UNIVERSITY FOR DEVELOPMENT STUDIES, TAMALE

EFFECTS OF THE GHANA ADOLESCENT REPRODUCTIVE HEALTH (GhARH) PROJECT ON ADOLESCENTS' KNOWLEDGE AND ACCESS TO REPRODUCTIVE HEALTH SERVICES IN THE ASUNAFO SOUTH DISTRICT

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BY

COLLINS ANNOR (B.Sc. Planning)

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THESIS SUBMITTED TO THE DEPARTMENT OF GOVERNANCE AND DEVELOPMENT MANAGEMENT, FACULTY OF PLANNING AND LAND MANAGEMENT, UNIVERSITY FOR DEVELOPMENT STUDIES, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PHILOSOPHY DEGREE IN DEVELOPMENT MANAGEMENT.

APRIL, 2019

DECLARATION

Student

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this University or elsewhere:

Candidate's Signature……. Date……...

Name: ……

Supervisor

I hereby declare that the preparation and presentation of the thesis was supervised in accordance with the guidelines on supervision of thesis laid down by the University for Development Studies.

Supervisor's Signature……Date: …….

Name: ……

ABSTRACT

In the world and Ghana in particular, poor knowledge and access to reproductive health services (RHS) is a major public health issue. The Ghana Adolescent Reproductive Health (GhARH) project is an intervention to improve adolescents' knowledge and access to RHS. However, little evidence exists to show clearly how the project has yielded results in the Asunafo South District. The study assessed effects of the project on adolescents' knowledge and access to RHS and the socio cultural and health system factors that influence knowledge and access to services. The study employed an explanatory mixed method approach. The quantitative data was collected from 392 JHS respondents using questionnaires and the qualitative data was collected from 31 respondents using interview guides. The quantitative data was analyzed using both univariate and bivariate analysis but the qualitative data was analyzed manually using thematic analysis. The quantitative results revealed that adolescents in the beneficiary community had higher knowledge on pills, injectables, implants, but lower knowledge on antenatal and postnatal services, compared to adolescents in the non-beneficiary community. Services such as injectables, implants, abortion services were significantly available, affordable and acceptable in the beneficiary community, but, were not accessible. Also, adolescents in the beneficiary community significantly utilized condoms, injectables, menstrual services. The qualitative results suggested that, socio-cultural and health system factors such as presence of social club, education and staff training promote adolescents' knowledge and access to services. However, religious bigotry, parental intolerance and bad attitude of health workers were found to inhibit knowledge and access to services. It was concluded that the project has improve knowledge and access to some services. It was recommended that policy makers should pay attention to post pregnancy services, facility location and the views of parents, religious leaders in subsequent project design and implementation.

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DEDICATION

I dedicate this thesis to my lovely father and mother, Mr. Gabriel Antoh and Mrs. Grace Mensah.

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AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal care
ARHP	Adolescent Reproductive Health Policy
ASDHD	Asunafo South District Health Directorate
ASRH	Adolescent Sexual and Reproductive Health
CHAGF	Christian Health Association of Ghana facility
CHPS	Communities based Health Planning and Services
D/A	District Assembly
FHD	Family Health Division
GDHS	Ghana Demographic Health Survey
GES	Ghana Education Service
GhARH	Ghana Adolescent Reproductive Health
GHS	Ghana Health Service
GHSMED	Ghana Health Service Monitoring and Evaluation Division
GSS	Ghana Statistical Services
HIV	Human Immunodeficiency Virus
HRM	Human Resource for Health
ICPD	International Conference on Population and Development
JHS	Junior High School
MDGs	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
NPC	National Population Council
NYA	National Youth Authority
PMS	Pre-menstrual syndrome

PNC	Postnatal care
R/C	Roman Catholic
SDA	Seventh Day Adventist
SIECUS	Sexuality Information and Education Council of the United States
SMHD	Sunyani Municipal Health Directorate
SPSS	Statistical Package for Social Scientists
SRH	Sexual and Reproductive Health
STI	Sexually Transmitted Infection
STIs	Sexually Transmitted Infections
UNAIDS	Joint United Nations Program on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Across the globe, the subject of reproductive health has developed as a sector of key policy concern (Wisdom, 2011). As a result, it is captured as a target in the Sustainable Development Goal (SDG) three, which aims *to "ensure healthy lives and promote well-being for all at all ages*" (United Nations, 2015:13). The relevant target (3.7) of goal three seeks to ensure *"universal access to sexual and reproductive health-care services, including family planning, information and education, and the integration of reproductive health into national strategies and programmes*" by 2030 (United Nations, 2015:14). Reproductive health is defined as "*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity in all matters relating to the reproductive system and to its functions and processes*" (United Nations, 1995:30). It is underscored that positive outcomes of reproductive health have a long-term effect on every country's basic wellbeing; in aspects of increasing economic growth, improving societal and cultural development, and addressing gender equality issues (Stenberg et al., 2014). Nonetheless, for effective reproductive health to be attained and maintained, the sexual rights of all persons must be valued, endangered and satisfied (World Health Organization, [WHO] 2011), whiles ensuring that acceptable/friendly reproductive health services are provided (Njoki, 2015).

From the forgoing, it is affirmed that, the delivery of reproductive health services should recognize and address the needs of people (Kavanaugh et al., 2013).

Reproductive health services cover issues such as maternal and newborn services (post abortion care, antenatal, delivery and post-natal services), family planning services and other essential services such as responsible sexual behaviour, anticipation and management of reproductive tract diseases and explicitly transmitted contaminations (National Population Council, [NPC] 2000; Ghana Health Service, [GHS] 2013). According to WHO (2014), these services are regarded as having the tendency of reducing the increasing maternal and child mortality rates confronted by many African countries, and Ghana is no exception. These presuppose that, in order for Ghana to achieve the SDG - 3, all people should be knowledgeable about the various reproductive health services so as to enhance access and utilization of these services (Bearinger et al., 2007; Casey et al., 2015).

Rogers (2003) and Casey et al., (2015) posit that, people's knowledge and access to reproductive health services is an important element in promoting and improving their reproductive health. Other studies have shown that, low acquaintance with family planning methods and sexually transmitted infections have led to a minimal contraceptive use and infrequent visitation of family planning centres (Rondini et al., 2003; GSS, 2012). This has resulted in numerous reproductive health complications (Awusabo-Asare et al., 2004; Chandra-Mouli et al., 2013; WHO, 2014). Knowledge is the fact, information or skills that have been acquired on an issue (Sveiby, 2001). To gain knowledge of sexual and reproductive health information, one could obtain it from parents, friends, books, instructors and media like television, film and radio set (Khanal, 2015). Often, such information influence adolescents behaviour on a wide range of issues, including reproductive health during various stages of development,

targeting contextual factors specific to adolescents and finally, increasing access and utilization of these services (Karim et al., 2003; World Bank, 2011).

Access as a concept has some dimensions namely: availability, acceptability, accessibility, affordability, accommodating (Penchansky et al., 1981; Tylee et al., 2007; O'Donnell, 2007) and quality of health services (Millman, 1993). Accessibility is the closeness of the health facilities to the people whiles availability emphasizes on the physical existence of the services (Perters et al., 2008). Affordability talks about costing services in such a way that it is not beyond the economic capabilities of the beneficiaries whiles acceptability emphasizes on the desire, attitudes and expectations of the people towards the services (O' Donnel, 2007). Racher et al., (2002) and James et al., (2006) argued that these dimensions work concurrently and may interact and influence each other. For instance, health facilities and services could be provided (availability) but, however, if the services are costly (affordability) or are not in line with the desire of the people (acceptability), eventually, it becomes difficult for them to access the services.

From the foregoing, it is recommended that any effort that seeks to improve knowledge and access to reproductive health services should target adolescents, because, studies have shown that unmet needs of contraceptives and other family planning services are highest among adolescents than adults (Ghana Statistical Service, [GSS] 2011; United Nations Population Fund, [UNFPA] 2012). Adolescents have been identified as persons between the ages of ten (10) and nineteen (19) (WHO, 2012). In the world recently, adolescents constitute about 1.2 billion, making up 20% of the total populace (United Nations International Children Emergency Fund, [UNICEF] 2012). Similarly,

in Ghana, the adolescents constitute a significant proportion (22.2%) of the total population (GSS, 2010). In the Brong Ahafo Region, adolescents occupy 23.7% of the region's total population (GSS, 2010). Globally, according to WHO (2012), nearly 16 million adolescent girls give birth every year. An estimated three million girls aged 15 -19 undergo unsafe abortions every year (WHO, 2012). In Sub-Saharan African, nearly two out of five (37%) of young women aged twenty (20) and twenty-four (24) are married at their eighteenth (18^{th}) birthday (WHO, 2012). These have negative consequences on the adolescents' health and wellbeing, both now and in the future (Chandra-Mouli et al., 2013).

In response to the above, the International Conference on Population and Development (ICPD) and national governments have demonstrated interest in adolescents' reproductive health issues (Jimmy-Gama, 2009; Wisdom, 2011). Adolescent reproductive health means empowering adolescents by providing them with access to comprehensive sexual education, diagnosis of sexually transmitted infections and counseling on family planning (UNFPA, 2012). Countries worldwide have committed to formulating and implementing reproductive health policies that will promote access and utilization of reproductive health services by the adolescent (Moris et al., 2012). For instance, in Nepal, the principle goal of its National Adolescent Reproductive Health programme was to enhance the sexual and reproductive health of teenagers (Family Health Division [FHD], 2000). Thus, the Nepal government did this by making adolescent friendly reproductive health services more sufficient in public health centers, sharing data and preparing young people and companion instructors to improve use of reproductive health services such as contraceptives (Khanal, 2016).

Also, in Morocco, the health system aims to expand access to adolescent reproductive health care by regionalization and decentralization of the services (WHO, 2011). This is seen within the context of extension plans for health coverage, new health facilities designed and established, especially in rural areas.

In the Ghanaian context, the Government of Ghana and its partner organizations have also formulated policies aimed at improving the reproductive health of adolescents (Addo et al., 2015; NPC, 2017). As such, several reproductive health interventions, such as the Adolescent Reproductive Health Policy (ARHP) was initiated (NPC, 2000). The policy aims basically at two categories of people. These are the primary and secondary recipients. The former are the adolescents (in-school and out-school persons) themselves and the latter are all categories of people who influence the attitudes and behaviour of adolescents in the provision of reproductive health services (NPC, 2000). It also considers special groups such as teenage parents, adolescent couples and adolescents living with HIV/AIDS. The policy seeks to improve the knowledge of adolescents on their reproductive health as well as increasing the availability and accessibility of adolescent reproductive health services to enable adolescents respond to their reproductive health needs (NPC, 2000).

As a result, the Ghana Adolescent Reproductive Health (GhARH) project was implemented by the former Futures Group Europe, now Palladium; in partnership with the government of Ghana in all Districts of the Brong Ahafo Region, thus including the Asunafo South District. Among the objectives of the project was to “strengthen the government’s capacity to manage, implement and expand cost effective adolescent reproductive health intervention and to increase knowledge and access to appropriate

reproductive health services" (NPC, 2017). Key among the activities of the project was the establishment of adolescent friendly reproductive health corner in Kwapong, a community in the Asunafo South District to provide essential reproductive health information and services for adolescents.

1.2 Problem Statement

In the world and Ghana in particular, poor knowledge and access to reproductive health services is a major public health issue. This is evidenced by the increasing incidence of sexual activities among adolescents, early pregnancy, maternal mortality, HIV/AIDS infection and other reproductive health complications (Sandoy et al., 2007; Finer et al., 2013; Addo et al., 2015, WHO, 2014). For instance, on a country wide scale, as high as 16.2% of adolescent girls give birth by age 18years (UNICEF, 2013). In the Brong Ahafo Region, the total number of deliveries recorded in the year 2013 was 65,815 (Sunyani Municipal Health Directorate, [MHD] 2014). Out of this figure, teenage girls constituted 25,391 (38.6%) of the total deliveries (SMHD, 2014). Also, in the year 2015, the annual progress report of the Asunafo South District revealed that 14% of the total number of people who tested HIV/AIDS positive were adolescents (Asunafo South District Health Directorate, [ASDHD] 2015).

As a result, WHO (2014) reported that stillbirth is 50% higher among children of adolescent mothers than among adult women. Studies have also revealed that pregnant adolescents are faced with significantly higher risks during pregnancy, including obstetric fistula and maternal death (WHO, 2008). Other effects of the problem are that, many adolescents are unable to complete their education, remain unemployed and with numerous emotional traumas (Kearney et al., 2008; Kearney, 2012). These suggest that, not tackling adolescents' reproductive health needs, could be mayhem to the country's development.

The above evidence implies that, adolescents' knowledge and access to reproductive health services (Rondini et al., 2003; Averiyire, 2015), facilities and the environment

(Ngomi, 2009) is very essential in aspect of improving their reproductive health. Mbugua (2007) and Regmi et al., (2010) argued that, the problem has compounded as many adolescents are unable to access reproductive health services at health facilities due to the hostile posture of some health workers towards them, especially girls who seek for reproductive health services. In addition, other barriers identified for adolescents not utilizing the services were stigmatization, poor service quality and provider attitude towards clients (Khanal, 2016). In Ghana, it is said that adolescent reproductive health services are under-utilized because adolescent reproductive health policies have received little priority in district's annual review of the health sector (Hesse, 2006).

It should be noted that there are a lot of studies on the generative health of adolescents (Van Meijel, 2012; Averiyire, 2015). However, little evidence exists to show clearly how the GhARH project has yielded result in a rural district like the Asunafo South District. Studies that have been conducted on adolescent reproductive health do not provide comprehensive data on adolescents with regards to the problem. For instance, Biddlecom et al., (2007), Boamah (2009) and Nattey et al., (2015) study focused only on describing knowledge and sexual behaviours without exploring into detail the socio-cultural and other health system factors that might have influenced adolescents' knowledge and access to reproductive health services. Also, Van Meijel (2012)'s assessment of an intervention by the "Youth Harvest Foundation Ghana" in the Bolgatanga municipality focused on knowledge for only few in-school beneficiaries; without looking at how the dimensions of access (availability, accessibility,

acceptability, affordability and quality of service) influence access to reproductive health services as recommended by O' Donnel (2007).

This study, therefore, assessed effects of the GhARH project on adolescents' knowledge and access to reproductive health services, just as the socio-cultural and health system issues that influence their knowledge and access to reproductive health services in the project beneficiary and non- beneficiary communities of the Asunafo South District.

1.3 Research Questions

1.3.1 Main Research Question

What are the effects of the GhARH project on adolescents' knowledge and access to reproductive health services and what socio-cultural and health system factors influence adolescents' knowledge and access to reproductive health services in the Asunafo South District of the Brong Ahafo Region of Ghana?

1.3.2 Specific Research Questions

- What differences exist in knowledge on reproductive health services among adolescents in the GhARH project beneficiary and non-beneficiary communities of the Asunafo South District?
- What differences exist in access to reproductive health services among adolescents in the GhARH project beneficiary and non-beneficiary communities of the Asunafo South District?
- What socio-cultural factors influence adolescents' knowledge and access to reproductive health services in the Asunafo South District?

- What health system factors influence adolescents' knowledge and access to reproductive health services in the Asunafo South District?

1.4 Research Objectives

1.4.1 Main Research Objective

To determine effects of the GhARH project on adolescents' knowledge and access to reproductive health services and explore the socio-cultural and health system factors that influence adolescents' knowledge and access to reproductive health services in the Asunafo South District of the Brong Ahafo Region.

1.4.2 Specific Objectives

- To determine differences in knowledge on reproductive health services among adolescents in the GhARH project beneficiary and non-beneficiary communities of the Asunafo South District.
- To determine differences in access to reproductive health services among adolescents in the GhARH project beneficiary and non-beneficiary communities of the Asunafo South District.
- To explore the socio-cultural factors that influence adolescents' knowledge and access to reproductive health services in the Asunafo South District.
- To explore the health system factors that influence adolescents' knowledge and access to reproductive health services in the Asunafo South District.

1.5 Significance of the Study

The importance of the research was viewed along three elements namely; practice, research and policy. Following the study outcomes, it is expected that this work will help authorities like the GHS, Non-Governmental Organizations (NGOs) and International Agencies in the formulation and implementation of interventions to best address the reproductive health problem of adolescents. Specifically, the study will be beneficial to the Asunafo South health centers to utilize the findings made from the study to enhance service supply to adolescents. The study will contribute to knowledge on adolescent reproductive health services and serve as a guide for future researchers interested in the field of study. In sum, the results will help policy makers to assess the effectiveness of the GhARH project before any decision to scale it up or not.

1.6 Scope of the Study

Geographically, the study was limited to the Asunafo South District of the Brong Ahafo Region. This is because, the Brong Ahafo Region is one of the regions with a high rate of adolescent reproductive health problems such as teenage pregnancy and sexually transmitted infections (STIs), which the Asunafo South District is no exception (GSS, 2014). As a result, it caught the attention of Palladium and the Government of Ghana to choose and implement the GhARH project in all twenty-seven administrative districts of the region. Conceptually, the study looked at difference in knowledge on reproductive health services among adolescents in the GhARH project beneficiary and non-beneficiary communities, difference in access to reproductive health services among adolescents in the GhARH project beneficiary and non-beneficiary communities, socio-cultural factors that promote or inhibit

adolescents' knowledge and access to reproductive health services and health system factors that promote or inhibit adolescents knowledge and access to reproductive health services.

1.7 Organization of the study

The study has been organized into five chapters. Chapter one is the introduction covering the background to the study, statement of the problem, research questions, research objectives, significance, scope of the study and organization of the study. Chapter two reviews relevant literature related to the study, and the conceptual framework for the study. Chapter three describes the study methodology covering the study context, design, target population, sampling procedure, sample size, the research instrument used, data and sources, data processing and analysis, and the ethical issues arising from the research. Chapter four presents results and discussions. Chapter five provides the summary, conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews existing literature on adolescent knowledge and access to reproductive health services. It is divided into the following sections; the concept of reproductive health, adolescent reproductive health, knowledge on health issues, access to health services, theories and models of access and utilization of health services, adolescent knowledge of reproductive health issues and services, access to adolescent reproductive health services, factors influencing adolescents knowledge and access to reproductive health services, effects of adolescent reproductive health policies on adolescent knowledge of reproductive health issues and effects of adolescent reproductive health policies on access to adolescent reproductive health services.

2.2 Reproductive health

2.2.1 The concept of reproductive health

There are many and varying definitions of reproductive health (Spielberg, 2007). Reproductive health is defined as "*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity in all matters relating to the reproductive system and to its functions and processes*" (United Nations, 1995:30). This definition speaks about the reproductive processes, functions and system at all stages of life and implies that "*people are able to have a responsible, satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide*

if, when and how often to do so" (Spielberg, 2007:7). Sai (1989**)** defined reproductive health as the ability of men and women to undertake sexual activity safely, whether or not pregnancy is desired, and, if desired; for the women to carry the pregnancy to term safely, deliver a healthy infant, and be prepared to nurture it. It is the totality of the individual's life regarding his or her physical, social and psychological being (Averiyire, 2015).

The Sexuality Information and Education Council of the United States (SIECUS), defined reproductive health as encompassing sexual development as well as such characteristics as the ability to develop and maintain meaningful and interpersonal relationships; appreciate one's own body; interact with both genders in respectful ways; and express affection, love and intimacy in ways consistent with one's own values (SIECUS, 2002). The WHO (1974) defined sexual and reproductive health as: the combination of the substantial, emotive, scholarly, reproduction as well as social parts of sexual-being in manners that are emphatically improving and that upgrade identity, correspondence, and love.

From the above definitions, it is deduced that reproductive health involved a safe and complete functioning of the reproductive system of individuals and the capacity to provide information to people on reproductive health issues.

2.2.2 Reproductive Health Issues/Problems

There has been an increased interest in reproductive health issues because risks associated with reproductive health are among the major causes of ill health and mortality, especially in developing countries (Wisdom, 2011; Nsonwu-Anyanwu et

al., 2015). It is estimated that one-third of the global burden of diseases among women of reproductive age is attributable to poor reproductive health. According to Hessburg et al., (2007), approximately 20% of the disease burden globally are reproductive health issues. The situation is worse in developing countries where millions of women suffer from long-term diseases and premature deaths as a result of child-birth and pregnancy-related complications (Chandra-Mouli et al., 2015). It is estimated that every year 210 million women experience serious complications associated with pregnancy, which often lead to death. Around 500 thousand women also die in pregnancy, delivery, and the puerperium, of which about 99% occur in developing countries (Glasier et al., 2006).

According to the WHO (2011) there are 333 million new instances of STIs that happen each year around the world. Sexually transmitted diseases such as Gonorrhea, Syphilis, Chlamydia, and Trichomonas infect more than 340 million people each year; unsafe sex is the second leading risk factor for people (WHO, 2011). Like different STIs, HIV/AIDS remains a worldwide medical issue of remarkable magnitudes (Idele et al., 2014). It has already caused an estimated 25 million deaths worldwide and has generated profound demographic changes in most heavily affected countries (WHO, 2010). In 2008, an estimated 33 million people were living with HIV/AIDS worldwide (WHO, 2011). Even though Asamoah-Odei et al., (2004) have emphasized that HIV/AIDS epidemics and other reproductive health problems have decreased in sub-Saharan African, it remains the region heavily affected by HIV, accounting for 67% of all people living with HIV and for 75% of all AIDS deaths in 2007 (WHO, 2011).

The AIDS pandemic has brought about countless orphans (children who have lost one or both guardians) in many nations.

Moreover, WHO (2010) has estimated that about one in five pregnancies (42 million out of 210 million) each year are voluntarily aborted. About half of abortions are performed safely (22 million) and half (20 million) are unsafe. Among unsafe abortions, about 5 million, or one in four, requires medical care for severe complications (WHO, 2010).

Furthermore, the ICPD programme of activity observed that sex roles are very fortified in social practices and convictions (Jewkes, et al., 2010; Shamu et a., 2011). This implies that culture is additionally expected to intensify HIV endemic and pregnancy since it would keep on exposing individuals to sexual practices that may upsurge HIV and other sexually transmitted diseases (Mbugua, 2007). Thus, social and financial roles of males and females are doled out as indicated by the socio cultural qualities and convictions in many countries and a portion of the assigned roles will in general mischief the women (Chimmbiri, 2007). A growing body of research also indicates that the strong association of intimate partner violence, unintended pregnancy, abortion and sexually transmitted diseases results from male coercive and violent behaviours around sex and contraception (Pallitto et al., 2013). As such, Silverman (2004) concluded that women in particular, who are victims of dating violence are 4 to 6 times more likely than non-abused women to become pregnant and be infected with other sexually transmitted infections.

In conclusion, it is pertinent to note that problems of reproductive health exist in many ways in the world including teenage pregnancy, unsafe abortion, menstrual related issues, STIs among many others.

2.2.3 Reproductive Health Services

2.2.3.1 Family Planning Services

Family planning is when both the husband and wife together deliberate and jointly decide how many children they would like to have and when, so that they can give adequate love, care, courtesy and good education to each of their children (UNFPA, 2013). It includes methods and practices to space births and limit family size (GHS, 2013). This presupposes that the use of family planning methods and contraceptives among groups are effective ways of reducing unintended pregnancies and sexually transmitted infections, including HIV/AIDS (Cleland, 2006; Secura et al., 2014).

Some of the family planning methods include male and female condom, spermicides, contraceptive sponge, diaphragm, the pill, cervical cap, withdrawal, abstinence, implants, contraceptive injections, vasectomy, tubal ligation (WHO, 2012).

- ***Male and female condoms***: The male condom is sheath-shape device and it is normally placed over the penis before sexual intercourse begins (Trussel, 2007; Workowski et al., 2015). The female condom is made of polyurethane and has an adaptable ring at each end, one safeguards behind the pubic bone to grip the condom in place, while the other ring remains outside the vagina (Dowdy et al., 2006). It is underscored that some women like the female condom because it gives them greater control over safe-sex negotiation, effective for STI and

pregnancy prevention, easy to use, increases sexual pleasure, and is a good option for men who do not like male condoms (Dowdy et al., 2006; Workowski et al., 2015). On the contrary, other men and women report dissatisfaction with the female condom because of discomfort during sex, the need to get a partner's consent, difficulties in use, aesthetic concerns, noise, sensitivity to polyurethane and cost (Geter et al., 2014).

- ***Spermicides****:* It is set in the vagina before sex to decimate sperm and forestall pregnancy (Bartman, 2001; Blumenthal, 2010). Trussel (2007) observed that pregnancy rate using only spermicides is higher than using other methods.
- ***Contraceptive sponge****:* It has a depression which holds in place over the cervix. It works in two different ways. To begin with, the wipe is embedded into the vagina so that it can cover the cervix and keep any sperm from entering the uterus (Hatcher et al., 2000; Blumenthal, 2010). Secondly, the sponge is produced with spermicide already inside of it, which is used to prevent the sperm from moving (Trussel, 2007).
- ***Diaphragm:*** It is placed behind women's pubic bone/cervix with spermicide before sex and left set up for no less than six hours after sex (Helms et al., 2006). It is evidenced that diaphragm is associated with an increased risk of urinary tract infection (McNaught et al., 2005).
- ***Cervical cap****:* The cervical cap is a rubber barrier device which has thimble-shaped latex and it is carefully placed in the vagina, covering the cervix (Winner, 2012).

- ***The Pill****:* This is a type of birth control that is designed to be taken orally and includes the combination of an estrogen and progestogen. These hormones have the ability to stop the release of eggs and also make the lining of the uterus thinner (Edelman et al., 2014). It is also imperative to emphasize that correct use of pill will bring about 3 in every 1,000 women experiencing accidental pregnancy (WHO, 2016).
- ***Contraceptive vaginal ring (Nuva Ring)****:* It is a flexible plastic ring inserted into the vagina of a woman that releases progestin and an estrogen over a period of three weeks for the purpose of birth control (Trussel, 2007).
- ***Implants****:* Implant is a rod with a core of progestin. The device is inserted under the skin of the upper arm of a woman and it is effective for 3 years (French et al., 2015). Benefits of the implant include fewer, lighter periods, and improved symptoms of premenstrual syndrome and convenience of not needing to use it every day (Winner et al., 2012).
- ***Vasectomy****:* It is a surgical procedure designed to make a man unproductive. This is where tubes through which a man's sperm move, are cut or blocked in order to stop his partner from getting pregnant (Edelman et al., 2014). Although a vasectomy is sometimes reversible, the probability of an abundance of abnormal sperm is higher, resulting in lower fertility (Gaitskell et al., 2016).
- ***Tubal ligation****:* It is a permanent form of female sterilization. With this method, the fallopian tubes are disconnected and sealed in order to prevent fertilization (McNaught et al., 2005).

