

UNIVERSITY OF CAPE COAST

RISK FACTORS FOR PREGNANCY AMONG ADOLESCENT GIRLS IN  
KOMENDA-EDINA-EGUAFO-ABREM MUNICIPALITY OF GHANA

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BY

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Education

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## DECLARATION

### Candidates' Declaration

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

Candidate's Signature.....Date.....

Name: Bright Opoku Ahinkorah

### Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature.....Date.....

Name: Prof. Joseph Kwesi Ogah

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Name: Prof. Joseph Kwame Mintah

## ABSTRACT

Pregnancy among adolescents has become a major issue in Ghana with high prevalence in some regions in the country, including the Central Region. Using a 1:1 matched case-control study design, this study sought to find out the risk factors associated with pregnancy among adolescent girls in Komenda-Edina-Eguafo-Abrem Municipality (KEEA) Municipality. A sample size of 400 was taken from the population of 7,667 female adolescents. Facility-based sampling was used to sample respondents for the study. Analysis was done by employing binary logistic regression. The results were interpreted using odds ratio and p-values. Results of the study showed that adolescents' level of education (OR = 0.14, 95% CI = [0.05 – 0.42], p = 0.000), mothers' level of education (OR = 0.26, 95% CI = [0.11 – 0.62], p = 0.002) and fathers' level of education (OR = 0.27, 95% CI = [0.15 – 0.47], p = 0.001), level of strictness of rules and regulations in family (OR = 0.14, 95% CI = [0.07 – 0.25], p = 0.000), freedom within the family to discuss issues related to sexuality (OR = 0.33, 95% CI = [0.18 – 0.59], p = 0.000), peer influence to engage in sexual intercourse (OR = 2.63, 95% CI = [1.46-4.74], p = .001) and attitude of parents towards pregnancy (OR = 2.97, 95% CI = [1.15-7.70], p = .025) had statistically significant influence on adolescents' pregnancy in KEEA Municipality. Adolescent girls in KEEA Municipality are likely to experience continuous exposure to the risk of pregnancy once their level of education and that of their parents is low. It is recommended that the Ghana Education Service, through the Municipality Education Unit should encourage adolescent girls in KEEA Municipality to enrol in schools.

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**DEDICATION**

To my mother, Regina Asiedu

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## CHAPTER ONE

### INTRODUCTION

#### **Background to the Study**

Adolescent pregnancy appears today as a complex tapestry where different dimensions interact (Pedrosa, Pires, Carvalho, Canavarro, & Dattilio, 2011). Although there is no internationally accepted definition of adolescence, the World Health Organization (2003), defines adolescence as the period from 10-19 years of age. Adolescence is also defined by UNICEF (2013), as a transition from childhood to adulthood often characterized by physical, psychological and social changes. It is generally classified into two: early adolescence (10-14 years) and late adolescence (15-19 years).

This transition is a critical stage of human development during which young people take on new roles and responsibilities (Amuah, 2009). UNICEF (2013) considers adolescence as the stage when most people start to explore their sexuality. They have concerns about their bodily changes during puberty, about being sexually attracted to others, about their sexual identity and orientation, about having sexual feelings and about how to handle those feelings (Olukunle, 2007). This natural sexual behaviour puts these youngsters at risk of being affected by undesirable sexual and reproductive health concerns, including early pregnancies, also known as adolescent pregnancy (UNICEF, 2013).

WHO (2009) defines adolescent pregnancy as pregnancy occurring in a girl aged 10 to 19 years. This pregnancy can occur among early adolescents (10-14 years) and late adolescents (15-19 years). In Ghana, studies on pregnancies have usually focused on women in their reproductive age (15-49

years) and this age group includes late adolescents aged 15-19 years (Ghana Statistical Service, Ghana Health Service, & ICF Macro. [2003]; Ghana Statistical Service, Ghana Health Service, & ICF Macro. [2009]; Ghana Statistical Service, Ghana Health Service, & ICF Macro. [2015]). This age group has been used by several researchers in their studies on adolescent pregnancy in Ghana (Opoku, 2005; Amuah, 2009; Bosiahok, 2013; Akakpo, 2013).

Globally, about 16 million women 15-19 years old give birth each year, making about 11% of all births worldwide (WHO, 2011). About 95% of adolescent pregnancies occur in developing countries and 36.4 million women become mothers before age 18 (United Nations Population Fund, 2013). As a result of this and other factors, including lack of education on sexual and reproductive health, poverty, contraceptive failure, and sexual assault, an estimated 10-14% of young unmarried women around the world experience unwanted pregnancies (Nalenga, 2012). A report by WHO (2014a) covered the current situation of teenage pregnancy and contained issues on risks with adolescent pregnancy. With the current situation, the report emphasized that for some adolescents, pregnancy and childbirth are planned and wanted, but for many they are not. According to the same report, adolescent pregnancies are more likely to occur in poor, uneducated and rural communities. In the same report, in some countries, becoming pregnant outside marriage is not uncommon. On the contrary, some girls may encounter social pressure to marry and have children. In the same report, more than 30% of girls in low- and middle-income countries get married before they are 18 and about 14% before their fifteenth birthday. On risks for adolescent pregnancies, the report

emphasized that some girls do not know how to avoid getting pregnant: sex education is lacking in many countries. They may either feel too reserved to seek contraception services or contraceptives may be too expensive or not widely or legally available. This becomes more challenging because girls may be unable to refuse unwanted sex or resist coerced sex, which tends to be unprotected.

Sub-Saharan Africa had the highest prevalence of adolescent pregnancy in the world in 2013 (United Nations Population Fund, 2013). Births to teenage mothers accounted for more than half of all the births in this region: an estimated 101 births per 1000 women aged 15-19 (United Nations Population Fund, 2013). Most countries with teenage pregnancy levels more than 30% occur in sub-Saharan Africa (Loaiza & Liang, 2013). In 2013, birth rates ranged from 150 or more to less than 50 births per 1000 women of ages 15-19 in sub-Saharan Africa, with Central Africa experiencing the highest levels and Southern Africa having the lowest level (Clifton & Hervish, 2013). The average rate of birth per 1000 females aged 15-19 is 143 in sub-Sahara. This is well above the world average of 65 out of every 1000 adolescents, and is a sure indication that adolescent pregnancy, along with maternal health complications is one of the more pressing medical problems faced by the African continent, where about 40% of women will experience motherhood by the age of 18 (Nalenga, 2012).

The situation of adolescent pregnancy in Ghana is not different from that of the world and Africa. Teenage pregnancy is endemic in Ghana as there was no significant change in the rates between 2003 (14%) and 2008 (13%). About one in ten adolescents 15-19 years of age had begun childbearing in the

urban areas whilst about twice the number was the problem in the rural communities (Ghana Statistical Service, Ghana Health Service, & ICF Macro, 2009). Ghana continues to record higher rates of adolescent pregnancy. In the 2014 Ghana Demographic and Health Survey report, the rate of pregnancy among women aged 15-19 was high, with rural dwellers and those living in the Brong Ahafo, Central and Volta regions recording the highest rates (Ghana Statistical Service, Ghana Health Service, & ICF Macro, 2015).

Pregnancy among adolescents has been found in several studies globally, in Africa and in Ghana to be associated with numerous risk factors. Globally, some studies have identified socio-demographic factors, family structure, educational factors, psychosocial factors, sexual health knowledge, attitude and behaviour and health service accessibility and acceptability as broad risk factors for pregnancy among adolescents (Imamura et al., 2006; Goicolea, Marianne, Öhman, & San Sebastian, 2009). Other studies have also found peer pressure, low self-esteem, heightened sex-based messages in the media as risk factors for adolescent pregnancies (Mothiba & Maputle, 2012; Dulitha, Nalika, Upul, Chrishantha, & Hemantha, 2013). Similar factors have also been found in studies conducted in Africa (Kaphagawani, 2008; Kyokwijuka, 2009; Amoran, 2012; Thobejane, 2015). In Ghana, Opoku (2005), Amuah (2009) and Akakpo (2013) in their various studies also came out with socio-demographic factors, family structure, educational factors, psychosocial factors, sexual health knowledge, attitude and behaviour and health service accessibility and acceptability as risk factors for adolescent pregnancies.

Pregnancy among adolescents is associated with several challenges. For the pregnant adolescent, adolescent pregnancy leads to loss of potential. Moreover, it may result in many negative health and social effects for both mother and child. Also, pregnant girls aged 15-19 are twice as likely of dying during pregnancy or childbirth as women over 20 years. Evidence shows that becoming a mother during teenage years may cause many health risks including anaemia, tearing of the vagina, fistula, mental disorders, puerperal sepsis, unsafe abortions and complications and pregnancy induced hypertension as a result of physiological and psychological immaturity (UNFPA, 2013). Pregnant adolescents are more likely to interrupt education leading less job opportunities (Coll-Black, Bhushan, & Fritsch, 2007).

### **Statement of the Problem**

Pregnancy among adolescents has become a major issue in Ghana with high prevalence in some regions in the country, including the Central Region (Ghana Statistical Service, Ghana Health Service, & ICF Macro, 2015). In Ghana, Opoku (2005), Amuah (2009), Bosiahok (2013) and Akakpo (2013) have conducted studies on risk factors associated with pregnancy among adolescents. Recommendations made based on the findings of these studies have brought about the intensification of comprehensive adolescent sexual health programmes and services in the country. Some of these include education on sexual rights, access to contraceptives, among others. Despite these programmes and services, adolescent pregnancies are still high in some regions in the country including the Central Region.

According to the Ghana Statistical Service, Ghana Health Service and ICF Macro (2015), the number of adolescents who were pregnant with one



child in the Central Region was 7%. Within the Central Region, the Komenda-Edina-Eguafo-Abrem (KEEA) Municipality is one of the districts that have high prevalence of adolescent pregnancy. In 2016, out of the total pregnancies in the Municipality, 17.5% were adolescents (KEEA Health Directorate, 2016). This situation raises doubts about the effectiveness of adolescent reproductive health programmes and services in dealing with adolescent pregnancy in an area like the KEEA Municipality. This implies that, there could be other factors that may account for the high prevalence of adolescent pregnancy in the KEEA Municipality. However, it appears no study has been conducted in the KEEA Municipality to find out the factors that account for the high prevalence of adolescent pregnancy. This calls for the need to examine the risk factors associated with pregnancy among adolescent girls in KEEA Municipality.

### **Purpose of the Study**

The purpose of the study was to examine the risk factors associated with pregnancy among adolescent girls in KEEA Municipality.

### **Research Questions**

The study seeks to find answers to the following questions:

1. To what extent do socio-demographic factors influence pregnancy among adolescents in KEEA Municipality?
2. How do socio-cultural factors determine pregnancy among adolescents in KEEA Municipality?
3. How does access to pregnancy prevention information and services determine adolescent pregnancy in KEEA Municipality?

4. To what extent does knowledge about pregnancy serve as risk factor for adolescent pregnancy in KEEA Municipality?
5. How does attitude towards contraceptives influence adolescent pregnancy in KEEA Municipality?
6. What is the association between the use of contraceptives and adolescent pregnancy in KEEA Municipality?

### **Significance of the Study**

The issue of pregnancy among adolescents is a major problem that has confronted countries throughout the world. In Ghana, the situation is predominant in KEEA Municipality. Firstly, the results of the study would help address the problem of adolescent pregnancy in the municipality by dealing with the major risk factors that were identified in the study. Moreover, the findings of the study would help provide services needed by adolescents in KEEA Municipality to improve upon their reproductive health. Furthermore, the findings would assist policy makers in identifying the risk factors associated with pregnancy among adolescents and find solutions to deal with them. Lastly, the study would serve as a basis for further research.

### **Delimitations**

The scope of the study was delimited to KEEA Municipality. This enabled the researcher reach out to all the respondents within the time constraint and to ensure speedy analysis of collected data of the study and further discussion of the results.

Again, the socio-demographic factors that were considered in the study included age, religion, level of education and living arrangement of the

respondents. Others were parents' level of education, parents' employment status and parents' income status.

With socio-cultural factors, the study was delimited to strictness of rules and regulations in families, level of freedom within the family to discuss issues related to sexuality and religious support for sex before marriage. Others issues that were considered under socio-cultural factors were peer influence towards sexual initiation and parental siblings support for adolescent pregnancy.

Access to pregnancy prevention information and services focused on parent-adolescent communication on pregnancy prevention, information from friends on how to avoid pregnancy, information on pregnancy prevention from health workers, information on pregnancy prevention from media and ease to access contraceptives from health facilities.

Furthermore, knowledge about pregnancy looked at issues such as knowledge on how pregnancy occurs, knowledge on disadvantages of adolescent pregnancy and knowledge about contraceptives. Again, attitude towards the use of contraceptives focused on the perception of adolescents towards contraceptives and its use. Finally, use of contraceptives as a risk factor was delimited to ever used contraceptives and types of contraceptives used.

### **Limitations**

Although thorough efforts were made to acquire every bit of information needed to conduct this research, there were still a few limitations that need to be acknowledged.

Firstly, although the study was intended to find out the risk factors for adolescent pregnancy from both pregnant and non-pregnant adolescents, due to time for data collection, some adolescents were excluded especially those students who attend school outside the municipality. Admittedly, results from those adolescents could enrich the study if they were included in the study. In addition, a smaller sample size from the target population could have an effect on the validity of the result.

Also, some of the respondents were reluctant to answer some of the questions. They were not willing to answer certain questions that exposed their sexual behaviour patterns to the researcher. There is therefore the tendency of providing bias responses.

### **Organization of the Study**

Excluding Chapter One, the rest of the study was organized into four chapters. Chapter Two addressed the conceptual and theoretical approaches relevant to the study. It also comprised the review of related literature around the topic under investigation and a summary of major findings of the literature review. Chapter Three addressed the research methodology and included research design, population, sample and sampling procedure, instrument, data collection procedure and data analysis. Chapter Four looked at the results obtained from the study and discussed them within the context of the literature reviewed. Chapter Five, which is the final chapter, reflected on the entire study. It comprised the summary of the study, conclusions and recommendations for policy and practice.

## CHAPTER TWO

### LITERATURE REVIEW

This chapter reviews literature related to the topic of study. It is to provide insight into the problem and what has already been done, while helping to clarify researcher's thinking. To make the review easy to read and to understand the substantial issues, the subject matter has been divided into the following subheadings;

1. Concept of adolescent health
2. Adolescent sexual and reproductive health
3. Adolescent pregnancy
4. Prevalence of adolescent pregnancy
5. Determinants of adolescent pregnancy
6. Implications of adolescent pregnancy
7. Efforts at managing adolescent pregnancy
8. Theories of adolescent sexual behaviour
9. Conceptual framework of the study

#### **Concept of Adolescent Health**

Adolescence is a dynamically changing theoretical construct informed through physiological, psychosocial, temporal and cultural lenses, conventionally understood as the years between the onset of puberty and the establishment of social independence (Steinberg, 2014). The most common definition of adolescence includes the ages 10-18, but may encompass a span of 9 to 26 years depending on the source (American Psychological Association, 2002). According to World Health Organization (2003), adolescence is the period from 10-19 years of age. Adolescence is also defined

by UNICEF (2013), as a transitional period from childhood to adulthood often characterized by physical, psychological and social changes. It is generally classified into two: early adolescence and late adolescence. Early adolescence is broadly considered to stretch between the ages of 10 and 14. Physical changes generally begin at this stage and is often characterized by growth spurt and soon followed by the development of the sex organs and secondary sexual characteristics. Late adolescence incorporates the latter part of the adolescent years and ranges between the ages of 15 and 19. Although the body is still developing at this stage, all the major physical changes occur during late adolescence (UNICEF 2013). Adolescence can also be considered as a critical phase of human development, characterized by rapid biological and physical changes. These changes make adolescence a distinctive period in the life-course in its own right, as well as an important time for laying the foundations of good health in adulthood (WHO, 2014a).

As one of life's fascinating and perhaps complex stages, adolescence is regarded as a time when young people take on new responsibilities and experiment with independence. It is a period when young people explore their identity, learn to apply values acquired in early childhood and develop skills that will assist them become responsible adults (UNICEF, 2002). In the course of their exploration, adolescents engage in activities that have impact on their health. According to American Academy of Pediatrics (2015), millions of adolescents face numerous challenges that can result in physical, emotional and social morbidities. Among these challenges are high-risk behaviours such as alcohol, tobacco and drug use, as well as sexual behaviours that can lead to adolescent pregnancy and sexually transmitted diseases, mental health

problems. Furthermore, changes in adolescence affect the range of diseases and health-related behaviours, which are responsible for the epidemiological transition that takes place during the second decade. Some adolescents are susceptible to poor health and developmental outcomes due to individual and environmental factors, such as marginalization, exploitation and priority interventions (WHO, 2014).

Adolescent health has been defined by the Association of Maternal and Child Health Programs (2002) as the optimal state of wellbeing in the physical, emotional, cognitive and social development of adolescents. This definition implies that adolescents are healthy when they engage in behaviours that contribute to healthy lifestyle and a sense of wholeness and well-being. Adolescent health is also considered to include a variety of approaches to that help in preventing, detecting or treating the health and wellbeing of adolescents (WHO, 2002). Considering the health of adolescents, Adlerman, Reider and Cohen (2003) assert that the past century of medical developments in research and treatment has improved the understanding of physical and hormonal changes, psychological development and risk taking behavior that characterize the transition from childhood to adulthood. Adolescent health is also considered to be the design and delivery of health services that appeal to adolescents and are responsive to their needs and concerns (Lawrence, Gootman, & Sim, 2009). The health of adolescents is undermined by numerous factors which operate at the individual, family and community levels. These factors pose challenges to the health status of adolescents which can be dealt with through the provision of health services (WHO, 2014c). They also affect the wellbeing of adolescents by influencing their capacity to

deal with life stressors, their ability to grow in developmentally appropriate ways and their ability to take decisions regarding health behaviours (Bandura, 2004).

### **Adolescent Sexual and Reproductive Health**

The transitional phase from childhood to adulthood is marked by the rapid beginning of reproductive maturity (Rondini & Krugu, 2009). During this period, most adolescents endeavour to establish independence from parents and create and maintain relationships with peers, leading to reproductive health problems which go a long way to affect their future dreams (Appiah, 2012). While sexual initiation and sexual activity differ widely by region, country and sex (Chandra-Mouli, McCarraher, Phillips, Williamson, & Hainsworth, 2014), in all regions adolescents are reaching puberty early, often engaging in sexual activity at a younger age and marrying later (Fatusi & Hindin, 2010). These concerns are the focus of adolescent sexual and reproductive health. In the realm of global health research, adolescent sexual and reproductive health has emerged as an area of key concern, particularly in sub-Saharan Africa and other developing nations (Aarø et al., 2014).

To address these concerns, it is important to understand adolescent sexual and reproductive health as a concept. First of all, sexual reproductive health is widely understood to be a holistic concept that encompasses physical, mental and social wellbeing in all matters relating to sexuality and reproduction (WHO, 2008). In relation to adolescents therefore, sexual and reproductive health will mean the physical, mental and social wellbeing in all matters relating to sexuality and reproduction of individuals between the ages



of 10 and 19. Adolescent sexual and reproductive health implies that adolescents possess the ability to obtain a satisfying and safe sex life and the capacity to reproduce and the freedom to decide if, when and how often to do so (Waldman & Stevens, 2015). According to Engen (2013), although reproductive health has been the focus of health programs since the International Conference on Population and Development (ICPD) in 1994, sexual and reproductive health needs of adolescents in most countries are often unrecognized or even neglected.

Globally, change in sexual behaviour remains a primary aim of preventive sexual and reproductive health efforts. This has been a challenge influenced by numerous hard-to-predict variables, ranging from acknowledging individual freedoms and desires, social and cultural relationships, to the socio-economic dynamics of a society (Engen, 2013). According to UNICEF (2011), in spite of the challenges, adolescence is considered an important phase of human life that needs much attention. Hence, much of the sexual and reproductive health efforts should be geared towards addressing the needs of adolescents. This is an indication that adolescents' sexual and reproductive health concerns are in clear need of much attention, even if progress has been made (Chandra-Mouli, Camacho, & Michaud, 2013). An adolescent's sexual and reproductive health is strongly related to their particular social, cultural and economic environment. In addition to regional variation, experiences are diversified by age, sex, marital status, schooling, residence, migration, sexual orientation and socio-economic status, among other characteristics (Morris & Rushman, 2015).

