondents according to the results of the study. For example, in a study about religion and parent-child sexual and contraceptive communication, parents were uncomfortable to talk about such topics and when they did, results suggested that, it was often geared towards morality (Regnerus, 2005). This could be a result of religion not encouraging communication about sexual and reproductive health issues with adolescents. In a similar study, religious values forbid premarital intercourse and premarital childbearing, it also

documented high abortion rates among female Catholics which includes adolescents with poor religious service attendance compared to those who attended religious services often (Plontnick, 2016). In another study, religion only encouraged sex within marriage and for procreation purposes (Coovadia, Jewkes, Barron, Sanders, & McIntyre, 2009). This is an indication that religion does not encourage premarital sex leading to the non-acceptance of contraceptive use by adolescents. The literature suggests that, religion has a great influence when it comes to adolescent contraceptive use and communication. Most religions limit the use of contraceptives to married people which in most cases exclude adolescents 15-19 years (Coovadia et al., 2009).

5.7 Contraceptive choice at first sex, sociodemographic characteristics and source of information

Choice of contraceptives was not statistically associated with the following socio-demographic characteristics: age of the respondent at first sex, sex of respondent, educational level and religion. The role of health workers, the home, media, peers and the school was also not statistically associated with contraceptive use at first sex. Although adolescents sought for contractive knowledge and information on sexual relationships from these sources as well as sociodemographic characteristics, their decision on contraceptive choice was not significantly associated with the sources of information, knowledge and sociodemographic characteristics. The findings of the study is in contrast with a similar study which found significant association between age of adolescents and choice of contraception (North Clarke et al., 2016) and also parents were significant when it came to adolescent contraceptive choice (Chacko et al., 2016). Another study that is in contrast with the findings of the study, found significant association between adolescent contraceptive

choice and factors such as peers, health workers, parental as well as religious influences (Challa et al., 2017; Teal & Romer, 2013).

5.8 Limitations of the study

The absence of the third year students due to completion of the required academic school years, was a limitation because, responses could not be captured for all the three year groups of the senior high schools. While the sensitive nature of the study could have limited respondents from providing certain information they consider to be intimate, this was probably addressed by reassuring the participants that their responses would not be traced to them but will only be used for academic purposes. This assurance might have encouraged the majority of the respondents to provide answers that actually reflected their sexual and reproductive health behavior.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The study showed that, a large proportion of adolescents had average knowledge on contraception and the condom was the most known contraceptive method. The main sources of information on contraceptives were teachers, parents and health workers. Adolescents mostly used condoms, birth control pills and withdrawal methods as means of contraception. Low access to contraceptives were due to barriers such as feeling shy, being unable to afford the contraceptive, lack of privacy and inconvenient business hours.

Adolescents were confident about discussing contraceptives with others and insisting on its use. Most of the respondents' religion did not encourage the use of contraceptives. Choice of contraception was not statistically associated with sociodemographic characteristics and the various sources of contraception information.

6.2 Recommendation

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

1. Intensive advocacy and dissemination of information on adolescent sexual and reproductive health should be provided by adolescent reproductive healthcare providers.
2. Education on family planning methods should be encouraged among adolescents by teachers, parents and health workers since they were the main sources of information on contraceptives according to results from the study.
3. Sexually active adolescents should be encouraged to use contraceptives.

REFERENCES

Abousselam, N., Naudé, L., Lens, W., & Esterhuyse, K. (2016). The relationship between future time perspective, self-efficacy and risky sexual behaviour in the Black youth of central South Africa. *Journal of Mental Health*, *25*(2), 176–183. http://doi.org/10.3109/09638237.2015.1078884

Achana, F. S., Bawah, A. A., Jackson, E. F., Welaga, P., Awine, T., Asuo-Mante, E., … Phillips, J. F. (2015). Spatial and socio-demographic determinants of contraceptive use in the Upper East region of Ghana. *Reproductive Health*, *12*, 29. http://doi.org/10.1186/s12978-015-0017-8.

Adedeji, S., & Corresponding, A. (2011). Teenage Pregnancy and Prevalence of Abortion among In-school Adolescents in North Central , Nigeria. *Journal of Social Sciene*, *7*(1), 122–127. http://doi.org/: 10.5539/ass.v7n1p122 · Source: DOAJ

Agyei, W.K.A., et al. (2000). Sexual behaviour and contraception among unmarried adolescents and young adults in Greater Accra and Eastern regions of Ghana. *Journal of Biosocial Science*, *32*(4), 495–512. Retrieved from http://serials.unibo.it/cgi-ser/start/it/spogli/df-s.tcl?prog_art=7670916&language=ITALIANO&view=articoli

Akinsoji, A. A., Olufunmilola, A.-A. O., Idowu, A. A., & Pius, A.-O. I. (2015). Sexual and Contraceptive Practices among Female Undergraduates in a Nigerian Tertiary Institution. *Ethiopian Journal of Health Sciences*, *25*(3), 209–16. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/26633923.