2.2.3.2 Sexual and Reproductive Health Information

Information is critical in the decision-making procedure (Wisdom, 2011; Bandura, 2004). Rowland et al., (2015) observed that the availability of reliable information is vital for reducing uncertainty and enabling people to make choices among a set of alternatives in problem-solving situations. Most especially, health information is important because it empowers people "*to make choices, take control, and be responsible for completing diagnostic and therapeutic regimes*" (Houston et al., 2001:41). This is the basic framework in reproductive health; having control over one's sexuality and reproduction hinge on the availability of adequate, reliable and accessible information (Eysenbach et al., 2002).

As such, the United Nations Population Fund advocates for and supports the efficient and delivery of a holistic, friendly health-care core package that includes universal access to accurate sexual and reproductive health information (UNFPA, 2013). Thus, sex education programmes should offer accurate, comprehensive information while building skills for negotiating sexual behaviours (Bearinger et al., 2007; Rowland et al., 2015); not encouraging them to increase sexual activity. It is best to start such education before the onset of sexual activity (UNFPA, 2010). The WHO (2010) recommends health ministries and agencies to provide educational programmes and support other government departments (such as the education service) to carry out effective reproductive health education programmes.

Nonetheless, the degree to which effective communication occurs between a provider and patient, is influenced by many different factors, such as the level of educational attainment, language, age, gender, culture, complexity of jargons, cognitive

limitations, the way the information is presented, and power issues (Riff et al., 2014). Shaivo (2007) has also observed that participation is very important in aspect of spreading information on reproductive health issues.

2.2.3.3 Antenatal Services

It is underscored that support during pregnancy has been associated with positive pregnancy outcomes (Mbuagdaw, 2015). Antenatal care is a type of preventive health care aimed at providing regular check-ups that allow health professionals to treat and prevent potential health problems and promote healthy lifestyle through the course of the pregnancy (WHO, 2017). As such, WHO (2012) recommends that pregnant women want access to quality and youth-accommodating services given by healthcare professionals. Also, it is pertinent to encourage pregnant women to go to antenatal facilities where they will be furnished with health facts on the best way to think about themselves amid pregnancy, conveyance and after delivery (Phafoli et al., 2007; Rai, 2012). These services ought to be monetarily, practically and physically accessible, and ought to be welcoming and trustworthy (Downe et al., 2016).

In addition, it is stressed that antenatal services are planned with input from pregnant women and that the services are made as meaningful and as interesting as possible; otherwise they will not view the services as valuable to them (Phafoli et al., 2007; Dahiru et al., 2015; Ataguba, 2018). It is also recommended that pregnant women should all receive at least four antenatal visits to spot and treat problems and give immunizations; however, many women do not receive four visits (WHO, 2012; Abubakari et al., 2017; Ataguba, 2018).

2.2.3.4 Post-natal Services

It is observed that guaranteeing access to postnatal services for ladies after delivery frequently implies giving money related help to medicinal services and diet, guidance about breastfeeding, help coming back to class or training, shelter and other services if for instance, they have been dismissed by their relatives, contraceptives and other services (Kotheri, 2012; WHO, 2013; Dahiru et al., 2015). Post-natal services also present opportunities to provide information and contraception that may help women prevent or delay a second pregnancy (Fikree et al., 2004; UNFPA, 2013; Althabe et al., 2015).

2.2.3.5 Post-Abortion Care

It is basic that the reproductive health of women be enhanced (Jimmy-Gama, 2009; WHO, 2013). As a result, premature birth ought to be accommodated and given to patients non-judgmentally (Westervelt et al., 2010). Some women are bound to defer looking for and having an abortion, resort to incompetent people to perform it, utilize risky approaches and postpone looking for health care when inconveniences emerge (UNFPA, 2013). This presupposes that unsafe abortion may endanger the health and lives of many women worldwide (WHO, 2004) since they are more likely to encounter intricacies, for example discharge, septicemia, internal organ damage, lockjaw, unproductiveness and even demise (Kothari et al., 2012).

2.2.3.6 Prevention of and Treatment of Other STIs

STIs are of uncommon worry for individuals since they can prompt pelvic fiery infection, ectopic pregnancy, untimely film crack, fruitlessness, and other complications (UNFPA, 2013; WHO, 2013). Higher rates of STIs in more youthful

ladies than older ones could represent higher unnatural birth cycle (miscarriage) rates for more youthful mothers (WHO, 2010). It is therefore recommended that health facilities provide promotional, preventive and curative measures (eg. sex education, drugs, contraceptives, STIs screening etc) to reduce STIs (UNAIDS/WHO, 2011).

2.3 Adolescent Reproductive Health

2.3.1 The Concept of Adolescence

The WHO (2007) defines adolescents as individuals matured between 10 to 19 years. This time of youthfulness is additionally classified into three phases to be specific; early adolescence, mid adolescence and late adolescence (Nienstein et al., 2009; Coleman, 2011). Early adolescence is the general population between the ages 10 to 13 years which is characterized by development alongside sexual advancement (Steinberg, 2002). Additionally, mid adolescence are the individuals matured between the ages 14 to 15 years which is sorted by the improvement of more grounded feeling of character what's more, late adolescence is the general population between the ages 16 to 19 years and is classified by the progression of grown-up structure (WHO, 2006).

From the biological point of view, the time of adolescence is characterized by various changes including physical and enthusiastic changes, the hunt for personality and greater maturity in thinking (Sawyer et al., 2012). It is considered as the period amid which the individual advances from the underlying appearance of secondary sex features to that of sexual development, whereby individual's mental procedures and patterns of identification develop from those of a kid to a grown-up (Carr, 2015). In this manner, adolescence is viewed as a period of progress from childhood to adulthood, amid which they experience changes following puberty, however, do not

instantly assume the roles, benefits and obligations of adulthood (Jejebhoy et al., 2003; Carr, 2015).

On the contrary, worldwide; this age group may experience similar physical and emotional changes, but how this period in life is understood varies between cultural contexts (Rosenberg, 2015). In some countries adolescence is a well-established concept, while in others the concept is rather new or just emerging (Jimmy-Gama, 2009). According to Dalme et al., (2001) in many African societies, the child becomes adult after initiating rights followed by marriage and expected childbearing. In other words, adolescence is observed contrarily in every culture; and even within communities there might be huge contrast in how some people experience adolescence when compared with others (Adamchack et al., 2000; Rosenberg 2015). Due to such development, a few ladies may be betrothed from childhood and a large portion of them married not so long after puberty in some African societies. Thus, in most conventional social orders in Africa, achieving adolescence is compared to turning into a grown-up (Jimmy-Gama, 2009).

In this study, adolescence is conceptualized in terms of age (10-19 years), because according to the Family Health International (1997), the notion that puberty changes from communities to communities makes it progressively hard to give any significant meaning of adolescence, and this clarifies why, generally, adolescents are defined as every one of those belonging to a well-defined age group. Also, in the Ghanaian context, adolescence is observed according to this age group. Perhaps, reducing or extending this age group will not make the group more homogeneous.

2.3.2 Meaning of Adolescent Reproductive Health

Adolescent reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system of people between the ages of 10 to 19 (United Nations, 1995). Thus, it discusses the physical and emotional wellbeing of teenagers and incorporates their capacity to stay free from undesirable pregnancy, dangerous premature birth, explicitly transmitted diseases and all types of sexual viciousness and coercion (UNFPA, 2009). As such, adolescents like adults, have the right to equal access, adequate, affordable and high quality health services and information that are confidential and respect their privacy; regardless of sex, race, marital or health status (Kennedy et al., 2013).

2.3.3 Adolescent Reproductive Health Issues

2.3.3.1 Early Marriage and Teenage Pregnancy

Practices, for example, early marriage, high school pregnancy, unmet contraceptive needs and perilous fetus removal are pervasive all around the globe (WHO, 2012; GSS, 2014). The normal worldwide birth rate among 15 to 19 years' age bunch was 49 for every 1000 young ladies (WHO, 2012). Thus, around 16 million women matured between 15 to 19 conceive an offspring annually which makes 11% of all out worldwide birth (WHO, 2014). About 95% of pre-adult births happen in less developed nations (WHO, 2014). Different reports in Malawi show that around 66% of girls of 19 years of age or more youthful have a baby or are expectant mothers (NSO et al., 2001).

In Ghana, the 2014 Ghana Demographic Health Survey reports that 14% of adolescents between the ages of 15 and 19 years have already started childbearing, 11% have given birth to their first child and 3% were pregnant during the survey (GSS, 2014). The report also indicated that the proportion of adolescents who have begun childbearing increases with age; 1% at age 15 to as high as 31% at age 19 years. The regions with the highest childbearing rate as indicated in the report were the Volta, Brong Ahafo and the Central regions (GSS, 2014). In the Brong Ahafo Region, 21.3% of adolescents have begun childbearing, of which 17.5% have had a live birth and 3.8% are pregnant. The rate for adolescents who have no education and have begun childbearing was 23.2% whilst that of those with secondary education was 6.2% (GSS, 2014).

Studies have also demonstrated that the danger of creating complication is a lot higher among young people compared to aged women (Regitz-Zagorzek, 2012). Correspondingly, the predominance of foetal death and demise of children in the few days after delivery are likewise half (50%) higher amongst mothers under 20 years of age contrasted with mothers between 20 to 29 years of age (UNICEF, 2012). Aside from presenting risk to life and wellbeing, early marriage and prenatal period likewise sway on girls training (WHO, 2012). It has therefore been established that postponing immature birth could prominently help in improving pre-adult wellbeing, populace control and at last, social and economic development (WHO, 2014).

2.3.3.2 Prevalence of HIV/AIDS among Adolescents

HIV/AIDS among adolescents has become an issue of concern in the world (Sandoy et al., 2007, Addo et al., 2015). It is estimated that globally, more than 2 million

adolescents are living with HIV (WHO, 2008). According to UNAIDS/UNICEF (2006), in Nepal 60 % of new cases include youngsters between the ages of 15 to 24. Most adolescents who are HIV positive are either ignorant of or reluctant to disclose their status (UNAIDS, 2010).

In sub-Saharan Africa, approximately 10% of young men and 15% of young women aged 15 to 24 are living with HIV (UNAIDS, 2013). This increase in the Africa region may reflect the fact that although more children with HIV survive into adolescence, they still lack proper care and support (UNAIDS, 2013). Among adolescents, certain sub-bunches, for example, road youths and ghetto occupants are most powerless against HIV (Naswa 2010). There is also gender differences in HIV/AIDS infection because evidence shows that about two-thirds of the newly infected adolescents aged 15-19 are females (UNAIDS, 2013). For instance, in Dar es Salaam, Tanzania; more adolescent females (20.8%) were HIV infected than males (11.5%), (Urassa et al., 2008). This important sex alteration in HIV/AIDS occurrence points to an urgent need to challenge social standards concerning existing and dominant conceptualizations of sexuality, femininity and masculinity that compromise their control over sexual issues (Pisani, 2003; Jewkes, et al., 2010).

2.3.3.3 Menstruation Related Issues

Menstruation is the state of hormonal change occurring in the female body which is marked by the normal monthly bleeding (Biggs et al., 2011). This physical wonder which enables girls to make life is not always a pleasing experience for them in light of the fact that, diverse sort of menstrual issues is basic among people who had achieved menarche (Temang et al., 2006; Bodat, et al., 2013). As a result, studies have

shown that more than half of immature young ladies who had menarche for at least one year griped of probably one kind of medicinal issues amid their period. The most commonly recorded menstrual issue incorporate dysmenorrhea (67%) and pre-menstrual disorder (63%) (Sharma et al., 2008). It is not only the physical wellbeing, additionally, different perspectives in young girl's life that are influenced by their month to month menstrual period. For instance, in India, a significant number of girls (43%) absent themselves from class as a result of menstrual problems (Bodat, et al., 2013).

2.3.3.4 STIs among Adolescents

STIs keep on being the major and growing public health matter across many areas of the world, particularly, in the less developed nations (Peeling et al., 2010). As such, studies have shown that STIs are amongst the main five disease classes and around 33% of STIs universally occur among individuals more youthful than 25 years of old (WHO, 2011). WHO (2011) estimated that a third of the 333 million cases of curable STIs occurred among young people under the age of 25. The second highest infection rates are in adolescents aged 15-19 years (WHO, 2012). In United States, about 50% of the 20 million new incidence of treatable STIs each year are counted among adolescents within the age range of 15 to 24 years (Center for Disease Control and prevention, [CDCP] 2014). At least one in five female adolescents between the ages of 15 and 19 who ever had sexual intercourse indicated ever experiencing an STI or symptoms of one.

WHO categorizes chlamydia as an immature disease while gonorrhea normally happens in sub-gatherings such as juvenile sex workers, however, it is less likely to be

recognized in the overall population of adolescents (WHO, 2010). It is estimated that four in ten sexually active teen girls have had an STI that cause infertility and even death (Forhan et al., 2009). Nevertheless, talks on different STIs are less regular and less known as they are mostly eclipsed by HIV/AIDs dialogue.

2.3.4 Adolescent Reproductive Health Services

2.3.4.1 Adolescent's Friendly Reproductive Health Services

The need to give services that are explicit and people centered has been acknowledged by various organizations (WHO, 2008; Salam, 2016; Jimmy-Gama, 2009). Juveniles being the heterogeneous crowd have the desires and inclinations reasonably not quite the same as one another (WHO, 2008). In any case, those diverse groups of young people have key mutual attributes that they need to be treated with deference and to be sure that their secrecy is verified (Ambresin, 2013). Thus, it is recommended that health facilities are equipped to provide adolescents with the health services they need; and are also appealing and friendly to adolescents' whiles making them aware of where they can obtain the health services they need, and are both able and willing to do so when needed (WHO, 2008). As such, it is anticipated that health service providers in the various health facilities are non-judgmental and sympathetic in their dealings with youth; and they have the abilities required to supply the right health services in the correct way (Kambikambi, 2014).

Youth friendly reproductive health facilities are expected to provide services including information and counseling on reproductive health issues, peer education, family planning information and contraceptive methods, counseling, condom promotion and provision, testing services including pregnancy, abortion services, HIV counseling and

testing, management of STIs, antenatal care (ANC), postnatal care (PNC), (NPC, 2000).

2.3.4.2 Sex Education at School

Sex education, additionally alluded as sex training is the practice of receiving information and developing mentalities, personal conduct and belief about sexual uniqueness, sex, interactions and understanding that will best protect the individual as human and the family as a social institution (Kearney, 2008; Lindberg et al., 2012). It is said that sex teaching helps in creating skills about up-to-date decisions and sexual behaviour among youngsters which makes them progressively competent about following up on these choices (Grose, 2014).

With the exception of the schools, such training can be provided by means of work environments, families and religious spots (WHO, 2014). Through these avenues, Lindberg et al., (2012) posit that adolescents can be opened to different frames of mind and beliefs about sex and sexuality and are more likely to delay sexual activities. For instance, Kirby (2001) and Measor et al., (2012) have also stated that some health messages emphasize the risk and danger linked with sexuality and some promote the idea that being sexually active makes a person more attractive and mature. Thus, sex education in schools aid young people and adolescents to shun or defer sex, lessen the recurrence of risky sex and the quantity of sexual partners; intensify the use of contraception to counteract undesirable pregnancies and STIs; and thus, help delay the first birth to guarantee a more secure pregnancy and conveyance (Nanatte, 2009).

2.4 Knowledge on Adolescent Reproductive Health Issues

2.4.1 The Concept of Knowledge

Knowledge of a particular health issue is critical in the decision-making process. Knowledge means awareness, understanding and problem-solving capacity (Averiyire, 2015). Rogers (2003) and Grose et al., (2014) posit that knowledge is vital for reducing uncertainty and enabling people to make choices among a set of alternatives in problem-solving situations. In particular, health knowledge is important as it empowers people "to make choices, take control, and be responsible for completing diagnostic and therapeutic regimes" (Houston, et al., 2001; Grose et al., 2014).

Knowledge is an unseen, immaterial resource and cannot be directly detected, and in that capacity, numerous individuals and organizations do not openly recognize the significance of knowledge (Sveiby, 2001). Ayer (1958: 10) posits that, "*To have knowledge is to have the power to give a successful performance, not actually to be giving one*". Thus, an individual can have extensive knowledge as a result of learning, yet, such knowledge remains unknown power until he/she uses the knowledge to perform some duty, understand something or solve a problem (Ayer, 1958; Hunt, 2003). Sveiby (1997: 37) defines knowledge as "*a capacity to act*"- this makes the important distinction between the behavioural potential, which cannot be directly observed, and the observable performance.

From the above definitions, knowledge may be conceptualized as the awareness of an issue or a behaviour that could end up influencing people actions towards that particular behaviour.

2.4.2 Knowledge Measurement Indicators

Knowledge of a particular behaviour or service is measured by procedures that depend exclusively on the correctness or incorrectness of answers (FernaAndez-Armesto, 1997). A correct or incorrect answer is understood to mean basically that a person knows or does not know something. Thus, a belief that is correct qualifies to be knowledge and false does not qualify to be termed knowledge. Hunt (2003) has argued that such ways of measurement have serious absences. Thus, it is underscored that being correct is not adequate to be termed knowledge; the conviction must not only be correct, but also must be proved (Plotkins, 1994). It could also be seen as awareness of the perception of elements in the environment in a particular time (Endley, 1998). In this, people are allowed to respond to issues through subjective ratings (Francker, 1991).

The idea that an individual's sureness is a vital component of a person's knowledge has also been clearly stated by Russell (1948) and Quine (1987). Ayer (1958: 34) has therefore asserted that the essential and necessary conditions for determining that something is true are first, that what one is said to know be true (*correctness*), secondly that one be sure of it (*certainty*), and thirdly that the person should have the right to be sure (*justified*). The sureness aspect importantly influences the degree to which individuals correctly utilize their knowledge and beliefs in the choice or decision they take (Polanyi, 1974). However, it has been argued that methods for determining whether a person recognizes that he/she is aware or not aware of something have not been incorporated into the measurement and assessment of people's knowledge;

except for an occasional brief outburst of interest; say, in confidence testing (Hunt, 2003).

Given the difficulty in measuring a person's knowledge on a particular behaviour or service, knowledge is measured in this study in terms of awareness of reproductive health services.

2.4.3 Sources of Information on Health Issues

Adolescents acquire knowledge on sexual and reproductive health issues from different sources including teachers, friends, the media, health workers, family members etc. (Singh et al., 2007; Khanal, 2015). WHO (2010) has stated that adolescents often rely on equally uninformed peers or older siblings and radio, television and other media for information. In Ghana, radio is found to be the most common source of family planning messages for both women (60%) and men (69%) (GSS, 2008). Approximately half of respondents (45% of women and 51% of men) saw a family planning message on the television (GSS, 2008). Newspapers and magazines are the least common source of family planning messages for both women (11%) and men (20%) (GSS, 2008). However, exposure to family planning messages is more common among men than women; roughly one in three women (34 %) and one in four men (26%) were not exposed to any family planning messages (GSS, 2014). The schools also serve as a channel that inform 44.0% adolescents about reproductive health and services (Dapaah et al., 2016).

2.4.4 Empirical Evidence on Adolescent Knowledge of Reproductive Health Issues and Services

A study completed in United States discovered that 5% to 50% of adolescents reacted inaccurately to precise enquiry in regards to signs and dangers of acquiring sexually transmitted contamination or HIV, 21.6% disclosed having an infection in the previous year and roughly 80% adolescents observed their risk of getting an STI/HIV infection as extremely low, as well as the group that had STIs (Charnow, 2015). It is also evidenced that 32% of adolescent commercial sex workers had ever heard of AIDS, only 11% had knowledge of the transmission of HIV/AIDS by unsafe sex and 72.2% of all adolescents knew common sexually transmitted diseases such as gonorrhea and syphilis (Uddin et al., 2008). Adolescents who knew HIV/AIDS and gonorrhea were 53.4% and 33.4% respectively (Ayalew, 2014). Further, among adolescents who knew about condoms, 1 in 10 did not realize they could be utilized to secure against pregnancy, including 1 in 6 wedded adolescents (Khanal, 2015).

On knowledge of reproductive health services, Ayalew (2014)'s study in Ethiopia revealed that 82.8% of adolescents knew about at least one contraceptive method that is used to prevent unwanted pregnancy. Also in Nepal, only 36% of adolescents were aware of each of the three of the accompanying measures to decrease or evade the prospect of exposure; keeping away from affair with harlot, utilizing condom amid sex, and having one consistent accomplice (Neupane et al., 2003). The fundamental known example of contraceptive technique by the adolescents for the counteractive of pregnancy was condom (47%), trailed by self-restraint (37%), (Ayelew, 2014).

In Ghana, Dapaah et al., (2016), Glover et al., (2003) and Awusabo-asare et al., (2006) studies on adolescent sexual and reproductive health have shown that there were knowledge gaps in some reproductive health issues. Despite the fact that adolescents realized there are definite days in the month when a lady is probably going to get pregnant, 78.9% females and 67.0% males; only 26% of them knew precisely when these days were. 60% and 53% of females and males exclusively (15-19 years) realized that when a lady has her first sex, it is feasible for her to get pregnant. As many as 58% and 45% of females and males had no idea concerning whether a lady could get pregnant when she has sex, while in a standing position. Majority of adolescents (56%) did not realize that a lady can get pregnant regardless of whether she washes herself directly after intercourse (Awusabo-Asare et al., 2006). Eliason et al., (2014)'s study in Ghana discovered that somewhat over 90% of adolescents of reproductive age knew no less that one practice for present day contraceptives.

2.5 Access to Reproductive Health Services

2.5.1 The Concept of Access

Access is an imperative idea which warrants a standardized and exact definition but, the errand of giving such a definition is not a simple one since access remains a stacked and questioned concept which has different meanings relying upon the author using it (Thiede et al., 2007; McIntyre et al., 2009). A more specific definition refers to the ability to *"secure a specified set of healthcare services with certain level of quality, subjected to a specified maximum level of personal inconvenience and cost, while in possession of a specified amount of information* (Oliver et al., 2004: 656). Such dimensions of access are generally measured in terms of distance or time to a provider.

In addition, abilities and desires to utilize health services are also highly influenced by needs, attitudes, beliefs and past experiences with the health care system (Gulliford et al., 2002). As such, access to care also has other components that might be social, cultural, economic and that may supersede the distance between one's residence and a doctor (Penchansky et al., 1981). Penchanski et al., (1981) asserted that access can be considered as a composite of five variables including availability, accessibility, accommodation, affordability, acceptability and quality (Millman, 1993).

2.5.2 Dimensions of Access

2.5.2.1 Availability

Availability alludes to the degree to which a system gives amenities and services that address the needs of people (Campbel et al., 2000). Availability can likewise be thought of as, "*health services in the right place and at the right time that they are needed"* (Thiede et al., 2007: 108). Thus, availability describes whether the volume of supply is sufficient to meet the volume of demand (Beedasy, 2010). Human resources, health facilities, medical inputs and drug access are just a few supply-side issues which are labelled under availability (Beedasy, 2010). Also, satisfaction with service sufficiency can be raveled through the participants' trust in their capacity to get health care, facts of where to acquire health care, and capacity to acquire emergency health care (Thomas et al., 1984).

From the above, availability is therefore observed in this study as the sufficiency of reproductive health services.

2.5.2.2 Accessibility

Accessibility describes *"the location of supply in relation to the location of the client"*, including issues of customer transportation assets, distance and travel time to health facilities, and transport costs (Penchansky et al., 1981: 128). For example, in people who have endured incapacitating wounds, geographic location can turn into an obstruction to the utilization of health services (LaVela et al., 2004). Amer (2007:31) defines that "*accessibility relates to the ability of people to overcome the friction of distance to avail themselves of services at fixed points in space*".

Physical accessibility has three main components namely; people, activities or services and means of transport to link them. Moseley (1979) posits that ease of access differs as indicated by the qualities of every one of these segments and it is affected by the connection between the financial attributes of individuals, clients and spatial measurements. As such, accessibility is observed in this study as the closeness of health facility to the people.

2.5.2.3 Accommodation

Accommodation relates to "*resource organization in terms of how clients perceive the appropriateness and suitability of the manner in which they are admitted"* (Penchansky et al., 1981: 128). Thomas et al., (1984), further defined accommodation as the connection between the way in which the supply assets are sorted out to receive customers, the clients' ability to accommodate these factors and the customers' impression of their suitability. These factors include long period of activity, telephone utilities, online services and the health care centers (McIntyre et al., 2009: 185).

According to Ansari (2007) using staff so as to improve service conveyance and physical/mental environments of the health care setting are also examples of accommodation as well as incorporating the culture of the community into the clinic is one way to improve accommodation (Mensch, 2011).

2.5.2.4 Affordability

Affordability is said to be one of the most important factors affecting access to health care (Wang et al., 2005). Always alluded to as budgetary access, it relays "*the price of health services and medical aid to the income of clients"* (Ansari, 2007:88). It integrates the customer's view of significant worth for-cash and their thought of prices, entire costs (immediate and indirect) and potential credit plans. Thiede et al., (2007) argued that the money related danger of sickness, particularly among the poor people; the role of the health system in protecting people and family units from this hazard are issues which are high on the reasonably priced schedule. The client's view of worth in respect to overall cost, the consumer's awareness of costs, and the complete expense and potential credit schedules are factors included in affordability (Penchansky et al., 1981). As such affordability is observed in this study as clients' perception about affordability of reproductive health services.

2.5.2.5 Acceptability

Acceptability is regularly a more imperative measurement than availability with regards to clarifying whether customers look for health care and where customers pursue health services (Morrill et al., 1969; Van-Zijl et al., 2010). Also talked about as social access, acceptability alludes to patients' assertiveness about the individual and expert qualities of medicinal service suppliers contrasted with the accepted

attributes of existing health workers (Penchanski et al., 1981). For instance, if individuals lack trust in the capacity for a doctor to treat their ailment, they might be probably not going to visit this healer for additional treatment. This association likewise works in converse, catching medicinal services supplier frame of mind with respect to what they contemplate about satisfactory client features (Shreffler-Grant, 2006). Patients reactions to health care provider highlights, for example, expert type, race, kind of facility, age, and responsiveness are matters significant to the acceptability element of access (Thiede et al., 2007).