Researchers all over the world have provided enough evidence for the need for much attention on adolescent sexual and reproductive health. Adolescent sexual and reproductive health has been considered a major component of the global burden of sexual ill health (Morris & Rushman, 2015). Globally, it is estimated that over 220 million women in low and middle income countries have unmet need for family planning (Sing & Darroch, 2012). Although there have been significant progress in increasing uptake of contraception, adolescents are mostly affected by contraceptive failure and discontinuation rates (IPPF, 2010). Adolescent girls who have ever had sex or are currently sexually active are more likely to be or have been married than boys in the same categories (WHO, 2007). Married adolescents have high unmet need for family planning. This is because although they often do not want to pregnancy, they have low contraceptive rates (Blanc, Tsui, Croft & Trevitt, 2009). Another global challenge related to adolescent reproductive health is HIV/AIDS and STIs. Young people are currently the group most severely impacted by HIV/AIDS. Rates of STIs also show the highest prevalence among 20-24 year olds, followed by 15-19 years olds (Morris & Rushman, 2015).

A series of multifaceted obstacles disallows good sexual and reproductive health for adolescents (Morris & Rushman, 2015). At the political level, ASRH is of low importance and there are often restraining laws and policies in place. Various societal, cultural and religious factors create an inhibitive environment for discussion of ASRH as most societies hold a high sense of disapproval of adolescent sexual activity. This often leads to stigmatization of sexual health concerns. In some regions, accepted practices

of early marriage and childbearing, intergenerational relationships and societal pressure prohibiting use of contraceptive methods may also exist. Poor ASRH can be further confused by conflict, migration, urbanization and lack of schooling. Poor health systems for sexual health, family planning and maternal health are also common, with married adolescents usually disadvantaged. Economic and physical accessibility also restrict adolescents' access to services where they do not exist. On a personal level, young people's care-seeking behavior may be hampered because of fear, embarrassment, lack of knowledge, misinformation and myths, stigma and shame (Blanc, Tsui, Croft & Trevitt, 2009). Although numerous people have influence on adolescents' access to sexual and reproductive health information and services, provider attitude has been found to be the most important barrier (International Federation of Gynecology and Obstetrics, 2011). Many healthcare providers deter adolescents from using ASRH services because of their lack of confidentiality, judgmental attitudes, disrespect or not taking clients' needs seriously (Morris & Rushman, 2015). One of the major outcomes of these barriers is unwanted pregnancy among adolescents and, consequently, high levels of unsafe abortion (Lopez, Grey, Hiller, & Chen, 2015).

### **Adolescent Pregnancy**

Adolescent pregnancy has attracted much concern from religious leaders, the general public, policymakers and social scientists all over the world (Cherry & Dilllon, 2014). It is a complex issue with many reasons for alarm (Alan Guttmacher Institute, 2010). In many ways, adolescent pregnancy has become a proxy in what could be called the cultural wars, where political leaders use cultural and moral norms to form public opinion and stimulate

public policy with the aim of preventing adolescent pregnancy (Cherry & Dilllon, 2014). Dialogue of adolescent pregnancy is not uncommon in the public health sector. This is because the problem of adolescent pregnancy affects not only the adolescents but also those in the community, school system and government as a whole (Trasher, 2015). Most studies all over the world have often used adolescent pregnancy interchangeably with teenage pregnancy. However, teenage pregnancy has been defined by some scholars as pregnancy that occurs between 13 and 19 years of age (Cherry & Dilllon, 2014; UNICEF, 2008b), despite the fact that there are girls as young as ten who are sexually active and occasionally become pregnant.

The World Health Organisation (2014b) defines adolescent as pregnancy occurring in a girl aged 10-19 years. Isa and Gani (2012) define adolescent pregnancy as gestation in women before reaching the full somatic development. Dulitha et al. (2013) also refer to adolescent pregnancy as pregnancy in a young woman who has not attained her 20<sup>th</sup> birthday. This definition is applicable irrespective of the age legally considered to be regarded as an adult or the legal status of the marriage (UNICEF, 2008b). Studies in Ghana have also used adolescent pregnancy interchangeably with teenage pregnancy and in Ghana, adolescent pregnancy is fundamentally defined as pregnancy that occurs among girls whose ages range between 12 and 19 (Adu-Gyamfi, 2014). He further adds that adolescent pregnancy in Ghana has been found to occur among ages as low as 12, due to inadequate of knowledge on how to control pregnancy.

Most pregnancies that occur among adolescents are regarded as unintended pregnancies (Nalenga, 2012). This is because most of the

adolescents do not have the possibility to control their fertility and they get pregnant unwillingly. The Centers for Disease Control and Prevention (2015) defines unintended pregnancy as pregnancy that occurs when no children or no more children were needed or pregnancy that occurs earlier than desired. It mainly results from not using contraception or ineffective use of contraceptive methods. Unintended pregnancy is a core concept in understanding the fertility and unmet need for family planning (Nalenga, 2012). The issue of unintended pregnancies arises as a result of the debate over the age at which a young woman should give birth which has existed throughout the existence of human beings (Cherry & Dilllon, 2014). Some authors argue that adolescent pregnancy is a socio-cultural construct and has little to do with public health (Akella & Jordan, 2015). Pregnancies among adolescent girls mostly result from coitus with their first only partner, who often times is of similar age and no more advantaged socially (Isa & Gani, 2012).

### **Prevalence of Adolescent Pregnancy**

Pregnancy among girls 10-19 years remains a challenge that requires critical resolution all over the world (United Nations Population Fund, 2013). In 2014, the World Health Organisation reported that about 16 million girls aged 15-19 years and some 1 million girls below 15 years give birth each year. The number of births by girls 15-19 years represents 11% of all births. Adolescent pregnancy rates declined since the mid-1990s in most developed countries. However, the rate has remained extremely high in the United States (Sedgh, Finer, Bankole, Eilers & Singh, 2015). The proportion of births that occur during adolescence ranges from 2% in China to 18% in Latin America and the Caribbean and more than 50% in sub-Saharan Africa (WHO, 2014a).

A substantial proportion of adolescent pregnancies is wanted and may even be planned (Sekharan, Kim, Oulman, & Tamim, 2015). The proportion of intended pregnancies among adolescents differ in most countries, and is lower in developed and wealthier countries and higher in developing countries, where the proportion of planned pregnancies among adolescents ranges from 42% in Columbia to 93% in Egypt (WHO, 2010).

According to the United Nations Population Fund (2013), approximately 95% of adolescent pregnancies take place in low-and middle-income countries, where 36.4 million women become mothers before age 18. The average adolescent birth rate in middle income countries is twice as high as that of high-income countries, with the rate in low-income countries being five times as high (WHO, 2014b). Sub-Saharan Africa recorded the highest prevalence of adolescent pregnancy in the world, with births to adolescent mothers accounting for more than half of all births in the region (United Nations Population Fund, 2013). Most of the countries with adolescent pregnancy levels above 30% occur in sub-Saharan Africa (Loaiza & Liang, 2013). Within sub-Saharan Africa, the proportion of adolescent pregnancy ranges from 0.3% in Rwanda to 12.2% in Mozambique (WHO, 2014b).

The situation of adolescent pregnancy in Ghana is not different from that of the world and Africa. Adolescent pregnancy is endemic in Ghana as there was no significant change in the rates between 2003 (14%) and 2008 (13%). About one in ten adolescents 15 to 19 years of age had begun childbearing in the urban areas whilst about twice the number was the problem in the rural communities (Ghana Statistical Service, Ghana Health Service, & ICF Macro, 2009). Ghana continues to record higher rates of adolescent

pregnancy. In the 2014 Ghana Demographic and Health Survey report, 11% of women aged 15-19 years had had a live birth, 3% are pregnant with first child and 14% had begun childbearing. The proportion of teenagers who had begun childbearing rose rapidly with age, from 1 percent at age 15 to 31 percent at age 19. Adolescents living in rural areas (17 percent), those residing in the Brong Ahafo, Central, and Volta regions (21-22 percent), those with no education (23 percent) and those in the second wealth quintile (21 percent) have the tendency to start childbearing earlier than other adolescents (Ghana Statistical Service, Ghana Health Service, & ICF Macro, 2015).

### **Determinants of Adolescent Pregnancy**

Various scholars all over the world have explored the determinants of adolescent pregnancy. This has been done in order to find solution to the high rates of adolescent pregnancy all over the world. Although several determinants have been identified, most of the studies on the determinants of adolescent pregnancy usually classify the causes of adolescent pregnancy into broad categories such as socio-demographic factors, familial factors, access to reproductive health and knowledge on fertility and contraceptives.

#### **Socio-demographic determinants**

Several studies have identified socio-demographic factors to be associated with adolescent pregnancy. One of such studies was conducted by East, Reyes and Horn (2007) to find out the association between adolescent pregnancy and a family history of teenage births. A sample size of 127 made up of Latina and black adolescent females was used for the study. Logistic regression was used to examine the association between family history of adolescents and their risk of getting pregnant. It was found that adolescents

with no family history of teenage births, adolescents whose sister had had a teenage birth and those whose sister and mother both had had teenage births were significantly more likely to experience a teenage pregnancy. Young women who had only a sister who had had a teenage birth had greater odds of pregnancy than young women who had only a mother who had had a teenage birth. After controlling for socioeconomic and mothers' parenting characteristics, it was found that adolescents whose mothers and a sisters had had teenage births were at a higher risk of getting pregnant. As part of the socio-demographic factors, it was found that low level of education of adolescents and their parents were significantly associated with young women's increased risk of teenage pregnancy.

Isa and Gani (2012) also conducted a study on the socio-demographic determinants of teenage pregnancy in the Niger Delta of Nigeria. The aim of the study was to find out the socio-demographic factors that lead to teenage pregnancy, so as to provide measures that could help limit the problem. By employing a four-year retrospective study design, the authors sampled a total of 1341 deliveries, out of which 83 were teenagers. The analysis was done using Statistical Package for Social Sciences (SPSS version 10). The results obtained from the study were focused on the socio-demographic characteristics of the respondents as well as social class, pregnancy complications and route of delivery. The authors concluded that marital status, educational qualification and unemployment are important socio-demographic factors contributing to teenage pregnancy.

Similarly, Oner, Yapici, Kurt, Sasmaz and Bugdayci (2012) conducted a study on the sociodemographic factors related with the adolescent



pregnancy. The aim of the study was to determine the sociodemographic factors concerning the adolescent pregnancies. The socio-demographic factors considered in the study were age, spouses' ages, age at marriage, the participant's spouses' mothers' and fathers' level of education, professions of the participants' spouses' mothers' and fathers', monthly income, number of siblings, number of people living in the house, civil marriage, marriage with a relative and social security. By employing the quantitative approach, the researchers randomly sampled 110 adolescent pregnant women. However, 107 of the respondents accepted to participate in the study. As a comparison group, the researchers went further to select 110 adult pregnant women. Descriptive as well as inferential statistics were the statistical analysis employed by the researchers. A p-value of  $<.05$  was considered to be statistically significant. From the study, a statistically significant difference was found between adolescent and adult pregnant women in regard to their education levels, husbands' education level, husbands' and fathers' employment status.

In 2013, Nalika conducted a community based comparative study conducted in three districts of Colombo, Anuradhapura and Batticaloa in Sri Lanka to identify risk factors for teenage pregnancies. The study made use of 510 pregnant teenagers and 508 non-pregnant adolescents. Information was obtained on risk factors at the individual level, family level and societal level by trained interviewers using a structured pre-tested. Risk factors were examined using both univariate and multivariate analyses. Socio-demographic factors related to the mother and father of respondents showed that the mother having a higher level of education (OR=1.53, 95% CI 1.19-1.97,  $p<0.001$ ), having 'ever worked abroad' (OR=1.78, 95% CI 1.35-2.36,  $p<0.001$ ), and

father having a higher level of education (OR=2.01, 95% CI 1.54-2.61,  $p < 0.001$ ) were risk factors for a teenage pregnancy.

Envuladu, Agbo, Ohize and Zoakah (2014) conducted a similar study to determine the proportion of teenagers who have been pregnant, the outcome of the pregnancy and the socio-demographic determinants of the affected teens in the community. It was a community-based cross-sectional study in which an interviewer administered questionnaire was administered to 192 respondents aged 13-19 years. Findings from the study showed that the proportion of those who have ever been married was 25.5%, with significant association found between the age of the teenagers and being pregnant ( $P < 0.001$ ). Most of the teenagers were single (75.6%) and a significant association was found between teenage pregnancy and teenage marriage ( $P < 0.001$ ). Although 72.9% were still in school, teenage pregnancy was significantly associated with teenagers that were out of school ( $P = 0.001$ ). Adolescent pregnancy was observed to be higher among teens with lower level of parental education though not statistically significant. Adolescent pregnancy was found to be higher among adolescents of unskilled parent, adolescents from polygamous family setting and those in tertiary level of education.

In 2015, Izugbara also conducted a study on socio-demographic risk factors for unintended pregnancy among unmarried adolescent Nigerian girls. The purpose of the study was to find out the socio-demographic risk factors for unplanned pregnancy among unmarried adolescents in Nigeria. The researcher employed the case-control study design for the study. Stratified two-stage cluster design was used to sample the respondents. By using univariate analyses and bivariate and computing odd ratio with 95%

confidence intervals, associations between socio-demographic variables and unintended pregnancy were obtained. Variables that were significant were entered into a multivariate logistic regression model to estimate adjusted odds ratios of unintended pregnancy and the corresponding 95% confidence interval. Results from the study showed that age and sex of household head, adolescent's age and educational attainment, and type of place of residence were significantly associated with adolescent pregnancy ( $p < 0.05$ ). Furthermore, adolescent pregnancy was less likely to occur among households with female heads compared to male heads (OR = 0.56, 95% CI = 0.3920–0.8073). Adolescents aged 18 were more likely to experience adolescent pregnancy compared to those of the reference group category (OR = 2.4, 95% CI = 1.732–3.299). Educated adolescent girls were less likely to report adolescent pregnancy (OR) = 0.38. Adolescent girls who are living in inner-city communities were 1.1-times more likely to report adolescent pregnancy (95% CI = 0.7316–1.356).

In Ghana, Laari (2015) conducted a study to explore the factors that influence perinatal outcomes in adolescent pregnancies. The sample size was 200 adolescent mothers. Multistage sampling was employed to select the facilities. The study used simple random sampling technique to select the participants at the facilities. The data were analysed using STATA version 11 software programme and results presented in tables. Findings on the socio-demographic factors associated with adolescent pregnancy showed that 16% of adolescent girls who were married had no formal education.

Similarly, Baafi (2015) also conducted a study to investigate the factors influencing adolescent pregnancy in the Sunyani Municipality. An

unmatched case control study was used for the study. A multi stage sampling which included stratified sampling technique, consecutive sampling and systematic sampling was used to select 120 cases and 125 controls for the study. Data was collected using a structured questionnaire and analysed with STATA version 13. Regression analysis was carried out to test for association between the predictor and the outcome variables. Results on the socio-demographic factors associated with adolescent pregnancy revealed a significant association between adolescent Pregnancy and socio-demographic information such participant's location ( $p= 0.001$ ), age ( $p = 0.001$ ), marital status ( $p= 0.001$ ), currently in school ( $p= 0.001$ ), highest level of education ( $p= 0.001$ ), current occupation ( $p= 0.001$ ) and parity ( $p= 0.001$ ). Although both cases and controls indicated the Junior high school as the highest level of education attained, 11% of the cases had no formal education compared to 2% of the controls.

### **Socio-cultural factors**

Researchers have identified diverse socio-cultural factors that have influence on pregnancy among adolescents. Some of the socio-cultural factors identified in such studies include family structure, peer influence, cultural practices and religion. One of such studies was conducted by East, Reyes and Horn (2007) to find out the association between adolescent pregnancy and a family history of teenage births. A sample size of 127 made up of Latina and black adolescent females was used for the study. Logistic regression was used to examine the association between family history of adolescents and their risk of getting pregnant. It was found that adolescents with no family history of teenage births, adolescents whose sister had had a teenage birth and those

whose sister and mother both had had teenage births were significantly more likely to experience a teenage pregnancy. Young women who had only a sister who had had a teenage birth had greater odds of pregnancy than young women who had only a mother who had had a teenage birth. After controlling for socioeconomic and mothers' parenting characteristics, it was found that adolescents whose mothers and a sisters had had teenage births were at a higher risk of getting pregnant. In additional bivariate analysis, all four maternal parenting measures (being single, lax parenting, approval of teenage sex and parenting, and low level of education) were significantly associated with young women's increased risk of teenage pregnancy.

Nundwe (2012) also conducted a study to describe the barriers to communication between parents and adolescents concerning sexual and reproductive health issues. The descriptive exploratory qualitative study design was used for the study. A total of fourteen interviews were conducted with parents of both sexes in Kinondoni Municipality, Dar es Salaam. In-depth interviews were conducted and focused on social, cultural and economic barriers to communication. Qualitative data analysis was done to answer the research questions. The study identified that communication between parents and their adolescent children on reproductive health issues take place on some issues and not others. It was also found that issues of sexuality and condom use tend to be avoided.

Ajiboye and Adebayo (2012) also conducted a similar study to examine the socio-cultural factors affecting pregnancy outcome among the Ogu speaking people of Badagry area of Lagos State, Nigeria. The study was exploratory in nature and triangulation method was used for data collection. A

multi-stage sampling procedure was adopted to select 120 respondents. The researchers found through both the quantitative and qualitative data that there was a relationship between socio-cultural factors and adolescent pregnancy. Specifically, 102 respondents representing 86.4% of the sampled population were of the opinion that the headship of the household significantly determined pregnancy outcome in the study area. Again, 98.3% of the respondents were of the view that decision making within the family has an influence on adolescent pregnancy.

In Sri Lanka, Dulitha et al. (2013) also conducted a study whose findings were not different from previous studies. The purpose of the study was to identify risk factors for teenage pregnancy. It was a community based comparative study conducted in three districts of Colombo, Anuradhapura and Batticaloa in Sri Lanka. The participants comprised all pregnant females resident in the selected MOH areas, who had not completed their 20th year at the time they became pregnant and were registered for antenatal care. Data were collected using a structured interviewer administered questionnaire. The researchers used the case-control study design. Results from the study showed that the risk of teenage pregnancy was high when the level of strictness of rules and regulations in the family was perceived as 'not strict' (OR=2.41, 95% CI 1.66–3.51,  $p<0.001$ ) and when the level of freedom within the family to discuss problems regarding love affairs (OR=2.28, 95% CI 1.49– 3.49),  $p<0.001$ ); the level of freedom within the family to discuss issues related to sexuality (OR=3.04, 95% CI 1.88 – 4.91,  $p<0.001$ ) were perceived by the teenager as poor or very poor. Risk of teenage pregnancy was also high when the level of support from teachers (OR=3.15, 95% CI 2.07–4.80,  $p<0.001$ ) and

peers (OR=3.67, 95% CI 2.48–5.44,  $p<0.001$ ), in solving problems was perceived as poor or very poor.

Gyan (2013) also conducted a study on the effects of teenage pregnancy on the educational attainment of girls at Chorkor, a suburb of Accra. The study was done at Chorkor in the Greater Accra Region of Ghana. The population for the study was made up of all females and opinion leaders in Chorkor. Both purposive and snowball sampling techniques were used in getting respondents for the study. The purposive sampling technique made it possible for respondents to be selected purposefully based on their ability to really provide the needed information for the study. Two focus group discussions were conducted with each comprising five members (teenage mothers or girls). Questionnaire was the major data collection instrument employed to collect quantitative data for the study. The qualitative data collected from the field were transcribed after data collection and coding was done by marking the segments of data with symbols, descriptive words, or category names. After coding, the data were analyzed thematically based on the objectives of the study. On the other hand, the quantitative data were edited coded and entered into the computer using the Statistical Packages for Social Sciences (SPSS). The data were analyzed using descriptive statistics. In relation to factors that lead to teenage pregnancy, it was found that ineffective parenting, poverty and peer pressure are the main causes of teenage pregnancy.

Using descriptive and explorative survey, Mushwana, Monareng, Richter and Muller (2015) also conducted a study on factors influencing the adolescent pregnancy rate in the greater Giyani Municipality, Limpopo

Province–South Africa. Data was collected using a validated questionnaire which had a reliability of 0.65. Both descriptive and inferential statistics were used to examine the effect with the demographic characteristics of participants. Participants reported key psychosocial variables such as inadequate sexual knowledge (61%), parental attitudes towards sex (58.9%) and peer pressure (56.3%) as contributory to high pregnancy rate.