Ali, M., Seuc, A., Rahimi, A., & Temmerman, M. (2014). A global research agenda for family planning : results of an exercise for setting research priorities. *Journal of Public Health*, (August 2013), 93–98. Retrieved from http://dx.doi.org/10.2471/BLT.13.122242.

American Academy of Pediatrics Committee on Adolescence, B., Blythe, M. J., & Diaz, A. (2007). Contraception and adolescents. *Journal of Pediatrics*, *120*(5), 1135–48. http://doi.org/10.1542/peds.2007-2535.

Ancheta, R., Hynes, C., & Shrier, L. A. (2005). Reproductive Health Education and Sexual Risk Among High-Risk Female Adolescents and Young Adults. *Journal of Pediatric and Adolescent Gynecology*, *18*(2), 105–111. http://doi.org/10.1016/j.jpag.2005.01.005.

Awusabo-Asare, K., Abane, A. M., & Kumi-Kyereme, A. (2004). Adolescent Sexual and Reproductive Health in Ghana: A Synthesis of Research Evidence. *Journal of Adolescent Health*. http://doi.org/0-939253-69-0.

Bankole, A., Biddlecom, A., Guiella, G., Singh, S., & Zulu, E. (2008). Sexual Behavior, Knowledge and Information Sources of Very Young Adolescents in Four Sub-Saharan African Countries. *African Journal of Reproductive Health*, *11*(3), 28–43. http://doi.org/10.2307/25549730.

Barnet, B., Liu, J., DeVoe, M., Duggan, A. K., Gold, M. A., & Pecukonis, E. (2009). Motivational intervention to reduce rapid subsequent births to adolescent mothers: a community-based randomized trial. *Journal of Family Medicine*, *7*(5), 436–45. http://doi.org/10.1370/afm.1014.

Bar-On, M. E., Broughton, D. D., Buttross, S., Corrigan, S., Gedissman, A., González De Rivas, M. R., … Stone, J. (2001). Children, Adolescents, and Television. *Journal of Pediatric Health Care*, *107*(2), 423–426. http://doi.org/10.1542/peds.107.2.423.

Bearinger, L. H., Sieving, R. E., Ferguson, J., & Sharma, V. (2007). Global perspectives on the sexual and reproductive health of adolescents: patterns, prevention, and potential. *The Lancet*, *369*(9568), 1220–1231. http://doi.org/10.1016/S0140-6736(07)60367-5.

Beckett, M. K., Elliott, M. N., Martino, S., Kanouse, D. E., Corona, R., Klein, D. J., & Schuster, M. a. (2010). Timing of parent and child communication about sexuality relative to children's sexual behaviors. *Journal of Pediatrics*, *125*(1), 34–42. http://doi.org/10.1542/peds.2009-0806.

Black, M. M., Bentley, M. E., Papas, M. A., Oberlander, S., Teti, L. O., McNary, S., … O'Connell, M. (2006). Delaying second births among adolescent mothers: a randomized, controlled trial of a home-based mentoring program. *Journal of Pediatrics*, *118*(4), e1087–99. http://doi.org/10.1542/peds.2005-2318.

Blunch, N. (2011). Skills , Schooling and Non-Marital Teenage Pregnancy in Ghana †, 1–22.

Boamah, E. A., Asante, K. P., Mahama, E., Manu, G., Ayipah, E., Adeniji, E., & Owusu-Agyei, S. (2014). Use of contraceptives among adolescents in Kintampo, Ghana: a cross-sectional study. *Open Access Journal of Contraception*, *Volume 5*, 7. http://doi.org/10.2147/OAJC.S56485.

Chacko, M. R., Wiemann, C. M., Buzi, R. S., Kozinetz, C. A., Peskin, M., & Smith, P. B. (2016). Choice of Postpartum Contraception: Factors Predisposing Pregnant Adolescents to Choose Less Effective Methods Over Long-Acting Reversible Contraception. *Journal of Adolescent Health*, *58*(6), 628–635. http://doi.org/10.1016/j.jadohealth.2015.12.002.