In other words, one aspect of acceptability is an occurrence recognized as “bypass” (Shreffler-Grant, 2006). It happens when occupants in a particular community acquire medicinal services from a supplier more distant away than the one nearest to their home (Liu et al., 2008). Deterioration of access to services in pastoral areas may lead to underutilization of local health care services (Shreffler-Grant, 2013). As a result, issues that could be observed in the acceptability component include; perception of provider’s professionalism and hours of operation in facility.

2.5.2.6 Quality

Millman (1993) argued that quality of service provided is one of the indicators for measuring access to health care. Practically, service quality could be defined as conformance to operating specifications with performance measures such as waiting times, error rates in transactions, and processing times used to determine whether the process is in or out of control (Reichheld et al., 1990; Schemenner, 1995; Tudor et al., 1995). Quality can also be described as the totality of features and characteristics of a product or service that bear upon its ability to satisfy stated or implied needs

(Parasuraman et al., 1988). Thus, quality is sometimes equated to customer satisfaction or the difference between the customer's perceptions and expectations of service transaction (Oliver, 1997).

Lewis et al., (1983) provided a definition of service quality based on the expectancy approach from the customers' perspective, thus "*service quality is a measure of how well the service level that is delivered matched customers expectation"*. Delivering quality service means *"conforming to customer expectations on consistent basis"* (Lewis et al., 1983:99). It could be technical, which is concerned with the tangibles and services rendered (Gronroos, 1990: Lehtinen et al., 1991) as well as functional, which deals with the interaction processes between a service provider and customer such as empathy, reliability, responsiveness, competence and professionalism (Parasuraman, 1988).

It is therefore pertinent to discern quality in aspect of providers' capacity and providers' empathy in the delivery of reproductive health services.

2.5.3 Utilization of Services

Health services utilization has been defined as the outcome of the interaction between health professionals and patients (Donabedian, 2005; Amstrong et al., 2015). This includes the use of hospital resources, personal care, home resources and physician resources. In other words, services utilization is the measure of the population's use of health care services available to them (Manitoba Center for Health Policy Evaluation, [MCHPE] 1994). It is observed that service utilization measures are traditionally expressed by outcomes and volume of services; yet, utilization is a multidimensional

process (Starfield, 2005). The indicators of utilization of health care services are no different from that of access (Sicotte et al., 1998; Davis et al., 2004). Thus health services utilization may be observed based on indicators for quality of care, accessibility, efficiency, equity and health care expenses (Davis et al., 2004). Health care utilization and health status are used to examine how efficiently a health care system produces health in population (Shea et al., 2007).

From the above definitions, it is pertinent to note that, utilization is the product of access, hence, access alone might not necessarily achieve health services goal until patients fully utilize the services.

2.6 Theories and Models of Access and Utilization of Health Services

2.6.1 The Health Belief Model

The health belief model is a psychological health behaviour model that attempts to explain and predict health related behaviours, particularly regarding the uptake of health services (Sidiqui, 2016). Rosenstock et al., (1994) assumes that health-interrelated actions depend on simultaneous occurrence of classes of factors:

- ***Individual's perceived susceptibility****:* Susceptibility refers to the risk a person has to a particular disease or health outcome (Janz, 1984). Perceived susceptibility examines the individual's opinions about how likely the behaviours they partake in are going to lead to a negative health outcome (Rosenstock, 1974). In other words, a person will look for precautionary health services if he/she trusts he is vulnerable to a specific ailment.
- ***Individual's perception of illness severity:*** This refers to the subjective assessment of the severity of a problem and its potential consequences (Glanz,

2008). As such, if a person does not perceive the illness as serious, they will not seek treatment or prevention (Rosenstock, 1994; Butler, 1994).

- ***Individual's rational perception of benefits versus costs:*** This alludes to a person's appraisal of the esteem or viability of participating in health campaign conduct to reduce danger of ailment (Janz, 1984; Butler, 1994). Rosenstock (1994) postulates that an individual will not make a move except if the treatment or counteractive action is seen as having more noteworthy advantages than expenses. That is, if an individual believes that a particular action will reduce exposure to health problems or decrease its seriousness, then he or she is likely to engage in that behaviour (Rosenstock, 1994).
- ***Individual's cues to action:*** This suggests that a signal or cause is vital for inciting commitment in health-promoting practices (Rosenstock, 1994). Thus, the individual's choice to utilize health services is contextually dependent (Wolinsky, 1988). This may be internal or external including pain and symptoms, information from dear friends, the media and health suppliers (Christopher, 2010).

The Model has some limitations which have been criticized by many authors. Glanz (2008) has argued that the framework does not postulate how concepts of the model communicate with each other. As a result, different operationalization of the theoretical construct may not be strictly comparable across studies (Maiman et al., 1977). Additionally, the health belief model does not consider the impact of emotions on health-related behaviours. It is evidenced that fear may be key factor in predicting health related behaviour (Glaz, 2008).

2.6.2 Anderson Health Behavioural Model

Andersen (1968) propounded a model of health care access and utilization which looks at three categories of determinants. Thus, a person's access to health services is viewed as an element of three qualities:

- ***Predisposing Factors:*** This is the socio-cultural characteristics of individuals that exist before their sickness. These incorporate social elements (level of education and training, occupation, ethnicity, social networks, social cooperation, religion and convictions, and learning that individuals have on the health care framework) and demographic highlights (age and sexual orientation), (Anderson, 1968; Manoti, 2015; Butler, 1994).
- ***Enabling Factors:*** These deals with the logistical parts of getting human services including: individual/family- the methods and skills to get the health services, proceed, medical coverage, a consistent source of care, travel, degree and value of communal relationships; community- available health personnel, facilities, waiting time and other probable hereditary elements and mental attributes (Anderson, 1968).
- ***Need Factors:*** The most direct reason for health service usage, from practical and health issues that produce the requirement for health care administrations. "Perceived need" will better comprehend care-chasing and adherence to a therapeutic routine, while "assessed need" will be more firmly related with the sort and amount of treatment that will be given after a patient has offered himself to a health care provider (Andersen, 1995; Manoti, 2015).

In the 1974, Andersen's model was subsequently extended and polished to incorporate the health system. Thus, service utilization was seen as a function of characteristics of the delivery system itself, characteristics of the population in need, actual utilization of services, consumer satisfaction, and health policies that affect these aspects. The framework incorporates health strategy, means, and organization, as well as the adjustments made after some period. Resources comprise the volume and distribution of both labour and capital, including education of health care personnel and available equipment (Aday et al., 1995). Organization talk about how a health care system deals with its assets, which eventually impacts access to and structure of health services (Anderson et al., 2005; Moya, 2011). In addition, the updated model includes the fact that, customer fulfillment imitates health care utilization (Anderson et al., 2005). Besides, the framework embraces the idea that, there are numerous health services offered, and both the kind of service available (example, a medicinal clinic, dental specialist, or drug store) and the reason for the health care service will inform the sort of service utilized (Andersen et al, 2005). Mechanic (1979) and Rundall (1981) argued that it was unclear whether the framework was intended to explain health care use or describe dimensions of access.

During the 1980's-1990's, Andersen's model was further revised to form three components with a linear relationship: 1) primary determinants; 2) health behaviours; and 3) health outcomes (Anderson et al., 2005). Primary determinants are noted as the direct cause of health behaviours; these determinants include characteristics of the population (that is, demographics), the health care system (that is, resources and organization), and the external environment (that is, political, physical, and economic

impacts of utilization) (Aday et al., 1995; Bradley et al., 2002). In addition, the model explains that health behaviours determine health outcomes. Health behaviours include personal health practices (for instance, diet and exercise) and the use of health services. Lastly, the model indicates that health behaviours are the direct cause of health outcomes. Health outcomes include perceived health status, evaluated health status, and consumer satisfaction (Andersen, 1995).

The model is differentiated from others because by using the framework's relationships, we can determine the directionality of the effect following a change in an individual's characteristics or environment (True et al., 1997). For instance, if one experiences an increase in need as a result of an infection, the Anderson model predicts this will lead to an increase use of services (True et al., 1997). Pitrovic et al., (2015) posited that the model does not only examine human behaviour (for instance the ability to trust) but also lends itself to the expansion on this behaviour (that is, by applying trust to adherence to medications). This model is further differentiated from others by using a feedback loop to illustrate that health outcomes may affect aspects such as health beliefs and need.

Nonetheless, the model has been criticized in many ways. For instance, the first framework was criticized because it focused entirely on characteristics of individuals and families and failed to consider characteristics of the health care system itself that play a large role in accessibility (Wolinsky, 1988). Additional condemnation was the over emphasis of necessity rather that health beliefs and social structure (Johnson et al., 1991). With this, Anderson contends that need itself is a social concept. This is the reason why need is divided into seen and assessed. Where assessed need speaks to a

progressively quantifiable/objective need, perceived need is relatively influenced by health beliefs, for example, regardless of whether individuals think their ailment is serious enough to look for health services (Anderson, 1995). True et al., (1997), has also recommended that one possible change for upcoming reiteration of this framework is to add hereditary facts under predisposing factors; as it might influence health services practice, as well as health consequences, afar what is earlier accounted for in the current model (Rosenau, 1994).

2.6.3 Young's Choice Making Model

Young (1981) proposed a decision making model. This model integrates four components that are most basic to the person's well-being administration decision: 1) insights of seriousness. This part incorporates both the person's discernment and their informal community's thought of ailment seriousness. It depends on the suspicion that tradition orders ailment dimension of seriousness; 2) the knowledge of a home treatment. If a person knows of a home remedy that is efficacious, they will be likely to utilize that treatment before utilizing a professional health care system. Home remedy knowledge is based on lay referral; 3) the faith in remedy. This component combines the person's conviction of adequacy of treatment for the present disorder. An individual will not utilize the treatment if they do not believe the treatment is effective; 4) the accessibility of treatment. Accessibility consolidates the people's assessment of the availability and price of health services (Wolinsky, 1988).

Nonetheless, the theory does not sufficiently elucidate the impact of the person's related knowledge of sickness. For instance, while Young's framework thinks about gravity, the gravity is built within the individual's network group based on

predetermined categories of ailment severity, not the person's related involvements (Wolinsky, 1988). Past experience of sickness may impact view seriousness. For example, a few people display moderately minor indications of malaria, however, others experience hurting pains. To the individual who has minor side effects, malaria might not be seen as serious. Conversely, to the person's networks, malaria could be a bizarrely extreme disease. In the event that an individual has a related knowledge with an ailment and see the sickness as progressively grave, they might be bound to get to preventive health care services.

2.6.4. Conclusion on Theories

Even though these theories have their own short comings, Anderson's model of health care utilization underpins this study because it could better be used to address the research questions. The theory gives emphasis on all the factors including policy factors that may influence access to reproductive health services.

2.7 Empirical Evidence on Access to Adolescent Reproductive Health Services

Access to modern contraception among adolescents has been reported in Bangladesh (41%), Ethiopia (20%), Nepal (14%), less than 10% of ever-married adolescent girls in Burkina Faso, Niger and Nigeria (World Bank Group, 2013). Contraceptive prevalence among ever-married adolescent girls (15-19 years of age) in South Africa is also 15% (World Band Group, 2013).

A study conducted in Ghana by Dapaah et al., (2016) has shown that a larger number of adolescent (64.1%) has never utilized any of the family planning methods. Nonetheless, 17% of adolescents have ever utilized condoms. Other contraceptive

usage stands as; pill (4.7%), IUD (1.1%), injections (4.1%), natural method (2.9%), withdrawal (1.1%) and lastly abstinence (4.7%), (Dapaah et al., 2016). Moreover, most adolescents use injectables as one of the modern methods of family planning but diaphragm was seen as the least used method while male vasectomy was the least known amongst birth controls (Eliason et al., 2014).

It is also evidenced from a study by Cortez et al., (2014) that, the use of modern contraception is low among adolescent females as compared to the male counterpart. In Bangladesh, 61% of adolescent females use contraception, 31.9% do not use contraception, and 6.6% use traditional methods (Cortez et al., 2014). Also, among Vietnamese adolescents, only 32% of females and 28% of males used a contraceptive method at first sexual intercourse (Gubhaju, 2002).

2.8 Factors Influencing Adolescent Access to Reproductive Health Services

2.8.1 Demographic Factors (Age and Sex)

Both age and sex are seen as significant factors that influence adolescent's access to health care (Regitz-Zagorzek, 2012). It is reaffirmed that the older the individuals, the more likely they would use contraception than those who are relatively younger (Katz et al., 2002; Ontiri, 2011). The WHO (2012) has also underscored that adolescents scarcely see the seriousness of infection or wellbeing need and this is a noteworthy obstacle to the teenagers in getting and using health services. However, De-Allegri, (2011) argued that this particular age group is associated with risk factors because they are related to a number of sexual partners and engage in sexual activities. As a results, adolescents are likely to be infected with sexually transmitted diseases which will increase their demand for curative reproductive health services (Jimmy-Gama, 2009).

In other words, it is observed that traditional gender roles and gender norms continue to dictate a female's access to health care in that, 55% of adolescents who are married report that their husbands make decisions regarding their own health care (World Bank Group, 2013). Also, Fikree et al., (2004) and Higgins et al., (2010) emphasized that in terms of gender, boys tend to be healthier than girls due to gender discrimination, infanticide, early marriage and domestic abuse of females. In contrast, according to Gubhaju (2002) adolescent girls have many reproductive health problems and access health services more than their male counterpart.

2.8.2 Socio-Cultural Factors

2.8.2.1 Religion

Religion embraces one of the kind significance in individual's lives and has been mentioned as a vital factor in reproductive health (Rachel. et al., 2011; Averiyeri, 2015; Yendaw et al., 2015). Some reproductive wellbeing approaches and exercises of international development organizations keep on been condemned by some religious gatherings, for example, Muslims (Mostafa et al., 2010). Such criticisms can serve as a serious obstacle in the delivery of information and services to the youths (Palmer, 2011). As such, adjustment to religious standards and ethics are fundamentals to the adolescents' faithfulness to the religion, should they be enquired to take on any kind of reproductive health information (Srikanthan, et al., 2008; Rachel. et al., 2011). Thus, church doctrine of moral chastity does not encourage the use of contraceptives but indorses asceticism as the main answer for sexually transmitted diseases among young people in spite of high HIV predominance and the fact that young people take part in premarital sex (Regnerus, 2005; Mostafa et al., 2010).

2.8.2.2 Peer Influence

Peer pressure talks about the impact applied by a companion aggregate in urging an individual to change his or her frame of mind, morals or conduct so as to fit in with group customs (Jimmy-Gama, 2009). Thus, individual health behaviour is influenced by how a person thinks that others view their behaviour (Sacolo et al., 2013). For instance, multiple sexual partners may be the result of females who perceived that their friends were more sexually experienced (Karim et al., 2003). Bingenheimer et al., (2015) argued that adolescents in particular are forced into having sexual dealings by peer pressure. It is therefore observed that adolescents who deliberate sexual matters with their groups, are more likely to have several sex partners, not only that; but they may also be advised to use or not to use a particular health services (Karim et al., 2003).

On a positive note, peer to peer approach is natural and effective especially in increasing adolescent level of knowledge and access to reproductive health services (UNESCO, 2003). Trained peer educators are therefore more credible sources of information for some youth because they communicate in readily understandable way to influence knowledge and access to health services (Hillary, 2003; Sacolo et al., 2013).

2.8.2.3 Stigmatization

Goffman (1963) described stigma as an attitude or perception involving negative social evaluation that taints, discredits, or leads someone to reject an individual because of stereotypes associated with a mental disorder, ethnicity, drug use, or physical disability. It is observed that adolescents are commonly uncertain that their

discretion will be secured, even when it is assured by rules and regulations (Norris et al., 2011). They may see it as enormously imperative that staff kept their business private from their counterparts (Gilliam et al., 2004). As such, adolescents' perceptions of stereotyping, discrimination, devaluation and rejection from others may strengthen their inability to access their reproductive health care services (Norris et al., 2011). In some societies where social norms forbid premarital sex, adolescent with sexual problems like genital ulcer, unplanned pregnancy are more likely to deal with the problems themselves, seek advice from their companions, relatives or visit a few health centers a long way from home (WHO, 2012).

2.8.2.4 Family Values

In certain societies, guardians and the more distant family members like aunties and grandparents are a persuasive wellspring of information, convictions, attitudes and values for the pre-adult (Singh et al., 2007). As such, parents can help their children develop and practice responsible sexual behaviour and personal decision making (Steinberg, 2017). It is also underscored that when the father is available in the family, girls are more averse to be pregnant, to have ever engaged in sexual relations, to be sexually active, and to have encountered unwanted pregnancies, as compared to youths whose fathers do not live in the same household with them (Anon, 2006; Harris et al., 2013). It is therefore pertinent to say that adolescent who live in stable families and are close to their parents are more likely to remain sexually abstinent, postpone intercourse, have fewer partners and use reproductive health services information (WHO, 2010).

2.8.2.5 Education

It is evidenced from studies that adolescents who are educated are better informed and empowered to use reproductive health services to protect themselves from sexually transmitted infections (WHO, 2011; GSS 2014; Kalule-Sabiti et al., 2014). Adolescents who lack some kind of formal education may be unaware of their own need for reproductive health services, uncertain about the safety and reliability of services and contraceptive methods, and consequently, unwilling to use them (Ramez et al., 2008). Chanon et al., (2010) have also reaffirmed that uneducated adolescents themselves may be hesitant to seek reproductive health services due to inadequate knowledge regarding reproductive needs and services.

Nanatte (2009) also argued that adolescents who are educated or are still at school are more likely to use contraceptives as compared to out of school adolescents in that, educated adolescents can be exposed to different mindset and opinions relating to sex and sexuality. This in turn reduces the occurrence of unsafe sex; increase uptake of contraception to avert unwanted pregnancies and infections (Kirby, 2001; Kalule-Sabiti et al., 2014). For instance, in Botswana, contraceptive use varies with the level of education with 40% among girls who are in secondary education and 17% among women with no education (Botswana Adolescent sexual and reproductive health Implementation strategy, 2003).

2.8.2.6 The Media

Mass media campaigns have long been recognized as a tool for promoting public health (Noar, 2006), as being widely used to expose high proportions of large populations to messages (Sano et al., 2016). The media environment has generally

aimed primarily to change knowledge, awareness and attitudes, contributing to the goal of changing behaviour (Catalan-Matamoros, 2011). This indicates that most adolescents use the media environment to gain answers to many of their health concerns by gathering information about reproductive health topics that are hard to discuss with others, such as drug and contraceptive use and sexual health (Lenhart, 2010).

2.8.3 Economic factors

It is believed that economic status has a significant influence on utilization behaviour because of its effect on aspects such as need, recognition, and response to symptoms; knowledge of disease; motivation to get well; and access or choice of health services (WHO, 2003; Ahmed et al., 2010). Economic conditions of individuals such as work and income level have been observed as influencing individuals and group differences in health status (Nketia-Amponsah et al., 2012). The WHO (2012) and Ahmed et al., (2010) observed that unemployment and poverty are the main economic determinants of adolescent's inability to access reproductive health services.

From the foregoing, it is pertinent to say that parents who work in return for income in the form of wage in some types of employment and parents who receive benefits in addition may afford health insurance (Nketia-Amponsah, 2012); are more likely to take care of the reproductive health care needs of their children compared to parents who are bedeviled with poverty (WHO, 2003). Moreover, access to contraception increases among adolescent girls and boys who are employed as compared to those who are unemployed (Cortez et al., 2014).

Accordingly, Tylor (2003) and Yesuf et al., (2013) observed that the economic implications of reproductive health services include not only payment for the treatment, but also productive time of the adolescent lost as they travel all along to look for the services and the travelling expenses incurred. This means that if adolescents will not be supported by their parents or guardian then, it will be more difficulty for this kind of population to access reproductive health services.

2.8.4 Health System Factors

2.8.4.1 Health Worker's Attitude/Behaviour

It is affirmed that one of the major reasons why adolescents refuse to access services in health facilities is that, they perceive health providers not to keep their health problems confidential (Kambikambi, 2014). Also, service providers' competencies, attitudes towards clients are fundamental determinants which can promote or hinder adolescents' access to reproductive health services (Mbugua, 2007). All these factors are centered on client satisfaction, and mostly the service provider acts illegally leading the care seeker into more danger; for instance, unsafe abortions (WHO, 2010).

In addition, studies have shown that access and utilization of available reproductive health services by adolescent is determined by how the services are provided to them and how friendly the services are to them (Nduba et al., 2011). As such, provider biases may result in adolescents not seeking sexual and reproductive health services out of fear that providers and health facility staff will judge or mistreat them (Katz et al., 2002; Jimmy-Gama, 2009). These negative attitudes in the long run contribute negatively to the reproductive health of adolescents because according to Fikree (2001), 50% of adolescents who acquire knowledge particularly on contraceptives

from health officials are likely to use them as compared to other sources from which they acquire the knowledge.

2.8.4.2 Facility Organization and User-Friendliness

It is asserted that the provision of good quality health services to adolescent can be achieved through the provision of user friendly health facilities and improved clinical skills of providers (NPC, 2000). In addition, it is observed that adolescents are often reluctant or unable to obtain required health services in that, most facilities are not organized in consonance with their privacy (WHO, 2010).

In other words, the location of reproductive health providers far from where adolescents live, work, or attend school and limited access to transportation (Moya, 2011), cost of transportation (Hock-long et al., 2003; Judy, 2014); may prevent young people from seeking reproductive health services and information. This is because they may be unable to afford the services and may not feel comfortable asking friends or family to provide funds for such expenses. As such, WHO (2010) asserted that the present generation of adolescents faces complex challenges to their health and development than their parents did due to facility organization and the inadequacy of facilities. However, Judy (2014) affirmed that there is no association between distance and accessibility of health services.

2.8.4.3 Physician Supply

It is observed that physician supply impacts on health care access by adolescents. Even though physician supply is not as multifaceted as other socio-economic factors, however, a large part of literature illustrates that its relationships with health care

access is straight forward (Gage et al., 2006; Celletti et al., 2010). An increase in the proportion of doctors available in a facility consistently results in an increase in health care utilization of all types (Burwell, 2015). This indicates that many adolescents will use or be encouraged to use reproductive health services when the physician services are made available (Del Canal et al., 2012).

2.8.4.4 The Policy Environment

Government policies and the values of a country can have a direct effect on health care utilization (Addo, et al., 2015; Stoddard et al., 2017). When a country wants to increase the use of health care by the population, it can create policies in order to do so (Muller et al., 2001; Van der Geugten et al., 2015). The best example of this fact in Ghana is the introduction of the Adolescent Reproductive Health Policy which illustrated that health systems provide more access to health care for persons of lower socio-economic status, which the adolescent child is no exception (NPC, 2000). As such, Addo et al., (2015) observed that any government health policy which takes into consideration the professional reproductive health services for adolescents; which takes cognizance of gender and age differences as well as affordability of the reproductive health products and services will attract the attention of adolescents.

2.9 Effects of Adolescent Reproductive Health Policies

2.9.1 Global Policies on Adolescent Reproductive Health

The human right of children younger than 18 was addressed by the treaty on the *"Rights of the Child"* in 1989. This was one of the treaties on global human right which addressed various requirements including the reproductive rights of adolescents (University of Maryland, 2011). This Convention professed that kids (0-18 years)

reserve the privilege to information and services to endure, and to mature to their maximum capacity. In any case, a milestone in regards to health of the youth was the International Conference on Population and Development, which was held in Cairo in 1994 (WHO/UNFPA, 2007; WHO, 2014).

In response to the numerous reproductive health problems that countries particularly in the developing world are bedeviled with, the 1994 International Conference for Population and Development (ICPD) identified "*access to reproductive health*" as a development goal, making it an important objective for health systems in many countries (WHO/UNFPA, 2007; WHO, 2014). As a result, it was identified and recommended that adolescent reproductive health issues are addressed through the promotion of responsible and healthy sexual behaviour, including voluntary abstinence and the provision of appropriate services and counseling specifically suitable for that age group. Countries were encouraged to roll out programmes and ensure that attitudes of health-care providers don't restrict youth access & utilization of the services and information they need (WHO, 2011).

It must however be stated that the ICPD concept of reproductive health was not explicitly included in the framework of the Millennium Development Goals (MDGs) (WHO/UNFPA, 2007). As a result, the 2005 World Summit strongly emphasized the role of sexual and reproductive health in achieving gender- and health-related MDGs and recommended that the goal of *"achieving universal access to reproductive health"* should be integrated into MDG monitoring mechanisms (WHO, 2011). Following this, the United Nations General Assembly of 2006 adopted the Secretary General's report which included a target *"to achieve universal access to reproductive health"* under

MDG 5 (which addressed the improvement of maternal health), (WHO, 2008). Given the importance of reproductive health, it was further captured as a target (thus target 3.7) in the current Sustainable Development Goal three, which aims *to "ensure healthy lives and promote well-being for all at all ages*" (United Nations, 2015).

From the forgoing, countries worldwide have committed themselves in putting up reproductive health policies to ensure that the reproductive health of the adolescent is put into proper context (Moris et al., 2012). For example, in Nepal, the government implemented a National Adolescent Health and Development Strategy to deal with adolescent explicit health related problems in Nepal (FHD, 2000). This was to maintain the sexual and reproductive health rights of young people by making youth friendly services sufficient in public health facilities, information sharing and training adolescents, service and peer educator to enhance use of juveniles' reproductive health services; including contraceptives (Khanal, 2016). In Morocco, the health system aims to expand access to adolescent reproductive health care by regionalization and decentralization (WHO, 2011), within the context of extension plans for health coverage, new health facilities were designed and established, especially in rural areas. However, WHO (2011) reported that even though these interventions exist in many countries of the world, adolescents' knowledge and access to reproductive health services was still low.