Thobejane (2015) examined the factors contributing to teenage pregnancy in South Africa. The study was conducted in Matjitjileng village. The population of the study comprised of at least 20 young parents. The sample was made out of 20 young parents (both male and female). Results from the study showed that about 100 percent of the respondents do have friends who play an important part in their lives. Approximately 80% of the respondents indicated that their friends influenced them to have children. About 20% disagreed and mentioned that it was their decision to have children. Thus, peer pressure was found to be the main factor that influences teenage pregnancy because most of the teenagers were having friends who may be sexually active. It was also found that the majority of the respondents (70%) agreed that their parents were very disappointed about them falling pregnant at the early age.

Finally, Ahorlu, Pfeiffer and Obrist (2015) conducted a study on the socio-cultural and economic factors influencing adolescents' resilience against the threat of teenage pregnancy. The main focus of the study was to examine how social capital (various kinds of valued relations with significant others), economic capital (command over economic resources, mainly cash and assets), cultural capital (personal dispositions and habits; knowledge and



tradition stored in material forms and institutionalized) and symbolic capital (honour, recognition and prestige) contribute to the development of competencies of adolescents to deal with the threat of teenage pregnancy and childbirth. A cross-sectional survey approach was used to interview 820 adolescent girls aged 15–19 years in Accra, Ghana. Results from the study showed that parents are taking the place of aunts and grandmothers in providing sexual education to their adolescent girls due to changing social structures where extended families no longer reside together in most cases.

### **Access to pregnancy prevention information and services**

Access to pregnancy prevention information and services as a risk factor for adolescent pregnancy has been looked at in several studies. One of such studies was conducted by Hacker, Amare, Strunk and Horst (2000) to ascertain the views of public high school students on how to prevent adolescent pregnancy. The sample consisted of 49% females and 51% males in 10th and 11th grades from different racial and ethnic backgrounds. One thousand surveys were received and analyzed using Chi-square tests to assess statistically significant differences in student responses. Sixty-three percent of the students had had sexual intercourse. Of these, 35% were consistently used contraceptives and 65% were inconsistent. The respondents were of the view that having more information on pregnancy and birth control, education about relationships, parental communication, improved contraceptive access and education about parenting realities helps in preventing teen pregnancy.

Using a qualitative approach, Aquilino and Bragadottir (2000) examined the views of teens concerning effective strategies to prevent pregnancy. The sample consisted of male and female adolescents, who

volunteered to participate in the study. Seven groups of teens met with the investigator twice over 2 consecutive weeks. Instruments included a Screening Questionnaire and Focus Group Discussion Guidelines. Findings from the study showed that teens were concerned about teen pregnancy, and supported a comprehensive approach to sex education beginning in the early elementary grades, with age and developmentally appropriate content and reinforcement from late grade school through high school. Generally, teens thought that teaching abstinence in grade school followed by contraception education in junior high and high school was a realistic strategy for pregnancy prevention. They wanted to discuss sexual feelings as well as the mechanical aspects of sex. Finally, they did not want to be told not to have sex, but rather wanted to be guided in their own decision making. Teens wanted parents and other adults to be involved in helping them understand sexuality and make decisions about sexual behavior.

In 2014, Mmasetjana published an article that juxtaposed the services and programmes that deal with the prevention of teenage pregnancies and the teenage motherhood notion in South Africa and Slovenia. One of the objectives of the study was to look at the situation of teenage pregnancy in both countries and detect the major factors responsible for that. On the issue of accessibility of services, the study identified that main goal of reproductive health prevention programmes at the primary level are to reduce the risk due to diseases that are related to reproduction, prevention of unwanted and unplanned pregnancies, detection of the disease, proper measures to be in place in terms of promotion of reproductive health and reproductive rights, primary reproductive health protection, ensuring counselling regarding

contraception and promotion of family planning, curing sexually transmitted disease infection, healing, treating and uncovering diseases which could lead to infertility, curing and treating pregnant women, early detection of uterus and breast cancer as well as proceedings in peri-menopause and probably before and post menopause period. Thus, inadequate sexual and reproductive health services were identified as one of the factors that accounted for teenage pregnancy in the two countries.

In Ghana, Baafi (2015) also conducted a study to investigate the factors influencing adolescent pregnancy in the Sunyani Municipality. An unmatched case control study was used for the study. A multi stage sampling which included stratified sampling technique, consecutive sampling and systematic sampling was used to select 120 cases and 125 controls for the study. Data was collected using a structured questionnaire and analysed with STATA version 13. Regression analysis was carried out to test for association between the predictor and the outcome variables. Results on the access to pregnancy prevention information and adolescent pregnancy showed that about 98% of pregnant adolescent had access to sex education information from parents.

### **Knowledge about pregnancy and contraceptives**

Knowledge about pregnancy and contraceptives is another determinant of adolescent pregnancy that has been considered in several studies. Mothiba and Maputle (2012) conducted a study on factors contributing to teenage pregnancy in the Capricorn district of the Limpopo Province. A quantitative research approach was used for the study. The study population was made up of 103 pregnant teenagers attending antenatal care during the last weeks of

June, July and August 2007 at a clinic in the Capricorn District of the Limpopo Province. Probability, simple random sampling was used to ensure that all subjects had an equal chance of being included in the study. The sample consisted of 100 pregnant teenagers who satisfied the inclusion criteria, their ages ranging between 13–19 years and who picked a paper with a number during the simple random probability sampling were included in the study. Data were collected through structured self-administered questionnaires. Most respondents in this study had knowledge about the use of contraceptives and other ways of preventing unwanted pregnancy apart from total abstinence from sexual activity. The results revealed that 88% of participants were knowledgeable about the use of contraceptives and 12% not. Several factors were strongly associated with and contribute to the increased risk of an early pregnancy. These factors included lack of knowledge about sex and contraceptives.

Zhang, Bi, Maddock and Li (2010) also conducted a study on sexual and reproductive health knowledge among female college students in Wuhan, China. The purpose of this study was to explore demographic correlates of sexual and reproductive health knowledge among Chinese female college students. A total of 4769 respondents were selected for the study, using random cluster sampling between 2005 and 2006, in 16 colleges and universities in Wuhan, China. To evaluate knowledge, the scores of 60 questions on reproduction, contraception, and sexually transmitted infections were combined for a possible score of 100. Findings from the study showed that female college students lack knowledge of sexual and reproductive health, and their knowledge was influenced by numerous sociodemographic factors.

In Sri Lanka, Dulitha et al. (2013) also conducted a study whose findings were not different from previous studies. The purpose of the study was to identify risk factors for teenage pregnancy. It was a community based comparative study conducted in three districts of Colombo, Anuradhapura and Batticaloa in Sri Lanka. The research participants were made up of all pregnant females who were 20 years old at the time they became pregnant and were registered for antenatal care. Data were collected using a structured interviewer administered questionnaire. The researchers used the case-control study design. The findings from the study showed that pregnant adolescents had significantly higher level of knowledge on the issues that ‘a girl is capable of getting pregnant at any time after she attains menarche’ (OR=1.51, 95% CI 1.17-1.96, p=0.002); ‘conception can occur even with a single unprotected sexual intercourse’ (OR=1.72, 95% CI 1.33-2.21, p<0.001); ‘there is a specific period in the menstrual cycle in which a woman can get pregnant’ (OR=2.09, 95% CI 1.62– 2.70, p<0.001). On the contrary, their level of knowledge on disadvantages of teenage pregnancy was significantly lower and was indicated by responses to the statements ‘teenage pregnant are not physically prepared for a pregnancy’ (OR=1.47, 95% CI 1.14–1.89, p=0.003) and ‘females at teenage are not mentally prepared for a pregnancy’ (OR=1.34, 95% CI 1.04–1.73, p=0.023). Generally, adolescents who had low knowledge on the disadvantages of adolescent pregnancies were at a higher risk of teenage pregnancy (OR=2.06, 95% CI 1.52 - 2.78, p<0.001). In relation to knowledge on contraceptives, a significantly higher percentage of pregnant adolescents were able to name at least four modern contraceptive methods

(OR=1.50, 95% CI 1.00– 2.25, p=0.048) compared to the non-pregnant adolescents.

In Ghana, Nyarko (2015) also examined the prevalence and correlates of contraceptive use among female adolescents in Ghana. The paper used data from the 2008 Ghana Demographic and Health survey. Bivariate analysis was carried out to determine the contraceptive prevalence among female adolescents while logistic regression analysis was applied to examine the correlates of female adolescent contraceptive use. In terms of knowledge on contraceptives, it was found that the majority (76.1 %) had knowledge of their ovulatory cycle while 23.9 % had no knowledge of their ovulatory cycle. Contraceptive knowledge was found to be higher among those who had knowledge of their ovulatory cycle (21.9 %) than among their counterparts who had no knowledge of their ovulatory cycle (6.8 %).

#### **Attitude towards the use of contraceptives**

To examine how attitude towards the use of contraceptives influences adolescents pregnancy, Brückner, Martin and Bearman (2004) conducted a study to examine how attitudes of female adolescents toward pregnancy and how such attitudes influence their consistent use of contraceptive and their risk of pregnancy. Features and attitudes associated with pregnancy and contraceptive use were examined using bivariate and multivariate analysis. Twenty percent of female adolescents were defined as having antipregnancy attitudes, 8% as having pro-pregnancy attitudes and 14% as being ambivalent toward pregnancy; the remaining were considered to have mainstream attitudes. Among sexually experienced adolescents, having a positive attitude toward contraceptives was not associated with risk of pregnancy. However,

those who were ambivalent about pregnancy had reduced odds of using contraceptives consistently and inconsistently rather than not practicing contraception at all.

Shah, Solanki and Mehta (2011) also conducted a study to investigate factors associated with the use of contraceptive methods among female adolescent students. A cross-sectional study was conducted, by means of self-applied questionnaires, among 500 adolescent girls ranging from 15 to 19 years of age. Prevalence with respect to the knowledge of contraceptive methods, condom use, and AIDS was calculated. Among the 500 students who participated in study only one was sexually active. The factors associated with knowledge lack and misconception are less discussion at home or at school or college level. There were many negative beliefs like impotence after condom use, weakness after sterilization, fear of becoming obese as reasons for choosing different contraceptive methods.

Kanku and Mash (2010) conducted a study to identify factors that, in their view, may influence the risk of pregnancy and suggest possible interventions. The study was made up of 13 in-depth interviews with pregnant teenagers and three focus groups: one with 10 women aged 19 to 25 years who had a baby as a teenager, one with 14 teenage girls aged 16 to 19 years who had never been pregnant, and one with 11 males aged 18 to 23 years. Qualitative data was analysed through the framework method. Having friends or peers who have unprotected sex, having the feelings to please one's boyfriend to maintain a relationship, seeing pregnancy as socially desirable, having poor sexual negotiation skills and having low self-esteem could influence one's own attitude towards the use of contraceptives.

Mchunu, Peltzer, Tutshana and Seutlwadi (2012) conducted a study to assess the prevalence of adolescent pregnancy and associated factors in the South African context. The study employed a cross-sectional population-based household survey using a multi-stage stratified cluster sampling approach. In multivariable analysis among pregnant teenagers, it was found that having higher sexually permissive attitudes was associated with adolescent pregnancy. The findings are in line with the objective of the study. Also, the sampling technique employed by the researchers was appropriate for generalization of the findings. However, the findings of the study could have been more reliable if the researchers had compared the views of the pregnant adolescents to their non-pregnant counterparts.

Dulitha et al. (2013) also conducted a study whose findings were not different from previous studies. The purpose of the study was to identify risk factors for teenage pregnancy. It was a community based comparative study conducted in three districts of Colombo, Anuradhapura and Batticaloa in Sri Lanka. The study participants were made up of all pregnant females resident in the selected MOH areas, who were 20 years old at the time they became pregnant and were registered with the Public Health Midwife (PHM) for antenatal care. Data were collected using a structured interviewer administered questionnaire. The researchers used the case-control study design. The researchers also made comparison of attitudes of pregnant teenagers towards use of contraceptives. The responses to the questions on were similar among both groups such as 'the number of children born to a family should not be limited by artificial methods', 'using family planning methods can harm the future pregnancies', 'using condoms reduces sexual pleasure', 'contraceptive



methods are not suitable for young females' and 'practicing family planning is a sin' etc. However, a significant relationship was found between attitude towards the use of contraceptives and adolescent pregnancy, where pregnant adolescents were more likely to have positive attitude towards the use of contraceptives.

### **Use of contraceptives**

In 2012, Dulitha, Nalika, Manuj and Upul conducted a study on the extent, trends and determinants of teenage pregnancy in Three Districts of Sri Lanka. In determining the risk factors of teenage pregnancy, a community based cross sectional comparative study design was used. Risk factors associated with teenage pregnancy were identified through univariate and multivariate analyses. One of the risk factors considered in their study was the use of contraceptives. On the use of contraceptives, the study revealed that a higher proportion of teenagers who were pregnant had not used any contraceptive prior to pregnancy compared to non-pregnant married or cohabiting teenagers who were using contraceptives at the time of the survey (OR=2.71, 95% CI 1.75-4.19,  $p < 0.001$ ). Thus, non-use of contraceptives was found to be a significant predictor of teenage pregnancy.

Mchunu, Peltzer, Tutshana and Seutlwadi (2012) conducted a study to assess the prevalence of adolescent pregnancy and associated factors in the South African context. The study employed a cross-sectional population-based household survey using a multi-stage stratified cluster sampling approach. In multivariable analysis among pregnant teenagers, it was found that scoring higher on the use of traditional contraceptives index was associated with adolescent pregnancy. In line with this, WHO (2004) asserted that withdrawal

requires a high degree of motivation and discipline, which may be quite difficult for a young adolescent couple. It further added that while withdrawal is generally acknowledged as a frequently-used method by adolescent couples, available data regarding its effectiveness indicate that withdrawal leads to pregnancy rates of 19 out of 100 women and perfect-use rates of 4 for every 100 women.

Confirming the findings of earlier studies, Mohd, Adibah and Haliza (2015) conducted a review of teenage pregnancy research in Malaysia. The objective was to summarize the published research on teenage pregnancy in Malaysia, discuss the impact of the findings on clinical practice, and identify gaps in teenage pregnancy research in Malaysia. Twenty-seven articles (including reports from the National Obstetrics Registry) were selected and reviewed on the basis of clinical relevance and future research implications. In the review, it was found that modern contraceptive needs and use among teenagers regardless of their marital status remains a major concern in Malaysia. The Contraceptive Prevalence Rate (CPR) for all methods had remained at about 50% over the past 30 years. However, contraceptive use among married teenagers (aged 15–19 years) was only 33.3% and traditional methods of contraceptives were not used by any of the teenagers. It was also found in the same study that the majority of teenagers who were not using a contraceptive method (71.4%) were planning for a pregnancy.

Finally, Jonas, Crutzen, van den Borne, Sewpaul and Reddy (2016) conducted a study to assess the patterns in adolescent pregnancy and to identify associations with other health risk behaviours in South Africa. A cross-sectional survey was used to interview a total of 31 816 South African

school-going adolescents between 11 to 19 years of age. Data from the first (2002,  $n = 10\ 549$ ), second (2008,  $n = 10\ 270$ ) and the third (2011,  $n = 10\ 997$ ) nationally representative South African youth risk behaviour surveys (YRBS) were used for this study. The odds for never been pregnant were lower for those who used condoms (OR: 0.462, 95 % CI: 0.309–0.691).

### **Implications of Adolescent Pregnancy**

Adolescent pregnancy is an essential public health problem in both developed and developing countries due to its association with various adverse maternal and fetal outcomes (Yasmin, Kumar, & Parihar, 2014). Notwithstanding the decreasing trend, pregnancy among adolescents remains very predominant, especially in the poorest countries and has negative impact on health of the adolescents and their infants as well as individual social and economic issues (Mangiaterra, Pendse, McClure, & Rosen, 2008).

### **Health implications on mother and child**

In general, adolescent pregnancy is believed to carry a higher risk of adverse maternal and neonatal outcomes. This is based on the fact that adolescent mothers are too physically and biologically immature to go through the pregnancy period (Mohd, Adibah, & Haliza, 2015). Untimely delivery, infants being small for gestational age, low birthweight and increased neonatal mortality, anaemia and pregnancy-induced hypertension have been identified as adverse outcomes associated with adolescent pregnancy including (Horgan & Kenny, 2007). Various studies have identified several adolescent pregnancy-related complications that threaten the health of both the mother and the child. According to UNICEF (2008) pregnant teens are less likely to receive prenatal care, often seeking it only in the third trimester, if at all. As a

result of insufficient prenatal care, the incidence of premature births and low birth weight is higher amongst teenage mothers. Risks associated with medical complications are greater for adolescent girls, as an underdeveloped pelvis can lead to difficulties in childbirth. Adolescents also experience a higher risk of obstructed labour, which if caesarean section is not available can cause an obstetric fistula, a tear in the birth canal that creates leakage of urine and/or faeces.

Yasmin, Kumar and Parihar (2014) also assert that adverse maternal outcomes of teenage pregnancy includes preterm labour, anemia, Hypertensive Disorders of Pregnancy (HDP), Urinary Tract Infection, abortion, Sexually Transmitted Diseases, HIV, malaria, obstetric fistulas, puerperial sepsis, mental illness and high rate of Cesaerean Sections for cephalopelvic disproportion and fetal distress. In a systematic review by Acharya, Bhattarai, Poobalan, Teijlingen and Chapman (2014), it was found that pre-term delivery, still birth, fetal distress, birth asphyxia, anaemia, low birth weight, pregnancy-induced hypertension (PIH) and spontaneous abortion were most frequently encountered complications during teenage pregnancy. The findings of the study by Trivedi (2000) also buttressed the health implications of adolescent pregnancy on the mother. The study found sought to compare the different obstetric parameters of teenage women and adult women in New Zealand. From the study, the teenage mothers group had fifteen breech deliveries of which eleven were delivered by caesarean section. The adult women group experienced seven breech deliveries and three were delivered by caesarean section. The predominant cause for caesarean section in teenage mothers was obstructed labour/poor progress in labour. In relation to pre-

eclampsia/gestational hypertension, 26 adolescent mothers were found to have the condition when compared to 16 women from the adult group.

Apart from the complications in pregnancy, research has shown that adolescent girls who give birth each year have a greater risk of dying from maternal causes compared to women in their 20s and 30s (WHO, 2008), and these risks rise massively with decreasing maternal age, with adolescents under 16 experiencing four times the risk of maternal death as women over 20. UNFPA (2007) also found that girls aged 15-19 years who become pregnant are twice and adolescent under 15 are five times more likely of dying during pregnancy or childbirth compared to women over 20 years. Thus, complications resulting from pregnancy and childbirth have been identified as the leading causes of death in adolescent girls aging between 15 and 19 years in developing countries (Yasmin, Kumar, & Parihar, 2014). According to UNFPA (2013), the risk of maternal death for adolescent mothers in low- and middle-income countries is double that of older females and they face significantly higher rates of obstetric fistulae than their older peers as well. About 70,000 adolescents in developing countries experience death annually due to causes related to pregnancy and childbirth.

Depression is another health problem that has been found to be associated with adolescent pregnancy. In a study by Clemmens (2002) it was found that most of the respondents reported feeling depressed after the birth of their babies. None of the participants had a history of being treated for depression. Participants reported feeling scared with the sudden realisation of motherhood. Some felt abandoned and rejected by partners and peers whilst others indicated being overwhelmed with questioning and not understanding

the experience of depression and what was happening to them. Some respondents stated that they felt confused by the experience. A similar study by Lehana and Van Rhyn (2003) also found that the transition to motherhood is accompanied by some social and psychological consequences. Participants in the study stated that they felt robbed of their adolescence, their educational possibilities in the future and their chances for good life socio-economically. The adolescents were found to be far from being emotionally, cognitively and socially ready for the prospect of motherhood.

Adolescent pregnancy also has health implications on the child. According to WHO (2008), babies born from adolescent mothers are at 50% higher risk of stillbirth, being premature, and dying during the first month compared to babies from mature mother. Newborns from adolescent mothers also suffer from many independent adverse fetal outcomes which include preterm births, Low Birth Weight infants, Still Births, birth asphyxia, Respiratory Distress Syndrome and birth trauma or injury (Yasmin, Kumar, & Parihar, 2014). Low birth weight increases the likelihood of future health problems and the risk of death of baby (WHO, 2004). It also makes a child susceptible to many diseases such as diabetes and heart disease in near future and more vulnerable to death within one month (Shrestha, 2012). A study by Ghubaju (2002) showed that one in ten babies delivered by adolescent mothers is preterm and died before reaching their first birthday. Furthermore, a study in 790 teenage mothers identified that out of the babies that were delivered, 84 of them were preterm, 83 were Low Birth Weight, 19 were still born and neonatal death took place in six of the births (Yadav et. al., 2008). The adverse impact of poor newborn health due to adolescent pregnancies can have inter-

generational effects and also long term effects leading to adulthood disease (WHO, 2008).