Challa, S., Manu, A., Morhe, E., Dalton, V. K., Loll, D., Dozier, J., … Hall, K. S. (2017). Multiple levels of social influence on adolescent sexual and reproductive health decision-making and behaviors in Ghana. *Women & Health*, 1–17. http://doi.org/10.1080/03630242.2017.1306607.

Chen, X. K., Wen, S. W., Fleming, N., Demissie, K., Rhoads, G. G., & Walker, M. (2007). Teenage pregnancy and adverse birth outcomes: a large population based retrospective cohort study. *Int.J Epidemiol*, *36*(2), 368–373. http://doi.org/10.1093/ije/dyl284.

Coetzee, J., Dietrich, J., Otwombe, K., Nkala, B., Khunwane, M., van der Watt, M., … Gray, G. E. (2014). Predictors of parent-adolescent communication in post-apartheid

South Africa: A protective factor in adolescent sexual and reproductive health. *Journal of Adolescence*, *37*(3), 313–324. http://doi.org/10.1016/j.adolescence.2014.01.006.

Coovadia, H., Jewkes, R., Barron, P., Sanders, D., & McIntyre, D. (2009). The health and health system of South Africa: historical roots of current public health challenges. *The Lancet*, *374*(9692), 817–834. http://doi.org/10.1016/S0140-6736(09)60951-X.

de Looze, M., Constantine, N. A., Jerman, P., Vermeulen-Smit, E., & ter Bogt, T. (2015). Parent–Adolescent Sexual Communication and Its Association With Adolescent Sexual Behaviors: A Nationally Representative Analysis in the Netherlands. *The Journal of Sex Research*, *52*(3), 257–268. http://doi.org/10.1080/00224499.2013.858307.

Doyle, A. M., Mavedzenge, S. N., Plummer, M. L., & Ross, D. A. (2012). The sexual behaviour of adolescents in sub-Saharan Africa: Patterns and trends from national surveys. *Journal of Tropical Medicine and International Health*, *17*(7), 796–807. http://doi.org/10.1111/j.1365-3156.2012.03005.x.

Elvis, J., Corresponding, H., & Buxton, C. (2012). Contraceptive Knowledge , Perceptions and Use among Adolescents in Selected Senior High Schools in the Central Region of Ghana. *Journal of Sociological Research*, *3*(2), 170–180. http://doi.org/10.5296/jsr.v3i2.2311.

Fearon, E., Wiggins, R. D., Pettifor, A. E., & Hargreaves, J. R. (2015). Is the sexual behaviour of young people in sub-Saharan Africa influenced by their peers? A systematic review. *Journal of Social Science & Medicine*, *146*, 62–74. http://doi.org/10.1016/j.socscimed.2015.09.039.

Finer, L. B., & Zolna, M. R. (2011). Unintended pregnancy in the United States: incidence and disparities, 2006. *Journal of Contraception*, *84*(5), 478–485. http://doi.org/10.1016/j.contraception.2011.07.013.

Forhan, S. E., Gottlieb, S. L., Sternberg, M. R., Xu, F., Datta, S. D., McQuillan, G. M., … Markowitz, L. E. (2009). Prevalence of sexually transmitted infections among female adolescents aged 14 to 19 in the United States. *Journal of Pediatrics*, *124*(6), 1505–12. http://doi.org/10.1542/peds.2009-0674.

Frost, J. J., Finer, L. B., & Tapales, A. (2008). The Impact of Publicly Funded Family Planning Clinic Services on Unintended Pregnancies and Govermnment Cost Savings. *Journal of Health Care for the Poor and Underserved*, *19*(212), 778–796. http://doi.org/10.1353/hpu.0.0060.

Ghana Statistical Service. (2012). 2010 Population and Housing Census. *Ghana Statistical Service*, 1–117. http://doi.org/10.1371/journal.pone.0104053.

Goonewardene, I. M. R., & Waduge, R. P. K. D. (2005). Adverse effects of teenage pregnancy. *The Ceylon Medical Journal*, *2*(October 2004), 10–12. Retrieved from www.ncbi.nih.gov/pubmed/16252576.

Hassan, M., Kashanian, M., Hassan, M., Roohi, M., & Yousefi, H. (2014). Maternal outcomes of intimate partner violence during pregnancy: Study in Iran. *Journal of Public Health*, *128*(5), 410–415. http://doi.org/10.1016/j.puhe.2013.11.007.

Hoopes, A. J., Chandra-Mouli, V., Steyn, P., Shilubane, T., & Pleaner, M. (2015). An Analysis of Adolescent Content in South Africa's Contraception Policy Using a Human Rights Framework. *Journal of Adolescent Health*, *57*(6), 617–623. http://doi.org/10.1016/j.jadohealth.2015.08.012.