2.9.2 Adolescents Reproductive Health Policies in Ghana

Ghana as a country has also committed itself in putting up reproductive health interventions to ensure that adolescents meet their reproductive health needs (Addo et al., 2015). The following review focuses on some policies that give emphasis on

adolescent reproductive health issues in Ghana. These include the Ghana Adolescent Reproductive Health Policy (NPC, 2000), Reproductive Health Service Policy and Standards (Odoi-Agyarko, 2003), National HIV/AIDS and STI Policy and the Criminal Code on Abortion (Morhee et al., 2006).

In response to the ICPD recommendations and an assessment of health facilities by the Ministry of Health, reproductive health service policy and standards were drafted (Wisdom, 2011). This document covered a wide range of reproductive health preventive and management measures, including decision making on birth control (Bouroughs, 2003). However, there were a number of significant problems with the policy. For instance, adolescent sexual and reproductive health services focused mainly on birth control. One aspect of the policy is that, concerns of adolescent girls were treated not differently from the concerns of women generally; assuming the two groups would have the same reproductive health concerns and needs (Wisdom, 2011). The policy was also primarily concerned with reproductive functions, rather than overall reproductive health.

The Adolescent Reproductive Health Policy (ARHP) was also the outcome of a broad-based consensus building process, initiated by the Ghana Population Council (NPC) in response to the unique reproductive health needs of adolescents (NPC, 2000). According to the NPC (2000), the main objectives of the policy are: to build consensus on adolescents' reproductive health among individuals and organizations working on issues affecting adolescents and to provide a forum for promoting the development of programmes and activities on reproductive health for young adults and adolescents (NPC, 2017). The policy aims basically at two categories of people. These are the

primary and secondary recipients. The former are the adolescents (in-school and out-school persons) themselves and the latter are all categories of people who influence the attitudes and behaviour of providing services for adolescents (NPC, 2017). It also considers special groups such as commercial sex; street youth and street-involved adolescents, mentally disturbed, physically challenged, teenage parents, adolescent couples and young people living with HIV/AIDS. This notwithstanding, the policy objectives and targets were particularly tranquil on reproductive health rights of adolescents which may have a ton of adverse outcome on any programme executed. Thus, the policy does not prioritize sexual and reproductive health rights of adolescents, example, the right to unreservedly and without intimidation or discrimination, to have control and settle on choices concerning their own sexual and reproductive health. As a results, adolescents still find it uneasy seeking for reproductive health information and services (GSS, 2011; Addo et al., 2015), since some convictions scowl them from using some reproductive health services (Averiyeri, 2015). It has also been revealed that ASRH is under-utilized in Ghana because the policy has received little priority in district's annual review of the health sector (Hesse, 2002).

The Government of Ghana in 2004 also initiated the National HIV/AIDS and STI Policy as a means of improving the reproductive health of adolescents. The policy was implemented through a collaborative effort between the Ghana AIDS Commission and several organizations (Ghana AIDS Commission, 2004). That is, the University of Ghana, the National Population Council, the Attorney General's Department and the Ministry of Employment, Youth and Manpower Development (now Ministry of

Employment and Labour Relations). Targeting young people and empowering them were key strategies outlined in the policy. Intervention strategies include initiating educational and poverty alleviating programs to reduce vulnerability. In addition, there were strategies to encourage participation in HIV/AIDS and STIs programmes by making HIV/AIDS counseling facilities more accessible and welcoming to youth (Ghana AIDS Commission, 2004).

One of the key adolescent reproductive health interventions in Ghana recently is the GhARH project implemented in the year 2014 in all Districts of the Brong Ahafo Region, thus including the Asunafo South District (NPC, 2017). It was implemented by the former Futures Group Europe, now Palladium, in partnership with the government of Ghana. Among the numerus objectives of the project were to strengthen the government's capacity to manage, implement and expand cost effective adolescent reproductive health intervention and to increase knowledge and access to appropriate reproductive health information and services (NPC,2017). Key among the activities of the project was the establishment of adolescent friendly reproductive health corner in Kwapong, a community in the Asunafo South District to provide essential reproductive health information and services for adolescents. The corner was additionally equipped with logistics and equipment including diagnostic equipment, infection prevention items, teaching and learning materials, furniture and others like doctors' stools, medical trolley, teal bowls, and bedside screen, indoor games among many others (GHS, 2016). Other benefits derived from the establishment of the corner were the organization of training and seminars for health workers in charge of the corner, workshops for key stake holders like school teachers and pastors, formation of

social clubs for adolescents among many others; to improve access to information and reproductive health services.

2.9.3 Effects of Reproductive Health Policies on Adolescent Knowledge of Reproductive Health Issues

Aid agencies, national governments and non-governmental organizations are increasingly focusing funds, efforts to improve upon adolescent knowledge of reproductive health issues (UNFPA, 2014; WHO, 2015). For instance, Van Meijel (2012) has asserted that an intervention dubbed "Sexual and Reproductive Health Education for Adolescents" in the Bolgatanga Municipality of Ghana, initiated by the Youth Harvest Foundation Ghana has contributed significantly in increasing awareness on health issues, particularly HIV AIDS and other sexually transmitted diseases as well as the incidence of malaria.

It is therefore pertinent to note that among adolescents, policies have significant effects as they help adolescents gain, identify health issues, specifically sexually transmitted infections and increase control over the determinants of their health and influencing their lifestyles to be conducive to health (Schatz et al., 2001; Van der Geugten et al., 2015; Stoddard et al., 2017; McKenzie et al., 2005). Thus, according to Macdonald et al., (2002) and Jimmy-Gama (2009), health policy such as promotion in the short term empowers adolescent to improve and maintain health through disease prevention, health enhancement, and medical care because through policies they are able to determine all the possible reproductive health issues.

2.9.4 Effects of Adolescent Reproductive Health Policies on Access to Adolescent Reproductive Health Services

Literature available indicates that sexual and reproductive health policy for adolescents promotes safer sex practices and does not increase their sexual activities, contrary to what many parents feared (Granich et al., 2009). Much has been learned regarding the effects of effective practices for adolescent reproductive health programming globally in aspect of access to reproductive health services (Van der Geugten et al., 2015). It is observed that reproductive health policies that spell out adolescent reproductive health programmes to target vulnerable adolescents do help girls stay in school, marry later, delay childbearing, have healthier children and earn a better income that benefits themselves, their families and their communities (Patel et al., 2007; Laski, 2010; Chandra-Mouli et al., 2013). Thus, reproductive health policies guarantee informed choice to current and future users of contraception about side effects or problems of method use. In the long run, reproductive health policy contributes to the relevance, effectiveness, efficiency and sustainability of family planning programmes (UNFPA, 2016).

The Brazilian reproductive health policy for instance, which brought to bear measures in the area of family planning including free distribution of condoms, pills, injectable and intrauterine devices at public facilities has led to improved outcomes in access. For example, contraceptive use for sexually active women increased from 55% in 1996 to 68% in 2006 (WHO, 2011). Also, UNFPA's policy "Global Programme to Enhance Reproductive Health Commodity Security" has also been reported as having significant effect on implemented countries as far as access is concerned. As a result,

UNFPA (2016) observed in Ethiopia that majority of health centers had 3-5 contraceptive methods available and highly patronized by adolescents.

In India, the national reproductive and child health interventions have been reported as having significant effect on adolescent access to reproductive health services. As a result, it is evidenced that the proportion of adolescent births among all births has decreased to range from 2% to 14% by state (WHO, 2011). Uzbekistan introduced "health system reforms" with the aim of increasing access to and quality of reproductive health care, especially in adolescents with regards to family planning. Consequently, one noteworthy example was adolescent childbearing; the proportion of adolescent girls aged 15-19 bearing children decreased from 3% in 2008; attribute to the increased utilization of contraceptives (WHO, 2016).

Granich et al., (2009) have also posited that reproductive health interventions that make room for voluntary STIs testing have significant effects on utilization and serve as a strategy for eliminating STIs transmission. According to a report by the Ghana Health Service Monitoring and Evaluation Division (GHSMED, 2002) reproductive health policies benefit people, particularly adolescents including growth monitoring of healthy children; decrease in maternal and infant mortality, and increase in family planning use.

In sum, it is observed that adolescent reproductive health policies have significant effects on adolescents' access to reproductive health services. In the long run, reproductive health policies may contribute to decreasing sexually transmitted diseases, teenage pregnancy, maternal and child deaths and poverty as a whole;

because good policies ensure that boys and girls have access to reproductive health services that are free from discrimination.

2.10 Summary of the Review

From the literature reviewed, it is underscored that countries worldwide including Ghana have implemented policies and programmes aimed at improving the reproductive health of adolescents. However, it has been observed that adolescents face series of problems including adolescent/teenage pregnancy, unsecured abortion, sexually transmitted infections, menstrual problems and many others. In addition, it has also been found out that factors such as family support, level of education, adequacy of information, peer, religion, physician supply, facility organization and others influence adolescents' knowledge and access to reproductive health services. Also, the existing literature showed that there are several reproductive health services available for adolescents' including sex education and counseling, family planning services, antenatal and postnatal services among many others. Evidence showed that adolescents mainly get access to information on reproductive health through the radio, associates, family, school and the mass media.

It was observed that reproductive health services access and utilization is primarily dependent on the level of knowledge. However, substantial gaps were detected in adolescent's functional knowledge and access to reproductive health services. For instance, the review was able to find out that adolescents may know some aspects of reproductive health and services, but this knowledge does not go in tandem with practice.

It was also observed that various studies focus predominantly on factors promoting or inhibiting knowledge and access to reproductive health services. These do not provide comprehensive data on issues regarding adolescents' reproductive health services. Also, there has not been any study that assessed effects of the GhARH project on knowledge and access to reproductive health services among adolescents in the Asunafo South District. For this reason, access to reproductive health services is measured in this study in terms of availability, accessibility, affordability, acceptability and quality which have not been mainly used; in addition to the socio cultural and health system factors that influence knowledge and access to reproductive health services.

Again, due to the complex nature of adolescent behaviour in relation to their reproductive health issues, three theories and models of health service access and utilization have been reviewed to understand how and why adolescents may utilize a particular health service. These theories are the health belief model, the health behaviour model, and the choice making theory. Even though these theories have their own strength and short comings, Anderson's et al., (2005) model of health care utilization underpins this study because it could better be used to answer the research questions. The theory gives emphasis on all the socio-cultural factors, policy and other health system factors that may influence access and utilization of reproductive health services.

2.11 Conceptual Framework

In Figure 2.1, the study adopted Andersen and Newman's Model of Health Service utilization to investigate effect of the "Ghana Adolescent Reproductive Health" project

on adolescent's knowledge and access to reproductive health services (Anderson et al., 2005). This behavioural model provides a systems viewpoint to investigate a range of individual, environmental and provider related factors that influence access to health services.

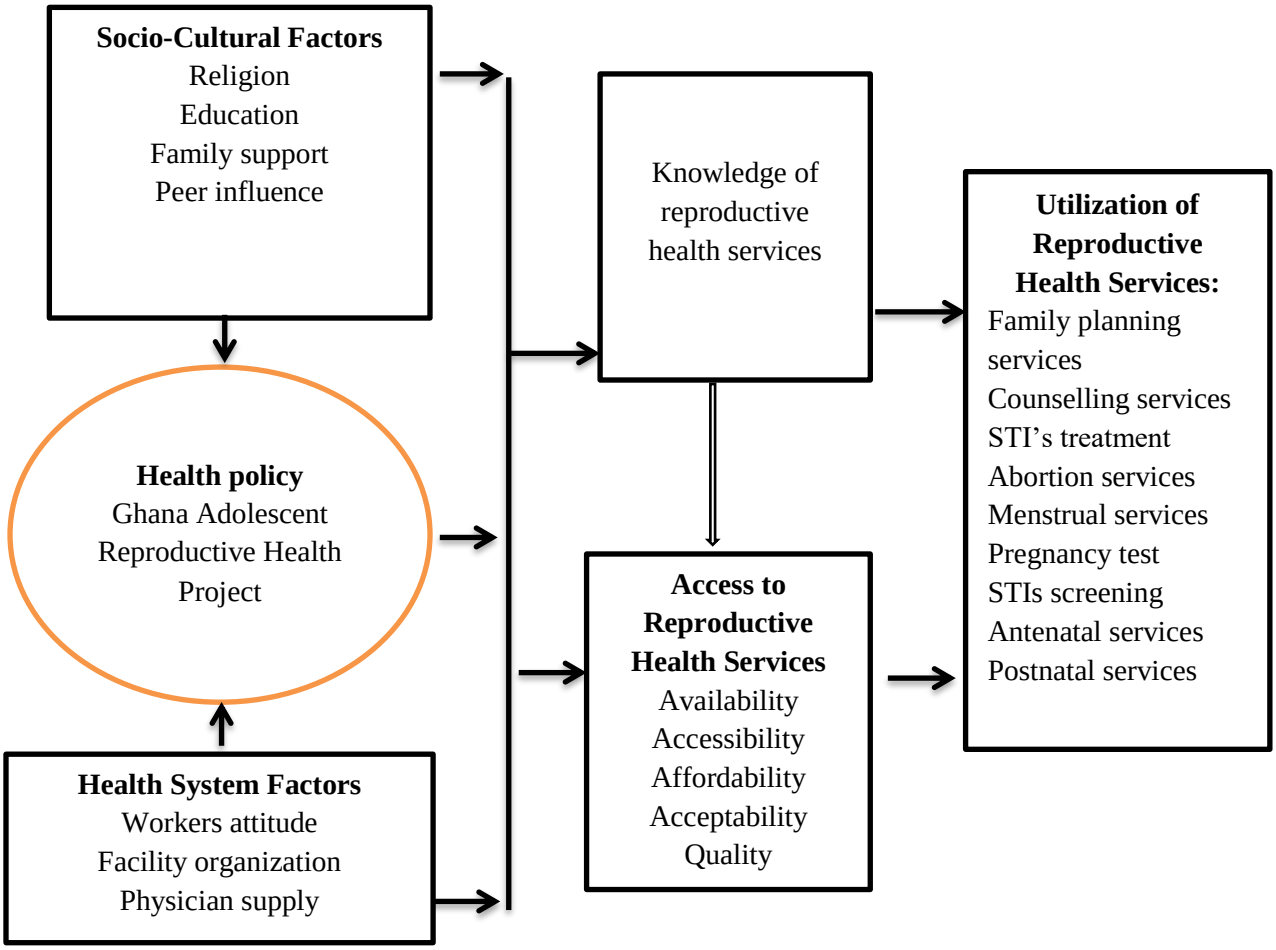

Figure 2.1: Conceptual framework of the study (adapted from Anderson et al., 2005)

Since the focus of this study is on the effects of the "Ghana Adolescent Reproductive Health" project on knowledge and access to reproductive health services among adolescents, the study quantified the differences in knowledge and access to reproductive health services among the project beneficiary and non-beneficiary communities. However, as revealed in the literature, there were other determinants that

serve as control variables that inform knowledge and access to reproductive health services including socio cultural factors as well as health system factors. These factors were also explored.

In sum, the conceptual framework is based on the fact that knowledge and access to reproductive health services are influenced by policies as well as some socio cultural and health system factors. Knowledge was therefore measured in this study by the level of awareness of reproductive health services such as family planning methods, STIs treatment, abortion services in facilities, menstrual services, STI/HIV screening and pregnancy testing in facilities, and antenatal and postnatal services.

Also, specific indicators for measuring access in this study included:

- *Availability*: sufficiency of reproductive health services,
- *Acceptability*: provider's professionalism, hours of operation,
- *Accessibility:* distance to health facility,
- *Affordability*: prices of reproductive health services,
- *Quality*: provider's capacity and provider's empathy.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the various methods, instruments and techniques employed in the study. It describes the study area, research approach and design, target population, sample size determination, sampling technique, sources of data, methods and techniques of data collection, data processing and analysis, validity and reliability of methods and ethical issues.

3.2 Study Area

The study was conducted in the Asunafo South District, specifically Kwapong and Abuom communities. The district was chosen because it is one of the beneficiaries of the GhARH project. The communities are similar in characteristics because both have clinics and required number of health workers to provide basic health care services for the people. The major difference is the fact that, one has a health corner provided under the GhARH project and the other does not have; so it is expected that if there is any observed difference, it might be due to the presence of the health corner.

The Asunafo South District is one of the twenty-seven (27) administrative districts of the Brong Ahafo Region. The district shares common fringes to the Asunafo North Municipality to the north and the Juabeso District towards the south-west. Other neighboring districts are the Sefwi-Wiaso District in the Western Region towards the south-west and Atwima Mponua District in the Ashanti Region to the south-east.

According to the GSS (2010), the population of the district was 95,580 in 2010, representing 4.1% of the region's total population. Males constitute 51.1% and females represent 48.9%, with a sex ratio of 105. Adolescents represent 22% of the total population. The Total Fertility Rate for the district is 122 live births per 1000, which is higher than that of the regional average of 106 live births per 1000 women (GSS, 2010). Of the population 11 years and above, 70.7% are literate. The proportion of literate males is higher (76.8%) than that of females (62.3%). About 74.3% of the district's populations live in rural localities, majority of who are farmers (GSS, 2010).

In the year 2017, the district recorded two (2) maternal death and three (3) infant deaths (ASDHD, 2017). The top ten diseases in the district in the year 2017 include malaria (32.99%), skin diseases (26.6%), acute urinary tract infection-URTI (15.8%), rheumatism and joint pains (6.4%), Anaemia (5.79%), diarrhea diseases (5.56%), intestinal worms (3.87%), acute eye infection (1.99%), septicaemia (0.93%) and AUTI (0.85%) (ASDHD, 2017).

Also, the district at the end of 2017 had twenty-one (21) functional health facilities; two hospitals, two clinics, two health centers, fourteen Community based Health Planning and Services (CHPS) and one Christian Health Association of Ghana facility (ASDHD, 2017). All these facilities have the basic equipment to help them deliver quality service to the people (ASDHD, 2017). Preliminary information shows that there is an increasing rate of teenage pregnancy and other reproductive health problems in the Brong Ahafo Region and the Asunafo South District in particular (GSS, 2011; ASDHD, 2017). For instance, the 2015 annual progress report of the Asunafo South District revealed the total number of adolescents who tested positive

for HIV/AIDS as 28 in 2015 (ASDHD, 2015). Also, in the year 2016, the total number of adolescents who tested positive for HIV/AIDS was reported as 26. Adolescent pregnancy has also been reported as very high in the Asunafo South District. For instance, in the year 2015, 15.9% of all pregnancies were reported to be adolescents in the district (ASDHD, 2015). Also, in the year 2016, 16.6% of all pregnancies were reported to be adolescents (ASDHD, 2016).

According to the GSS (2010), the population of Kwapong and Abuom communities were 4,363 and 2,752 respectively. The total number of adolescents in Kwapong and Abuom were 947 and 605 respectively (GSS, 2010). In the Kwapong community, there were four public basic schools namely Kwapong R/C primary and Junior High School (JHS), Kwapong Presbyterian primary and JHS, Kwapong Seventh Day Adventist primary and JHS and Kwapong Methodist primary and JHS. In the Aboum community, there were two public basic schools namely Abuom D/A primary and JHS and Abuom R/C primary and JHS.

3.3 Research Approach and Design

The research was conducted using the mixed methods approach (O' Cathain, 2010; Creswell & Plano Clark, 2011; Creswell et al., 2017). The philosophical underpinning of the research approach was the pragmatism worldview (Creswell, 2009). The reason for choosing the pragmatic research paradigm was because this particular position provides a workable solution to multidimensional research questions and offers a practical, intermediate position in relation to the research problem (Creswell et al., 2003; Johnson et al. 2004). In other words, this research viewpoint was regarded possible in light of the fact that the nature of the research problem required both

standardized and opinion oriented inquiries in order to appropriately address the issue in question. The quantitative approach was used to deal with the first and second objectives, which quantified the differences in adolescent's knowledge and access to reproductive health services among the GhARH project beneficiary and non-beneficiary communities. Thus, the nature of the first and second objectives required a close ended inquiry, which clarifies why the quantitative method was utilized.

Nonetheless, there were other qualitative variables that were also explored including socio-cultural and health system factors that influence adolescent knowledge and access to reproductive health services. I therefore, additionally employed the qualitative approach to deal with the third and fourth objectives since issues related with them needed opinion oriented viewpoints to accomplish the objectives. This enabled me to derive in-depth understanding of the issues at stake from respondents and informants (Bryman, 2012; Yin, 2013; Taylor et al., 2015).

Following the research approach, the study adopted the explanatory mixed methods design (Cresswell and Plano Clark, 2011), which logically draw on both elements of the quantitative and qualitative methodologies, to appropriately address the study objectives (Cresswell and Plano Clark, 2011; Abiiro, 2015). The reason for chosen this design was that, it is the only mixed methods design that allows the researcher to gather objective data in the first place before the subjective data collection, from which the subjective results are used to explain the objective results. All things considered, I collected the quantitative data in the first phase, after which topic-specific subjects, and key issues, particularly socio cultural and health system variables were explored qualitatively to give further explanation to the quantitative findings (Creswell and

Plano Clark, 2011). The explanatory mixed methods design was also deemed appropriate because it is one of the mixed method study design that has been used to draw inferences about the effects of an intervention on subjects, where subjects are observed as they are (Bullock, 2017). The quantitative and qualitative results were both mixed during the discussion stage where the qualitative results were used to explain the quantitative results.

3.4 Target Population

The target population of the study was in two categories. Firstly, the target population of the study comprised adolescents in the Asunafo South District. These adolescents were categorized into two groups; JHS adolescents in a community that has been provided with a health corner (Kwapong community) to provide reproductive health services specifically to adolescents in the community and JHS adolescents in a community that has not been provided with a health corner under the GhARH project (Abuom community). The total number of adolescents in the JHS of Kwapong and Abuom were 460 and 255 respectively. The rationale for targeting adolescents in the JHS of the study communities was because these in-school adolescents were the major beneficiaries of the GhARH project. In other words, targeting the JHS was very expedient for me to conduct the study. Also, the reason for adding adolescents in non-beneficiary community was to enrich the study by aiding comparative analysis of findings to determine whether there is a significant difference in knowledge and access to reproductive health services as a result of the project. It is also important to emphasize that the study targeted only adolescents between the ages of 10-19 who were in the JHS of the communities at the time of the study.

The second category of respondents comprised of health workers working in the two health facilities, teachers (school counselors) working in all JHS as well as opinion leaders in the study communities. These people were targeted because they had specific roles to play such as giving advice to school pupil on reproductive health issues under the project. These key stakeholders were considered as key informants in the study. The JHS adolescents were engaged in the quantitative phase whereas teachers, health workers, opinion leaders and some selected adolescents were engaged in the qualitative phase.

3.5 Sample Size Determination

3.5.1 Sample Size for Quantitative Phase

The quantitative phase was administered to adolescents in the JHS of the study communities. This study used Fisher et al., (1998) formula for determining sample size. This formula was used because the target population had similar features in terms of age group. Also, it has been seen as appropriate for comparative studies and also, when it is required that the sample size will further be shared in proportion of the sub-groups in the target population (Jimmy-Gama, 2009; Averiyeri, 2015). The formula is given as;

$$n = \frac{z2\ pq}{d2}$$

Where:

n= the desired sample size for each community,

z= the standard normal deviation, usually set at 1.96 which corresponds to 95% confidence level,

p= refers the proportion of the population with the attribute of interest,

q= 1- p; and

d= degree of accuracy desired, usually set at 0.05.

Assuming the proportion of adolescents to have knowledge and access to reproductive health services is 85% who are able to participate in the study corresponding with 15% of those who do not have the attribute of interest; with the z statistic being 1.96 and the degree of accuracy set at 0.05%, then the sample size (n) is found to be as follows:

$$n = \frac{1.96 \times 1.96 \times 0.85 \times 0.15}{0.05 \times 0.05}$$ Therefore, n= 196 each

From the above, the sample size for each sex was obtained by dividing each sex by the total population and multiplying the results by the required sample size for each community. Therefore, the formula is: (sex/population * sample for the study). For instance, in the Kwapong R/C JHS, adolescent boys were 46 while adolescent girls in Kwapong SDA were 79. Therefore, the proportional sample size for boys in Kwapong R/C JHS was 46/460*16= 20 and the proportional sample size for girls in Kwapong SDA JHS was 79/460*196=34. The formula was used to calculate the sample size for each sex in the schools of the study communities.

Table 3.1: Proportional Allocation of Sample Size for Each School Based on Sex

School	Sex	Number of Pupil	Proportional Sample
Kwapong R/C JHS	Boys	46	20
	Girls	40	17
Kwapong Presby JHS	Boys	51	22
	Girls	43	18
Kwapong Meth. JHS	Boys	49	21
	Girls	58	25

Kwapong SDA JHS	Boys	94	40
	Girls	79	33
TOTAL		**460**	**196**
Abuom R/C JHS	Boys	61	47
	Girls	69	53
Abuom D/A JHS	Boys	67	51
	Girls	58	45
TOTAL		**255**	**196**

3.5.2 Sample Size for Qualitative Phase

In addition to the systematic derivation of the sample size for the quantitative data, a total of thirty-one (31) respondents were sampled in the two communities. That is, five (5) girls and three (3) boys were sampled in the JHS to gather data for the qualitative study in the beneficiary community and four (4) girls and four (4) boys were sampled to collect qualitative data in the non-beneficiary community. It is also worth adding that, 15 key informants, two (2) health workers from each of the selected community's health facility and one (1) school counselors from each of the selected schools, as well as five (5) opinion leaders were sampled to solicit information for the qualitative study. It is important to affirm that, the final sample size was determined by the point of saturation (Creswell, 2014) and on the basis of practical realities such as time and financial resources (Wilson, et al., 2007). Also, Roscoe (1975) and Creswell (2003) argued that, a sample size for most qualitative studies might not necessarily be very large before one can do proper analysis of the issue.

3.6 Sampling Techniques

3.6.1 Sampling Technique for Quantitative Phase

Multi stage stratified random sampling technique was employed in the study. Thus, the strength of this procedure is that, it allows all population groups to be represented in the final sample (Sarantakos, 2005). Additionally, this technique was deemed appropriate in light of the fact that the study population was divided into smaller units in several stages so as to make primary data collection progressively manageable. In the first stage, the study area was stratified into beneficiary and non- beneficiary communities. In each of the communities, all the JHS were covered. In each of the schools, I further stratified the students into males and females. The school registers were then used to compile the sample frame for the males and females. From the above, the simple random sampling technique was employed to select the required number of males and females. Hence, the lottery method was used to select adolescents from each school. According to Babbie (2015), employing the lottery method in addition is one basic practical way to choose respondents with each having an equal opportunity to be selected. In using the schools' registers, the population of males and females in each school were numbered in an order from one (1) to its population size on pieces of paper, folded and shuffled in a container and later picked blindly at random. These numbers were drawn one after the other without replacement to form the required sample size for males and females in each school.