### **Socio-economic implications**

Socioeconomic factors have been found to be associated with pregnancy among adolescent girls (Hanna, 2001). Akyeampong et al. (2007) found that girls in rural households are more likely to have never attended school than girls in urban areas. In line with this, Zhang et al. (2015) also identified that education performance of rural children is significantly lower than that of their urban counterparts even after accounting for differences in personal attributes such as nutrition and parenting style. A review by UNICEF (2008) found that a pregnant adolescent is more likely to drop out of school, have no or low qualifications, be unemployed or low-paid and live in poor housing conditions. In the same review, it was also found that the children born to teen mothers are more likely to grow in poverty, grow up being fatherless, become victims of neglect or abuse, do less well at school, become involved in crime, abuse drugs and alcohol and consequently become a teenage parent and begin the cycle all over again. To confirm the report by WHO, a previous study by Turner (2004) found teenage pregnancy perpetuates poor socioeconomic background. She identified that pregnant teenagers from disadvantaged socioeconomic background tended to keep their pregnancies, and their counterparts from relatively affluent background usually abort their pregnancies.

Thomas and Rickel (2006) found that pregnant adolescents experience more instability than their non-pregnant counterparts, and were also identified to be less likely to deal with the environment in a positive manner. This

implies that pregnant teenagers tend to have their identity development interfered with as they find themselves grappling with developmental issues that are not appropriate for their age. Pregnant adolescents are more likely to interrupt education leading less job opportunities (WHO, 2008). The major reasons of disruption in education include the heavy duties of motherhood, a lack of partner, and family support. Adolescent pregnancy can also lead to economic vulnerability among adolescent girls, where adolescents may have problems entering into labour markets and getting well-paid jobs may occur due to lack of qualification.

Another socio-economic effect of adolescent pregnancy is the impact on education. In the majority of cases, teenage mothers are not in a position to go back to school while pregnant and after delivery as they are forced to look after their children (Sodi, 2009). In some situations, the physical health conditions of young mothers do not make it favourable for them to go back to school. In other cases, pregnant teenagers may use their pregnant status to deliberately escape the demands of high school education (Mpetshwa, 2000). The issue of financial problems being a reason for teenage mothers dropping out of school was also been considered in some studies (Mpetshwa, 2000; Sodi, 2009). Shrestha (2012) adds that child rearing responsibility and inadequate parental support for adolescent mother may leads to high dropout rate.

### **Efforts at Managing Adolescent Pregnancy**

Due to the challenges that result from adolescent pregnancy, various strategies have been adopted to deal with it. In view of this, Slowinski (2001) proposed effective strategies of prevention of teenage pregnancies and



parenthood to include sexual education, contraceptive access programmes and alternatives to pregnancy and parenthood, with a focus on education, vocational training, academic tutoring and support, career counselling, employment and involvement in community. Lekganyane (2014) also assert that promotion of a supportive and safe environment, providing transformation on the health system, provision of counselling, developing of skills to have options for life and availability of health care services are key variables in dealing with adolescent pregnancy. In 2007, Solano, McDuffie and Powell, in a review of teen pregnancy prevention programs also proposed sex education and contraception information and dissemination in health facilities, schools and the community as efforts that can be used to manage adolescent pregnancy.

In its review of adolescent pregnancy in 2013, Loaiza and Liang came out with five main efforts to deal with adolescent pregnancy. First, legislators and policymakers should review national legislation, as well as customary laws, in light of international human rights standards. There is the need to develop efforts geared towards increasing the awareness of and enforcing existing laws at the community level, while fostering a rights culture among members of the judiciary, legislature and the police to protect girls from child marriage and uphold their rights overall. Birth and marriage registration systems should be strengthened to support the enforcement of child marriage laws. Secondly, Policymakers and programme managers should utilize available DHS, MICS and/or census data to identify administrative and/or geographic units (e.g. district or constituency/municipality) with concentrations of girls at risk of child marriage and pregnancy, in terms of

either high proportions or absolute numbers. Again, UNFPA proposed the need to expand prevention programmes that empower girls at risk of early pregnancy and address the root causes underlying the practice. Furthermore, there is the need for dedicated and well-resourced efforts to prioritize the needs of girls who are married or in a union in health and development efforts. Finally, there is the need to invest in efforts to improve data on monitoring and evaluation in order to strengthen programmes for girls at risk and married girls.

Other scholars also came out with efforts at managing adolescent pregnancy. Oringanje et al. (2010) proposed sex and HIV education curricula, One-on-one clinician patient protocols in health care settings, in service learning programs, intensive youth development programmes, skill building and contraception promotion. Manlove et al. (2002) are also of the view that curriculum-based sexuality education programs that promote abstinence or contraceptive use, early childhood programs including high quality child care and pre-school, community service learning, and youth development approaches are efforts aimed at managing adolescent pregnancy. A study by Ogori, Shitu and Yunus (2013) on cause and effect of teenage pregnancy among teenagers in Kontagora Local Government Area of Niger State also came out with a recommendation that providing stable funding for comprehensive education for adolescents is an affective effort for managing adolescent pregnancy.

Lagina (2010) also asserted that although most adults want youth to know about abstinence, contraception, and how to prevent HIV and other sexually transmitted infections (STIs), parents often have difficulty

communicating about sex. Notwithstanding, positive communication that occurs between parents and adolescents assists adolescents to establish individual values and to make healthy decisions. The Planned Parenthood Federation of America (2013) also asserted that well balanced and accurate sex education programs encourage adolescents to postpone sex until they reach maturity, and enhance safer-sex practices among those who choose to be sexually active have been identified to be effective in delaying early sexual activity among sexually active youth. Kirby, Laris and Rolleri (2007) and Kohler, Manhart and Lafferty (2008) added that sex education is not responsible for early sex, neither does it lead to high levels of sexual activity or sexual partners among sexually active youth. The Planned Parenthood Federation of America (2013) further asserted that easy and confidential access to family planning services through health centers, school-linked health centers, and condom availability programs have been found to help prevent unintended pregnancy. In line with this, Jones, Purcell, Singh and Finer (2005) corroborated in a survey of teen girls younger than 18 who sought health care services at family planning health centers that 70% would not use the clinic for prescription birth control if parental notification was required. One in five teens would instead stop using birth control or use the withdrawal method.

### **Theories of Adolescent Sexual Behaviour**

Various theories and models have been put forward to either explain or predict behavioural change among individuals. Most of these theories and models tend to explain or predict how an individual's behaviour is influenced by both internal and external factors. The theories and models reviewed in the present study consider the most frequently used theories and models of

adolescent sexual behavior from varied perspectives. The theories reviewed include: the theory of reasoned action, the theory of planned behaviour and the health belief model.

### **Theory of Reasoned Action**

The Theory of Reasoned Action (TRA) was developed by Ajzen and Fishbein in 1980. This theory was developed to show discrepancy between attitude and behaviour (Madden, Ellen, & Ajzen, 1992). The TRA is based on the premise that humans are rational and that the behaviours that are being explored are under volitional control. Most people will take into consideration the implications of their actions before they make a decision whether or not to perform a given behaviour. The theory of reasoned action provides explanation on the relationship between beliefs, attitudes, intentions and behaviour. From the theory, the most fundamental determinant of behaviour is behavioural intention. The direct determinants of people's behavioural intentions are their attitudes towards performing the behaviour and the subjective norm associated with the behaviour (Montano & Kasprzyk, 2015).

Ajzen (1985) defined attitude as a person's positive or negative feelings towards performing a defined action. The likelihood of people performing a given behaviour is made stronger if they hold a favourable attitude towards the performance of that behaviour. Fishbein (1993) distinguished between attitude towards an object (for example, attitude towards adolescent pregnancy) and attitude towards a behaviour (for example, attitude towards risky sexual behaviour) in relation to an object. According to Ajzen and Fishbein (1980), attitude towards a behaviour (for example, risky sexual behaviour) is a much better predictor of that behaviour than attitude

towards the target of the behaviour (for example, adolescent pregnancy). Thus, the attitude towards adolescent pregnancy is a poor predictor of risky sexual behaviour, while attitude towards risky sexual behaviour is expected to be a good predictor.

The second determinant of behavioural intention, subjective norm, refers to a person's perception of the social pressures to perform or not to perform a particular behaviour (Ajzen, 1985). The subjective norm is determined by whether important individuals approve or disapprove of the performance of a behaviour, weighted by the motivation to comply with those individuals. These beliefs, which motivate a person's subjective norm, are termed normative beliefs. Therefore, a person who holds the belief that important individuals think that she should perform a particular behaviour (for example, condom use) and is motivated to comply with those individuals wishes, will hold a positive subjective norm. The theory of reasoned action assumes a causal chain that links behavioural and normative beliefs to behavioural intention, and behaviour via attitude (towards behaviour) and subjective norm (Montano & Kasprzyk, 2015). This implies that the tendency to perform a behaviour depends on the positive evaluation and the belief that significant others think they should perform it.

In relation to adolescent sexual behaviour, the decision of the adolescent girl to engage in risky sexual behaviours (non-condom use, multiple sexual partners or transactional sex) that may result in pregnancy is influenced by her attitude towards that behavior as well as the subjective norms surrounding the behaviour. Where she has a negative attitude towards a particular sexual behavior the likelihood of engaging in such behaviour will be

low and vice versa. Subjective norms influenced by significant others will also have influence on the adolescent girl's intention. Where significant others approve of a particular sexual behaviour, it will influence the intention to engage in such behaviour and vice versa.

Individual attitudes and subjective norms are influenced by cognitive structures (behavioral and normative beliefs). Attitudes and norms on the other hand shape a person's intention to behave in a certain manner. Ajzen and Fishbein (1980) advocated that a person's intention remains the permanent measure that the desired behaviour will occur. Generally, the model appears to support a linear process in which changes in an individual's behavioural and normative beliefs will ultimately affect the individual's actual behaviour. Different degrees of influence over a person's intention are often exerted by attitudes and norms and their principal cognitive structures.

The TRA has been used to explore several behaviours such as smoking, drinking, exercising regularly, breast-feeding, signing up for treatment programmes, dieting, and voting among others (Fishbein, Middlestadt & Hitchcock, 1994). In relation to adolescent sexual behaviour, the theory has been applied in studies by several scholars. Greene, Hale and Rubin (1997) in their study using the theory of reasoned action found that for sexually active adolescents, attitude was a better predictor of both behavioural intentions and condom use than subjective norms, but for sexually inactive adolescents, subjective norms was a better predictor. In a study by Gillmore et al. (2002), paths from intentions to behavior and from norms and attitudes to intentions were significant, as were paths from outcome and normative beliefs to attitude and norm, respectively.

A major strength of the TRA is its ability to describe the drivers of an individual's behaviour. The concept of intention to behave in a particular manner may be useful to better understand adoption decision making model.

The inability of TRA to consider the role of environmental and structural issues due to its individualistic approach and the linearity of the theory components constitute its limitations (Kippax & Crawford, 1993). Also, due to its strong cognitive orientation, it tends to preclude the affective nature of humans, which also plays a role in decision-making processes (Dutta-Bergman, 2005). Kippax and Crawford (1993) also expressed their doubts about the linearity of the theory of reasoned action. They posit that norms and beliefs do not necessarily determine behaviour or action, particularly with regard to behaviours such as sexual behaviour and condom use. The theory of reasoned action fails to explain why risky sexual behaviour occurs in spite of the appropriate beliefs and norms being espoused by the actor. Finally, the tendency of a behaviour to occur is less when time interval between behavioral intent and behaviour is long.

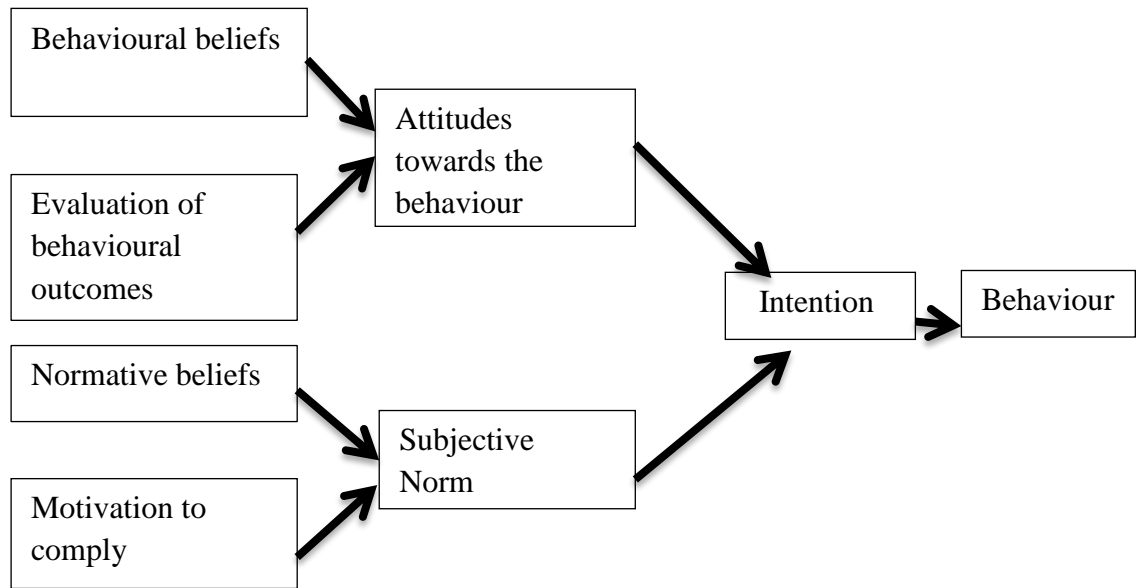


Figure 1: Theory of Reasoned Action

Source: (Ajzen & Fishbein, 1980)

### Theory of Planned Behaviour

Theory of Planned Behaviour (TPB) was proposed by Ajzen (1991) by adding perceived behavioural control (PBC) to the theory of reasoned action in an effort to account for factors outside a person's control that may affect his/her intentions and behaviour. The theory was extended on the basis of the idea that behavioural performance is determined by motivation (intention) and ability (behavioural control). TRA asserts that a person's intention is a function of attitude and subjective norms. So the combination of the original concept of TRA (attitudes and subjective norms) and perceived behavioural control form the Theory of Planned Behaviour. Ajzen (1991) is of the view that performing a behaviour is a function of both intentions and perceived behavioural control. To predict accurately, three conditions have to be met:



- (a) There should be a relationship between intentions and perceived behavioural control to behaviour in question, and the context must be the same as that in which the behaviour is to occur. For example, the behaviour could be “to use a condom every time I have sex”, not “to prevent myself from getting pregnant”;
- (b) There should be stability in the interval between intention and perceived behavioural control between their assessment and observation of the behaviour. Intervening events must be minimised; and
- (c) There should be a realistic reflection of perceptions of behavioural control on actual behaviour.

Ajzen, the proponent of the TPB argue that behavioural intentions have three constructs: attitude, subjective norms and perceived behavioural control. The first two constructs- attitude and subjective norms- remained as defined in the TRA (Ajzen, 1991). The third construct-perceived behavioural control is based on the assumption that people consider the implications of their actions before they decide to engage or not engage in a given behaviour, and that the behaviours being explored are under volitional control (Ajzen, 1991). Ajzen (2002) refers to the concept perceived behavioral control as the appraisal of whether or not the behaviour that occurs is completely up to the actor. In contributing to the understanding of TPB, Ajzen and Madden (1986) argued that perceived behavioural control influences intentions and also has a direct influence upon behaviour. The concept of self-efficacy derived from Albert Bandura’s Social Cognitive Theory (SCT) propounded in 1977 is close to the concept of perceived behavioural control.

The theory has been used to predict adolescent sexual behaviour by several scholars. McMillan and Conner (2003) tested the utility of the theory of planned behaviour in the prediction of intentions to engage in safe sex behaviour. Wise, Goggin, Gerkovich, Metcalf and Kennedy (2006) also conducted a similar study on condom use intentions in a diverse group of African American youth. Findings from both studies showed a positive relationship between theory of planned behaviour variables and condom use intentions. The findings of such studies reveal the strengths of the theory. One of the strengths is the fact that the TPB would help better predict health-related behavioural intention than the theory of reasoned action. It also considers people's non-volitional behaviour which cannot be explained by the theory of reasoned action (Ajzen, 1991).

Though an extension of the Theory of Reasoned Action, it has some limitations. Firstly, attitudes, subjective norms and perceived behavioural control are not limited to the determination of intention (Ajzen, 1991). Secondly, TPB is a predictive model in which an individual's action will be based on certain criteria such as attitudes and subjective norms. However, individuals do not always behave as predicted by those criteria because it is difficult to control the behaviour of individuals in the social environment (Chang, 1998). In a study to explore how cognitive behaviour therapy techniques can be applied to behaviour change interventions based on the theory of planned behaviour, Hobbs and Sutton (2005) criticised the theory of planned behaviour because it fails to provide guidance on how to promote behaviour change. There is effectiveness in the theory in explaining,

measuring and predicting behaviour, but it does not specify techniques that can be applied in order to change behaviour

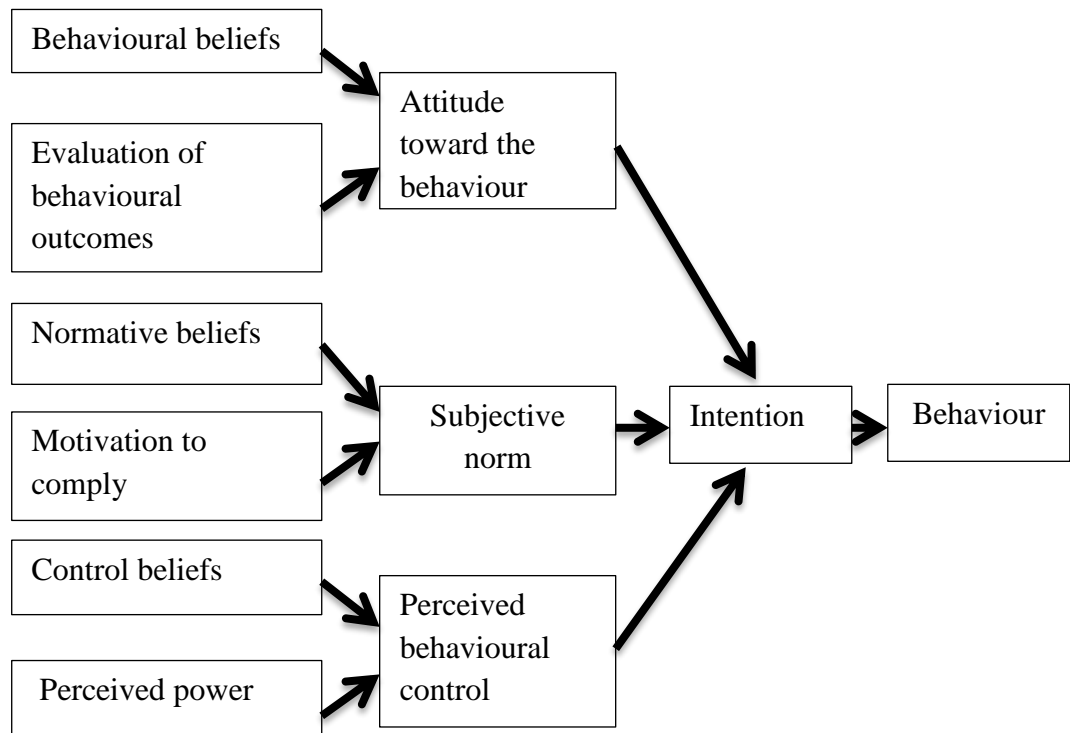


Figure 2: Theory of Planned Behaviour

Source: (Ajzen, 1991)

### Health Belief Model

The Health Belief Model (HBM) was one of the first theories of health behaviour developed in 1950 to help understand behavioural patterns that emerged from the Public Health Service in United States (Rimer & Glanz, 2005; Rosenstock, 1974). Rimer and Glanz (2005) theorize that the HBM has six main variables- perceived susceptibility, perceived severity, perceived threat, perceived benefits, perceived barriers and cues to action. They posit that these six key constructs influence an individual's decisions as to whether to take action to prevent, screen for or prevent an action. Perceived susceptibility refers to how an individual subjectively perceives a risk from a

state or condition. Perceived severity is the subjective assessment of the seriousness of the consequences associated with the state or condition. Perceived threat is the product/sum of severity and susceptibility. Perceived benefits refer to the subjective understanding of positive benefits of taking a health action to offset a perceived threat. Perceived barriers also refer to the perceived negatively valued aspects of taking the action, or overcoming anticipated barriers to taking it. Finally, cues to action are reminders or prompts to take actions consistent with an intention, ranging from advertising to personal communications from health professionals, family members and/or peers.