Jordan, T. R., Price, J. H., & Fitzgerald, S. (2000). Rural parents' communication with their teen-agers about sexual issues. *The Journal of School Health*, *70*(8), 338–44. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11044966.

Khan, K. S., Wojdyla, D., Say, L., Gülmezoglu, A. M., & Van Look, P. F. (2006). WHO analysis of causes of maternal death: a systematic review. *The Lancet*, *367*(9516), 1066–1074. http://doi.org/10.1016/S0140-6736(06)68397-9.

Krugu, J. K., Mevissen, F. E. F., Prinsen, A., & Ruiter, R. A. C. (2016). Who's that girl? A qualitative analysis of adolescent girls' views on factors associated with teenage pregnancies in Bolgatanga, Ghana. *Journal of Reproductive Health*, *13*, 39. http://doi.org/10.1186/s12978-016-0161-9.

Krugu, J. K., Mevissen, F., Münkel, M., & Ruiter, R. (2016). Beyond love: a qualitative analysis of factors associated with teenage pregnancy among young women with pregnancy experience in Bolgatanga, Ghana. *Journal of Culture, Health & Sexuality*, 1–15. http://doi.org/10.1080/13691058.2016.1216167.

Kumi-kyereme, A., Awusabo-asare, K., Kofuor, E., & Darteh, M. (2014). Attitudes of Gatekeepers Towards Reproductive Health in Ghana Adolescent Sexual and. *African Journal of Reproductive Health*, *18*(September), 142–153. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/25438519.

L. Gavin, L., Warner, M.E., O'Neil, et al. (2013). Vital Signs: Repeat Births Among Teens — United States, 2007–2010. Retrieved October 16, 2016, from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6213a4.htm.

Lamina, M. A. (2015). Prevalence of Abortion and Contraceptive Practice among Women Seeking Repeat Induced Abortion in Western Nigeria. *Journal of Pregnancy*, *2015*, 486203. http://doi.org/10.1155/2015/486203.

Lewis, L. N., Doherty, D. A., Hickey, M., & Skinner, S. R. (2010). Predictors of sexual intercourse and rapid-repeat pregnancy among teenage mothers: an Australian prospective longitudinal study. *The Medical Journal of Australia*, *193*(6), 338–42. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20854238.

Ljubojevic, S., & Lipozencic, J. (2010). Sexually transmitted infections and adolescence. *Acta Dermatovenerologica Croatica*, *18*(4), 305–310. Retrieved from http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=med5&AN=21251451 http://sfx.scholarsportal.info/uhn?sid=OVID:medline&id=pmid:21251451&id=doi:&

issn=1330-027X&isbn=&volume=18&issue=4&spage=305&pages=305-10&date=2010&title=Acta+Dermatove.

Longmore, M. A., Manning, W. D., Giordano, P. C., Jennifer, L., Manning, W. D., Giordano, P. C., & Rudolph, J. L. (2017). Contraceptive Self-Efficacy : Does It Influence Adolescents ' Contraceptive Use ? Published by : American Sociological Association Stable URL : http://www.jstor.org/stable/1519815 REFERENCES Linked references are available on JSTOR for this article : You. *Journal of Health and Social Behavior*, *44*(1), 45–60. Retrieved from https://www.jstor.org/stable/1519815.

Macintyre, A. K.-J., Montero Vega, A. R., & Sagbakken, M. (2015). From disease to desire, pleasure to the pill: A qualitative study of adolescent learning about sexual health and sexuality in Chile. *BMC Public Health*, *15*, 945. http://doi.org/10.1186/s12889-015-2253-9.

Maina, B. W., Mutua, M. M., & Sidze, E. M. (2015). Factors associated with repeat induced abortion in Kenya. *BMC Public Health*, *15*, 1048. http://doi.org/10.1186/s12889-015-2400-3.

Maravilla, J. C., Betts, K. S., Abajobir, A. A., Couto e Cruz, C., & Alati, R. (2016). The Role of Community Health Workers in Preventing Adolescent Repeat Pregnancies and Births. *Journal of Adolescent Health*, *59*(4), 378–390. http://doi.org/10.1016/j.jadohealth.2016.05.011.

Martinez, G., Copen, C. E., & Abma, J. C. (2011). Teenagers in the United States: sexual activity, contraceptive use, and childbearing, 2006-2010 national survey of family growth. *Vital and Health Statistics. Series 23, Data from the National Survey of Family Growth*, (31), 1–35. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22256688.