3.6.2 Sampling Technique for the Qualitative Phase

Purposive sampling technique was employed to select health workers, teachers and opinion leaders from the study communities for further studies. The purposive

sampling method was used to select health professionals because they are knowledgeable and well abreast with the subject matter of interest (Creswell, 2012; Yin, 2017). As the name implies, this technique did not ensure representativeness and only health workers who provide adolescent reproductive health services were selected in the beneficiary and non-beneficiary communities, as well as school counselors and opinion leaders who advice school pupils in the schools were purposefully selected. Again, the researcher adhering particularly to the third and fourth objectives of the study also purposively selected some of the school adolescents who were not engaged in the quantitative study and engaged them in the qualitative study. These individuals were selected because their information will serve as complement of the study. In all, purposive sampling technique was employed to select these respondents since they were the key stake holders under the GhARH project.

3.7 Sources of Data

Quantitative data on adolescents' knowledge and access to reproductive health services and background characteristics was collected as primary data from adolescents in the selected communities. Also, qualitative data on factors that influence adolescents' knowledge and access to reproductive health services such as socio-cultural and health system factors was solicited from primary sources within the selected communities. Data was also drawn from secondary sources such as journals, published works and documentations on reproductive health.

3.8 Data Collection

3.8.1 Quantitative Data Collection

Survey approach was used to collect the quantitative data from adolescents in the study communities. In view of this, the study used questionnaire as a tool to gather the quantitative data from the respondents. The use of questionnaires allows for massive data to be collected at a shorter period of time (Sarantakos, 2006; Creswell and Plano Clarks, 2011). In all, questionnaire was chosen for this study because, it helps to gather quantitative data to establish the difference in knowledge and access to reproductive health services in the two communities (Bryman, 2012).

It is pertinent to state that the questionnaire was structured in line with the study's conceptual framework. It was divided into sections based on the research questions one and two. The questionnaire was in three parts. The items in part 'one' elicited information on the background characteristics of the respondents. Questions that were captured in this part included age of respondents, sex, religion, respondents' place of residence, relationship status of respondents, and many others.

Part 'two' comprised of items bringing forth respondents' knowledge on reproductive health services and sources of information. This part was made up of specific items such as respondents' awareness of family planning methods, awareness of abortion and menstrual related services, awareness of antenatal and postnatal services and many others.

The items in part "three" elicited information on adolescent's access to reproductive health services. This part was also made up of subsections such as availability of

services, affordability of services, distance to health facility, provider's professionalism, operating hours of health facilities, utilization of services and other issues that have been emphasized in the conceptual framework.

Following the structure of the questionnaire, it contained closed ended question items requiring adolescents to respond to predetermined categories. Thus, the research questions were structured using statements on an ordinal scale in a close-ended form. This was done using the Likert scale on a three-scale dimension. Respondents were allowed to rate the above discussed issues captured in the questionnaire. This was deemed appropriate because according to Bryman (2012), Likert scale enables the researcher to quantitatively test variables and measure weights. Also, the questionnaire was administered to selected respondents in the various schools during break and at a time agreed by them for the purpose of convenience and also, to gain more cooperation from them. The same questionnaire was used in the two communities. In the process of data collection, the questionnaires were interview-administered.

In the administration of the questionnaire, two research assistants who were national service persons were recruited to help in the data collection. In terms of sex, one male and one female were selected to help in the data collection. This was done in order to get good responses from the respondents because girls and boys will feel uncomfortable when issues regarding adolescent reproductive health are being facilitated by the opposite sex. Hence, the female research assistant helped to collect data from the school girls' whiles the male research assistant also helped in the collection of data from the school boys. The research assistants were trained before

the data collection. The average minutes used to administer a questionnaire was 28 minutes.

3.8.2 Qualitative Data Collection

Qualitative data was collected from in-depth interviews with school adolescents and key informant interviews with health workers, school teachers and opinion leaders. In doing this, in-depth interview guide and key informants interview guide were employed to solicit information from adolescents and the key informants respectively.

The information in the in-depth interview guide was structured in the form of open ended questions for adolescents to respond. This method was used as a means of getting in-depth understanding of the issue at stake (Creswell, 2011). Thus, because of the open nature of the interview guide, I had the opportunity of probing questions in order to get deeper information from respondents.

From the above, adolescents in the selected communities were interviewed, particularly on the socio-cultural and health system factors that influence knowledge and access to reproductive health services. The interview guide had two parts consisting of major items. The items in part 'one' elicited information on the socio-cultural factors that influence adolescents' knowledge and access to reproductive health services in the study communities. Part 'two' comprised of items bringing forth how health system factors influence adolescents' knowledge and access to reproductive health services among adolescents. The interview was conducted in the various schools' premises.

The key informant interview guide was also structured with open ended questions that elicited information on informants' views concerning the factors that influence adolescent knowledge and access to reproductive health services. It was also organized particularly around the research questions three and four. In view of this, issues that were covered for informants to respond thoroughly are: (1) socio-cultural factors that influence adolescents' knowledge and access to reproductive health services, and (2) health system factors that influence adolescents' knowledge and access to reproductive health services. The health workers and school teachers were interviewed in the health facilities and the head master's office respectively. Religious leaders who were also engaged were interviewed in their residence. Data was collected using face-to-face interview session between data collectors and all respondents. During the interview, information from all the respondents were recorded using an audio tape recorder. At the end of every interview, respondents were allowed to validate key things that were said before ending each interview session (Babbie, 2010). The interviews were facilitated by the researcher and the data collection assistants who led the participants on topics one by one. Each interview lasted for an average of 30 minutes.

3.9 Data Analysis

The data analysis was divided into quantitative and qualitative analysis. The quantitative data was processed using the IBM Statistical Package for Service Solutions (SPSS) software, version 20. At the first level, univariate analysis was done just to describe the socio-demographic characteristics of adolescent respondents and information on knowledge and access to services. Thus, descriptive statistics particularly frequencies and percentages were used to show results of the quantitative

information. At the next level, I did bivariate analysis just to look at the differences in knowledge and access to reproductive health services. In so doing, cross tabulation and chi-square test were used to test the differences in knowledge and access to reproductive health services between the two communities. T-test at alpha 0.05 was used to determine the level of significance. Relevant statistical data were then presented in tables. Also, graphs were used to present and describe results on the sources of information on reproductive health services.

On the other hand, the qualitative data was analyzed manually. As such, the resulting texts were analyzed by using thematic analysis. In the primary stage, recorded interviews were listened cautiously and essential notes were taken from the transcription. In the second stage, issues being said fascinating in the interview were put into labels or codes. In the third phase, the codes were properly interpreted and put into appropriate context which relate well with the research questions. The qualitative analysis also clearly captured respondents' assertions that were quoted during the interview (Neuman, 2007). The quantitative results were presented first, followed by the qualitative results and both results were merged during the discussion.

3.10 Validity and Reliability

The questionnaire and interview guide were given to professionals in the field of research who criticized and gave suggestions on the necessary areas to change. This was done in order to check whether the questions could measure what they were supposed to measure or not. Also, the data collection tools including the questionnaire and interview guide were pre-tested in the form of pilot study in a different community with similar characteristics as that of the study areas so as to ensure clarity of

questions. In view of this, pre-testing of the instruments took place at Nobekaw, a community in the Asunafo South District. The pre-testing exercise lasted two days. Also, as emphasized by Creswell (2012) *diffusion of treatments,* where the non-beneficiary community may learn from the beneficiary community due to proximity, the non-beneficiary community was chosen from a far distance to ensure validity.

In order to ensure reliability in this study, two research assistance were selected and trained before they were engaged in the study. In the main study, the data collection assistants were thoroughly supervised to prevent any mistakes in the administration of questionnaires. Also, completed questionnaires were checked daily and errors were corrected. In assessing the internal consistency of the scale used to measure the dimensions of access to reproductive health services, the Cronbach's Alpha co-efficient was computed; availability of services (α=0.782), affordability of services (α=0.791), distance to health facility (α=0.956), workers' professionalism (α=0.892), operating hours (α=0.891), health workers' capacity (α=0.895) and health workers' empathy (α=0.873). These imply that, the items in the scale are well related and measure the same concept (access to reproductive health services) because, according to Tavakol (2008), Cronbach's Alpha greater than 0.6 is acceptable.

3.11 Ethical Considerations

During the study, the research ethical principles were observed at all levels. Ethical clearance was acquired from the Navrongo Research Center. Permission to conduct the study was also sought from the Ghana Education Service (GES), school authorities, health facilities and the communities before the data collection. Other research ethical principles that were observed include confidentiality of information and also,

participation was purely on voluntary basis. It is also important to affirm that no incentives were provided to any participants and no intimidations were instituted for participants. That is, there was a clear message to respondents that there were no direct benefits for them as individual participants, but the information collected would help the policy makers to make policy which will improve the reproductive health services in the facility and also for the entire country. Participants were also assured that they can seek further clarification on any question or issue they found confusing.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents results and discussion of findings of the study. Issues that were systematically covered include the socio-demographic characteristics of adolescent respondents, differences in knowledge about reproductive health services among adolescents, differences in adolescents' access to reproductive health services (availability, affordability, accessibility, acceptability, quality of services) and utilization of services as well as socio-cultural and health system factors influencing adolescents' knowledge and access to reproductive health services. The quantitative results were presented first, followed by the qualitative results and both results were merged during the discussion.

4.2 Socio-Demographic Characteristics of Adolescent Respondents

Table 4.1 presents results on the socio-demographic characteristics of adolescent respondents in the project beneficiary and non-beneficiary communities. The variables covered in the study include age, sex, sexual relationship status, religion, number of siblings, parents' marital status.

Table 4.1: Socio Demographic Characteristics of Adolescent Respondents

Variable	Category	Beneficiary Community Number(%)	Non-beneficiary Community Number (%)	Total (%)
Sex	Female	93(47.4%)	98(50.0%)	191(48.7%)
	Male	103(52.6%)	98(50.0%)	201(51.3%)
Age	10-13yrs	34(17.3%)	41(20.9%)	75(19.1%)
	14-15yrs	62(31.6%)	76(38.8%)	138(35.2%)
	16-19yrs	100(51.0%)	79(40.3%)	179(45.7%)
Sexual relationship status	Not in sexual relationship	125(63.8%)	118(60.2%)	243(62%)
	In sexual relationship	71(36.2%)	78(39.8%)	149(38%)
Religion	Catholic	45(23.0%)	48(24.5%)	93(23.7%)
	Other Christians	145(74.0%)	122(62.2%)	267(68.1%)
	Islam	6(3.1%)	26(13.3%)	32(8.2%)
Number of parents children	1-3	43(21.0%)	63(32.1%)	106(27%)
	4-6	98(50.0%)	109(55.6%)	207(52.8%)
	7+	55(28.1)	24(12.2%)	79(20.2%)
Position among siblings	1st	62(31.6%)	78(39.8%)	140(35.7%)
	2nd	43(21.9%)	47(25.0%)	90(23%)
	Higher	91(46.4%)	71(36.2%)	162(41.3%)
Marital status of Parents	Single parent	88(44.9%)	79(40.3%)	167(42.6%)
	Still married	108(55.1%)	117(59.7%)	225(57.4%)
Who respondents live with	Both Parents	94(48.0%)	87(44.4%)	181(46.2%)
	Single parent	74(37.8%)	76(38.8%)	150(38.3%)
	Relative	28(14.3%)	33(16.8%)	61(15.6%)

In Table 4.1, majority of the respondents were males (51.7%) but the males were slightly higher in the beneficiary community (52.6%) than the non-beneficiary community (50%). Also, majority of the respondents were in the late adolescent age group of 16-19 (45.7%). In the two communities, only 38% of the respondents were in sexual relationship. The study also revealed that, majority of the respondents (74%) belonged to other Christian religion group (Pentecostals, Charismatics, Methodist and Adventist). More than half of the respondents had parents who were still married (57.4%). Also, majority of the respondents were from the Akan ethnic group, representing 65.3%.

4.3 Knowledge of Reproductive Health Issues and Services

4.3.1 Knowledge of Reproductive Health Issues

The study revealed that knowledge of reproductive health issues was very high across the two communities. The study showed that a larger number of adolescents (98%) were knowledgeable about sexual intercourse. Majority of the adolescents in the two communities (93.4%) knew that a woman could get pregnant when she has unprotected sexual intercourse. It was also found that, as many as 87.8% of the adolescents in the beneficiary community and 80.1% of the adolescents in the non-beneficiary community knew that, a man/woman could be infected with HIV/AIDS when he/she has unprotected sexual intercourse. As many as 78.1% of the adolescents in the beneficiary community and 69.9% of the adolescents in the non-beneficiary community knew that immediately after a woman's first menstruation, she could get pregnant when she has unprotected sex. Again, 72.4% of the adolescents in the beneficiary community and 67.3% of the adolescents in the non-beneficiary

community knew that, there are specific days in the month when a woman is likely to get pregnant.

4.3.2 Difference in Knowledge of Reproductive Health Services among Adolescents in the Project Beneficiary and Non-Beneficiary Communities

Table 4.2 presents results on adolescents' knowledge about each of the reproductive health services in the beneficiary and non-beneficiary communities.

Table 4.2: Differences in Adolescents' Knowledge of Reproductive Health Services

Variable	Category	Beneficiary Community	Non-beneficiary Community		Chi-Square Test	
		Number (%)	Number (%)	Total (%)	χ2	P .V
Male condom	Yes	180 (91.8)	181 (92.3)	361 (92.1)	0.035	0.852
	No	16 (8.2)	15 (7.7)	31 (7.9)		
Female condom	Yes	80 (40.8)	64 (32.7)	144 (36.7)	2.810	0.094
	No	116 (59.2)	132 (67.3)	248 (63.3)		
Pills	Yes	148 (75.5)	124 (63.3)	272 (69.4)	6.918	0.009
	No	48 (24.5)	72 (36.7)	120 (30.6)		
Injectables	Yes	130 (66.3)	76 (38.3)	206 (52.6)	29.833	0.000
	No	66 (33.7)	120 (61.2)	186 (47.4)		
Implants	Yes	109 (55.6)	80 (40.8)	189 (48.2)	8.593	0.003
	No	87 (44.4)	116 (59.2)	203 (51.8)		
Withdrawal	Yes	98 (50.0)	119 (60.7)	217 (55.4)	4.552	0.033
	No	98 (50.0)	77 (39.3)	175 (44.6)		
Emergency contraception	Yes	140 (71.4)	134 (68.4)	274 (69.9)	0.436	0.509
	No	56 (28.6)	62 (31.6)	118 (31.1)		
STIs counselling	Yes	173 (88.3)	123 (62.8)	296 (75.5)	34.488	0.000
	No	23 (11.7)	73 (137.2)	96 (24.5)		
Contraceptive counselling	Yes	170 (86.7)	114 (58.2)	284 (72.4)	40.079	0.000
	No	26 (13.7)	82 (41.8)	108 (27.6)		
Pregnancy test	Yes	173 (87.8)	163 (83.2)	336 (85.7)	2.083	0.149
	No	23 (12.2)	33 (16.8)	57 (14.5)		
STIs screening	Yes	172 (87.8)	169 (86.2)	341 (87.0)	1.203	0.652
	No	24 (12.2)	27 (13.8)	51 (23.0)		
STIs treatment	Yes	159 (81.1)	148 (75.5)	307 (78.3)	1.818	0.178
	No	37 (18.9)	48 (24.5)	85 (21.7)		
Abortion service	Yes	124 (63.3)	110 (56.1)	234 (59.7)	2.078	0.149
	No	72 (36.7)	86 (43.9)	158 (40.3)		
Antenatal services	Yes	140 (71.4)	183 (93.4)	323 (82.4)	32.522	0.000
	No	56 (28.6)	13 (6.6)	69 (17.6)		
Postnatal services	Yes	148 (75.5)	183 (93.4)	331 (84.4)	23.783	0.000
	No	48 (24.5)	13 (6.6)	61 (15.6)		

From Table 4.2, the results revealed that adolescents in the beneficiary community were more knowledgeable about female condom, pills, injectables, implants, emergency contraception, STIs counselling, contraceptive counselling, pregnancy test, STIs screening, STIs treatment and abortion related services than adolescents in the non-beneficiary community. These differences were, however, only statistically significant for services such as pills ($\chi2$=6.918, p=0.009), injectables ($\chi2$=29.833, p=0.000), implants ($\chi2$=8.593, p=0.003), STIs counselling ($\chi2$=34.488, p=0.000) and contraceptive counselling ($\chi2$=40.079, p=0.000). Again, no statistically significant differences were found to exist in adolescents' knowledge about female condom ($\chi2$=2.810, p= 0.094), emergency contraception ($\chi2$=0.436, p=0.509), pregnancy testing ($\chi2$=2.083, p=0.149), STIs screening ($\chi2$=1.203, p=0.652), STIs treatment ($\chi2$=1.818, p=0.178) and abortion related services ($\chi2$=2.078, p=0.149).

As shown in Table 4.2, adolescents in the non-beneficiary community were, however, more knowledgeable about male condom, withdrawal, antenatal and postnatal services than adolescents in the beneficiary community. For antenatal services ($\chi2$=32.522, p=0.000), postnatal services ($\chi2$=23.783, p=0.000), and withdrawal ($\chi2$=4.552, p=0.033); the differences were statistically significant but for male condom ($\chi2$=0.035, p=0.852), the difference was statistically insignificant.

4.3.3 Sources of Information on Reproductive Health Services

Figure 4.1, presents the sources from which adolescents acquire information on reproductive health services in the beneficiary and non-beneficiary communities. The results revealed that in the beneficiary community, across all the reproductive health services, adolescents acquired information mainly from health workers. However, in the

non-beneficiary community, adolescents mainly sourced information from friends and family members.

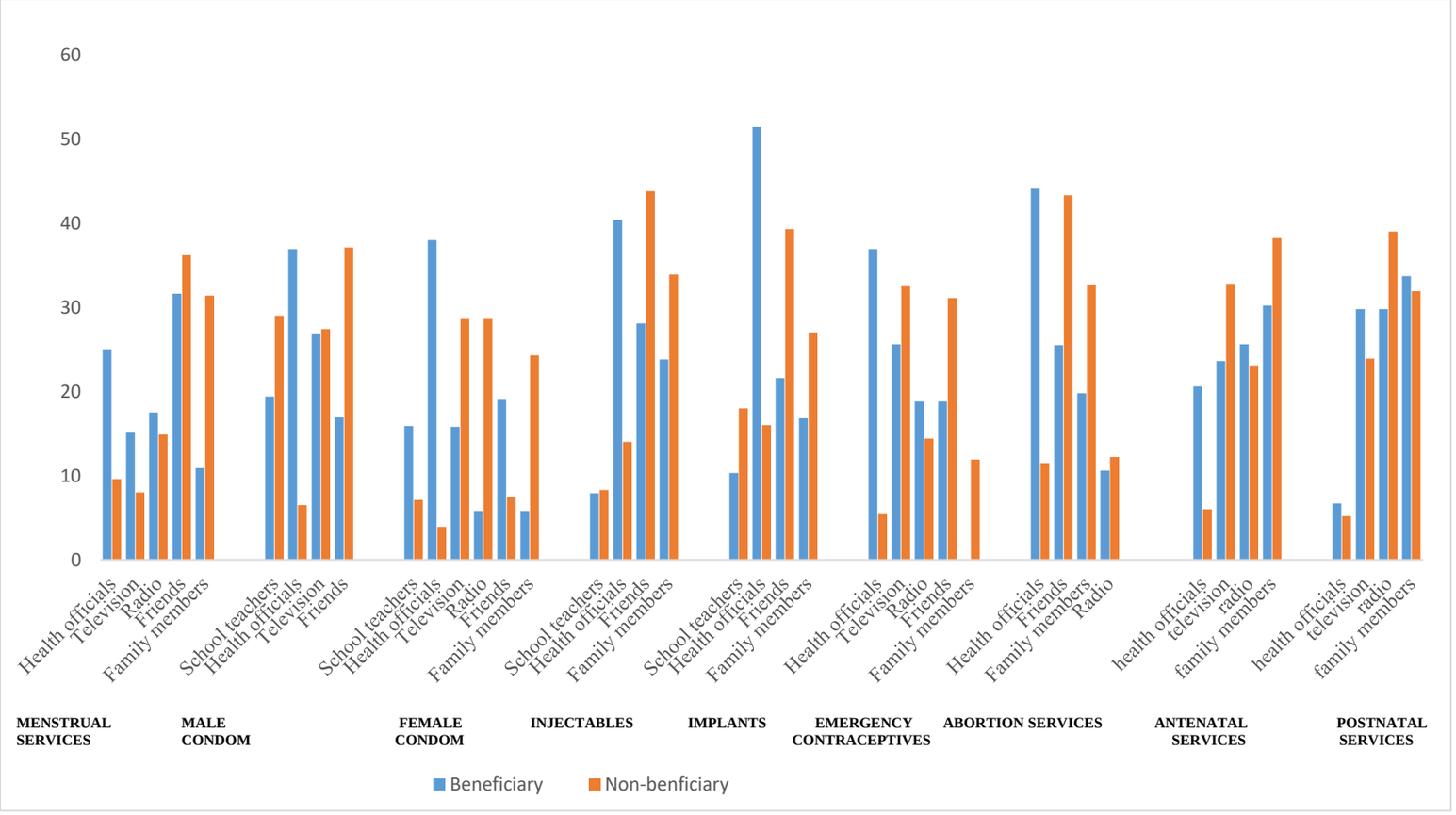

Figure 4.1: Sources of Information on Reproductive Health Services

4.4 Differences in Access to Reproductive Health Services among Adolescents in the Project Beneficiary and Non-beneficiary communities

4.4.1 Availability of Reproductive Health Services

Table 4.3 presents results on how respondents perceive the sufficiency of reproductive health services in the beneficiary and non-beneficiary communities.

Table 4.3 Availability of Reproductive Health Services

Variable	Category	Beneficiary Community	Non-beneficiary Community		Chi-square Test	
		Number (%)	Number (%)	Total (%)	$\chi 2$	P. V
Male Condom	Sufficient	107 (54.6)	90 (45.9)	197 (50.3)	15.758	0.000
	Insufficient	35 (17.9)	69 (35.2)	104 (26.5)		
	Neutral	54 (27.6)	37 (18.9)	91(23.2)		
Female condom	Sufficient	76 (38.8)	52 (26.5)	128 (32.7)	23.811	0.000
	Insufficient	52 (26.5)	99 (50.5)	151 (38.5)		
	Neutral	68 (34.7)	45 (23.0)	113 (28.8)		
Injectables	Sufficient	99 (50.5)	68 (34.7)	167 (42.6)	11.708	0.003
	Insufficient	37 (18.9)	60 (30.6)	97 (24.7)		
	Neutral	60 (30.6)	68 (34.7)	128 (32.7)		
Implant	Sufficient	98 (50.0)	35 (17.9)	133 (33.9)	47.110	0.000
	Insufficient	47 (24.0)	92 (47.0)	139 (35.5)		
	Neutral	51 (26.0)	69 (35.0)	120 (30.6)		
Emergency contraceptive	Sufficient	76 (38.8)	69 (35.2)	145 (37.0)	0.966.	0.617
	Insufficient	64 (32.7)	73 (37.2)	137 (34.9)		
	Neutral	56 (28.6)	54 (27.6)	110 (28.1)		
Contraceptive counselling	Sufficient	142 (72.4)	96 (50.0)	238 (60.7)	26.748	0.000
	Insufficient	11 (5.6)	37 (18.9)	48 (12.2)		
	Neutral	43 (21.9)	63 (32.1)	106 (27.0)		
Treatment of STIs	Sufficient	96 (49.0)	64 (32.7)	160 (40.8)	23.047	0.000
	Insufficient	32 (16.3)	73 (37.2)	105 (26.9)		
	Neutral	68 (34.7)	59 (30.1)	127 (32.4)		
Abortion services	Sufficient	59 (30.1)	42 (21.4)	101 (25.8)	11.521	0.003
	Insufficient	88 (44.9)	74 (37.7)	162 (41.2)		
	Neutral	49 (25.0)	80 (40.8)	129 (32.9)		
Menstrual services	Sufficient	99 (50.5)	66 (33.7)	165 (42.1)	15.785	0.000
	Insufficient	51 (26.0)	50 (25.5)	101 (25.8)		
	Neutral	46 (23.5)	80 (40.8)	126 (32.1)		
Pregnancy testing	Sufficient	126 (64.3)	107 (54.6)	233 (59.4)	3.821	0.148
	Insufficient	23 (11.7)	29 (14.8)	52 (13.3)		
	Neutral	47 (24.0)	60 (30.6)	107 (27.3)		
STIs screening	Sufficient	118 (60.2)	105 (53.6)	223 (56.7)	4.685	0.096
	Insufficient	48 (24.5)	44 (22.4)	92 (23.5)		
	Neutral	30 (15.3)	47 (24.0)	77 (19.6)		
Antenatal services	Sufficient	62 (87.3)	115 (58.7)	177 (45.2)	30.748	0.000
	Insufficient	71 (36.2)	35 (17.9)	106 (27)		
	Neutral	63 (32.1)	46 (23.5)	109 (27.8)		
Postnatal services	Sufficient	52 (26.5)	106 (54.1)	158 (40.3)	31.931	0.000
	Insufficient	83 (42.3)	58 (29.6)	141 (36)		
	Neutral	61 (31.1)	32 (16.3)	93 (23.7)		

As shown in Table 4.3, majority of the adolescents in the project beneficiary community rated the sufficiency of services such as male and female condom, injectables, implants, emergency contraception, contraceptive counselling, STIs treatment, abortion services, STIs screening and pregnancy testing; higher than the sufficiency ratings of adolescents in the non-beneficiary community. The differences were, however, only statistically significant for services such as male condom ($\chi2$=15.758, p=0.000), female condom ($\chi2$=23.811, p=0.000), injectables ($\chi2$=11.708, p=0.003), implants ($\chi2$=47.110, p=0.000), abortion related services ($\chi2$=11.521, p=0.003), STIs treatment ($\chi2$=23.047, p=0.000) and menstrual services ($\chi2$=15.785, p=0.000). Also, no statistically significant differences were found in the sufficiency ratings of services such as emergency contraception ($\chi2$=0.966, p=0.617), pregnancy testing ($\chi2$=3.821, p=0.148) and STIs screening ($\chi2$=4.685, p=0.096).