Two other important constructs in the theory are modifying variables and self-efficacy. Modifying variables are individual characteristics, including demographic, psychosocial and structural variables that can affect perceptions of health-related behaviors. Demographic variables include age, sex, race, ethnicity, and education, among others. Psychosocial variables include personality, social class, and peer and reference group pressure, among others. Structural variables include knowledge about a given disease and prior contact with the disease, among other factors. The health belief model suggests that modifying variables affect health-related behaviors indirectly by affecting perceived seriousness, susceptibility, benefits, and barriers (Rosenstock, 1974). Self-efficacy has been an addition to the HBM on many occasions since the late 1970s, the concept of act or task specific self-confidence, i.e. belief in one's ability to execute a given behaviour was first introduced by Bandura (Bandura, 1977).

According to Lawson and Lawson (1992), the HBM has some strengths. One of such strengths is that it has direct implications for developing intervention towards behaviour change. Another strength is that it provides a profile of the beliefs of the population under study to allow for relevant and efficient interventions. The model also makes testable predictions such as large threats which might be offset by perceived costs whilst small threats might attract large benefits. Aside the strengths of the HBM, there are a few limitations that have been identified. One of such limitations is the fact that researchers that have used the model have included only selected components of the model thereby not testing the whole model (Lawson & Lawson, 1992).

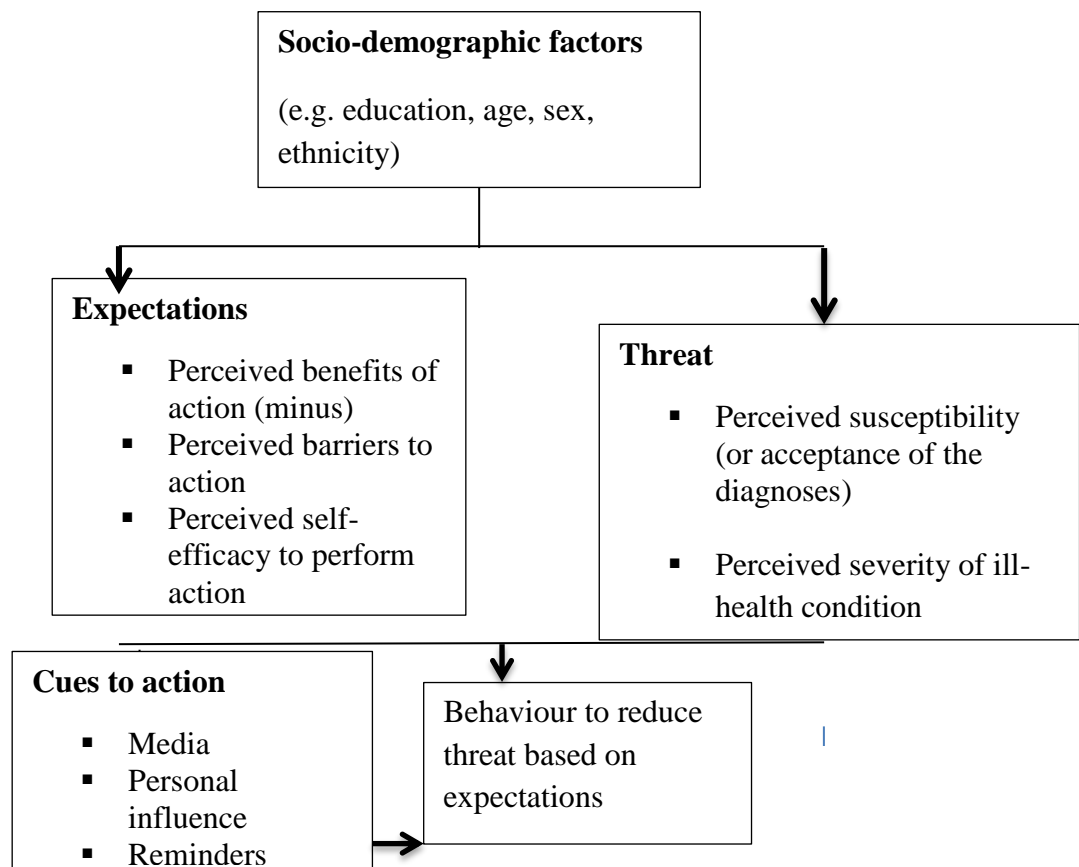


Figure 3: Health Belief Model

Source: (Rosenstock, Strecher & Berker, 1994)

### **Conceptual Framework of Adolescent Sexual and Reproductive Health**

The Conceptual Framework of Adolescent Sexual and Reproductive Health was developed by the Guttmacher Institute in 2005 to analyze the sexual and reproductive health of adolescents in four African countries – Burkina Faso, Ghana, Malawi and Uganda. This model is chosen because of its comprehensive nature. It includes all possible interrelational concepts that have the tendency to influence an adolescent's sexual and reproductive health.

The conceptual framework of adolescent sexual and reproductive health has three broad interrelated concepts namely: Context; Knowledge, Behaviour and Attitudes; and Behaviour and Intentions (Guttmacher Institute, 2005). The framework recognizes the interaction of individual, community and national factors to produce certain desired reproductive outcomes. The three broad concepts the framework seeks to describe are the contextual factors (individual characteristics and environmental factors), intermediate factors (knowledge, behaviour and attitudes) and their relationship with outcome variables (current behaviour and intentions).

The first concept known as context encompasses the individual characteristics and the context/environment. The individual characteristics are classified under demographic and socio-economic factors. The context/environmental factor includes other sub-categories such as intermediate social factors (parent/family, sexual partners, peers and organized youth), institutional factors (religious organizations, community norms and values, school, mass media, health systems and economic conditions) and policies/legal/political (local and international).

The second set of boxes contain variables which measure adolescents' knowledge, behaviour and attitudes regarding sexual and reproductive health which serve as intervening variables for reproductive outcomes for adolescents' sexual behaviour. Under this broad category are variables such as sexual and reproductive experience, knowledge and attitudes and health information and services. Minor issues under sexual and reproductive experience are sexual behaviour, childbearing, pregnancy termination, use of contraceptives, condom use and experience with STIs. Under knowledge and attitude, STIs/HIV/AIDS/pregnancy/contraceptive methods, risk assessment, self-efficacy, self-esteem, gender and power relations and expectations about future are also considered. Also captured in the second set of boxes is the health information and services which also include knowledge of sources of information, preferences of sources, perception of quality, socio-cultural perceptions and practices and accessibility.

The third set of boxes depicts current behaviour and intentions of adolescents. Among the variables measured are sexual behaviour (current sexual activity, number of partners, characteristics of partners), contraception/condom use (method(s), consistency of use, correctness of use), intentions (sexual, fertility contraceptive use) and use of health information and services. The strength of the conceptual framework lies in the fact that it incorporates the constructs of several models such as the health belief model, theory of reasoned action, human bio-ecological model and the social cognitive theory. This makes it useful in predicting adolescent sexual behaviour.

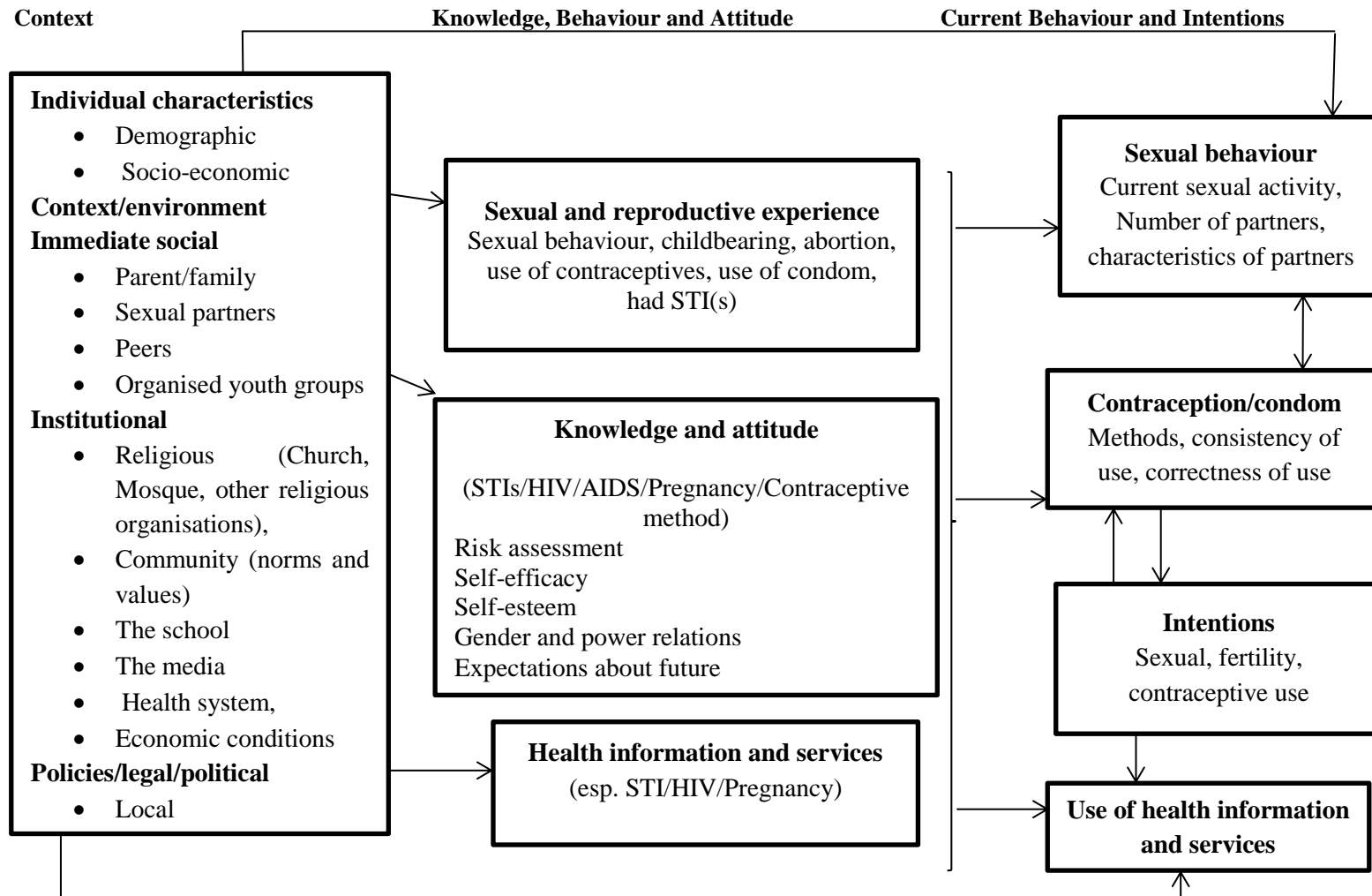


Figure 4: Conceptual Framework of Adolescent Sexual and Reproductive Health

Source: (Guttmacher, 2005)



## Conceptual Framework for the Study

The conceptual framework for the study was adapted from conceptual framework of adolescent sexual and reproductive health developed by Guttmacher (2005). The adapted framework has four main determinants that influence adolescent pregnancy. The main constructs of the framework are socio-demographic factors, socio-cultural factors, access to pregnancy prevention information and services and knowledge, attitude and behaviour. Each of these constructs plays a role in adolescent pregnancy.

The socio-demographic factors considered in the framework include age, marital status, educational level, employment status and religion. Other variable considered under socio-demographic factors were parents' level of education, parents' employment status and parents' income status. Each of these variables has influence on adolescent pregnancy in the sense that they serve as risk factors for adolescent pregnancy. This implies that the socio-demographic characteristics of an adolescent girl can put her at risk of getting pregnant. For instance adolescents with higher level of education are less likely to get pregnant compared with those with lower level education.

Another major construct in the model is socio-cultural factors that consider how cultural norms and values, family structure, parental influence, peer influence, influence from siblings, religious influence and parental desire for children serve as risk factors for adolescent pregnancy. In relation to adolescent girls, these factors that exist in the family, community and among peers are more likely to put them at risk of getting pregnant. Thus, an adolescent girl whose

parents' desire for children is high is more likely to be influenced into early marriage that is likely to lead to pregnancy.

Access to pregnancy prevention and information and services will also focus on parent-adolescent communication on pregnancy prevention, information from friends on how to avoid pregnancy, information on pregnancy prevention from health workers, information on pregnancy prevention from media and ease to access contraceptives from health facilities.

The last construct in the model focuses on knowledge, attitude and behaviour. Important elements under this construct are knowledge about pregnancy and contraceptives, attitude towards the use of contraceptives and utilization of contraceptives. These three elements serve as risk factors associated with adolescent pregnancy. Thus, an adolescent girl who has high knowledge on contraceptives, has positive attitude towards the use of contraceptives and utilizes contraceptives is at a lower risk of getting pregnant compared to those who have little or no knowledge, negative attitude and low level of utilization of contraceptives.

Although the original model does not directly relate to adolescent pregnancy, which is the outcome variable considered in this study, the model was adapted because, the individual, environmental, institutional and political factors have influence on sexual behaviour of adolescents. Such behaviours also have a role to play in adolescent pregnancy. However, the sexual behaviours are also considered as risk factors for adolescent pregnancy in the adapted framework.

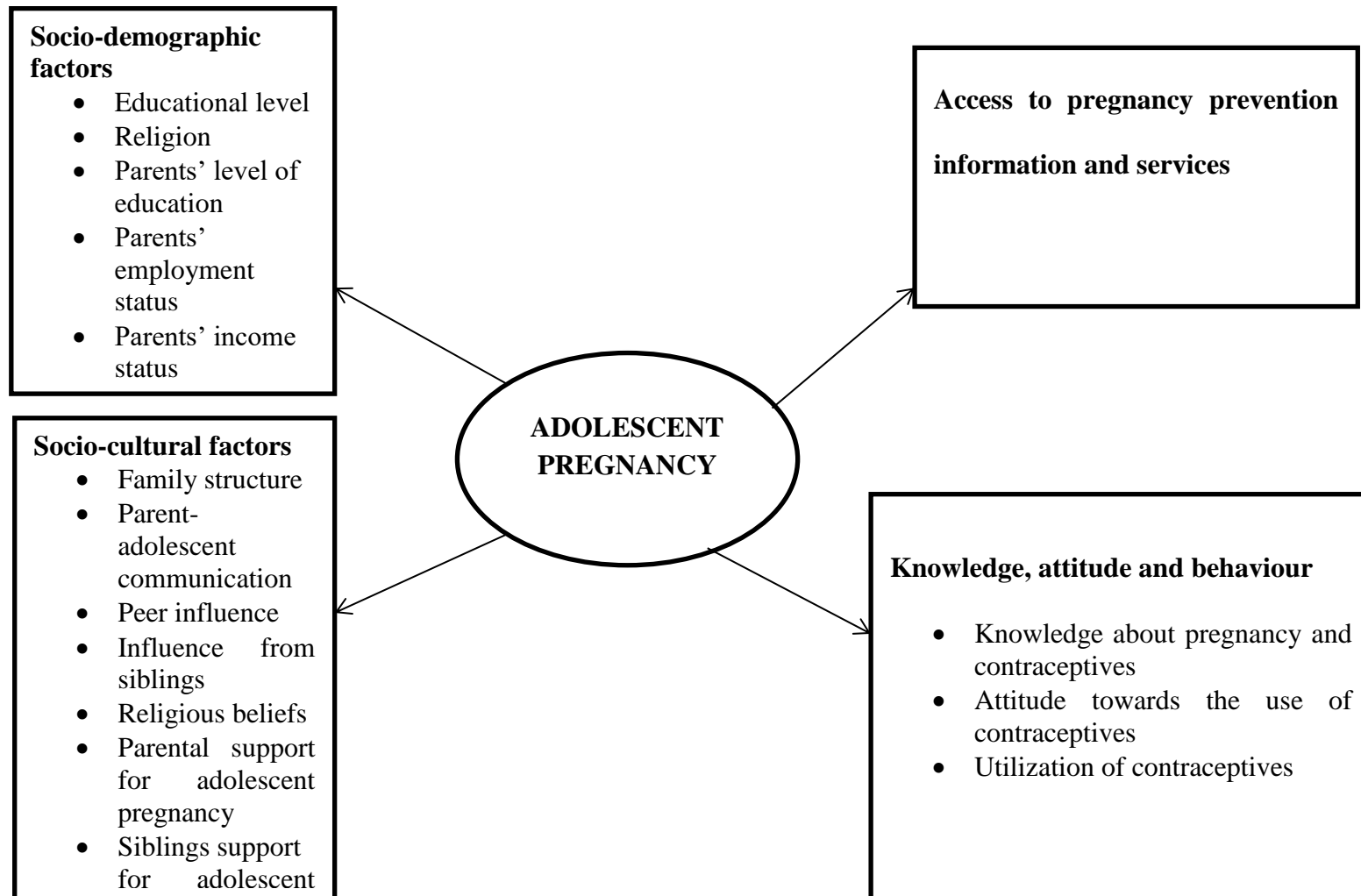


Figure 7: Adapted Framework  
Source: (Guttmacher, 2005)

## Summary

The review on adolescent health revealed that adolescent health refers to the optimal state of wellbeing in the physical, emotional, cognitive and social development of adolescents. The concept of adolescent sexual and reproductive health also revealed that it is strongly related to their particular social, cultural and economic environment. In relation to adolescent pregnancy, various scholars have defined it as pregnancy that occurs among young people aged 15-19. The prevalence of adolescent pregnancy has also been found to be high in sub-Saharan Africa and in Ghana, adolescents in Brong Ahafo, Central, and Volta regions have high prevalence of adolescent pregnancy. Although several determinants have been identified, most of the studies on the determinants of adolescent pregnancy usually classify the causes of adolescent pregnancy into broad categories such as socio-demographic factors, familial factors, access to reproductive health and knowledge on fertility and contraceptives. Adolescent pregnancy has also been found to have health implications on mother and child as well as socio-economic implications. Due to the challenges that result from adolescent pregnancy, various strategies have been adopted to deal with it. From the review, sexual education, contraceptive access programmes and alternatives to pregnancy and parenthood were found to be essential in dealing with adolescent pregnancy. The various theories on adolescent sexual behavior also revealed that the decision to engage in behaviours that put adolescents at risk of getting pregnant emanate from the behavior of the adolescents as well as the influence from family and friends.

## CHAPTER THREE

### RESEARCH METHODS

The purpose of the study was to examine the risk factors for pregnancy among adolescent girls in the KEEA Municipality. This chapter focuses on the research methods employed in the study.

#### Research Design

Different research designs exist that can be used for the study. One of such designs which are commonly used in studies of this nature is the descriptive cross-sectional survey. This involves asking the same set of questions (often prepared in the form of a written questionnaire or an ability test) to a large number of individuals either by mail, by telephone or in person (Fraenkel & Wallen, 2000). However, a matched case-control study design with a 1:1 ratio was used for the study. In a case-control study, exposure status (cause) is identified from effect or outcome status (Ogah, 2013). Case-control studies determine the relative importance of a predictor variable in relation to the presence or absence of the outcome retrospectively (Mann, 2003). In this study, a case was defined as any female adolescent (aged 15-19 years) who is pregnant and accesses healthcare in any of the health facilities in the KEEA Municipality. Controls were defined as girls in adolescence (at the time of the interview) who have never been pregnant.

A number of reasons accounted for the use of case-control study. One of such reasons is that the design was used to enable the researcher to find out the risk factors associated with adolescent pregnancy, by focusing on both cases and controls (Ogah, 2013). Furthermore, case-control studies deal with comparatively few subjects so more resources are available for studying each.

In consequence, a huge number of variables can be considered. This type of study was therefore useful for addressing the problem of adolescent pregnancy through the provision of services and education. Case-control studies also take less time to conduct compared to prospective cohort studies and are less costly (Ogah, 2013).

On the contrary, one of the major weaknesses of case-control studies is that temporal relationship between cause and affect cannot be determined (Ogah, 2013). Again, case-control studies are beset with both sampling and recall bias (Mann, 2003). Sampling bias occurs where the individuals with a condition may be a biased sample (for example, patients referred to a government hospital) or the controls may be biased (for example, volunteers, different ages, sex or socioeconomic group). Also, as the study assesses predictor variables retrospectively there is great potential for a biased assessment of their presence and significance by the patient or the investigator, or both.

These challenges were addressed by sampling cases and controls that have similar characteristics aside pregnancy status. Again, respondents were given adequate time to recall various events that had occurred in the past.