Melo, J., Peters, M., Teal, S., & Guiahi, M. (2015). Adolescent and Young Women's Contraceptive Decision-Making Processes: Choosing "The Best Method for Her". *Journal of Pediatric and Adolescent Gynecology*, *28*(4), 224–8. http://doi.org/10.1016/j.jpag.2014.08.001.

Miller, B. C., Benson, B., & Galbraith, K. A. (2001). Family Relationships and Adolescent Pregnancy Risk: A Research Synthesis. *Developmental Review*, *21*, 1–38. http://doi.org/10.1006.

Mphatswe, W., Maise, H., & Sebitloane, M. (2016). Prevalence of repeat pregnancies and associated factors among teenagers in KwaZulu-Natal, South Africa. *International Journal of Gynaecology and Obstetrics: The Official Organ of the International Federation of Gynaecology and Obstetrics*, *133*(2), 152–5. http://doi.org/10.1016/j.ijgo.2015.09.028.

Nadeem, E., Romo, L. F., & Sigman, M. (2006). Knowledge About Condoms Among Low-income Pregnant Latina Adolescents in Relation to Explicit Maternal Discussion of Contraceptives. *Journal of Adolescent Health*, *39*(1). http://doi.org/10.1016/j.jadohealth.2005.09.012

Naing, L., Winn, T., & Rusli, B. N. (2006). Practical Issues in Calculating the Sample Size for Prevalence Studies. *Arch Orofacial Sci*, *1*(Ci), 9–14.

North Clarke, K. E., Kraft, J. M., Wiener, J. B., Hatfield-Timajchy, K., Kottke, M., Sales, J. M., … Kourtis, A. P. (2016). Factors associated with contraceptive use differ between younger and older African-American female adolescents. *Journal of Pediatric and Adolescent Gynecology*. http://doi.org/10.1016/j.jpag.2016.01.129.

Nzioka, C. (2001). Perspectives of adolescent boys on the risks of unwanted pregnancy and sexually transmitted infections: Kenya. *Journal of Reproductive Health Matters*, *9*(17), 108–117. http://doi.org/10.1016/S0968-8080(01)90014-X.

O'Sullivan, L. F., Meyer-Bahlburg, H. F. L., & Watkins, B. X. (2001). Mother-Daughter Communication about Sex among Urban African American and Latino Families. *Journal of Adolescent Research*, *16*(3), 269–292. http://doi.org/10.1177/0743558401163002.

Otoide, V. O., Oronsaye, F., & Okonofua, F. E. (2001). Why Nigerian Adolescents Seek Abortion Rather than Contraception: Evidence from Focus-Group Discussions. *International Family Planning Perspectives*, *27*(2), 77. http://doi.org/10.2307/2673818.

Pestvenidze, E., Berdzuli, N., Lomia, N., Gagua, T., Umikashvili, L., & Stray-Pedersen, B. (2016). Repeat induced abortions in Georgia, characteristics of women with multiple pregnancy terminations: secondary analysis of the Reproductive Health Survey 2010. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *205*, 85–90. http://doi.org/10.1016/j.ejogrb.2016.08.020.

Plontnick, D. R. (2016). The Effects of Attitudes on Teenage Premarital Pregnancy and its Resolution Author (s): Robert D . Plotnick Source : American Sociological Review , Vol . 57 , No . 6 (Dec ., 1992), pp . 800-811 Published by : American Sociological Association Stable U, *57*(6), 800–811.

Plummer, M. L., Wight, D., Wamoyi, J., Nyalali, K., Ingall, T., Mshana, G., … Ross, D. A. (2007). Are schools a good setting for adolescent sexual health promotion in rural Africa? A qualitative assessment from Tanzania. *Journal of Health Education Research*, *22*(4), 483–99. http://doi.org/10.1093/her/cyl099.

Pritt, N. M., Norris, A. H., & Berlan, E. D. (2016). Barriers and Facilitators to Adolescents' Use of Long-Acting Reversible Contraceptives. *Journal of Pediatric and Adolescent Gynecology*. http://doi.org/10.1016/j.jpag.2016.07.002.

Regnerus, M. D. (2005). Talking about sex: Religion and Patterns of Parent-Child Communication about Sex and Contraception. *Journal of Sociological Quarterly*, *46*(1), 79–105. http://doi.org/10.1111/j.1533-8525.2005.00005.x.