As shown in Table 4.3, adolescents in the non-beneficiary community, however, rated the sufficiency of antenatal services and postnatal services higher than the sufficiency ratings of adolescents' in the beneficiary community. This differences were statistically significant; antenatal services ($\chi2$=30.748, p=0.000) and postnatal services ($\chi2$=31.931, p=0.000).

4.4.2 Affordability of Reproductive Health Services

Table 4.4 presents results on how adolescents perceive the affordability of reproductive health services in the beneficiary and non-beneficiary communities.

Table 4.4: Affordability of Reproductive Health Services

Variable	Category	Beneficiary Community Number (%)	Non-beneficiary Community Number (%)	Total (%)	Chi-square Test χ2	P. V
Male condom	Affordable	90 (45.9)	55 (28.1)	145 (37)		
	Unaffordable	48 (24.5)	78 (39.8)	126 (32.1)		
	Neutral	58 (29.6)	63 (32.1)	121 (30.9)	15.798	0.000
Female condom	Affordable	59 (30.1)	45 (23.0)	104 (26.5)		
	Unaffordable	79 (40.3)	73 (37.2)	152 (38.8)		
	Neutral	58 (29.6)	78 (39.8)	136 (34.6)	5.063	0.080
Injectables	Affordable	101 (51.5)	32 (16.3)	133 (39.9)		
	Unaffordable	41 (20.9)	82 (41.9)	123 (31.4)		
	Neutral	54 (27.6)	82 (41.9)	136 (34.7)	55.228	0.000
Implant	Affordable	98 (50.0)	9 (4.9)	107 (27.3)		
	Unaffordable	45 (23.0)	77 (39.3)	122 (31.1)		
	Neutral	53 (27.0)	110 (56.1)	163 (41.6)	102.354	0.000
Emergency contraceptive	Affordable	48 (24.5)	36 (19.4)	84 (34.4)		
	Unaffordable	80 (40.8)	86 (43.9)	166 (32.4)		
	Neutral	68 (34.7)	74 (37.8)	142 (72.4)	2.185	0.335
Contraceptive counselling	Affordable	143 (73.0)	116 (59.2)	259 (66.1)		
	Unaffordable	2 (1.0)	18 (9.2)	19 (4.8)		
	Neutral	51 (26.0)	62 (31.6)	113 (28.8)	16.685	0.000
Treatment of STIs	Affordable	88 (44.9)	28 (14.2)	116 (29.6)		
	Unaffordable	36 (18.4)	103 (52.6)	139 (35.5)		
	Neutral	72 (36.7)	65 (33.2)	137 (32.4)	63.687	0.000
Abortion services	Affordable	67 (34.3)	12 (6.1)	79 (20.2)		
	Unaffordable	52 (26.5)	114 (58.2)	166 (42.3)	61.781	0.000
	Neutral	77 (39.3)	70 (35.7)	147 (37.5)		
Menstrual services	Affordable	97 (49.5)	27 (13.8)	124 (31.6)		
	Unaffordable	32 (16.3)	82 (41.8)	114 (29.1)	64.043	0.000
	Neutral	67 (34.2)	87 (44.4)	154 (39.3)		
Pregnancy testing	Affordable	118 (60.2)	49 (25.0)	167 (2.6)		
	Unaffordable	27 (13.8)	71 (36.2)	98 (25)	53.185	0.000
	Neutral	51 (26.0)	76 (38.8)	127 (32.4)		
STIs screening	Affordable	119 (60.2)	112 (57.1)	231 (58.9)		
	Unaffordable	32 (16.3)	27 (13.8)	59 (15.1)	2.048	0.359
	Neutral	45 (23.0)	57 (29.1)	102 (26)		
Antenatal services	Affordable	83 (42.3)	67 (34.2)	150 (38.3)		
	Unaffordable	34 (17.3)	67 (34.3)	101 (25.8)	14.538	0.001
	Neutral	79 (40.3)	62 (31.6)	141 (36.0)		
Postnatal services	Affordable	74 (37.8)	55 (28.1)	129 (33.0)		
	Unaffordable	35 (17.9)	87 (44.4)	122 (31.1)	32.686	0.000
	Neutral	87 (44.4)	54 (27.6)	141 (36.0)		

From Table 4.4, comparatively, more adolescents in the project beneficiary community rated the affordability of all the reproductive health services higher than the affordability ratings of adolescents in the non-beneficiary community. Statistically significant differences were found in the affordability of services such as male condom ($\chi2$=15.798, p=0.000), injectables ($\chi2$=55.228, p=0.000), implants ($\chi2$=102.354, p=0.000), contraceptive counselling ($\chi2$=16.685, p=0.000), STIs treatment ($\chi2$=63.687, p.000), abortion related services ($\chi2$=61.781, p=0.000), and menstrual related services ($\chi2$=64.043, p=0.000). On the contrary, no statistically significant differences were found in the affordability of services such as female condom ($\chi2$=5.063, p=0.080), emergency contraception ($\chi2$=2.185, p= 0.335), and STIs screening ($\chi2$=2.048, p=0.359).

4.4.3 Accessibility of Reproductive Health Services (Distance)

Table 4.5 presents results on how adolescents perceive the closeness of health facilities in the beneficiary and non-beneficiary communities to the people.

Table 4.5: Accessibility of Reproductive Health Services (Distance)

Variable	Category	Beneficiary Community	Non-beneficiary Community		Chi-square Test	
		Number (%)	Number (%)	Total (%)	χ2	P. V
Male condom	Easy	75 (38.3)	164 (83.7)	239 (61)	84.946	0.000
	Uneasy	93 (47.4)	24 (12.2)	117 (29.9)		
	Neutral	28 (14.3)	8 (4.1)	36 (9.2)		
Female Condom	Easy	66 (33.7)	170 (86.7)	236 (60.2)	115.168	0.000
	Uneasy	101 (52.0)	20 (10.2)	121 (30.9)		
	Neutral	29 (14.3)	6 (3.1)	35 (8.9)		
Injectables	Easy	51 (26.0)	153 (78.1)	204 (52.0)	107.764	0.000
	Uneasy	110 (56.1)	37 (18.9)	147 (37.5)		
	Neutral	35 (17.9)	6 (3.1)	41 (10.1)		
Implant	Easy	47 (24.0)	154 (78.6)	201 (51.3)	118.498	0.000
	Uneasy	111 (56.4)	36 (18.3)	147 (37.5)		
	Neutral	38 (19.4)	6 (3.1)	44 (11.2)		
Emergency Contraceptives	Easy	91 (46.4)	167 (85.2)	258 (65.9)	65.883	0.000
	Uneasy	72 (36.7)	22 (11.2)	94 (24)		
	Neutral	33 (3.6)	7 (3.6)	40 (10.2)		
Contraceptive Counselling	Easy	43 (21.9)	155 (79.1)	198 (50.5)	130.733	0.000
	Uneasy	102 (52.0)	34 (17.3)	136 (34.7)		
	Neutral	51 (26.0)	7 (3.6)	58 (14.8)		
Treatment of STIs	Easy	36 (18.4)	123 (62.8)	159 (40.6)	80.246	0.000
	Uneasy	114 (59.7)	50 (25.5)	164 (41.8)		
	Neutral	46 (21.9)	23 (11.7)	69 (17.6)		
Abortion Services	Easy	40 (20.4)	134 (68.4)	174 (44.4)	92.317	0.000
	Uneasy	101 (51.5)	45 (23.0)	146 (37.2)		
	Neutral	55 (28.1)	17 (8.7)	72 (18.4)		
Menstrual Services	Easy	30 (15.3)	129 (65.8)	159(40.6)	144.443	0.000
	Uneasy	107 (54.6)	9 (4.6)	116 (29.6)		
	Neutral	59 (30.1)	58 (29.6)	117 (29.8)		
Pregnancy Testing	Easy	30 (15.3)	133 (67.9)	163 (41.6)	113.663	0.000
	Uneasy	112 (57.1)	35 (17.9)	147 (37.5)		
	Neutral	54 (27.6)	28 (14.3)	82 (20.9)		
STIs Screening	Easy	30 (15.3)	137 (69.9)	167 (42.6)	119.600	0.000
	Uneasy	110 (56.1)	41 (20.9)	151 (38.5)		
	Neutral	56 (28.6)	18 (9.2)	74 (18.9)		
Antenatal Services	Easy	35 (17.9)	133 (67.9)	168 (42.9)	102.529	0.000
	Uneasy	103 (53.1)	48 (24.5)	152 (38.8)		
	Neutral	58 (29.1)	15 (7.7)	72 (18.6)		
Postnatal Services	Easy	32 (16.3)	123 (62.3)	155 (39.3)	88.390	0.000
	Uneasy	106 (54.1)	48 (24.5)	154 (39.3)		
	Neutral	58 (29.6)	25 (12.8)	83 (21.2)		

From Table 4.5, majority of the adolescents in the non-beneficiary community rated the closeness of the health facility to the people higher than the ratings of adolescents in the project beneficiary community. These differences were statistically significant for all the services; male condom ($\chi 2$=84.946, p=0.000), injectables ($\chi 2$=107.764, p=0.000), implants ($\chi 2$=118.498, p=0.000), contraceptive counselling ($\chi 2$=130.733, p=0.000), STIs treatment ($\chi 2$=80.246, p=0.000), abortion related services ($\chi 2$=92.317, p=0.000), menstrual related services ($\chi 2$=144.443, p=0.000), antenatal services ($\chi 2$=102.529, p=0.000) and postnatal services ($\chi 2$=88.390, p=0.000).

4.4.4 Acceptability of Reproductive Health Services

4.4.4.1 Workers Professionalism

Table 4.6 presents results on how adolescents rated workers' professionalism in the delivery of reproductive health services in health facilities in the beneficiary and non-beneficiary communities.

Table 4.6: Workers' Professionalism

Variable	Category	Beneficiary Community	Non-Beneficiary Community		Chi-square Test	
		Number (%)	Number (%)	Total (%)	χ2	P. V
Male condom	Appropriate	99 (50.5)	60 (30.6)	159 (40.6)	23.717	0.000
	Inappropriate	28 (14.3)	64 (32.7)	92 (23.5)		
	Neutral	69 (35.2)	72 (36.7)	141 (36.0)		
Female condom	Appropriate	79 (40.3)	52 (26.5)	131 (33.4)	12.508	0.002
	Inappropriate	39 (19.9)	66 (33.8)	105 (26.9)		
	Neutral	78 (39.8)	78 (39.8)	156 (39.8)		
Injectables	Appropriate	123 (62.8)	68 (34.7)	191 (48.7)	34.902	0.000
	Inappropriate	27 (13.8)	65 (33.2)	92 (23.5)		
	Neutral	46 (23.5)	63 (32.1)	109 (27.8)		
Implant	Appropriate	113 (57.7)	53 (27.0)	166 (42.3)	56.281	0.000
	Inappropriate	26 (13.3)	89 (45.0)	115 (29.3)		
	Neutral	57 (29.1)	54 (27.6)	111 (28.3)		
Emergency contraception	Appropriate	62 (31.6)	64 (32.7)	126 (32.1)	0.108	0.948
	Inappropriate	67 (34.2)	64 (32.7)	131 (33.4)		
	Neutral	67 (34.2)	68 (34.7)	135 (34.4)		
Contraceptive counselling	Appropriate	143 (73.0)	78 (39.8)	221 (56.4)	48.286	0.000
	Inappropriate	21 (10.7)	69 (35.2)	90 (23.0)		
	Neutral	32 (16.3)	49 (25.0)	81 (20.7)		
STIs treatment	Appropriate	93 (47.4)	83 (42.3)	176 (44.9)	1.773	0.412
	Inappropriate	56 (28.6)	68 (34.7)	124 (31.6)		
	Neutral	47 (24.0)	45 (23.0)	92 (23.5)		
Abortion services	Appropriate	104 (53.1)	63 (32.0)	167 (42.6)	43.764	0.000
	Inappropriate	27 (13.8)	86 (43.9)	113 (28.8)		
	Neutral	65 (33.2)	47 (24.0)	112(28.6)		
Menstrual services	Appropriate	128 (65.3)	52 (26.5)	180 (45,9)	62.570	0.000
	Inappropriate	32 (16.2)	88 (44.9)	120 (30.6)		
	Neutral	36 (18.4)	56 (28.6)	92 (23.5)		
Pregnancy testing	Appropriate	142 (72.4)	71 (36.2)	213 (54.3)	54.702	0.000
	Inappropriate	23 (11.7)	72 (36.7)	95 (24.2)		
	Neutral	31 (15.8)	53 (27.1)	84 (21.4)		
STIs screening	Appropriate	112 (57.1)	85 (43.3)	197 (50.3)	24.020	0.000
	Inappropriate	28 (14.3)	70 (35.7)	98 (25)		
	Neutral	56 (28.6)	41 (20.9)	97 (24.7)		
Antenatal services	Appropriate	94 (48.0)	82 (41.8)	176 (44.9)	17.834	0.000
	Inappropriate	39 (19.9)	75 (38.3)	114 (29.1)		
	Neutral	63 (32.1)	39 (19.9)	102 (26)		
Postnatal services	Appropriate	79 (40.3)	77 (39.3)	156 (39.8)	2.890	0.236
	Inappropriate	60 (30.6)	48 (24.5)	108 (27.6)		
	Neutral	57 (29.1)	71 (36.2)	28 (7.1)		

As shown in Table 4.6, adolescents in the project beneficiary community rated health workers' professionalism in the provision of services such as male and female condom, injectables, implants, contraceptive counselling, STIs treatment, abortion related services, menstrual services, pregnancy testing, STIs screening, antenatal and postnatal services; higher than the ratings of adolescents in the non-beneficiary community. These differences were, however, only statistically significant for services such as male condom ($\chi2$=23.717, p=0.000), female condom ($\chi2$=12.508, p=0.002), injectables ($\chi2$=34.902, p=0.000), implants ($\chi2$=56.281, p=0.000), contraceptive counselling ($\chi2$=48.286, p=0.000), abortion related services ($\chi2$=43.764, p=0.000) and antenatal services ($\chi2$=17.834, p=0.000). Further analysis showed that, for STIs treatment ($\chi2$=1.773, p=0.412) and postnatal services ($\chi2$=2.890, p=0.236); the differences were statistically insignificant.

However, adolescents in the non-beneficiary community rated health workers' professionalism in the provision of emergency contraception; higher than the ratings of adolescents in the project beneficiary community. The difference was statistically insignificant ($\chi2$=0.108, p=0.948).

4.4.4.2 Operating Hour of facilities

Table 4.7 presents results on adolescents' perception about the appropriateness of operating hours of facilities in the beneficiary and non-beneficiary communities.

Table 4.7: Operating Hours of facilities

Variable	Category	Beneficiary Community	Non-beneficiary Community		Chi-square Test	
		Number (%)	Number (%)	Total (%)	χ2	P. V
Male condom	Appropriate	124 (63.3)	41 (20.9)	165 (42.1)	103.540	0.000
	Inappropriate	16 (8.2)	101 (51.5)	117 (29.9)		
	Neutral	56 (28.6)	54 (27.5)	110 (29.1)		
Female condom	Appropriate	86 (43.9)	29 (14.8)	115 (29.3)	82.281	0.000
	Inappropriate	25 (12.8)	106 (54.1)	131 (33.4)		
	Neutral	85 (43.4)	61 (31.1)	146 (37.2)		
Injectables	Appropriate	99 (50.5)	32 (16.3)	131 (33.4)	94.736	0.000
	Inappropriate	24 (12.2)	112 (57.1)	136 (34.7)		
	Neutral	73 (37.2)	52 (26.5)	125 (31.9)		
Implants	Appropriate	88 (44.9)	32 (16.3)	120 (30.6)	92.914	0.000
	Inappropriate	21 (10.7)	109 (55.6)	130 (33.2)		
	Neutral	87 (44.4)	55 (28.1)	142 (36.2)		
Emergency contraception	Appropriate	58 (29.6)	62 (31.6)	120 (30.6)	0.772	0.680
	Inappropriate	64 (32.7)	56 (28.6)	120 (30.6)		
	Neutral	74 (37.8)	78 (39.8)	152 (38.8)		
Contraceptive counselling	Appropriate	106 (54.1)	36 (18.4)	142 (36.2)	94.815	0.000
	Inappropriate	18 (9.2)	102 (52.0)	120 (30.6)		
	Neutral	72 (36.7)	58 (29.6)	130 (33.2)		
STIs treatment	Appropriate	112 (57.1)	45 (23.0)	157 (40.1)	57.110	0.000
	Inappropriate	37 (18.9)	99 (50.5)	136 (34.7)		
	Neutral	47 (24.0)	52 (26.5)	99 (25.3)		
Abortion services	Appropriate	104 (53.1)	50 (25.5)	154 (39.3)	49.121	0.000
	Inappropriate	36 (18.4)	99 (50.5)	135 (34.4)		
	Neutral	56 (28.6)	47 (24.0)	103 (26.3)		
Menstrual services	Appropriate	98 (50.0)	45 (23.0)	143 (36.5)	38.483	0.000
	Inappropriate	36 (18.6)	83 (42.3)	119 (30.4)		
	Neutral	62 (31.6)	68 (34.7)	130 (33.2)		
Pregnancy testing	Appropriate	106 (54.1)	52 (26.5)	158 (40.3)	51.802	0.000
	Inappropriate	23 (11.7)	82 (41.8)	105 (26.8)		
	Neutral	67 (34.2)	62 (31.6)	129 (32.9)		
STIs screening	Appropriate	108 (55.1)	56 (28.6)	164 (41.8)	42.344	0.000
	Inappropriate	33 (16.1)	89 (45.4)	122 (31.1)		
	Neutral	55 (28.1)	51 (26.0)	106 (27)		
Antenatal services	Appropriate	64 (32.7)	93 (47.4)	157 (40.1)	27.704	0.000
	Inappropriate	96 (49.0)	46 (23.5)	142 (36.2)		
	Neutral	36 (18.4)	57 (29.1)	93 (23.7)		
Postnatal services	Appropriate	70 (35.7)	89 (45.4)	159 (40.7)	8.463	0.015
	Inappropriate	79 (40.3)	52 (26.5)	131 (33.4)		
	Neutral	47 (24.0)	55 (28.1)	102 (26.0)		

From Table 4.7, adolescents in the beneficiary community rated the appropriateness of operating hours in the provision of services such as male condom, injectables, implants, contraceptive counselling, pregnancy testing and STIs screening; higher than the ratings of adolescents in the non-beneficiary community. These differences were, however, only statistically significant for services such as male condom ($\chi2$=103.540, p=000), female condom ($\chi2$=82.281, p=0.000), injectables ($\chi2$=94.736, p=0.000), implants ($\chi2$=92.914, p=0.000), contraceptive counselling ($\chi2$=94.815, p=0.000), pregnancy testing ($\chi2$=51.802, p=0.000), STIs treatment ($\chi2$=57.110, p=0.000) and STIs screening ($\chi2$=42.344, p=0.000). For emergency contraception ($\chi2$=0.772, p=0.680), there was no statistically significant difference.

As also shown in Table 4.7, adolescents in the non-beneficiary community, however, rated operating hours of the facility in the delivery of antenatal and postnatal services higher than the ratings of adolescents in the project beneficiary community. The differences were statistically significant; antenatal services ($\chi2$=27.704, p=0.000) and postnatal services ($\chi2$=8.463, p=0.015)

4.4.5 Quality of Reproductive Health Services

4.4.5.1 Health Workers Capacity

Table 4.8 presents results on the differences in adolescents' perception about Health workers' capacity in the delivery of reproductive health services in the project beneficiary and non-beneficiary communities.

Table 4.8: Health Workers Capacity

Variable	Category	Beneficiary Community	Non-beneficiary Community		Chi-square Test	
		Number (%)	Number (%)	Total (%)	χ2	P. V
Male condom	Satisfied	114 (58.2)	69 (35.2)	183 (46.7)	29.690	0.000
	Dissatisfied	30 (15.3)	74 (37.8)	104 (26.5)		
	Neutral	52 (26.5)	53 (27.0)	105 (26.8)		
Female condom	Satisfied	99 (50.5)	59 (30.1)	158 (40.3)	34.957	0.000
	Dissatisfied	29 (14.8)	80 (40.8)	109 (27.8)		
	Neutral	68 (34.7)	57 (29.1)	125 (31.9)		
Injectables	Satisfied	153 (78.1)	99 (50.5)	252 (33.4)	32.688	0.000
	Dissatisfied	20 (10.2)	40 (20.4)	60 (34.7)		
	Neutral	23 (11.7)	57 (29.1)	80 (31.9)		
Implants	Satisfied	144 (73.5)	92 (46.9)	236 (60.2)	29.224	0.000
	Dissatisfied	18 (9.2)	42 (21.4)	60 (15.3)		
	Neutral	34 (17.3)	62 (31.6)	96 (24.5)		
Emergency contraception	Satisfied	83 (42.3)	73 (37.2)	156 (39.8)	3.794	0.150
	Dissatisfied	54 (27.6)	72 (36.7)	126 (32.1)		
	Neutral	59 (30.1)	51 (26.0)	110 (28.1)		
Contraceptive counselling	Satisfied	138 (70.4)	97 (49.5)	235 (59.9)	24.514	0.000
	Dissatisfied	20 (10.2)	56 (28.6)	76 (19.4)		
	Neutral	38 (19.4)	43 (21.9)	81 (20.7)		
STIs treatment	Satisfied	122 (62.2)	103 (52.6)	225 (57.4)	11.206	0.004
	Dissatisfied	32 (16.3)	60 (30.6)	92 (23.5)		
	Neutral	42 (21.4)	33 (16.8)	75 (19.1)		
Abortion services	Satisfied	109 (55.6)	100 (51.0)	209 (53.3)	7.315	0.026
	Dissatisfied	38 (19.4)	60 (30.6)	98 (25.0)		
	Neutral	49 (25.0)	36 (18.4)	85 (21.7)		
Menstrual services	Satisfied	110 (56.1)	104 (53.1)	214 (54.6)	5.450	0.066
	Dissatisfied	35 (17.9)	53 (27.0)	88 (22.4)		
	Neutral	51 (26.0)	39 (19.9)	90 (23.0)		
Pregnancy testing	Satisfied	142 (72.4)	100 (51.0)	242 (61.7)	23.442	0.000
	Dissatisfied	16 (8.2)	46 (23.5)	62 (15.8)		
	Neutral	38 (19.4)	50 (25.5)	88 (22.4)		
STIs screening	Satisfied	126 (64.3)	103 (52.6)	229 (58.4)	18.221	0.000
	Dissatisfied	18 (9.2)	50 (25.5)	68 (17.3)		
	Neutral	52 (26.5)	43 (21.9)	95 (24.2)		
Antenatal services	Satisfied	110 (56.1)	98 (50.0)	208 (53.1)	2.560	0.278
	Dissatisfied	47 (24.0)	61 (31.1)	108 (27.6)		
	Neutral	39 (19.9)	37 (18.9)	76 (19.4)		
Postnatal services	Satisfied	88 (44.9)	97 (49.5)	185 (47.2)	8.463	0.015
	Dissatisfied	53 (27.0)	56 (28.6)	109 (27.8)		
	Neutral	55 (28.1)	43 (21.9)	98 (25.0)		

From Table 4.8, adolescents in the project beneficiary community were more satisfied with health workers' capacity in the delivery of services such as male condom, female condom, injectables, implants, emergency contraception, contraceptive counselling, pregnancy testing, STIs screening, STIs treatment and abortion related services as compared to adolescents in the non-beneficiary community. These differences were, however, only statistically significant for services such as female condom ($\chi2$=34.957, p=0.000), injectables ($\chi2$=32.688, p=0.000), implants ($\chi2$=29.224, p=0.000), abortion related services ($\chi2$=7.315 p=0.026), STIs treatment ($\chi2$=11.206, p=0.004) and STIs screening ($\chi2$=18.221, p=0.000). For antenatal services ($\chi2$=2.560, p=0.278), the difference was not statistically significant.

However, fewer adolescents in the beneficiary community (44.9%), than adolescents' in the non-beneficiary community (49.5%) were satisfied with health workers capacity in the delivery of postnatal services. This difference was statistically significant ($\chi2$=8.463, p=0.015).

4.4.5.2 Health Workers' empathy

Table 4.9 presents results on the differences in adolescents' satisfaction about health workers' empathy in the delivery of reproductive health services in the beneficiary and non-beneficiary communities.