### **Population**

The population for the study was made up of adolescents (15-19) years in KEEA Municipality. According to the 2010 Population and Housing Census, the population of KEEA Municipality is 144,705. The population represents 6.6% of the region's total population. Males constitute 48.2% and females represent 51.8%. Sixty four percent of the population is rural. The population of the district is youthful (40.2% of the population below 15 years)

depicting a broad base population pyramid which tapers off with a small number of elderly persons (8.6%). The Municipality has a General Fertility Rate of 105.0 births per 1000 women aged 15-49 years and a Total Fertility Rate of 3.6. The Crude Birth Rate (CBR) of the Municipality is 24.6 per 1000 population. Forty-one percent of the population aged 12 years and older are in marital unions, 39% are single and 4% are in consensual unions. Those who are widowed and those who are divorced each constitute 7% and 2% are separated. Among the married, 33.4% have no education. More than half of the married population (80.2%) are employed, 3.5% are unemployed and 16.3% are economically not active (Ghana Statistical Service, 2014).

A total population of 7,667 female adolescents (10-19 years) was used for the study (Ghana Statistical Service, 2014). The population was made up of adolescent girls (15-19 years) who live in KEEA Municipality. This consisted of both pregnant and non-pregnant adolescents.

### **Sampling Procedure**

A sample size of 400 was sampled from the population of 7,667 female adolescents. This was made up of 200 pregnant adolescents and 200 non-pregnant adolescents. The choice of the sample size was based on Krejcie and Morgan's (1970) table of determining sample size. The actual sample size based on Krejcie and Morgan's table of determining sample size was 393. However, the sample size was increased to 400 to make room for non-responses. This was made up of 200 pregnant adolescents and 200 non-pregnant adolescents. In relation to age, 7% of the respondents were 15 years old, 12% were 16 years old, 19% were 17 years old, 37% were 18 years old and 62% were 19 years old. With religion, 5% of the respondents were non-

Christians and 95% were Christians. Most of the respondents (98%) had at least primary education and 2% had no education. Approximately 26% of the mothers of the respondents had no education and 74% had at least primary education. Again, 20% of the fathers of the respondents had no education and 80% had at least primary education. Furthermore, 17% of the respondents' parents were unemployed and 83% were employed. Approximately 83% of the mothers of the respondents were of a low income status and 17% were of a high income status. Finally, 58% of the respondents' fathers had low income status and 42% had high income status.

Facility-based sampling was used to sample respondents for the study. Facility-based sampling refers to recruiting members of a target population from a variety of facilities including correctional and drug treatment centers, sexually transmitted diseases clinics or general health centers and hospitals (Magnani, Sabin, Saidel, & Heckathorn, 2005). Individuals from hidden population can be recruited from each of these facilities, but biases may happen due to under-sampling of those who are not willing to seek and obtain services especially when their behaviours are stigmatized. Other limitations of this sampling approach is that in several parts of the world, particularly in less developed countries, services dedicated to high risk groups are not common and even where they exist, equal access to the services by deprived subgroups of population is not guaranteed (Shaghghi, Bhopal, & Sheikh, 2011).

With this approach, the pregnant adolescents were initially selected from five health facilities in the municipality. The health facilities were Kissi health centre, Komenda health centre, Elmina urban health centre, Agona health centre and Ankaful General Hospital. For each pregnant adolescent



selected, a non-pregnant adolescent within the same age group was identified and also selected from the same health facilities. The number of pregnant adolescents and non-pregnant adolescents sampled constituted the number of cases and controls for the study. The choice of the facility-based sampling was because the respondents would be difficult to reach using other sampling techniques. To exclude those who were not part of the study, the age of the adolescents were verified using the identification documents.

### **Data Collection Instrument**

A researcher generated questionnaire was used as the data collection instrument. The instrument was developed from literature. A thorough literature review on research related to risk factors for adolescent pregnancy was performed prior to the development of the questionnaire to identify risk factors that have been identified by other researchers. Potential risk factors were identified using the information obtained from literature. This instrument was used as the main tool for data collection as it affords greater assurance of confidentiality and anonymity to respondents (Sarantakos, 2005). It is very effective for securing factual information about practices and conditions of which the respondents are presumed to have knowledge. It is also used for enquiring into the opinions, views, feelings and behaviours of subjects (Ogah, 2013). This notwithstanding, questionnaire has some weaknesses. The use of questionnaire does not allow probing, prompting and clarification of questions. Also, in using a questionnaire, the identity of the respondent and the conditions under which the questionnaire was answered are not known. Thus, the researchers are not sure whether the right person has answered the

questions. Finally, due to lack of supervision, partial response is quite possible (Sarantakos, 2005).

The questionnaire was made up of six main sections. Section one focused on the socio-demographic factors. Section two dealt with socio-cultural factors associated with adolescent pregnancy. Section three was based on access to pregnancy prevention information and services. The next section focused on knowledge about pregnancy and contraceptives. Under section five, the study looked at attitude towards the use of contraceptives. The last section on the questionnaire contained questions geared towards accessing the use of contraceptives. In all, thirty-four (34) questions were on the questionnaire (See Appendix A). All the questions on the questionnaire had variables measured under the nominal and ordinal scale. To ensure validity, the instrument was tested through construct validity, face validity and content validity. With construct validity, the instrument was developed based on literature, focusing on the main findings of previous studies. Face and content validity were determined through inspection by the supervisor and the co-supervisor. After concluding on the face and content validity, the questionnaire was pre-tested using 50 adolescents in the Cape Coast Metropolis. This was done to check for the reliability of the instrument. Using the Kuder-Richardson formula 21 (KR-21), the reliability coefficient of the instrument was 0.71.

### **Data Collection Procedures**

Before the period of data collection, the questionnaire, together with the consent form was sent to the University of Cape Coast Institutional Review Board for approval. After obtaining an approval letter (See Appendix

B), an introductory letter with the instrument was sent to the Ethical Review Board of the Ghana Health Services for approval. When approved, the letter (See Appendix C) and the instrument were given to the Metropolitan Director of Health Services for KEEA Municipality for review. After the review, an introductory letter was sent to the selected health facilities in the municipality to seek permission to conduct the study. When permission was granted, the date for data collection was set. After setting the date for data collection, a meeting was arranged for the purpose of data collection. One month was used to collect data from the 400 respondents. The period of data collection was from 20<sup>th</sup> February, 2017 to 20<sup>th</sup> March, 2017. On the day of data collection, the purpose of the study was explained to respondents for them to get clear understanding of the study and also to ensure voluntary participation. On the day of data collection, each respondent was given a consent form containing the purpose of the study (See Appendix D). Each was made to sign a section of the consent form after agreeing to participate in the study. Respondents were also informed and assured that the information given by them will solely be used for the purpose of the study but not for other purposes. Questions were read to the research participants, to illicit their responses.

To ensure that cases were not mixed with controls, pregnant adolescents (cases) were selected at the antenatal care (ANC) unit and the non-pregnant adolescents (controls) were sampled at the OPD. Since the study employed a non-probability sampling technique, respondents were selected as and when they came to the health facility until the required number for each health facility was obtained. At the ANC unit, the Principal Investigator asked the in-charge to inform the nurses who take the vital statistics of the pregnant

women to identify the adolescent girls who were pregnant using their age. The same process was used at the OPD to get the non-pregnant adolescents. Questionnaires were administered by the researcher and three Mphil students who were trained as field assistants and each respondent was made to respond to questions on the questionnaire one on one at convenient places within the health facilities where confidentiality was assured. The researcher talked to the head of each of the facilities to find a place within the health facility where the respondents will be free to answer questions for interviews to be held. The researcher also asked for permission from the personnel in charge of both ANC and OPD to put chairs at confined places at the ANC unit and the OPD so that participants who were identified by the nurses as part of the target population were directed to come to those places to provide answers to questions on the questionnaire. For each respondent, the questionnaire was completed on the same day at the health facility.

### **Data Processing and Analysis**

The first step of data analysis in this study was to check for accuracy, consistency and completeness. Each questionnaire completed by the respondents was checked for accuracy and consistency of the responses to the items on the instrument. The questionnaire was also checked for comprehensiveness of the responses. After editing, a template was developed and used to create a data analysis matrix on the computer, as well as code responses to the items on the instrument. After coding, the data was then entered into the computer analysis matrix developed with the computer software, Statistical Package for the Social Services (SPSS) version 21. Before the analysis, the data was cleaned to check for errors and consistency in

responses. For the sake specificity of the results, 'don't know' in all variables was recoded to missing. To use a two-by-two table to interpret the results of the study, all variables with more than two categories were recoded into two categories.

For research question one which was meant to determine the socio-demographic factors that influence pregnancy among adolescents in KEEA Municipality, data on the independent variables were collected using the nominal level of measurement. The variables under socio-demographic factors were age, religion, parents' level of education, parents' employment status and parents' income status. Data on the outcome variable was dichotomous (pregnant and non-pregnant). All the independent variables under socio-demographic characteristics were entered into a binary logistic regression model with the dependent variable. This test was appropriate because the outcome variable was dichotomous and the independent variables were measured on the nominal scale. The results were interpreted using odds ratio and p-values. For easy interpretation, all odds ratios less than 1 were reversed to get whole numbers and interpretations were done based on the reverse. Mother's employment status and father's employment status were automatically omitted from the analysis due to lack of variability in the counts between the pregnant and non-pregnant adolescents.

Again, research question two focused on socio-cultural factors that determine pregnancy among adolescents in KEEA Municipality. Data on the independent variables under socio-cultural factors were collected under both nominal and ordinal scales of measurement. The variables considered under socio-cultural factors were level of strictness of rules and regulations in the

adolescents family, freedom within the adolescents' family to discuss problems regarding own love affairs, freedom within the family to discuss issues related to sexuality, influence of puberty rites within the community on pregnancy, religious support for sex before marriage, religious support on the use of contraceptives during sex, peer influence on sexual activity, parental attitude towards adolescent pregnancy and attitude of siblings towards adolescent pregnancy. Data on the outcome variable was dichotomous (pregnant and non-pregnant). All the independent variables under socio-cultural factors were entered into a binary logistic regression model with the dependent variable. This test was appropriate because the outcome variable was dichotomous and the independent variables were measured on the nominal and ration scales. The results were interpreted using odds ratio and p-values. For easy interpretation, all odds ratios less than 1 were reversed to get whole numbers and interpretations were done based on the reverse of the odds ratios less than 1.

The third research question was on how access to pregnancy prevention information and services determine adolescent pregnancy in KEEA Municipality. Data on all the independent variables measuring access to pregnancy prevention information and services was collected using the nominal scale of measurement. The independent variables were parent-adolescent communication on pregnancy prevention, access to information on pregnancy prevention from friends, access to information on pregnancy prevention from any health worker, access to information on pregnancy prevention from any media, ease to access contraceptives from health facilities. Data on the outcome variable was dichotomous (pregnant and non-

pregnant). Analysis was done by employing binary logistic regression. This test was appropriate because the outcome variable was dichotomous and the independent variables were measured on the nominal scale. The results were interpreted using odds ratio and p-values. For easy interpretation, all odds ratios less than 1 were reversed to get whole numbers and interpretations were done based on the reverse of the odds ratios less than 1.

The fourth research question looked at how knowledge about pregnancy serves as risk factor for adolescent pregnancy in KEEA Municipality. Data on all the independent variables measuring knowledge about pregnancy was collected using the nominal scale of measurement. The independent variables were knowledge on the capability of a girl getting pregnant after she attains menarche, knowledge on the occurrence of conception even with a single unprotected sexual intercourse, knowledge on specific periods in the menstrual cycle in which a woman can get pregnant, knowledge on the fact that female adolescents are not physically prepared for a pregnancy, knowledge on the fact that females at teenage are not mentally prepared for a pregnancy, knowledge about contraceptive methods and knowledge on the types of contraceptives. Data on knowledge on the types of contraceptives was further categorised into knowledge on modern and traditional types of contraceptives after data collection. Specifically, this will be analysed to find out how it also puts adolescents at risk of getting pregnant. Data on the outcome variable was dichotomous (pregnant and non-pregnant). Analysis was done by employing binary logistic regression. This test was appropriate because the outcome variable was dichotomous and the independent variables were measured on the nominal scale. The results were

interpreted using odds ratio and p-values. For easy interpretation, all odds ratios less than 1 were reversed to get whole numbers and interpretations were done based on the reverse of the odds ratios less than 1. Knowledge about contraceptive methods was automatically omitted from the analysis due to lack of variability in the counts between the pregnant and non-pregnant adolescents. Again, knowledge about modern contraceptive methods was dropped from the analysis because it counts less than 10 in two of the cells and thus failed to meet the assumption that variables for logistic regression should not have counts less than 10 (Garson, 2009; Tabachnick & Fidell, 2012).

The fifth research question was on how attitude towards use of contraceptives influence adolescent pregnancy in KEEA Municipality. Data on the independent variables measuring attitude towards use of contraceptives was collected using the nominal scale of measurement. The independent variables measuring attitude towards use of contraceptives included; contraceptives are for only adult married persons, contraceptives are so expensive to use, adolescents who use contraceptives are bad, contraceptive use leads to infertility among adolescents, it feels bad to receive contraceptive information from parents, using contraceptives can harm the future pregnancies, the process of acquiring contraceptives is often embarrassing, using condoms reduces sexual pleasure, and I will not make friends with someone who uses/has ever used contraceptives. Data on the outcome variable was dichotomous (pregnant and non-pregnant). Analysis was done by employing binary logistic regression. This test was appropriate because the outcome variable was dichotomous and the independent variables were measured on the nominal scale. The results were interpreted using odds ratio



and p-values. For easy interpretation, all odds ratios less than 1 were reversed to get whole numbers and interpretations were done based on the reverse of the odds ratios less than 1.

The final research question focused on the association between use of contraceptives and adolescent pregnancy in KEEA Municipality. Data on the independent variables measuring use of contraceptives was collected using the nominal scale of measurement. The independent variables measuring use of contraceptives were, ever had sex, ever used contraceptives and type of contraceptives ever used. The type of contraceptives ever used was further categorised into modern and traditional methods of contraceptives after the data collection. The intention was to find out how the type of contraceptive an adolescent uses puts her at risk of getting pregnant. Data on the outcome variable was dichotomous (pregnant and non-pregnant). Analysis was done by employing binary logistic regression. This test was appropriate because the outcome variable was dichotomous and the independent variables were measured on the nominal scale. The results were interpreted using odds ratio and p-values. For easy interpretation, all odds ratios less than 1 were reversed to get whole numbers and interpretations were done based on the reverse of the odds ratios less than 1.

## CHAPTER FOUR

### RESULTS AND DISCUSSION

The purpose of this study was to find out the risk factors associated with pregnancy among adolescent girls in KEEA Municipality. This chapter presents the results of the study and the discussion of the result. The result is presented per the research questions.

#### **Research Question 1: To what Extent do Socio-Demographic Factors Influence Pregnancy among Adolescents in KEEA Municipality?**

Table 1 contains the results of logistic regression analysis to show the extent to which socio-demographic factors influence pregnancy among adolescents in KEEA Municipality. The full model containing all the predictors was statistically significant ( $\chi^2 [8, n = 140] = 52.02, p < .05$ ), indicating that the model was able to distinguish between respondents who were pregnant and those who were not pregnant. The model as a whole explained between 31% (Cox & Snell  $R^2$ ) and 42% (Nagelkerke  $R^2$ ) of the variance in pregnancy status. Comparison of the socio-demographic factors of the respondents in relation to educational level shows that 56% ( $n = 113$ ) of the pregnant adolescents and 90% ( $n = 179$ ) of the non-pregnant adolescents had higher than primary education. Non-pregnant adolescents were seven times more likely to have higher than primary education compared to pregnant adolescents (OR = 0.14, 95% CI = [0.05-0.42],  $p = .000$ ). With mothers' level of education, 67% ( $n = 92$ ) of the pregnant adolescents' mothers had primary education or less but 67% ( $n = 122$ ) of the non-pregnant adolescents' mothers had higher than primary education. Non-pregnant adolescents were four times more likely to have mothers with higher than primary education compared to

Table 1: *Socio-Demographic Risk Factors for Adolescent Pregnancy*

	Pregnant n (%)	Non-pregnant n (%)	OR (CI)	p- value
<b>Religion</b>				
Non-Christian	10 (5)	11 (5.5)		
Christian	190 (95)	189 (94.5)	7.61 (0.63-91.3)	0.110
<b>Educational level</b>				
Primary or less	87 (44)	21 (10)		
Higher than primary	113 (56)	179 (90)	0.14 (0.05-0.42)	0.000
<b>Mother's level of education</b>				
Primary or less	92 (67)	46 (33)		
Higher than primary	46 (33)	122 (67)	0.26 (0.11-0.62)	0.002
<b>Father's level of education</b>				
Primary or less	54 (40)	23 (15)		
Higher than primary	80 (60)	126 (85)	0.19 (0.07-0.52)	0.001
<b>Mother's income</b>				
High	16 (15)	23 (19)		
Low	91 (85)	99 (81)	0.69 (0.21-2.32)	0.550
<b>Father's income</b>				
High	34 (40)	51 (43)		
Low	51 (60)	67 (57)	0.84 (0.30-2.32)	0.729
Pseudo R <sup>2</sup>	0.31-0.42			
$\chi^2$	52.02			

Source: Field survey, Ahinkorah (2017)

pregnant adolescents (OR = 0.26, 95% CI = [0.11-0.62], p = .002). Moreover, 60% (n= 80) of the pregnant adolescents and 85% (n = 126) of the non-pregnant adolescents had fathers with higher than primary education. Non-pregnant adolescents were 5times more likely to have fathers who had higher

than primary education compared to pregnant adolescents (OR = 0.27, 95% CI = [0.15-0.47],  $p = .001$ ). With religion, 95% ( $n = 190$ ) of the pregnant and non-pregnant ( $n = 189$ ) adolescents were Christians. Pregnant adolescents were 8 times more likely to be Christians compared to non-pregnant adolescents (OR = 7.61, 95% CI = [0.63-91.3],  $p = .110$ ). In relation to mothers' income, 85% ( $n = 91$ ) of the pregnant adolescents and 81% ( $n = 99$ ) had mothers with low income. Non-pregnant adolescents had 45% increase in odds of having mothers with low income compared to pregnant adolescents (OR = 0.69, 95% CI = [0.21-2.32],  $p = .550$ ). Finally, 60% ( $n = 51$ ) of the pregnant adolescents and 57% ( $n = 67$ ) of the non-pregnant adolescents had fathers with low income. Non-pregnant adolescents had 19% increase in odds of having fathers with low income compared to pregnant adolescents (OR = 0.84, 95% CI = [0.30-2.32],  $p = .729$ ).

Results on the extent to which socio-demographic factors influence pregnancy among adolescents in KEEA Municipality show that adolescents' level of education, mothers' level of education and fathers' level of education had statistically significant influence on adolescents' pregnancy. The findings that adolescents' level of education influences adolescents' pregnancy is consistent with the findings of the study by Isa and Gani (2012), where level of education was found to have significant influence on adolescents' pregnancy. Similar findings were also obtained in the study on the sociodemographic factors related with the adolescent pregnancy by Oner et al. (2012), where level of education was found to have significant influence on adolescent pregnancy.

Compared to the findings obtained by Isa and Gani (2012), where 58% of adolescents had no education, the level of education of adolescents in the KEEA Municipality is relatively higher as a lower proportion of the pregnant adolescents (44%) had primary education or less. Other studies conducted in Ghana by Laari (2015) in Kassena Nankana Municipality, Upper East Region and Baafi (2015) in an urban community in the Sunyani Municipality found that 16% and 11% of pregnant adolescents in their study respectively had no education. This is an indication that the risk of the occurrence of pregnancy in KEEA Municipality due to low education is higher compared to adolescents in other parts of the country.

In relation to no parental education as a risk factor for adolescent pregnancy, the findings are consistent with the findings obtained by Nalika (2013), where no parental education was found to increase the risk of pregnancy among adolescents. There are several studies that support the findings of the current study in relation to parental education and adolescent pregnancy (Envuladu et al., 2014; East et al., 2007; Vundule, Maforah, Jewkes, & Jordaan, 2001). In all the studies that have identified low parental education as a risk factor, the risk of the occurrence of pregnancy due to low parental education is high in the KEEA Municipality. This is because in all the studies that have identified low parental education as a risk factor, the proportion of parents with low educational level is relatively smaller than those in KEEA Municipality.