Richards, M. J., & Buyers, E. (2016). Update on Adolescent Contraception. *Journal of Advances in Pediatrics*, *63*(1), 429–451. http://doi.org/10.1016/j.yapd.2016.04.008.

Romo, L. F., Berenson, A. B., & Segars, A. (2004). Sociocultural and religious influences on the normative contraceptive practices of Latino women in the United States. *Journal of Contraception*, *69*(3), 219–225. http://doi.org/10.1016/j.contraception.2003.10.011.

Rostosky, S. S., Dekhtyar, O., Cupp, P. K., & Anderman, E. M. (2008). Sexual Self-Concept and Sexual Self-Efficacy in Adolescents: A Possible Clue to Promoting Sexual Health? *Journal of Sex Research*, *45*(3), 277–286. http://doi.org/10.1080/00224490802204480.

Ryan, S., Franzetta, K., & Manlove, J. (2007). Knowledge, Perceptions, and Motivations for Contraception: Influence on Teens' Contraceptive Consistency. *Journal of Youth & Society*, *39*(2), 182–208. http://doi.org/10.1177/0044118X06296907.

Salam, R. A., Das, J. K., Lassi, Z. S., & Bhutta, Z. A. (2016). Adolescent Health Interventions: Conclusions, Evidence Gaps, and Research Priorities. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, *59*(4S), S88–S92. http://doi.org/10.1016/j.jadohealth.2016.05.006.

Salam, R. A., Faqqah, A., Sajjad, N., Lassi, Z. S., Das, J. K., Kaufman, M., & Bhutta, Z. A. (2016). Improving Adolescent Sexual and Reproductive Health: A Systematic Review of Potential Interventions. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, *59*(4S), S11–S28. http://doi.org/10.1016/j.jadohealth.2016.05.022.

Sallar, A. M. (2001). Sexual risk-taking in the era of HIV/AIDS : case study of adolescents resident in Ketu South, Upper Denkyira, and Offinso South electoral constituencies in Ghana. http://doi.org/10.14288/1.0090777.

Santelli, J. S., Brener, N. D., Lowry, R., Bhatt, A., Laurie, S., Family, S., … Zabin, L. S. (2017). Multiple Sexual Partners Among U . S . Adolescents And Young Adults. *Journal of Family Planning Perspectives*, *30*(6), 271–275. http://doi.org/https://doi.org/10.1363/3027198.

Sedgh, G., Finer, L. B., Bankole, A., Eilers, M. A., & Singh, S. (2015). Adolescent Pregnancy, Birth, and Abortion Rates Across Countries: Levels and Recent Trends. *Journal of Adolescent Health*, *56*(2), 223–230. http://doi.org/10.1016/j.jadohealth.2014.09.007.

Sedgh, G., Henshaw, S., Singh, S., Åhman, E., & Shah, I. H. (2007). Induced abortion : estimated rates and trends worldwide. *MCN, The American Journal of Maternal/Child Nursing*, *370*(panel 1), vol: 33 (3) pp: 194. Retrieved from www.thelancet.com/article/S0140-6736(07)61575-X/abstract.

Sedgh, G., Rossier, C., Kaboré, I., Bankole, A., & Mikulich, M. (2011). Estimating Abortion Incidence in Burkina Faso Using Two Methodologies. *Journal of Studies in Family Planning*, *42*(3), 147–154. http://doi.org/10.1111/j.1728-4465.2011.00275.x.

Shahabuddin, A. S. M., Nöstlinger, C., Delvaux, T., Sarker, M., Bardají, A., Brouwere, V. De, & Broerse, J. E. W. (2016). What Influences Adolescent Girls' Decision-Making

Regarding Contraceptive Methods Use and Childbearing? A Qualitative Exploratory Study in Rangpur District, Bangladesh. *Journal of PloS One*, *11*(6), e0157664. http://doi.org/10.1371/journal.pone.0157664.

Slater, C., & Robinson, A. J. (2014). Sexual health in adolescents. *Publication of Clinics in Dermatology*. http://doi.org/10.1016/j.clindermatol.2013.08.002.

Survey, H. (2014). Ghana.

Teal, S. B., & Romer, S. E. (2013). Awareness of Long-Acting Reversible Contraception Among Teens and Young Adults. *Journal of Adolescent Health*, *52*(4), S35–S39. http://doi.org/10.1016/j.jadohealth.2013.01.013.

Uecker, J. E., Regnerus, M. D., & Vaaler, M. L. (2007). Losing My Religion: The Social Sources of Religious Decline in Early Adulthood. *Journal of Social Forces*, *85*(4), 1667–1692. http://doi.org/10.1353/sof.2007.0083.