Table 4.9: Health Workers Empathy

Variable	Category	Beneficiary Community Number (%)	Non-Beneficiary Community Number (%)	Total (%)	Chi-square Test $\chi 2$	P.V
Male Condom	Satisfied	108 (55.1)	86 (43.9)	194 (49.5)	5.822	0.054
	Dissatisfied	31 (15.8)	46 (23.5)	77 (19.6)		
	Neutral	57 (29.1)	64 (32.7)	121(30.9)		
Female condom	Satisfied	103 (52.6)	83 (42.3)	186 (47.4)	14.144	0.001
	Dissatisfied	20 (10.2)	48 (24.5)	68 (17.3)		
	Neutral	73 (37.2)	65 (33.2)	138 (35.2)		
Injectables	Satisfied	105(53.6)	56 (28.6)	161 (41.1)	41.528	0.000
	Dissatisfied	30 (15.3)	85 (43.4)	115 (29.3)		
	Neutral	61 (31.1)	55 (28.1)	116 (29.6)		
Implant	Satisfied	107 (54.6)	42 (21.4)	149 (38.0)	50.238	0.000
	Dissatisfied	39 (19.9)	90 (45.9)	129 (32.9)		
	Neutral	50 (25.5)	64 (32.7)	114 (29.1)		
Emergency contraceptive	Satisfied	105 (53.6)	91 (46.4)	196 (50.0)	2.791	0.248
	Dissatisfied	35 (17.9)	47 (23.8)	82 (20.9)		
	Neutral	56 (28.6)	58 (29.6)	114 (29.1)		
Contraceptive counselling	Satisfied	135 (68.9)	68 (34.7)	203 (52.8)	47.731	0.000
	Dissatisfied	25 (12.7)	67 (34.1)	92 (23.5)		
	Neutral	36 (18.4)	61 (31.1)	97 (24.7)		
Treatment of STIs	Satisfied	118 (60.2)	56 (28.6)	174 (44.4)	49.947	0.000
	Dissatisfied	38 (19.4)	100 (51.0)	138 (35.2)		
	Neutral	40 (20.4)	40 (20.4)	80 (20.4)		
Abortion services	Satisfied	90 (46.0)	37 (18.9)	127 (32.4)	44.658	0.000
	Dissatisfied	44 (22.4)	101 (51.5)	145 (37.0)		
	Neutral	62 (31.6)	58 (29.6)	120 (30.6)		
Menstrual services	Satisfied	100 (51.0)	37 (16.8)	137 (34.9)	74.056	0.000
	Dissatisfied	25 (12.8)	99 (12.8)	124 (31.6)		
	Neutral	71 (36.2)	60 (20.4)	131 (33.4)		
Pregnancy testing	Satisfied	134 (68.4)	63 (32.1)	197 (50.3)	55.502	0.000
	Dissatisfied	17 (8.8)	58 (29.6)	75 (19.1)		
	Neutral	45 (23.0)	75 (38.3)	120 (30.6)		
STIs screening	Satisfied	152 (77.6)	85 (43.4)	237 (60.5)	55.930	0.000
	Dissatisfied	9 (4.5)	54 (27.6)	63 (16.1)		
	Neutral	35 (17.9)	56 (28.6)	91 (23.2)		
Antenatal services	Satisfied	77 (39.3)	82 (41.8)	159 (40.6)	0.743	0.690
	Dissatisfied	68 (34.7)	60 (30.6)	128 (32.7)		
	Neutral	51 (26.0)	54 (27.6)	105 (26.8)		
Postnatal services	Satisfied	75 (38.3)	82 (41.8)	157 (40.1)	4.068	0.254
	Dissatisfied	68 (34.7)	52 (26.5)	120 (30.6)		
	Neutral	53 (27.0)	62 (31.6)	115 (29.3)		

Table 4.9 revealed that, majority of adolescents in the beneficiary community were more satisfied with health workers' empathy in the delivery of services such as male condom, female condom, injectables, implants, emergency contraception, contraceptive counselling, pregnancy testing, STIs screening, STIs treatment, abortion related services, menstrual services, pregnancy testing and STIs screening than adolescents in the non-beneficiary community. These differences were, however, only statistically significant for services such as injectables ($\chi2$=41.528, p=0.000), implants ($\chi2$=50.238, p=0.000), contraceptive counselling ($\chi2$=47.731, p=0.000), abortion related services ($\chi2$=44.658, p=0.000), STIs treatment ($\chi2$=49.947, p=0.000), menstrual services ($\chi2$=74.056, p=0.000) and STIs screening ($\chi2$=55.930, p=0.000). For emergency contraception ($\chi2$=2.791, p=0.248), the difference was statistically insignificant.

However, the results showed that, adolescents in the beneficiary community were less satisfied with health workers empathy in the delivery of antenatal and postnatal services than adolescents in the non-beneficiary community. The differences were statistically insignificant; antenatal services ($\chi2$=0.743 p=0.690), postnatal services ($\chi2$=4.068, p=0.224).

4.4.6 Utilization of Reproductive Health Services

Table 4.10 presents results on utilization of reproductive health services among adolescents in the beneficiary and non-beneficiary communities.

Table 4.10: Adolescents' Utilization of Reproductive Health Services

Services	Category	Beneficiary community	Non-beneficiary community	Total	Chi-square Test	
		Number (%)	Number (%)	(%)	χ2	P. V
Males condom	Yes	44 (42.7)	29 (29.6)	73 (36.3)	3.741	0.053
	No	59 (57.3)	69 (70.4)	128 (63.7)		
Female condom	Yes	6 (6.3)	1 (1.0)	7 (3.7)	3.987	0.046
	No	87 (93.7)	97 (99.0)	184 (96.3)		
Injectables	Yes	23 (24.7)	13 (7.6)	36 (18.8)	4.101	0.043
	No	70 (75.3)	85 (92.4)	155 (81.2)		
Implants	Yes	17 (18.3)	9 (9.2)	26 (13.6)	3.357	0.067
	No	76 (81.7)	89 (90.8)	165 (86.4)		
Emergency contraception	Yes	27 (29.0)	20 (20.4)	47 (24.6)	1.913	0.167
	No	66 (71.0)	78 (79.6)	144 (75.4)		
Contraceptive counselling	Yes	131(66.8)	51 (26.0)	182 (46.4)	65.641	0.000
	No	65 (33.2)	145 (74.0)	210 (53.6)		
STIs treatment	Yes	86 (43.9)	95 (48.5)	181 (46.2)	0.831	0.362
	No	110 (58.11)	101 (51.5)	211 (53.8)		
Abortion services	Yes	6 (6.5)	7 (7.1)	13 (6.8)	0.036	0.850
	No	87 (93.5)	91(92.9)	178 (93.2)		
Menstrual services	Yes	69 (74.2)	51 (52.0)	120 (62.8)	10.027	0.002
	No	24 (25.8)	47 (48.0)	71 (37.2)		
Pregnancy test	Yes	30 (32.3)	29 (29.6)	59 (30.9)	0.159	0.690
	No	63 (68.7)	69 (70.4)	132 (69.1)		
STIs screening	Yes	96 (49.0)	12 (6.1)	108 (27.6)	90.178	0.000
	No	100 (51.0)	184 (93.9)	284 (72.4)		
Antenatal services	Yes	2 (2.2)	3 (3.1)	5 (2.6)	0.115	0.694
	No	91 (97.8)	95 (96.9)	186 (97.4)		
Postnatal services	Yes	2 (2.2)	3 (3.1)	5 (2.6)	0.115	0.694
	No	91 (97.8)	95 (96.9)	186 (97.4)		

From Table 4.10, it was revealed that service utilization was low across the two communities. In comparison, adolescents in the beneficiary community utilized services such as male and female condom, injectables, implants, emergency contraception, contraceptive counselling, pregnancy testing, STIs screening and menstrual related services more than adolescents in the non-beneficiary community. The Chi square test showed that, these differences were, however, only statistically significant for the utilization of male condom ($\chi2$=3.741, 0=0.053), female condom ($\chi2$=3.987, p=0.046), injectables ($\chi2$=4.101, p=0.043), contraceptive counselling ($\chi2$=65.641, p=0.000), menstrual services ($\chi2$=10.027, p=0.002) and STIs screening ($\chi2$=90.178, p=0.000). However, no statistically significant differences were found in the use of emergency contraception ($\chi2$=1.913, p=0.167), pregnancy testing ($\chi2$=0.159, p=0.690) and implants ($\chi2$=3.357, p=0.067).

On the contrary, adolescents in the non-beneficiary community utilized antenatal services, postnatal services and STIs treatment more than adolescents in the beneficiary community. However, these differences were statistically insignificant; STIs treatment ($\chi2$=0.831, p=0.362), antenatal services ($\chi2$=0.115, p=0.694) and postnatal services ($\chi2$=0.115, p=0.694).

4.5 Socio-Cultural Factors that Influence Adolescents' Knowledge and Access to the Reproductive Health Services

4.5.1 Factors Promoting Adolescents' Knowledge and Access to Reproductive Health Services

4.5.1.1 Presence of Social Club

It was revealed from the study that most of the respondents in the beneficiary community, especially the students and teachers appreciated the fact that, the existence of social clubs in the JHS have improved adolescents' knowledge about reproductive health services. Thus, in the beneficiary community, adolescents said they freely discuss issues regarding reproductive health services with the nurses because of the social club.

> "*...you see, because of the social club, we members are not shy to discuss any of the contraceptives with our friends and the health workers as a whole. Sometimes we organize ourselves and go to the clinic to discuss issues with the nurses." (Female student, beneficiary community)*

> *"The group has really helped us a lot since most of us now know a lot of services that the clinic offers to the adolescents." (Male student, beneficiary community)*

> *"Because of the group that was formed, I have learnt how to protect myself from becoming pregnant." (Female student, beneficiary community)*

However, in the non-beneficiary community, there were no social clubs formed in the schools.

4.5.1.2 Parental Interest in Ward's Education

The study findings also revealed that parental concern in their ward's education encouraged the adolescent child to clearly acquire information on contraceptives and to use them, both in the beneficiary or non-beneficiary communities. Thus, parents felt ashamed when their wards get pregnant whiles at school; hence they taught their children about contraceptives.

> *"Madam because of my education, my mother personally took me to the clinic for me to use one of the contraceptives (injectables). First of all, she had wanted me to do the implant but out of fear after I was counselled by the nurse, I decided to go for the three months injectable." (Female student, beneficiary community)*

> *"Most of the women in this community feel ashamed any time their children get pregnant when at school. Sometimes they personally bring their daughters here for contraceptives." (Health worker, non-beneficiary community)*

4.5.1.3 Positive Peer Influence

From the information gathered, respondents from both beneficiary and non-beneficiary communities clearly stated that, the advice given to them by some of their colleague adolescents encouraged them to use some of the reproductive health services, particularly contraceptives.

> *"I became aware of injectables and implants from my friend. She told me that if one continues to use contraceptives, she would not get pregnant.*

Because of this, I have even decided to try one of them." (Female student, beneficiary community)

"I last had sex with my boyfriend which we did not plan of so I discussed it with my friend who told me that, there is a certain drug which I have forgotten of the name; that if you take it after sex you cannot get pregnant. So I went to the drug store to buy it." (Female student, non-beneficiary community)

"I got pregnant when I was in Form 2, so I was very disturbed and didn't know what to do at that time. I discussed it with my female friend who told me that, if I go to the community clinic, they would terminate the pregnancy for me. So I went there and did it." (Female student, beneficiary community)

4.5.2 Factors Inhibiting Adolescents' Knowledge and Access to Reproductive Health Services

4.5.2.1 Religious Bigotry

From the informants, it was revealed that some religious doctrines perceive birth to be natural, and contraceptive usage to be a sin; and do not allow their members to discuss openly about reproductive health services, especially contraceptives. Thus, respondents belonging to churches such as the Truth Faith Church, Saviour Church of Ghana and Catholics felt that religious doctrines have suppressed adolescents' knowledge and access to reproductive health services such as contraceptives.

"My son, I have been the head of this church for as many as twenty years and per our doctrine, no member of the church is supposed to know any contraceptive, abortion services before they even use them." (Pastor, beneficiary community)

"You see, the bible says in Genesis 1:28 that, we should give birth, multiply and fill the earth, so no matter what the government does, we can never use any of the contraceptives." (Pastor, non-beneficiary community)

"In my church, spiritually we become aware of any child who is having a boyfriend, a girlfriend or using any of the family planning methods. Because of this, members are afraid to use them." (Pastor, non-beneficiary community)

"...it is deemed necessary not to learn about any of the contraceptives because if you do; you will be tempted to use them, which is a sin to God." (Female student, non- beneficiary community)

"Madam, it is not because we don't want to use them: mostly the problem *is my church. The church would suspend me or any member found culpable and even my parents would do same in the house if they find out that I am using any of the contraceptives. It is therefore hard to find us talking about contraceptives in the church and the house." (Female student, beneficiary community)*

4.5.2.2 Sex is Pleasurable when Natural

The study findings also revealed that adolescents see sex to be pleasurable when you do it natural; hence needless using contraceptives, especially condoms, both in the beneficiary and non-beneficiary communities.

> *"You, see, I tried using the male condom for some time but the pleasure was quite different from doing without the condom. That is why even though I know about condom and its use, but I don't use them." (Male student, beneficiary community)*

> *"... in eating banana I peel before eating; so why should I and my boyfriend use condom before sex." (Female student, non-beneficiary community)*

4.5.2.3 Parental Intolerance

The findings also unfolded that parental behaviour vehemently impede the adolescent child's ability to clearly acquire information on contraceptives and to use them, both in the beneficiary and non-beneficiary communities. Thus, most of the adolescents don't access information on contraceptives and use them because, their parents always beat them, insult them or refuse to pay their school fees whenever they realize that their wards are using any of the contraceptives.

> *"Brother, if your parents do not allow you to watch advert on contraceptives, how do you become conversant enough to use them? You see, whenever we are watching television and there is advertisement on emergency contraception and condoms, my father would quickly take the*

remote and change the channel to a different one because we are there." (Male student, beneficiary community)

"Last three days I was discussing injectables and the other contraceptives placed in the upper arm (implants) with my sister who is in her mid-twenties. My father heard of whatever we were discussing and angrily called us prostitutes and that, he cannot live with prostitutes in the same house. We should rather go to the street and join our colleague prostitutes to discuss whatever we were discussing." (Female student, non-beneficiary community)

"I quite remember the last time I used injectables, my father got to know about it and refused to give me money to pay a text book, which I purchased on credit from the school." (Female student, beneficiary community)

4.6 Health System Factors Influencing Adolescents Knowledge and Access to Reproductive Health Services

4.6.1 Factors Promoting Adolescents' Knowledge and Access to Reproductive Health Services

4.6.1.1 Health Workers Supply

From the information gathered, some respondents from the project beneficiary community clearly stated that, the higher number of health workers in the health facility has promoted knowledge and access to reproductive health services. Thus, people argued that, because of the health corner, there are always health workers

available; so they have more access to health workers. However, this actually was not even a problem in the non-beneficiary community as respondents also contended that, there are midwives and other workers currently working in the facility.

"I have been here for about five years and the way we use to do things have changed a lot. Because of the project, we always assign nurses to the corner every day to take care of the adolescents. It has actually increased the number of adolescents who come here." (Health worker, beneficiary community)

"I think one thing that has helped a lot in information dissemination is the health officials in the health corner. As I am talking to you now, there are always nurses available for students who go there for contraceptive and STIs counselling." (Teacher, beneficiary community)

"My brother, I think what has actually helped us is the fact that, we have midwives; so we do very well in the delivery of post pregnancy services." (Health worker, non-beneficiary community)

4.6.1.2 Facility Organization

The findings also unfolded that in the beneficiary community, the clinic had more of a youth-friendly place of service which encouraged adolescents to seek reproductive health information and use them. Thus, adolescents had a nice place to relax, play indoor games and discuss reproductive health services with them. Also, teaching and learning materials were readily available at the health corner.

"Because of how the corner has been located in the facility, adolescents who come here for contraceptives no more pass through the main entrance to the facility, but rather, the secret entrance to the corner. It has therefore increased the number of adolescents who come to this facility." (Health worker, beneficiary community)

"Looking at how the health corner has been organized, the adolescents have a very nice and convenient place to relax and play indoor games whiles we discuss reproductive health services, especially contraceptives with them." (Health worker, beneficiary community)

"Because of the health corner, the facility was given teaching and learning materials such as flipcharts, posters, male and female genital organs and books for demonstrations; so adolescents easily understand whatever we discuss with them." (Health worker, beneficiary community)

However, this was absolutely not the case in the non-beneficiary community, because, no respondent mentioned any of the above issues.

4.6.1.3 Staff Training

The study findings also revealed that in the beneficiary community, because of the health corner, health workers in charge of the corners were taken through series of training and workshops; so there were more youth friendly health workers in the facility. This encouraged adolescents to acquire information on reproductive health services and use them.

"Because of the workshops that were organized for we the nurses in charge of the corner, we now know how to talk to the teenagers at any point in time." (Health worker, beneficiary community)

"...I have to say that the workshops have helped us a lot in terms of increasing the number of adolescents who come here for reproductive health care. As you can see from the adolescent register, the number of adolescents who came here only last year are more than those who came here the previous three years because of the cordial relationship we have with them. So most of them go back to the house whenever they come and we are on out duty." (Health worker, beneficiary community)

However, even in the non-beneficiary community, respondents also argued that, there were also workshops organized for them by NGO's which also benefited them.

"Last year, Action Aid Ghana organized some workshops for some of us in the District capital. It really built our capacity in terms of service delivery." (Health worker, non-beneficiary community)

4.6.2 Factors inhibiting Adolescents' Knowledge and Access to Reproductive Health Services

4.6.2.1 Attitude of Health Workers

It was also revealed from the study that, adolescents were discouraged from seeking information on reproductive health services and utilize them because, most of the health workers do not keep their health records secret. Others also disclosed that, whenever they go to seek for reproductive health services such as condoms, pills,

implants, menstrual and abortion related services, some health workers mostly insult or shout at them, instead of encouraging them to always come to the facility.

> *"...I don't think I would ever go to the clinic in this community to seek for health care services. Last month I went to the clinic with my mother and sister (who was suffering from severe menstrual pain), the nurse in attendance was so unconcerned to the extent that, she was even watching 'Doli Amano Ki', a film that is translated in the local language on her own phone. Because of this, my mother even quarreled with her."* (Male student, non-beneficiary community)

> *"Just last week, my friend who is a nurse showed me a girl who was tested HIV/AIDS positive during their STIs screening. Because of this, I have even decided not to go to the clinic to seek for any of the services." (Teacher, beneficiary community)*

> *"... last month I went to the clinic to seek for health care since I was suffering from abdominal pain but the nurse in attendance was so insolent to me. She shouted at me and even insulted me because, I could not answer her question." (Female student, non-beneficiary community)*

4.6.2.2 Inadequate Health Workers

It was also found from the study that adolescents were discouraged to access information on contraceptives and use them because, health workers were not adequate in the two community clinics. Thus, some respondents contended that, key health

workers were either absent from work, have gone for a meeting during operating hours, or have refused postings to the study communities.

"Sometimes it's not that they don't come here to seek for some of the services in the facility but the health workers who provide the specific services are not adequate. For instance, last week a certain girl came here with her parents to perform abortion but at that time, the midwife had gone for a meeting so we could not do it for her." (Health provider, beneficiary community)

"Sometimes health workers are posted to this particular community but after coming to see the community and its location, they go and never return. Because of this, we don't have adequate workers to go to the various schools and communities to educate people on contraceptives and STIs." (Health provider, non- beneficiary community)

"I want to use my own family as an example. Just this year my daughter was in labour and she was sent to the community clinic. Unfortunately for us, the midwife had gone for a meeting so we quickly rushed her to the district government hospital." (Teacher, non- beneficiary community)

4.6.2.3 Convenience of Place used to render Service

From the information collected, respondents particularly from the non-beneficiary community clearly stated that, they were not ready to use any of the contraceptives in the community clinic because, the place where services were delivered do not offer them convenience.

"Madam it is not that I don't want to go to the clinic for them to counsel me on the services they offer, so I could take my preferred one. Looking at the place where services are offered in the community clinic, sometimes I feel embarrassed discussing contraceptives with the nurses because other patients always hear whatever you discuss." (Female student, non-beneficiary community)

"As you can see, we don't have a very specific place for adolescents, so most of them feel uncomfortable meeting their neighbors and friends when they are seeking for contraceptives." (Health provider, non- beneficiary community)

4.7 Discussion of Results

4.7.1 Knowledge about Reproductive Health Services

On establishing the differences in adolescent's knowledge about reproductive health services, the findings revealed that, majority of adolescents in the two communities were knowledgeable about the various services. This finding resonates well with Averiyire (2015) and Dapaah (2016) who said that, majority of adolescents in Ghana are knowledgeable about the various reproductive health services. The qualitative results suggested that some parents were very much interested in their ward's education. Thus, according to the results, parents felt ashamed when their wards got pregnant whiles at school; hence, they educated their children on contraceptives and also encouraged them to clearly acquire information on contraceptives from nearby facilities. Issues of education have also been documented in other studies (Chanon et al., 2010; Nanatte, 2009).

Further analysis showed that, adolescents in the beneficiary community were significantly more knowledgeable about contraceptives and counselling services such as injectables, implants, pills, STIs and contraceptive counselling than adolescents in the non-beneficiary community. This buttresses Van Meijel (2012) study in the Bolgatanga Municipality of Ghana that, interventions of these kind have positive effects on adolescents' knowledge on contraceptives. The qualitative results in the beneficiary community suggested that, facility organization contributes positively to adolescents' knowledge about contraceptives. Adolescents simply had a nice place to relax and play indoor games whiles the nurses discuss reproductive health services with them. Also, teaching and learning materials were readily available in the health corner. Thus, the beneficiary clinic therefore had more of a youth-friendly place of service than the non-beneficiary community. These encouraged most of the adolescents to go to the community clinic and acquire knowledge about the various contraceptives. This finding also relates well with Moya (2011), study that, conducive and convenient place from which clients receive their health care services has a significant effect on their knowledge about the services.

Similarly, the qualitative results further indicated that since health workers were key stakeholders under the GhARH project, staff training was reoriented to meet the needs as well as to create an attractive setting for adolescents at the implementing facility. According to the results, these workshops provided a forum where health workers learnt about the various types of contraceptives and at the end of the day, gave back what they learnt to the adolescent child. Thus, the study revealed that the beneficiary clinic had more youth-friendly staffs who disseminated information about

contraceptives to the adolescent child. This also resonates well with Karlin et al., (2010) and Acharya et al., (2017), who observed that if health workers are trained on emerging issues on their specific works, the end beneficiaries of the knowledge they acquired are their clients.

Further results from the qualitative study indicated that in the beneficiary community, the presence of social clubs in the JHS served as a platform for information dissemination on contraceptives. Thus, in the beneficiary community, adolescents said the presence of social clubs in schools made it possible for them to freely discuss issues regarding contraceptives with their friends and the health workers. The above discussed points were naturally absent in the non-beneficiary community.

On the contrary, additional analysis showed that, significantly fewer adolescents in the beneficiary community, than adolescents in the non-beneficiary community, were knowledgeable about antenatal services, postnatal services and the withdrawal method. This could be because, the GhARH project focused predominantly on pregnancy prevention services and purely health related services than that of post pregnancy services; hence, people were more concerned about contraceptives in the beneficiary community than post pregnancy services. It could also imply that because of the effectiveness of the GhARH project, adolescents in the beneficiary community experience less pregnancy issues that will require seeking information on antenatal and postnatal services. The result could also imply that, the GhARH project could be inconsistent with the government and region's effort of spreading information about post pregnancy and delivery services (SMHD, 2014).

Moreover, it was noted that sources of information also differ in the two communities. In the beneficiary community, majority of the respondents' main source of information was the health workers. The qualitative results suggested that the clinic in the beneficiary community had periodic outreach programmes on contraceptive counselling in the various schools. Thus, it may be argued that since most of the adolescents obtain reproductive health information from the health workers, the GhARH project had a significant impact on information dissemination on contraceptives and the other reproductive health services. It was also noted from the study that, in the non-beneficiary community, information was mainly sourced from friends and family members. This result is also in congruent with Singh et al., (2007) and Dapaah et al., (2016), who found that, adolescents mainly source information about reproductive health services from their friends and families.

4.7.2 Access to Reproductive Health Services

This study also provided information on the difference in access to reproductive health services among adolescents in the GhARH project beneficiary and non-beneficiary communities. In terms of availability, services such as male and female condoms, injectables, implants, abortion related services, STIs treatment, contraceptive counselling, were significantly more sufficient in the beneficiary community than the non-beneficiary community. It was noted from the qualitative results that the GhARH project focused predominantly on the provision of the aforementioned reproductive health services in the beneficiary clinic but it was completely different from the non-beneficiary community.

Also, the study results revealed that reproductive health services were significantly more affordable in the beneficiary community. The qualitative results further suggested that as a result of the GhARH project, there was a reduction in cost of services rendered to adolescents' in the beneficiary community. This encouraged most of the adolescents to go to the community clinic to get some of the reproductive health services since they were more affordable. This finding is in agreement with Chapman (2010) and Cortez et al., (2014) who found in their studies that, cost was associated with adolescents' access to reproductive health services.

Ironically, majority of adolescents in the non-beneficiary community found distance to the facility for all the reproductive health services as more accessible than adolescents in the beneficiary community. The difference was because, the main health facility was located closer to the non-beneficiary community than the beneficiary community. This clearly confirms Wang (2012), assertion that, health intervention is not just about providing the services but its closeness to the people is also very important. However, this finding is absolutely different from Judy (2014), study that, proximity is not associated with accessibility of services. This finding also implies that, distance may deny some adolescents in the beneficiary community from using some basic reproductive health services such as contraceptive and STIs counselling in the health corner.

Again, further analysis showed that, adolescents in the project beneficiary community rated operating hours and health workers' professionalism in the provision of services such as male and female condoms, injectables, implants, abortion related services, pregnancy testing and STIs screening; significantly higher than the ratings of

adolescents in the non-beneficiary community. Again, adolescents in the project beneficiary community were significantly satisfied with health workers' capacity and empathy in the delivery of services such as male condoms, injectables, implants, contraceptive counselling, pregnancy testing, STIs screening, STIs treatment and abortion related services; than adolescents in the non-beneficiary community. This was because, in the beneficiary community, the GhARH project focused predominantly on frequent workshops and training for nurses on code of conduct, as well readily available health nurses in the health corner. Thus, the beneficiary clinic had more of a youth-friendly health workers and hour of operating, which was naturally absent in the non-beneficiary community.

Moreover, service utilization was very low in both communities. This contradicts literature that; when people are knowledgeable about the various reproductive health services, it would be translated into utilization of the services (Bearinger et al., 2007). On the contrary, this finding supports other literature that knowledge of reproductive health services does not go in tandem with service utilization (Dapaah et al., 2016). In terms of the few that use the services in both communities, there was significantly higher utilization in the beneficiary community. This was because, services were sufficient and affordable in the beneficiary community than the non-beneficiary community.

Consequently, it has been said that for reproductive health of adolescents to be accomplished and kept up, the sexual privileges of all people must be appreciated, secured and satisfied (WHO, 2014; Njoki, 2015; Yendaw et al., 2015). Unfortunately, this assertion was hindered by socio-cultural factors and health system factors, which

affected services utilization in both beneficiary and non-beneficiary communities. From the qualitative study, several reasons were identified to explain the low service utilization in both communities. The study found that, some health workers were hostile to adolescent clients who visited the health facilities. Thus, the results revealed that some health workers discouraged adolescents who had come to get contraceptives by insulting and shouting at them instead of encouraging them. This finding is in agreement with the work of Kambikambi (2014); who reported that, irrespective of the kind of intervention implemented in a particular facility; the attitude of some health workers may discourage people to seek for reproductive health care.