The reason for pregnant adolescents to belong to parents with no education and non-pregnant adolescents to have parents who have at least primary level of education could be due to the fact that educated parents are

more likely to provide adolescents with the needed information they need to desist from activities that can put them at risk of pregnancy than uneducated parents. This is because the education that the parents received could expose them to knowledge about risky sexual behavior. Educated parents are also more likely to provide adolescent sex education which is considered necessary in teen pregnancy prevention and preventing other adolescent risk behaviors than uneducated parents (Silk & Romero, 2014). No formal education of parents is a risk factor not only because of limited career and educational opportunities but also because of its correlation with a lack of motivation and ambition (Quinlivan, Box, & Evans, 2003). Consequently, educated adolescents are less likely than their uneducated counterparts to get pregnant due to the formal education they receive in school (Izugbara, 2015; Oner et al., 2012; Isa & Gani, 2012).

The implications of the findings is that adolescent girls in KEEA Municipality are likely to experience continuous exposure to the risk of pregnancy once their level of education and that of their parents has been found to be low. This continuous exposure to the risk of pregnancy among adolescent girls confirms the findings by Akyeampong et al. (2007), where Girls in rural households were found to be more likely to have never attended school than girls in urban areas. In line with this, Zhang et al. (2015) also identified that education performance of rural children is significantly lower than that of their urban counterparts even after accounting for differences in personal attributes such as nutrition and parenting style. In terms of health implications, adolescent girls in KEEA Municipality who get pregnant are likely to be exposed to untimely delivery, infants being small for gestational

age, low birthweight and increased neonatal mortality, anaemia and pregnancy-induced hypertension. Pregnant adolescents are also less likely to receive prenatal care, often seeking it only in the third trimester, if at all (UNICEF, 2008).

In terms of addressing the situation, Oringanje et al. (2010) proposed sex education for both parents and adolescents. Manlove et al. (2002) are also of the view that curriculum-based sexuality education programmes that promote abstinence or contraceptive use, early childhood programmes including high quality child care and pre-school, community service learning, and youth development approaches can be used to address the continuous exposure to the risk of pregnancy due to low education. Ogori et al (2013) also identified that provision of stable funding for comprehensive education for adolescents by Local Government is an affective effort for managing adolescent pregnancy in areas where adolescent pregnancy is high.

### **Research Question 2: How do Socio-Cultural Factors Determine Pregnancy among Adolescents in KEEA Municipality?**

Table 2 contains the results of logistic regression analysis to show how socio-cultural factors influence pregnancy among adolescents in KEEA Municipality. The full model containing all the predictors was statistically significant ( $\chi^2 [6, n = 360] = 156.5, p < .05$ ), indicating that the model was able to distinguish between respondents who were pregnant and those who were not pregnant. The model as a whole explained between 35% (Cox & Snell  $R^2$ ) and 47% (Nagelkerke  $R^2$ ) of the variance in pregnancy status. Comparison of the socio-cultural factors associated with pregnancy among the respondents shows that 51% ( $n = 101$ ) of the pregnant adolescents and 87% ( $n$

Table 2: *Socio-Cultural Factors Associated with Adolescent Pregnancy*

	Pregnant n (%)	Non-pregnant n (%)	OR (CI)	P- value
Level of strictness of rules and regulations in family				
Not strict	99 (49.5)	26 (13)		
Strict	101 (50.5)	174 (87)	0.14 (0.07-0.25)	0.000
Freedom within the family to discuss issues related to sexuality				
No	140 (70)	110 (55)		
Yes	60 (30)	90 (45)	0.33 (0.18-0.59)	0.000
Religious support of sex before marriage				
No	150 (87)	176 (94)		
Yes	22 (13)	12 (6)	2.05 (0.85-4.96)	0.110
Peer influence to engage in sexual intercourse				
No	132 (66)	157 (78.5)		
Yes	68 (34)	43 (21.5)	2.63 (1.46-4.74)	0.001
Attitude of parents towards pregnancy				
Sad	115 (57.5)	187 (93.5)		
Happy	85 (42.5)	13 (6.5)	2.97 (1.15-7.70)	0.025
Attitude of siblings towards pregnancy				
Sad	119 (59.5)	188 (94)		
Happy	81 (40.5)	12 (6)	7.44 (2.59-21.4)	0.000
Pseudo R <sup>2</sup>	0.35-0.47			
$\chi^2$	156.5			

Source: Field survey, Ahinkorah (2017)



= 174) of the non-pregnant adolescents belonged to families with strict rules and regulations. Non-pregnant adolescents were seven times more likely to belong to families with strict rules and regulations compared to pregnant adolescents (OR = 0.14, 95% CI = [0.07-0.25],  $p = .000$ ). With freedom within the family to discuss issues related to sexuality, 70% ( $n = 140$ ) of the pregnant adolescents and 55% ( $n = 110$ ) of the non-pregnant adolescents had no freedom within the family to discuss issues related to sexuality. Non-pregnant adolescents were three times more likely to have freedom within the family to discuss issues related to sexuality compared to pregnant adolescents (OR = 0.33, 95% CI = [0.18-0.59],  $p = .000$ ). With peer influence to engage in sexual intercourse, 66% ( $n = 132$ ) of the pregnant adolescents and 79% ( $n = 157$ ) of the non-pregnant adolescents were not influenced by peers to engage in sexual intercourse. Pregnant adolescents were 3 times more likely to be influenced by peers to engage in sexual intercourse (OR = 2.63, 95% CI = [1.46-4.74],  $p = .001$ ).

With attitude of parents towards pregnancy, 58% ( $n = 115$ ) of the pregnant adolescents and 94% ( $n = 187$ ) of the non-pregnant adolescents said their parents have negative attitude towards adolescent pregnancy. Pregnant adolescents were three times more likely to have parents with positive attitude towards adolescents pregnancy compared to non-pregnant adolescents (OR = 2.97, 95% CI = [1.15-7.70],  $p = .025$ ). Also, 60% ( $n = 119$ ) of the pregnant adolescents and 94% ( $n = 188$ ) of the non-pregnant adolescents had siblings with negative attitude towards adolescent pregnant. Compared with non-pregnant adolescents, pregnant adolescents were 6 times more likely to have siblings with positive attitude towards adolescents pregnant (OR = 7.74, 95%

CI = [2.59-21.4],  $p = .000$ ). Finally, with religious support of sex before marriage, 87% ( $n = 150$ ) of the pregnant adolescents and 94% ( $n = 176$ ) of the non-pregnant adolescents religions do not support sex before marriage. Pregnant adolescents were two times more likely to belong to religions that support sex before marriage compared to non-pregnant adolescents (OR = 2.05, 95% CI = [0.85-4.96],  $p = .110$ ).

Results on socio-cultural factors associated with adolescent pregnancy indicate that level of strictness of rules and regulations in family, freedom within the family to discuss issues related to sexuality, peer influence to engage in sexual intercourse, attitude of parents towards pregnancy and attitude of siblings towards pregnancy had statistically significant influence on adolescents' pregnancy. The findings that non-pregnant adolescents are more likely to belong to families with strict rules and regulations is consistent with findings by Dulitha et al. (2013) and East et al. (2007), who found that the risk of teenage pregnancy was high when the level of strictness of rules and regulations in the family was perceived as 'not strict'. Similarly, Gyan (2013) in a study at Chorkor, a Suburb of Accra also identified poor parenting as one of the major causes of adolescent pregnancy. The findings of the study by Gyan (2013) and the findings obtained from adolescents in KEEA Municipality that most pregnant adolescents experience poor parenting, is an indication that poor parenting is a characteristic of rural communities.

One other socio-cultural factor that was found in the current study to have an association with adolescent pregnancy is the freedom within the family to discuss issues related to sexuality. Specifically, non-pregnant adolescents were more likely to have the freedom within the family to discuss

issues related to sexuality than pregnant adolescents. This is consistent with the study by Ajiboye and Adebayo (2012), where majority of adolescent girls were of the view that decision making within the family has an influence on adolescent pregnancy. Dulitha et al. (2013) also affirmed that teenage pregnancy was high when the level of freedom within the family to discuss problems regarding love affairs and the level of freedom within the family to discuss issues related to sexuality were perceived by the teenager as poor or very poor. Nundwe (2012) is also of the view that the parents of adolescents avoid talking to their children about sex simply because they (parents) fear that any discussion on sex can lead the children into sexual experimentation. The findings of the study by Ahorlu et al. (2015), where it was found that parents are taking the place of aunts and grandmothers in providing sexual education to their adolescent girls due to changing social structures where extended families no longer reside together in most cases, is contrary to the findings of the current study. This is an indication that adolescents in KEEA Municipality, compared to other communities in Ghana will continue to experience the risk of unintended pregnancies as they continue to lack the freedom within the family to discuss issues related to sexuality.

Moreover, peer influence to engage in sexual intercourse has been found in the current study to be a risk factor for adolescent pregnancy. Previous studies by Mushwana et al. (2015) found that peer pressure (56.3%) was a contributory factor to high pregnancy rate. Consistent with these findings Dulitha et al (2013) also found that peer influence peers is a risk factor for adolescent pregnancy. The findings of the current study is also supported in a study by Thobejane (2015) where it was found that about 80

percent of adolescent girls indicated that their friends did influence them to have children. Thobejane (2015) added that peer pressure can be seen as the main factor that influences teenage pregnancy because most of the teenagers are having friends who may be sexually active. In Ghana, Gyan (2013) also found that peer pressure is one of the factors that contribute to adolescent pregnancy. The findings that peer influence is a risk factor, confirming the situation in KEEA Municipality shows that peer influence exists in Ghana and serves as risk factor for pregnancy among adolescents.

Positive attitude of parents and sibling towards pregnancy was found to be a risk factor for adolescent pregnancy. Previous study by East et al. (2007) identified that approval of teenage sex was significantly associated with young women's increased risk of teenage pregnancy. Also consistent with the findings of the present study, is the findings of the study by Mushwana et al. (2015), where parental attitudes towards sex was found to be contributory factors to high pregnancy rate. Again, sibling modeling effects on adolescents' sexual attitudes and sexual behavior are most prevalent when siblings interact frequently and have a warm and amiable relationship (East et al., 2007). It is therefore interesting to find that pregnant adolescents are more likely to have siblings who support adolescent pregnancy compared to non-pregnant adolescents. Thus, within a family where parents and siblings are happy when an adolescent girl gets pregnant, it will have an influence on the sexual behavior of adolescents in the family.

The implication of the findings is that adolescent girls in KEEA Municipality are likely to experience continuous exposure to the risk of pregnancy with the existence of negative socio-cultural norms. This is due to

the fact that most of the pregnant adolescents had no freedom within the family to discuss issues related to sexuality, are influenced by peer influence to engage in sexual intercourse and have parents and siblings with positive attitude towards adolescent pregnancy compared to non-pregnant adolescents. In dealing with the influence of socio-cultural factors on adolescent pregnancy, there is the need to develop efforts geared towards increasing the awareness of and enforcing existing laws at the community level, while fostering a rights culture among members of the judiciary, legislature and the police to protect girls from child marriage and uphold their rights overall (Loaiza & Liang, 2013).

**Research Question 3: How does Access to Pregnancy Prevention Information and Services Determine Adolescent Pregnancy in KEEA Municipality?**

Table 3 contains the results of logistic regression analysis to show how access to pregnancy prevention information and services determine adolescent pregnancy in KEEA Municipality. The full model containing all the predictors was statistically significant ( $\chi^2 [5, n = 400] = 69.95, p < .05$ ), indicating that the model was able to distinguish between respondents who were pregnant and those who were not pregnant. The model as a whole explained between 16% (Cox & Snell  $R^2$ ) and 21% (Nagelkerke  $R^2$ ) of the variance in pregnancy status. With access to pregnancy prevention information from parents, 72% ( $n = 144$ ) of the pregnant adolescents did not have access to pregnancy prevention information from parents while 64% ( $n = 128$ ) of the non-pregnant adolescents had access to pregnancy prevention information from parents. Non-pregnant adolescents were four times more likely to have access to

Table 3: *Influence of Access to Pregnancy Prevention Information on Adolescent Pregnancy*

	Pregnant n (%)	Non-pregnant n (%)	OR (CI)	P- value
<b>Access to pregnancy prevention information from parents</b>				
No	144 (72)	72 (36)		
Yes	56 (28)	128 (64)	0.24 (0.15-0.37)	0.000
<b>Access to pregnancy prevention information from friends</b>				
No	100 (50)	72 (36)		
Yes	100 (50)	128 (64)	0.78 (0.49-1.23)	0.276
<b>Access to pregnancy prevention information from health workers</b>				
No	79 (39.5)	42 (21)		
Yes	121 (60.5)	158 (79)	0.52(0.31-0.85)	0.009
<b>Access to pregnancy prevention information from media</b>				
No	18 (9)	28 (14)		
Yes	182 (91)	172 (86)	2.49 (1.23-5.05)	0.01
<b>Access to pregnancy prevention services from health facilities</b>				
No	177 (88.5)	165 (82.5)		
Yes	23 (11.5)	35 (17.5)	0.69 (0.38-1.30)	0.260
Pseudo R <sup>2</sup>	0.16-0.21			
$\chi^2$	69.95			

Source: Field survey, Ahinkorah (2017)

pregnancy prevention information from parents compared to pregnant adolescents (OR = 0.24, 95% CI = [0.15-0.37], p = .000). Again, 61% (n =

121) of the pregnant adolescents and 79% (n = 158) of the non-pregnant adolescents had access to pregnancy prevention information from health workers. Non-pregnant adolescents were two times more likely to have access to pregnancy prevention information from health workers compared to pregnant adolescents (OR = 0.52, 95% CI = [0.31-0.85], p = .009).

With access to pregnancy prevention information from media, 91% (n = 182) of the pregnant adolescents and 86% (n = 172) had access to pregnancy prevention information from media. Pregnant adolescents were 2 times more likely to have access to pregnancy prevention information from media compared to non-pregnant adolescents (OR = 2.49, 95% CI = [1.23-5.05], p = .01). With access to pregnancy prevention information from friends, 50% (n = 100) of the pregnant adolescents had no access to pregnancy prevention information from friends while 64% (n = 128) of the non-pregnant adolescents had access to pregnancy prevention information from friends. Non-pregnant adolescents had 28% increase in odds of having access to pregnancy prevention information from friends compared to pregnant adolescents (OR = 0.78, 95% CI = [0.49-1.23], p = .276). Finally, 89% (n = 177) of the pregnant adolescents and 83% (n = 165) of the non-pregnant adolescents had no access to pregnancy prevention services from health facilities. Non-pregnant adolescents had 45% increase in odds of having access to pregnancy prevention services from health facilities compared to pregnant adolescents (OR = 0.69, 95% CI = [0.38-1.30], p = .260).

Results on the relationship between access to pregnancy prevention information and services and adolescent pregnancy in KEEA Municipality show that access to pregnancy prevention information from parents and health

workers were protective factors for adolescent pregnancy. However, access to pregnancy prevention information from media was found to be a risk factor for adolescent pregnancy. The findings are consistent with the study by Mmasetjana (2014) who identified inadequate sexual and reproductive health services as one of the factors that accounted for teenage pregnancy. Hacker et al. (2000) also affirmed that having more information on pregnancy and birth control, education about relationships and parental communication helped in preventing adolescent pregnancy. In line with the findings of the current study, Aquilino and Bragadottir (2000) also added that adolescents are concerned about adolescent pregnancy, and support a comprehensive approach to sex education beginning in the early elementary grades through high school. The findings that majority of the pregnant adolescents in KEEA Municipality do not have access to prevention information from parents contradicts that study by Baafi (2015) in an urban community in Sunyani where about 98% of pregnant adolescent had access to sex education information from parents. This indicates that access to pregnancy prevention information in urban areas in Ghana is higher compared to rural areas, explaining the fact that access to pregnancy prevention information is a problem among adolescent girls in KEEA Municipality, compared to other urban communities in Ghana.

The implication of the findings is that adolescents in KEEA Municipality will have continuous exposure to the risk of adolescent pregnancy. This is because of the low access to pregnancy prevention information from parents and health workers. The high access to pregnancy prevention information from media is also likely to increase the exposure of adolescents to the risk of pregnancy. This can be explained by the findings that



pregnant adolescents are more likely compared to non-pregnant adolescents to get information on pregnancy prevention from media. In dealing with the situation, Lagina (2010) asserted that positive communication between parents and children greatly helps young people to establish individual values and to make healthy decisions. The Planned Parenthood Federation of America (2013) also affirmed that sex education programs that are balanced and realistic, encourage adolescents to postpone sex until they are older, and promote safer-sex practices among those who choose to be sexually active have been proven effective at delaying first intercourse and increasing use of contraception among sexually active youth. Kirby et al. (2007) and Kohler et al. (2008) added that these programs have not been shown to initiate early sexual activity or to increase levels of sexual activity or numbers of sexual partners among sexually active youth. The Planned Parenthood Federation of America (2013) further asserted that easy and confidential access to family planning services through health centers, school-linked health centers, and condom availability programs have been found to help prevent unintended pregnancy.

**Research Question 4: To what Extent Does Knowledge about Pregnancy Serve as Risk Factor for Adolescent Pregnancy in KEEA Municipality?**

Table 4 contains the results of logistic regression analysis to show how knowledge about pregnancy serves as risk factor for adolescent pregnancy in the KEEA Municipality. The full model containing all the predictors was statistically significant ( $\chi^2 [7, n = 378] = 61.92, p < .05$ ), indicating that the model was able to distinguish between respondents who were pregnant and

those who were not pregnant. The model as a whole explained between 15% (Cox & Snell R<sup>2</sup>) and 20% (Nagelkerke R<sup>2</sup>) of the variance in pregnancy

Table 4: *Influence of Knowledge about Pregnancy and Contraceptives on Adolescent Pregnancy*

	Pregnant n (%)	Non-pregnant n (%)	OR (CI)	P- value
Knowledge of the occurrence of pregnancy after menarche				
No	19 (9.5)	19 (9.5)		
Yes	181 (90.5)	181 (90.5)	1.06 (0.46-2.42)	0.891
Knowledge of conception with a single unprotected sexual intercourse				
No	25 (12.5)	29 (14.5)		
Yes	175 (87.5)	171 (85.5)	1.55 (0.74-3.26)	0.242
Knowledge of menstrual cycle				
No	69 (34.5)	38 (19)		
Yes	131 (65.5)	162 (81)	0.28 (0.15-0.52)	0.000
Knowledge that females at teenage are not physically prepared for pregnancy				
No	71 (35.5)	33 (16.5)		
Yes	129 (64.5)	167 (83.5)	0.62 (0.31-1.26)	0.188
Knowledge that females at teenage are not mentally prepared for pregnancy				
No	84 (42)	44 (22)		
Yes	116 (58)	156 (78)	0.64 (0.33-1.24)	0.185
Knowledge about traditional contraceptive methods				
No	61 (33)	108 (56.5)		
Yes	126 (67)	83 (43.5)	4.39 (2.63-7.34)	0.000
Pseudo R <sup>2</sup>	0.15-0.20			
$\chi^2$	61.92			

Source: Field survey, Ahinkorah (2017)

status. With knowledge of menstrual cycle, 66% (n = 131) of the pregnant adolescents and 81% (n = 162) of the non-pregnant adolescents had knowledge of menstrual cycle. Non-pregnant adolescents 4 times more likely compared to pregnant adolescents to have knowledge of menstrual cycle (OR = 0.28, 95% CI = [0.15-0.52], p = .000). Again, 57% (n = 108) of the non-pregnant adolescents had no knowledge about traditional contraceptive methods while 67% (n = 126) of the pregnant adolescents had knowledge about traditional contraceptive methods. Pregnant adolescents were four times more likely compared to non-pregnant adolescents to have knowledge about traditional contraceptive methods (OR = 4.39, 95% CI = [2.63-7.34], p = .000). Also, 90% (n = 180) of the pregnant adolescents and 91% (n = 181) of the non-pregnant adolescents had knowledge of occurrence of pregnancy after menarche. Pregnant adolescent had 6% increase in odds of having knowledge of occurrence of pregnancy after menarche compared to non-pregnant adolescents (OR = 1.06, 95% CI = [0.46-2.42], p = .891).

Again, 88% (n = 175) of the pregnant adolescents and 86% (n = 171) of the non-pregnant adolescents had knowledge of conception with a single unprotected sexual intercourse. Pregnant adolescent were two times more likely to have knowledge of conception with a single unprotected sexual intercourse compared to non-pregnant adolescents (OR = 1.55, 95% CI = [0.74-3.26], p = .242). Furthermore, 65% of the pregnant adolescents (n = 129) and 84% (n = 167) had knowledge that females at teenage are not physically prepared for pregnancy. Non-pregnant adolescents were two times more likely to have knowledge that females at teenage are not physically prepared for pregnancy compared to pregnant adolescents (OR = 0.62, 95% CI

= [0.31-1.26],  $p = .188$ ). Finally, 58% ( $n = 116$ ) of the pregnant adolescents and 78% ( $n = 156$ ) of the non-pregnant adolescents had knowledge that females at teenage are not mentally prepared for pregnancy. Non-pregnant adolescents were 2 times more likely to have knowledge that females at teenage are not mentally prepared for pregnancy compared to pregnant adolescents (OR = 0.64, 95% CI = [0.33-1.24],  $p = .185$ ).