Vasilenko, S. A., & Lefkowitz, E. S. (2014). Changes in Religiosity After First Intercourse in the Transition to Adulthood. *Journal of Psychology of Religion and Spirituality*, *6*(4), 310–315. http://doi.org/10.1037/a0037472.

Westley, E., Kapp, N., Palermo, T., & Bleck, J. (2013). A review of global access to emergency contraception. *International Journal of Gynecology and Obstetrics*, *123*(1), 4–6. http://doi.org/10.1016/j.ijgo.2013.04.019.

Whitaker, A. K., & Gilliam, M. (2008). Contraceptive Care for Adolescents. *Journal of Clinical Obstetrics and Gynecology*, *51*(2), 268–280. http://doi.org/10.1097/GRF.0b013e31816d713e.

WHO | Preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. (2014). *WHO*.

Wilson, S. F., Degaiffier, N., Ratcliffe, S. J., & Schreiber, C. A. (2016). Peer counselling for the promotion of long-acting, reversible contraception among teens: a randomised, controlled trial. *The European Journal of Contraception & Reproductive Health Care : The Official Journal of the European Society of Contraception*, *21*(5), 380–7. http://doi.org/10.1080/13625187.2016.1214698.

Wulifan, J. K., Brenner, S., Jahn, A., & De Allegri, M. (2016). A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries. *BMC Women's Health*, *16*, 2. http://doi.org/10.1186/s12905-015-0281-3.

Yeboah, I. E. A. (2008). Ethnic emancipation and urban land claims: Disenfranchisement of the Ga of Accra, Ghana. *Geographical Research*, *46*(4), 435–445. http://doi.org/10.1111/j.1745-5871.2008.00536.x

APPENDICES

Appendix A: Consent Form

Title of study: Contraceptive knowledge and preferences among adolescents in the Ledzokuku-Krowor Municipal Assembly.

This research work is a private research carried out as part of the requirement of the Master of Public Health degree of the School of Public Health, College of Health Sciences, and University of Ghana. The research will be for a duration of about six weeks, in the second quarter of 2017.

The information gained through this study will benefit the larger society by dealing with issues of contraceptive preferences among adolescents.

Please note that participation is fully voluntary and you may refuse to, or discontinue from participating in the study at any time without facing any sanctions.

You are assured of strict anonymity and confidentiality on any information you give. Only the research team will have access to the answered questionnaires. Confidentiality and privacy will be maintained by keeping all materials under lock and key.

In addition to your consent (assent), consent will be sought from your school if you are below 18 years of age.

I have read the foregoing or it has been read to me. I have had the opportunity to ask questions and any questions I have asked have been answered to my satisfaction. I therefore consent voluntarily to participate in this study.

Signed: ……..

Witness: …….

For further information or clarifications, please contact the following:

Principal Researcher: Jessica Oppong Nyamekye :oppongjessica140@yahoo.com +233 242726033.

Appendix B: Questionnaire

CONTRACEPTIVE KNOWLEDGE AND PREFERENCES AMONG

ADOLESCENTS IN THE LEDGEKUKU KROWOR MUNICIPAL ASSEMBLY

ID No of Respondent…….

Date ……..

Age…….

Dear Respondent,

I will like to take a few minutes of your precious time to answer a few questions. You are assured the answers you give will be strictly confidential and your name will not mentioned in my response report. Thank you.

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

Ques No.	Questions	Response
101.	Sex (Do not ask) 1. Male 2. Female	
102.	What is age at your last birthday? (in years)	
103.	What is your religious denomination? 1. Catholic 2. Anglican 3. Methodist 4. Presbyterian 5. Pentecostal 6. Other Christian 7. Islam 8. Traditional/Spiritualist 9. No Religion 88. Other (Specify)…….	
104.	What form are you in?	

	1. Form 1 2. Form 2	
105.	Who do you stay with? 1. Mother 2. Father 3. Both Parents 4. Guardian 5. Alone 88. Other…….	
106.	What is your parent/guardians educational level? Mother 1. No education 2. Primary 3. JHS/JSS 4. SHS/SSS/Vocational 5. Tertiary Father 1. No education 2. Primary 3. JHS/JSS 4. SHS/SSS/Vocational 5. Tertiary Guardian 1. No education 2. Primary 3. JHS/JSS 4. SHS/SSS/Vocational 5. Tertiary	
107.	What ethnic group do you belong to? 1. Akan 2. Ga/Dangme 3. Ewe 4. Guan	