Besides, the study revealed that religious doctrine holds unique importance in the lives of respondents and has been cited as an important factor that prevents them from utilizing some of the reproductive health services in the two communities. They argued that adolescents needed to follow God's commandments to avoid STIs infection and unwanted pregnancies; so using contraceptives as a control measure was seen as a sin. The fact that religion plays an influential role on service utilization among adolescents can be seen in the works of Rachel et al., (2011), Ayelaw (2014) and Yindaw et al., (2015). This also implies that religious leaders were not actually observed as key stakeholders in the GhARH project design and implementation; which eventually affected its success.

Additionally, the study found that in both communities, some parents do not allow their wards to use any of the contraceptives. Thus, most of the adolescents don't use contraceptives because their parents always insult them or refuse to pay their school fees whenever they use any of the contraceptives. This corresponds with a study by

Bingenheimer et al., (2015), who reported that parental attitude prevents adolescents to use some reproductive health services. Similarly, the qualitative results suggested that service utilization was low because most adolescents perceived sex as natural; hence needless using any of the contraceptives. This finding is also consistent with Averiyire (2015) study that, because of the pleasure in sexual intercourse, many adolescents are unwilling to use condoms.

Furthermore, it was noted that inadequate health workers in the clinics also discouraged adolescent to use some of the reproductive health services. According to the results, health workers who provide services such as abortion related services, antenatal and postnatal services were insufficient in the study communities; which prevented adolescents from using the aforementioned services in the various facilities. This indicates that many adolescents will be discouraged from using reproductive health services when physicians are unavailable (Celletti et al., 2010; Del Canal et al., 2012).

4.8 Limitations of the Study

The study was subject to several limitations: The study only focused on in-school adolescents without considering out-of-school adolescents and special groups such as pregnant adolescents' and adolescents infected with HIV/AIDS; who were also key target groups of the GhARH project. Also, a before-and-after study could have actually measured respondents' knowledge and access to reproductive health services. This was not possible because, looking at the time the project was implemented, majority of the adolescents were not even in the adolescent age group. As such, a comparative study between the GhARH project beneficiary and non-beneficiary communities was

deemed necessary to assess the effects of GhARH project in the Asunafo South District. The study again covered only adolescents in Kwapong and Abuom communities and the results can therefore, be generalized only to a similar group in Ghana or in other developing countries.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

- Overall, knowledge about reproductive health services was higher in the two communities.
- Adolescents in the project beneficiary community had significantly higher knowledge on services such as pills, injectables, implants, STIs counselling and contraceptive counseling than adolescents in the non-beneficiary community. However, adolescents in the non-beneficiary community were more knowledgeable about withdrawal, antenatal and postnatal services than adolescents in the project beneficiary community.
- In the project beneficiary community, adolescents mainly sourced information on reproductive health services from health officials but in the non-beneficiary community, adolescents' main sources of information were friends and family members.
- Adolescents in the beneficiary community rated the availability of service such as male and female condoms, injectables, implants, abortion related services, STIs treatment and menstrual services; significantly higher than the ratings of adolescents in the non-beneficiary community. However, adolescents in the non-beneficiary community rated the availability of antenatal services and postnatal services; significantly higher than the ratings of adolescents' in the beneficiary community.

- Adolescents in the project beneficiary community rated the affordability of male condom, injectables, implants, contraceptive counselling, STIs treatment, abortion related services and menstrual services; significantly higher than the ratings of adolescents in the non-beneficiary community.
- In terms of distance, services were significantly accessible by adolescents in the non-beneficiary community than adolescents in the project beneficiary community
- In terms of acceptability, adolescents in the project beneficiary community rated operating hours of the facility and health workers' professionalism in the provision of services such as male and female condom, injectables, implants, abortion related services, pregnancy testing and STIs screening; significantly higher than the ratings of adolescents in the non-beneficiary community. However, adolescents in the non-beneficiary community rated operating hours of the facility in the delivery of antenatal and postnatal services; significantly higher than the ratings of adolescents in the project beneficiary community.
- Adolescents in the project beneficiary community were significantly satisfied with health workers' capacity and empathy in the delivery of services such as male condom, injectables, implants, contraceptive counselling, pregnancy testing, STIs screening, STIs treatment and abortion related services than adolescents in the non-beneficiary community. However, adolescents in the non-beneficiary community were significantly satisfied with health workers capacity in the delivery of postnatal services.

- Utilization of services was low in both communities but comparatively; adolescents in the project beneficiary community significantly utilized services such as male condom, female condom, injectable, contraceptive counselling, menstrual services and STIs screening more than adolescents in the non-beneficiary community.
- Socio-cultural issues such as parental interest in their ward's education, peer influence and the presence of social clubs were identified as key factors that promote adolescents' knowledge and access to reproductive health services in the study communities. However, socio-cultural context such as religious bigotry, sex is pleasurable when natural and parental intolerance were identified as factors that negatively influence adolescents' knowledge and access to reproductive health services in the study communities.
- Health system factors such as facility organization, staff training and physician supply were recognized as key factors promoting adolescents' knowledge and access to reproductive health services. However, health system issues such as insufficient health workers, health workers' attitude and convenience of place used to render service were identified as important factors that inhibit adolescents' knowledge and access to reproductive health services in the study communities.

5.2 Conclusion

The GhARH project is an intervention to mitigate adolescents' reproductive health predicaments in the country. This study aimed to assess effects of the GhARH project on adolescents' knowledge and access to reproductive health services, as well as the socio-cultural and health system factors that influence knowledge and access to reproductive

health services among adolescents in the GhARH project beneficiary and non-beneficiary communities of the Asunafo South District. The thesis concludes that the GhARH project has significantly improved adolescents' knowledge and access to some reproductive health services. The project focused predominantly on frequent workshops and training of nurses, frequent supply of basic reproductive health services, formation of social clubs in schools for information dissemination, reduced cost of reproductive health services among many others. However, the project failed to fully consider facility location, some health system and socio-cultural issues in its preparation and implementation, which also negatively affected the project success. Similarly, the GhARH project failed to consider antenatal and postnatal service delivery for adolescents as very important; a total deviation from the government and region's effort of spreading information about post pregnancy and delivery services.

All in all, on the theoretical justification of the study, the research supported Anderson et al., (2005), Health Behavioural Model. The model suggests that some key factors affect individual knowledge, access and utilization of services; including predisposing factors like socio-cultural characteristics of individuals, as well as health system and policy factors. These factors were clearly evidenced in the findings of the study.

5.3 Recommendations

5.3.1 Policy Direction and Action

- In terms of facility location in subsequent design; policy makers should take into consideration the closeness of the health corner to the people.

- Health corners should be replicated and decentralized to all catchment areas that are having health facilities and provide basic reproductive health services for adolescents.
- In subsequent implementation of adolescent reproductive health projects, policy makers should always consider the socio-cultural context and health system factors in order to ensure that they address these factors that disempower the adolescents' knowledge and access to reproductive health services.
- Subsequent reproductive health project should factor strengthening and building capacity of all health workers in the implementing health facilities, but not on selective basis.
- Subsequent project design and implementation should pay attention to antenatal and postnatal services, since pregnancy is higher among adolescents, particularly out of school adolescents.

5.3.2 Collaborative Dialogue and Interactions

- Community participation should be ensured in reproductive health project planning, designing and implementation in order to ensure that planned interventions have community support.
- Policy makers should also consider adolescents as key partners in reproductive health during project planning and implementation and not as only recipients of their services.
- Subsequent designs should factor improvement in the coordination and management of adolescent health activities by agencies such as GES, GHS and NYA.

- There should be strong collaboration between key stake holders and parents in subsequent project design and implementation in order to ensure that the projects have parental support.
- New project of this kind should also consider the ideas and views of pastors and other religious leaders during project design and implementation.

5.4 Directions for future research

- Similar studies need to be done in other districts to generate more supportive evidence.
- Future research should be geared towards comparing knowledge and actual usage of reproductive health services among adolescents in the GhARH project beneficiary communities.
- It is known that adolescents and health workers are not the only stakeholders in the GhARH project. It is therefore recommended that future researchers should explore into stakeholders' views about the sustainability of the GhARH project.
- Future research should also be geared towards finding out effects of the GhARH project on out of school adolescents' knowledge and access to reproductive health services.
- Future research can also look at a before-and-after study targeting late adolescents to assess effects of the GhARH project on adolescents' knowledge and access to reproductive health services.

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APPENDICES

APPENDIX --- A

QUESTIONNAIRE FOR ADOLESCENTS

UNIVERSITY FOR DEVELOPMENT STUDIES

FACULTY OF PLANNING AND LAND MANAGEMENT

DEPARTMENT OF GOVERNANCE AND DEVELOPMENT MANAGEMENT

(Beneficiary and Non-Beneficiary Communities)

I am a post graduate student of the University for Development Studies and I am conducting a research on the topic *effects of the Ghana Adolescent Reproductive Health Project on adolescents' knowledge and access to reproductive health services* in the Asunafo South District. This is to enable me to prepare a thesis report in order to satisfy a requirement for the award of a Master of Philosophy in Development Management degree. To enable me prepare the report; I would be grateful if you could kindly respond to the following questions. Your responses will be used for academic purposes only and they will be treated confidentially. Thank you.

COLLINS ANNOR

Date ……..
Questionnaire Number….. Name of Community…… Name of School……..

PART ONE: BACKGROUD INFORMATION				
1	(DO NOT ASK THIS QUESTION – simply provide answer) Sex of the Respondent	1. Female [ ] 2. Male [ ]		
2	How old were you on your last birthday?	…… years		
3	What is your place of residence?	1. Urban [ ]	2. Peri-Urban [ ]	3. Rural [ ]
4	Where is your school located?	1. Urban [ ]	2. Peri-Urban [ ]	3. Rural [ ]

5	What is your current relationship status?	1. In relationship 2. Not in relationship
6	What is your religion?	1. Catholic [ ] 2. Anglican [ ] 3. Methodist [ ] 4. Pentecostal/Charismatic [ ] 5. Islam [ ] 6. Traditional [ ] 7.No Religion [ ] 8. Adventist 9. Others……
7	To which ethnic group do you belong to?	1. Akan [ ] 2. Ga/Dangme [ ] 3. Ewe [ ] 4. Mole-Dagbani [ ] 5 Grusi [ ] 6. Guan [ ] 7. Mande [ ] 8. Other …….
8	Whom do you live with?	1. Both Parents [ ] 2. Mother only [ ] 3. Father only [ ] 4. Relatives [ ] 5. Partner [ ]
9	Who is the main bread winner in your household?	1. Mother [ ] 2. Father [ ] 3. Relatives [ ] 4. Partner [ ]
10	What is the educational attainment of the main bread winner in your household?	1 Primary [ ] 2 JHS [ ] 3 SHS [ ] 4 Higher [ ] 5 None [ ] 6. Don't Know [ ]
11	What is the main occupation of the bread winner of your household?	1. Formal employment [ ] 2. Casual laborer [ ] 3. Trader [ ] 4. Farmer [ ] 5. Other……
12	What is the number of people in your household?	……. **PROVIDE NUMBER**
13	What is the number of children born by your parents?	…… **PROVIDE NUMBER**
14	Which position are you among your parent's children?	1. First born [ ] 2. Second born [ ] 3. Third born [ ] 4. Fourth born [ ] 5. Fifth born [ ] 6.Others…….
15	What is your parent's marital status now?	1. Divorced [ ] 2. Widowed [ ] 3. Separated [ ] 4. Still married [ ] 5. Other……

PART TWO: AWARENESS OF REPRODUCTIVE HEALTH SERVICES

I have some questions about some reproductive health issues. Please tick Yes or No the ones that you are aware of and circle the sources?

		Tick one	SOURCES OF INFORMATION (Circle your choices)
16	Have you ever heard of the word sexual intercourse? →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator

			6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify)……
17	Are you aware that a girl can get pregnant after sexual intercourse? →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4. Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
18	Are you aware that a girl or boy can be infected with STDs when he/she has sexual intercourse with the opposite sex? →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify)……
19	Are you aware that the moment a woman starts having her menstruation, she can get pregnant? →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
20	Are you aware that every month a women is sexually active, she can prevent pregnancy by not having intercourse on the day of the month she is mostly likely to get pregnant? →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
I now have some questions about reproductive health services. In the following list of services, tick Yes or No the ones you are aware of and circle the sources?			

	FAMILY PLANNING METHODS		
21	Male Condom (Boys can use male condom for sexual intercourse) →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
22	Female condom (Girls can use female condom for sexual intercourse) →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
23	Pill (Girls can take a pill every day before sexual intercourse) →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other specify ……
24	Injectable (A woman can have an injection every 2 or 3 months) →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
25	Implants (Girls can have small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for one or more years) →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……

26	Withdrawal (A boy can be careful and pull out of a woman before climax) →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
27	Emergency Contraception (A girl can take special pill soon after unprotected sexual intercourse to prevent pregnancy) →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
	COUNSELING SERVICES		
28	Counseling on sexually transmitted infections (Boys and girls can seek for advice and information about STIs in nearby facility) →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
29	Counseling on contraceptives (Boys and girls can seek information and advice about the various types of contraception and their side effects in facilities) →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
	PREGNANCY RELATED AND STI SERVICES		
30	Pregnancy test (Girls can go to nearby facility to test their pregnancy status if they perceive to be pregnant) →	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator

			6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
31	STIs screening (Girls and boys can go to nearby facility to check their STIs status)	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
32	STIs treatment (Boys and girls can go to nearby facility and acquire medication when they are infected)	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. (Other specify) ……
33	Abortion related services (Girls can go to nearby facility to terminate unwanted pregnancy)	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other specify ……
34	Postnatal and Anti natal services (Pregnant girls can acquire for health care from nearby facilities during pregnancy and after delivery)	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio 7. Books/Magazine/Poster 8. Television 9. Other (specify) ……
	Postnatal and Anti natal services (Girls can acquire for health care from nearby facilities after delivery)	Yes [ ] No [ ]	1. School teachers 2. Friends 3. Family member 4.Health workers 5. Peer educator 6. Radio

			7. Books/Magazine/Poster 8. Television 9. Other (specify) ……

PART THREE: ACCESS TO REPRODUCTIVE HEALTH SERVICES

UTILIZATION OF SERVICES

35	Have you ever use any reproductive health service in your community?	1. Yes [ ] 2. No [ ]
36	Which of these method or service have you ever used?	
	Injectable	1. Yes [ ] 2. No [ ]
	Implant	1. Yes [ ] 2. No [ ]
	Pills	1. Yes [ ] 2. No [ ]
	Condom	1. Yes [ ] 2. No [ ]
	Female condom	1. Yes [ ] 2. No [ ]
	Emergency contraception or drug	1. Yes [ ] 2. No [ ]
	Counseling on contraceptives	1. Yes [ ] 2. No [ ]
	Counseling on STIs	1. Yes [ ] 2. No [ ]
	Treatment of STI's	1. Yes [ ] 2. No [ ]
	Abortion related services	1. Yes [ ] 2. No [ ]
	Menstrual related service	1. Yes [ ] 2. No [ ]
	Pregnancy test	1. Yes [ ] 2. No [ ]
	STIs screening	1. Yes [ ] 2. No [ ]
	Antenatal services	1. Yes [ ] 2. No [ ]
	Postnatal services	1 Yes [ ] 2. No [ ]

AVAILABILITY OF SERVICES: In the table below, please what is your perception about the availability of the following services in your community?

	Please tick one →	*1.Sufficient*	*2. Insufficient*	*3. Neutral*
37	**Family Planning Method:**			
	Male condom			
	Female condom			
	Injectable			
	Implant			

	Pills			
	Condom/Female condom			
	Emergency contraception or drug			
38	**Counseling services:**			
	Counseling on contraceptives			
	Counseling on STIs			
39	**Pregnancy related and STIs services:**			
	Treatment of STI's			
	Abortion related services			
	Menstrual related service			
	Pregnancy test			
	STIs screening			
	Antenatal services			
	Postnatal services			

AFFORDABILITY: In the table below, what is your perception about the affordability of the following services in the community?

	Please tick one →	*1.Affordable*	*2. Unaffordable*	*3. Neutral*
40	**Family Planning Method:**			
	Male condom			
	Female condom			
	Injectable			
	Implant			
	Pills			
	Emergency contraception or drug			
41	**Counseling services:**			
	Contraceptive counseling			
	STIs counseling			
42	**Pregnancy related and STIs services:**			
	Treatment of STI's			
	Abortion related services			
	Menstrual related services			
	Pregnancy test			
	STIs screening			
	Antenatal services			
	Postnatal services			

ACCESSIBILITY OF SERVICES: From the table below, how easy it is for you to access reproductive health services in relation to distance?

	Please tick one →	*1. Very*	*2.Uneasy*	*3. Neutral*
40	**Family Planning Method:**			
	Male condom			
	Female condom			
	Injectable			
	Implant			
	Pills			
	Emergency contraception or drug			
41	**Counseling services:**			
	Contraceptive counseling			
	STIs counseling			
42	**Pregnancy related and STIs services:**			
	Treatment of STI's			
	Abortion related services			
	Menstrual related services			
	Pregnancy test			
	STIs screening			
	Antenatal services			
	Postnatal services			

ACCEPTABILITY OF SERVICES: From the table below, how appropriate is it for you to access the following reproductive health services in relation to health workers' professionalism, hour of operation? Please respond 1-appropriate 2- inappropriate 3-Neutral

	Please tick one →	*Workers professionalism*	*Hour of operation*
37	**Family Planning Method:**	1[ ] 2[ ] 3[ ]	1[ ] 2[ ] 3[ ]
	Male condom		
	Female condom		
	Injectable		
	Implant		
	Pills		
	Condom/Female condom		

	Emergency contraception or drug		
38	**Counseling services:**		
	Counseling on contraceptives		
	Counseling on STIs		
39	**Pregnancy related and STIs services:**		
	Treatment of STI's		
	Abortion related services		
	Menstrual related service		
	Pregnancy test		
	STIs screening		
	Antenatal services		
	Postnatal services		

QUALITY OF SERVICES: From the table below, how satisfied are you when you access the following reproductive health services in relation to health workers' capacity, health workers' empathy? Please respond 1- Satisfied 2- Dissatisfied 3- Neutral

	Please tick one →	*Workers capacity*	*Workers empathy*
37	**Family Planning Method:**	1[ ] 2[ ] 3[]	1[ ] 2[ ] 3[ ]
	Male condom		
	Female condom		
	Injectable		
	Implant		
	Pills		
	Condom/Female condom		
	Emergency contraception or drug		
38	**Counseling services:**		
	Counseling on contraceptives		
	Counseling on STIs		
39	**Pregnancy related and STIs services:**		
	Treatment of STI's		
	Abortion related services		
	Menstrual related service		
	Pregnancy test		
	STIs screening		
	Antenatal services		
	Postnatal services		

THANK YOU

Appendix --- B

KEY INFORMANTS INTERVIEW GUIDE
(FOR HEALTH WORKERS, SCHOOL COUNSELORS AND OPINION LEADERS)

I want to thank you for taking the time to meet with me today. My name is Collins Annor, a graduate student at the University for Development Studies. The purpose of this discussion is to seek your opinion on the socio cultural and health system factors that influence adolescent knowledge and access to reproductive health services in this community. Your responses will contribute to the identification and understanding of all the issues being investigated. The interview should take less than an hour. I will be tape recording the session because I don't want to miss any of your comments. Although I will be taking some notes during the session, I can't possibly write fast enough to get it all right. All responses will be kept confidential. This means that your interview responses will only be shared with research team members and we will ensure that any information we include in our report does not identify you as the respondent.

Interviewee …… Date: ……Community……

1. Please tell me your age, your job description and position at work place.
2. How do you understand adolescent reproductive health services?
   - Probe for respondents' knowledge on each of the following: male condom, female condom, implant, injectable, pill, emergency contraception, counseling on contraceptive, counseling on STIs, pregnancy test, STIs screening, Menstrual related services etc.

Let's talk about the reproductive health services you think adolescents are aware of?

3. Which reproductive health services do you think adolescents are aware of?

Probes: male condom, female condom, implant, injectable, pill, emergency contraception, counseling on contraceptive, counseling on STIs, pregnancy test, STIs screening, Menstrual related services etc.

4. What are the issues within the social system that are making it easy for adolescents to be aware of those services? Why?

Probes: religion, culture, education marital status and ethnicity etc.

5.Which other issues hinder adolescents to be aware other services? Why? Probes: religion, culture, education and ethnicity etc.

There are many issues within the health system that are helping or hindering adolescents to be aware of reproductive health services.

6. Please what do you think are the health system factors that are helping adolescents to be aware of reproductive health services? Give your reasons. Probes: physician supply, facility organization, availability of services and attitude of health workers etc.

7. Which other health system factors do you think obstruct adolescents to be aware of reproductive health services? Why?

Probes: physician supply, facility organization, availability of services and attitude of health workers etc.

Adolescents use many reproductive health services that prevent them from getting HIV/AIDS and other Sexually Transmitted Diseases and unwanted pregnancies because of some social reasons. We would like you to tell us the kinds of services you think adolescents use most and why.

8. What reproductive health services do you think adolescents mostly use? Why?

Probes: male condom, female condom, implant, injectable, pill, emergency contraception, counseling on contraceptive, counseling on STIs, pregnancy test, STIs screening, Menstrual related services etc.

9. Which issues within the social systems make it easy for adolescent to use the services? Why?

Probes: religion, culture, education and ethnicity etc.

10. Which other social issues hinder adolescent to use some kind of services? Why?

Probes: religion, culture, education and ethnicity etc.

Let's talk about factors within the health system that help or obstruct adolescents to use a particular kind of reproductive health services.

11. Please which health system factors do you think are helping them to use a particular kind of services? Why?

Probes: physician supply, facility organization, availability of services and attitude of health workers etc.

12. Which other health factors do you think obstruct them to use a particular kind of services? Why?

Probes: physician supply, facility organization, availability of services and attitude of health workers etc.

THANK YOU

APPENDIX --- C

INDEPTH INTERVIEW

(WITH -STUDENTS)

I want to thank you for taking the time to meet with me today. My name is……This study is being conducted by Collins Annor, a graduate student at the University for Development Studies. The purpose of this discussion is to seek your opinion on the socio cultural and health system factors that influence adolescent knowledge and access to reproductive health services in this community. Your responses will contribute to the identification and understanding of all the issues being investigated. The interview should take less than an hour. I will be tape recording the session because I don't want to miss any of your comments. Although I will be taking some notes during the session, I can't possibly write fast enough to get it all right. All responses will be kept confidential. This means that your interview responses will only be shared with research team members and we will ensure that any information we include in our report does not identify you as the respondent.

Interviewee …… Date: …… Community……

---

1. Gender of interviewee 1. Female [ ] 2. Male [ ]

2. Age of interviewee……. Years

3. Which reproductive health services are you aware of? Probes: male condom, female condom, pill, implant, pregnancy test, abortion, STIs screening, injectable, contraceptive counseling etc.

4. How did you get to know of each of those reproductive health services?

5. What is your understanding of each of the following reproductive health services? Probes: male condom, female condom, pill, implant, pregnancy test, abortion related services,

menstrual related services, STIs screening, injectable, contraceptive counseling, STIs counseling etc.

6. Which social factors help you to be aware of the services? Give your reasons. Probes: religion, culture, education, ethnicity, marital status etc.

7. Which other social issues prevent you to know other reproductive health services? Why? Probes: Religion, culture, education, ethnicity, marital status etc.

8. Which of the reproductive health services do you use? Probes: male condom, female condom, pill, implant, pregnancy test, abortion, STIs screening, injectable, contraceptive counseling, STIs counseling etc.

9. Which social factors explain the reason why you use those services? Why? Probes: religion, culture, education and ethnicity etc.

10. Which other social factors obstruct you to use other reproductive health services? Why? Probes: religion, culture, education and ethnicity, marital status etc.

11. Within the health system, which factors make it easy for you to use the services? Why? Probes: physician supply, facility organization, availability of services, attitude of health workers etc.

12. Which other health system factors obstruct you to use a service? Why? Probes: physician supply, facility organization, availability of services, attitude of health workers etc.

THANK YOU

APPENDIX --- D

Study Budget

SUMMARY	COST GH¢
Allowance for field assistants	1,000
Laptop computer	1,500
Rent (one month)	50
Mobile internet modem	50
Stationary/photocopy/printing	700
Transportation	675
Mobile internet service	265
Pen drive (8GB)	50
Ethical clearance	500
Other Expenses	950
TOTAL	**5,740**

APPENDIX-- E

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

My Ref. App/GhARH/05/2018
Your Ref:

Navrongo Health Research Centre
Institutional Review Board
Ghana Health Service
P. O. Box 114
Navrongo, Ghana
Tel: +233-20 166 0158
Email: irb@navrongo-hrc.org

16th May, 2018

Mr. Collins Annor
Christ Apostolic Church International
P. O. Box 31
Bibiani
Western Region

ETHICS APPROVAL ID: NHRCIRB304

Dear Mr. Annor,

Approval of protocol *titled 'Effects of the Ghana Adolescent Reproductive Health (GhARH) Project on Adolescents Knowledge and Access to Reproductive Health Services in the Asunafo South District'*

I write to inform you that the Navrongo Health Research Centre Institutional Review Board (NHRC IRB) having reviewed the above named protocol, find the study relevant considering the aims and objectives as stated in the protocol. The Board therefore grants you approval.

The following documents were reviewed and approved;

- Summary of the Protocol
- Completed New Protocol Submission
- Protocol Version 1.0, dated 2nd April 2018
- Information sheet and Consent forms
- Current CVs of Principal Investigator

Please, you are kindly reminded that any amendment to the approved documents must receive prior NHRCIRB approval before implementation.

The Board would expect a report on your study, annually or at the close of same, whichever comes first. Should you require a renewal of your approval, a progress report should be submitted two (2) months before the expiration date.

This approval expires on the **15th May, 2019.**

The Board wishes you all the best in the study.

Sincerely,

Dr. (Mrs) Nana Akosua Ansah
(Vice Chair, NHRCIRB)

Cc: The Director
NHRC, Navrongo