	5. Mole-Dagbani 6. Grusi 7. Gurma 8. Mande 88. Other (Specify) ……	

SECTION B: KNOWLEDGE ON CONTRACEPTIVES BY ADOLESCENTS

201.	Is it necessary to have contraceptive knowledge? 1. Yes 2. No	
202.	Who should be responsible for contraception? 1. Male 2. Female 3. Both 4. None	
203.	What would you consider before selecting a contraception method? 1. Contraceptive effectiveness 2. The feeling of using contraceptive methods 3. The convenience of buying or using contraceptive tools 4. The safety of contraceptive methods	
204.	What are the side effects of contraception?(MC) 1. Affecting fertility 2. Affecting the regularity of the menstrual cycle 3. Risk of weight gain 4. Nausea/vomit 5. No side effects	
205.	Do secondary school students need to learn sexual knowledge? 1. Yes 2. No	
206.	Does "sex education lead to more sexual behavior"? 1. Yes 2. No	
207.	Once withdrawal takes place, pregnancy will not occur. 1. Strongly Agree 2. Agree 3. Never 4. Disagree 5. Strongly Disagree	
208.	The use of contraceptives can result in infertility among women later in life.	

	1. Strongly Agree 2. Agree 3. Never 4. Disagree 5. Strongly Disagree	
209.	I gained or have my knowledge on contraception through(MC) 1. Health Workers 2. Peers 3. Teachers 4. Parents 5. Siblings 88. Other……	
210.	My information on contraceptive use comes from(MC) 1. Health Facilities 2. Home 3. Media 4. Peers 5. School 88. Other……	
211.	From whom do you learn or ask about sexual relationships?(MC) 1. Peers 2. Parents 3. Teachers 4. Siblings 5. Health Facilities 88. Other…….	
212.	The most common forms of contraception I know are? (MC) 1. Condoms 2. Birth control pill 3. Cervical cap 4. Diaphragm 5. Withdrawal 6. Injectable contraceptive 7. Intrauterine contraceptive 8. The ring 9. The patch	

SECTION C: ADOLESCENT CONTRACEPTIVE USE

301.	At what age did you have your first sexual behavior?	

302.	Did you use contraception during your first sexual behavior? 1. Yes 2. No	
303.	Which contraceptive method did you use for your first sexual behavior? 1. Condoms 2. Birth control pill 3. Cervical cap 4. Diaphragm 5. Withdrawal 6. Injectable contraceptive 7. Intrauterine contraceptive 8. The ring 9. The patch	
304.	Are you currently using contraceptives? 1. Yes 2. No	
305.	Which type of contraception are you using? (MC) 1. Condoms 2. Birth control pill 3. Cervical cap 4. Diaphragm 5. Withdrawal 6. Injectable contraceptive 7. Intrauterine contraceptive 8. The ring 9. The patch	
306.	How often do you use contraceptives? 1. Almost Always 2. Frequently 3. Sometimes 4. Occasionally 5. Hardly Ever	
307.	Which of these people have ever influenced your choice of contraception? (MC) 1. Health Workers 2. Peers 3. Teachers 4. Parents 5. Siblings 88. Other……	

SECTION D: CONTRACEPTIVE PREFERENCE

401.	Do you have access to your preferred type of contraception? 1. Yes 2. No	
402.	How often do you get access to your preferred type of contraceptives? 1. Almost Always 2. Frequently 3. Sometimes 4. Occasionally 5. Hardly Ever	

SECTION E: SELF EFFICACY OF ADOLESCENT

501.	I am confident I can discuss contraceptives with others. 1. Strongly Agree 2. Agree 3. Never 4. Disagree 5. Strongly Disagree	
502.	I am confident I can stick to the use of contraceptives to prevent unintended pregnancies and STI's. 1. Strongly Agree 2. Agree 3. Never 4. Disagree 5. Strongly Disagree	
503.	I am confident I can insist on the use of contraceptives even if partner does not want to use it. 1. Strongly Agree	

	2. Agree 3. Never 4. Disagree 5. Strongly Disagree	

SECTION F: RELIGIOUS BELIEFS AND CONTRACEPTION USE

601.	Does your religion encourage the use of contraceptives? 1. Yes 2. No	
602.	Does your religion limit you to the use of some contraceptives? 1. Yes 2. No	
603.	If you answer "yes" to Q602, please specify the one(s) you are limited to. (MC) 1. Condoms 2. Birth control pill 3. Cervical cap 4. Diaphragm 5. Withdrawal 6. Injectable contraceptive 7. Intrauterine devices 8. The ring 9. The patch	