Results on the extent to which knowledge about pregnancy serves as risk factor for adolescent pregnancy in KEEA Municipality revealed that knowledge of menstrual cycle and knowledge about traditional contraceptive methods were significantly associated with adolescent pregnancy. Findings of the current study in relation to knowledge about menstrual cycle support the findings of a previous study by Dulitha et al. (2012), where it was revealed that pregnant adolescents had significantly better knowledge on the issue that there is a specific period in the menstrual cycle in which a woman can get pregnant. The study by Nyarko (2015) in Ghana also revealed that majority (76%) of adolescent girls had knowledge of their ovulatory cycle. This indicates that high knowledge of menstrual cycle among adolescents in KEEA Municipality is similar to other communities in Ghana. One other important aspect of sexual and reproductive health that was considered in this study was knowledge on contraceptives. In this study, it was found that pregnant adolescents were more likely to have knowledge about traditional contraceptives compared to non-pregnant adolescents. The high knowledge of traditional contraceptives among adolescent girls in KEEA Municipality confirms a study by Nyarko (2015) on the prevalence and correlates of contraceptive use among female adolescents in Ghana, where it was found that

contraceptive prevalence was found to be higher among those who had knowledge of their ovulatory cycle.

The implication of the findings is that adolescent girls in KEEA Municipality will experience continuous exposure to the risk of pregnancy as they continue to rely on traditional methods of contraception. Their knowledge of traditional methods of contraception will continue due to low access to pregnancy prevention information from parents and health workers. The knowledge of traditional contraceptive methods can also increase their risks of contracting sexually transmitted infections. Solano et al. (2007) in their review of teen pregnancy prevention programmes proposed sex education and contraception information and dissemination in health facilities, schools and the community as efforts that can be used to manage adolescent pregnancy. Oringanje et al. (2010) also proposed sex and HIV education curricula, One-on-One clinician patient protocols in health care settings, in service learning programs, intensive youth development programmes, skill building and contraception promotion. Manlove et al., (2002) are also of the view that curriculum-based sexuality education programs that promote abstinence or contraceptive use are efforts aimed at managing adolescent pregnancy.

**Research Question 5: How does Attitude towards Contraceptive Use Influence Adolescent Pregnancy in KEEA Municipality?**

Table 5 contains the results of logistic regression analysis to show how attitude towards use of contraceptives influences adolescent pregnancy in KEEA Municipality. The full model containing all the predictors was statistically significant ( $\chi^2 [5, n = 378] = 76.27, p < .05$ ), indicating that the model was able to distinguish between respondents who were pregnant an

Table 5: Association between Attitude towards Contraceptives Use and Adolescent Pregnancy

	Pregnant n (%)	Non-pregnant n (%)	OR (CI)	P- value
<b>Contraceptives are for only adult married persons</b>				
Disagree	138 (74)	82 (43)		
Agree	49 (26)	109 (57)	0.44 (0.26-0.75)	0.002
<b>Adolescents who use contraceptives are bad</b>				
Disagree	115 (61.5)	61 (32)		
Agree	72 (38.5)	130 (68)	0.47 (0.28-0.80)	0.005
<b>Contraceptives use leads to infertility among adolescents</b>				
Disagree	67 (36)	65 (34)		
Agree	120 (64)	126 (66)	1.08 (0.67-1.75)	0.758
<b>It feels bad to receive contraceptive information from parents/other relatives</b>				
Disagree	148 (79)	99 (52)		
Agree	39 (21)	92 (48)	0.37 (0.23-0.61)	0.000
<b>The process of acquiring contraceptives is often embarrassing</b>				
Disagree	29 (15.5)	54 (28)		
Agree	158 (84.5)	137 (72)	2.86 (1.61-5.09)	0.003
Pseudo R <sup>2</sup>	0.18-0.24			
$\chi^2$	76.27			

Source: Field survey, Ahinkorah (2017)

those who were not pregnant. The model as a whole explained between 18% (Cox & Snell R<sup>2</sup>) and 24% (Nagelkerke R<sup>2</sup>) of the variance in pregnancy

status. Approximately 74% (n = 138) of the pregnant adolescents disagreed that contraceptives are for only adult married persons while 57% (n = 109) of the non-pregnant adolescents agreed that contraceptives are for only adult married persons. Non-pregnant adolescents were two times more likely to agree that contraceptives are for only adult married persons compared to pregnant the adolescents (OR = 0.44, 95% CI = [0.26-0.75], p = .002). Again, 62% (n = 115) of pregnant adolescents disagreed that adolescents who use contraceptives are bad while 68% (n = 130) of the non-pregnant adolescents agreed that adolescents who use contraceptives are bad. Non-pregnant adolescents were two times more likely to agree that adolescents who use contraceptives are bad compared to pregnant adolescents (OR = 0.47, 95% CI = [0.28-0.80], p = .005).

Furthermore, 79% (n = 148) of the pregnant adolescents and 52% (n = 99) of the non-pregnant adolescents disagreed that it feels bad to receive contraceptive information from parents/other relatives. Non-pregnant adolescents were 3 times more likely to agree that it feels bad to receive contraceptive information from parents/other relatives compared to pregnant adolescents (OR = 0.37, 95% CI = [0.23-0.61], p = .000). Also, 85% (n = 158) of the pregnant adolescents and 72% (n = 137) agreed that the process of acquiring contraceptives is often embarrassing. Pregnant adolescents were three times more likely to agree that the process of acquiring contraceptives is often embarrassing compared to non-pregnant adolescents (OR = 2.86, 95% CI = [1.61-5.09], p = .003). Finally, 64% (n = 120) of the pregnant adolescents and 66% (n = 126) of the non-pregnant adolescents agreed that contraceptive use leads to infertility among adolescents. Pregnant adolescents had 8%

increase in odds of agreeing that contraceptives use leads to infertility among adolescents compared to non-pregnant adolescents (OR = 1.08, 95% CI = [0.67-1.75],  $p = .758$ ).

Results from the study on how attitude towards contraceptives use influences adolescent pregnancy in KEEA Municipality indicate that pregnant adolescents in KEEA Municipality are significantly less likely compared to non-pregnant adolescents to agree that contraceptives are for only adult married persons, adolescents who use contraceptives are bad and it feels bad to receive contraceptive information from parents/other relatives. However, they were more likely compared to non-pregnant adolescents to agree that the process of acquiring contraceptives is often embarrassing. The findings of the study are supported by a previous study by Mchunu et al. (2012), where it was found that having higher sexually permissive attitudes towards use of contraceptives was associated with adolescent pregnancy. In line with this, Dulitha et al. (2013) also found a significant relationship between attitude towards the use of contraceptives and adolescent pregnancy, where pregnant adolescents were more likely to have positive attitude towards the use of contraceptives. On the contrary, Brückner et al. (2004) found that among sexually experienced adolescents, having an attitude toward pregnancy was not associated with risk of pregnancy

The fact that pregnant adolescents in KEEA Municipality have positive attitude towards the use of contraceptives and yet are found in their current status of pregnancy has been explained by several scholars. Shah et al. (2011) revealed that there is growing concerns about teenage pregnancies and the number of teenagers having unprotected sex through ignorance or fear of



going to a family doctor to obtain contraceptives. Other scholars have found that in the midst of positive attitude towards contraceptives, having friends or peers who have unprotected sex, having the feelings to please ones' boyfriend to maintain a relationship, seeing pregnancy as socially desirable, having poor sexual negotiation skills and having low self-esteem could influence one's own attitude towards the use of contraceptives (Kanku & Mash, 2010). One other reason that can explain the findings of the current study is that most of the pregnant adolescents in KEEA Municipality may have been educated in the course of their antenatal care about the importance of contraceptives and this may have changed their attitude towards the use of contraceptives.

The implication of the findings is that adolescent girls in the KEEA Municipality are less likely to be pregnant if their attitude towards contraceptives is accompanied by the use of contraceptives. To address the attitude of adolescents towards the use of contraceptive methods, Solano et al. (2007) in a review of teen pregnancy prevention programs proposed sex education and contraception information and dissemination in health facilities, schools and the community.

#### **Research Question 6: What is the Association between the Use of Contraceptives and Adolescent Pregnancy in KEEA Municipality?**

Table 6 contains the results of logistic regression analysis to show the association between the use of contraceptives and adolescent pregnancy in KEEA Municipality. The full model containing all the predictors was statistically significant ( $\chi^2 [2, n = 164] = 10.49, p < .05$ ), indicating that the model was able to distinguish between respondents who were pregnant and those who were not pregnant. The model as a whole explained between 6%

Table 6: Association between the Use of Contraceptives and Adolescent Pregnancy

	Pregnant n (%)	Non-pregnant n (%)	OR (CI)	P- value
<b>Ever used modern contraceptives</b>				
No	42 (36)	10 (21)		
Yes	75 (64)	37 (79)	0.91 (0.35-2.37)	0.845
<b>Ever used traditional contraceptives</b>				
No	33 (28)	26 (55)		
Yes	84 (72)	21 (45)	3.01 (1.30-6.97)	0.003
Pseudo R <sup>2</sup>	0.62-0.89			
$\chi^2$	10.488			

Source: Field survey, Ahinkorah (2017)

(Cox & Snell R<sup>2</sup>) and 9% (Nagelkerke R<sup>2</sup>) of the variance in pregnancy status. With ever used traditional contraceptives, 72% (n = 84) of the pregnant adolescents had ever used traditional contraceptives while 55% (n = 26) of the non-pregnant adolescents had never used traditional contraceptives. Pregnant adolescents were 3 times more likely to have ever used traditional contraceptives compared to non-pregnant adolescents (OR = 3.01, 95% CI = [1.30-6.97], p = .003). Finally, 64% (n = 75) of the pregnant adolescents and 79% (n = 37) of the non-pregnant adolescents had ever used modern contraceptives. Non-pregnant adolescents had 9% increase in odds of ever using modern contraceptives compared to pregnant adolescents (OR = 0.91, 95% CI = [0.35-2.37], p = .845).

Results from the study on the association between the use of contraceptives and adolescent pregnancy in KEEA Municipality showed that pregnant adolescents were more likely compared to non-pregnant adolescents to have ever used traditional contraceptives. The findings support the findings obtained by Mchunu et al. (2012) in their study to assess the prevalence of adolescent pregnancy and associated factors in the South African context, where it was found that scoring higher on the use of traditional contraceptive index was associated with adolescent pregnancy. Similarly, Jonas et al. (2016) also supported this view by claiming that the odds for never been pregnant were lower for those who use condoms.

The findings of the study however contradicts the findings obtained by Dulitha et al. (2012) who identified that higher proportion of teenagers who were pregnant had not used any contraceptive prior to pregnancy compared to non-pregnant teenagers who were using contraceptives at the time of the survey. The findings that pregnant adolescents are more likely to have ever used traditional contraceptives compared to non-pregnant adolescents indicates the low effective rates of traditional methods of contraception. Explaining withdrawal as a method of contraception, WHO (2004) asserted that withdrawal requires a high degree of motivation and discipline, which may be quite difficult for a young adolescent couple. Other traditional methods of family planning such as rhythm method may also be associated with high failure rates and can lead to higher risks of pregnancy. The implication of the findings is that adolescent girls in KEEA Municipality will continue to be exposed to the risk of pregnancy as the use of traditional methods of contraception continue to increase. In this regard, Mohd et al.

(2015) found that modern contraceptive needs and use among teenagers regardless of their marital status remains a major concern in Malaysia. To address the situation, the Planned Parenthood Federation of America (2013) proposed sex education programs that are balanced and realistic, encourage adolescents to postpone sex until they are older, and promote safer-sex practices among those who choose to be sexually active. Solano et al. (2007) also proposed sex education and contraception information and dissemination in health facilities, schools and the community as efforts that can be used to increase the use of contraceptives among adolescents and manage adolescent pregnancy.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter is divided into three major sections; namely, summary, conclusions and recommendations. The summary provides an overview of the purpose of the study, the research questions which guided the study, the research methods employed and the summary of the results. The conclusions are the deductions derived from the results of the study and the recommendations section puts forth suggestions for policy and practice.

#### **Summary**

The purpose of the study was to find out the risk factors associated with pregnancy among adolescent girls in KEEA Municipality. A matched case-control study design with a 1:1 ratio was used for the study. The population for the study was made up of adolescents (10-19) years in KEEA Municipality. Facility-based sampling was used to sample respondents for the study. A researcher generated questionnaire was used as the data collection instrument and Statistical Package for the Social Services (SPSS) version 21 was used to analyse the data. Analysis was done by employing binary logistic regression. The results were interpreted using odds ratio and p-values.

#### **Main findings**

1. Results on the extent to which socio-demographic factors influence pregnancy among adolescents in KEEA Municipality show that adolescents' level of education, mothers' level of education and fathers' level of education had statistically significant influence on adolescents' pregnancy in KEEA Municipality. On the contrary, religion, mother's

income status and father's income status showed no statistically significant influence on adolescent pregnancy in the Municipality.

2. Results on socio-cultural factors associated with adolescent pregnancy indicate that level of strictness of rules and regulations in family, freedom within the family to discuss issues related to sexuality peer influence to engage in sexual intercourse, attitude of parents towards pregnancy and attitude of siblings towards pregnancy had statistically significant influence on adolescents' pregnancy in KEEA Municipality. However, religious support of sex before marriage had no statistically significant influence on adolescent pregnancy in the Municipality.
3. Results on the relationship between access to pregnancy prevention information and services and adolescent pregnancy in KEEA Municipality show that access to pregnancy prevention information from parents, access to pregnancy prevention information from health workers and access to pregnancy prevention information from media had statistically significant influence on adolescent pregnancy in KEEA Municipality. On the contrary, access to pregnancy prevention information from friends and access to pregnancy prevention services from health facilities showed no statistically significant influence on adolescent pregnancy in the Municipality.
4. Results on the extent to which knowledge about pregnancy serve as risk factor for adolescent pregnancy in KEEA Municipality revealed that knowledge of menstrual cycle and knowledge about traditional contraceptive methods were significantly associated with adolescent pregnancy in KEEA Municipality. However, knowledge of occurrence of

pregnancy after menarche, knowledge of conception with a single unprotected sexual intercourse, knowledge that females at teenage are not physically prepared for pregnancy and knowledge that females at teenage are not mentally prepared for pregnancy showed no statistically significant influence on adolescent pregnancy in the Municipality.

5. Results on how attitude towards contraceptives use influences adolescent pregnancy in KEEA Municipality indicate that the perception that contraceptives are for only adult married persons, adolescents who use contraceptives are bad, it feels bad to receive contraceptive information from parents/other relatives and the process of acquiring contraceptives is often embarrassing showed statistically significant influence on adolescent pregnancy in KEEA Municipality. On the contrary, the perception that contraceptives use leads to infertility among adolescents showed no statistically significant influence on pregnancy among adolescent girls in the Municipality.
6. Results on the association between the use of contraceptives and adolescent pregnancy in KEEA Municipality showed that ever used traditional contraceptives showed statistically significant association with adolescent pregnancy in KEEA Municipality. However, ever used modern contraceptives had no statistically significant association with adolescent pregnancy in the Municipality.

## Conclusions

Based on the findings, the following conclusions can be drawn;

1. Adolescent girls in KEEA Municipality are likely to experience continuous exposure to the risk of pregnancy once their level of education and that of their parents is low.
2. Adolescent pregnancy in KEEA Municipality will continue to increase with the existence of negative socio-cultural norms such as lack of freedom within the family to discuss issues related to sexuality, peer influence to engage in sexual intercourse and positive attitude of parents and siblings towards adolescent pregnancy.
3. Adolescents in KEEA Municipality have the tendency to experience continuous risk of adolescent pregnancy due to low access to pregnancy prevention information from parents and health workers and the high access to pregnancy prevention information from media.
4. Adolescent girls in KEEA Municipality are exposed to the risk of pregnancy due to their high knowledge of traditional methods of contraception and despite their high knowledge of pregnancy.
5. Adolescent girls in KEEA Municipality, with their positive attitude towards the use of contraceptives are less likely to be pregnant if their attitude towards contraceptives is accompanied by the use of contraceptives.
6. Adolescent girls in KEEA Municipality will continue to be exposed to the risk of pregnancy as the use of traditional methods of contraception continue to increase and the use of modern contraceptive methods continues to be low.



## Recommendations

In the light of the findings discussed above and the conclusions drawn, the following recommendations have been made to reduce the risk of adolescent pregnancy in KEEA Municipality.

1. The Ghana Education Service, through the Municipal Education Unit should encourage adolescent girls in KEEA Municipality to enroll in schools. The enrolment of adolescent girls in schools will deepen their understanding of adolescent reproductive health issues and motivate them to resist from activities that would put them at risk of getting pregnant.
2. The Municipal Health Directorate should organize programmes, targeted at parents to educate them on adolescent reproductive health and encourage them to also educate their adolescent girls on issues regarding adolescent reproductive health at home.
3. Parents are encouraged to have strict rules and regulations within the family for adolescent girls but should also create the freedom within the family for adolescent girls to discuss issues related to sexuality.
4. Parents and guardians should show much interest in their female wards education and development. This will ensure that adolescent girls both at home and in school are not influenced by their peers to engage in sexual intercourse and other risky sexual behaviours that will put them at risk of getting pregnant.
5. Schools, health facilities and leaders of the various communities within the Municipality should organize teen pregnancy prevention programs and encourage sex education and contraception information and dissemination as efforts to manage adolescent pregnancy.

6. Adolescent girls in KEEA Municipality who are sexually active should be educated by health care providers, teachers and parents to develop interest in the use of modern contraceptive methods, such as condom and desist from the use of traditional methods of contraception that put them at risk of pregnancy.

#### **Suggestions for Further Research**

1. Since the study was conducted in KEEA Municipality, there should be a survey in the whole country to identify the risk factors associated with pregnancy among adolescent girls.
2. There is also the need to conduct a similar study using both parents and adolescent girls as the study population so as to get the views of both parents and adolescent girls in relation to the risk factors associated with pregnancy among adolescent girls.
3. Further studies should be done to ascertain the challenges faced by pregnant adolescent girls in Ghana.

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## APPENDICES

**APPENDIX A**  
**DATA COLLECTION INSTRUMENT**  
**UNIVERSITY OF CAPE COAST**  
**COLLEGE OF EDUCATION STUDIES**  
**DEPARTMENT OF HEALTH, PHYSICAL EDUCATION AND**  
**RECREATION**

**QUESTIONNAIRE FOR ADOLESCENT GIRLS**

The purpose of the study is to find out the risk factors associated with pregnancy among adolescent girls in the Komenda-Edina-Eguafo-Abrem municipality. I will be very glad if you can provide responses to the set of questions to the best of your knowledge and understanding. You are free to withdraw from the study at any given point in the process of data collection. However, your responses will be treated with confidentiality and will be used solely for academic purpose. You may contact my principal supervisor Prof. J. K. Ogah of the Department of Health, Physical Education and Recreation for any clarification on 0243102322. This exercise will last for about 15-20 minutes. The results of the study will help address the problem of adolescent pregnancy in the municipality by dealing with the major risk factors that will be identified in the study. My contact number is 0241804557.

**Thank you for your time and cooperation.**

SECTION 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS

No	QUESTIONS AND FILTERS	CODING CATEGORIES
1	What is your age?	.....
2	What is your religion?	CHRISTIANITY.....01 ISLAM.....02 TRADITIONAL.....03 NO RELIGION.....04
3	What is the highest level of school you attended?	NO EDUCATION.....01 PRIMARY.....02 JUNIOR HIGH SCHOOL...03 SENIOR HIGH SCHOO...04
4	What is your mother's level of education?	NO EDUCATION.....01 PRIMARY.....02 JUNIOR HIGH SCHOOL...03 SENIOR HIGH SCHOOL...04 TERTIARY.....05
5	What is your father's level of education?	NO EDUCATION.....01 PRIMARY.....02 JUNIOR HIGH SCHOOL...03 SENIOR HIGH SCHOOL...04 TERTIARY.....05
6	What is your mother's employment status?	EMPLOYED.....01 UNEMPLOYED.....02

7	What is your father's employment status	EMPLOYED.....01 UNEMPLOYED.....02
8	How will you rate your mother's income status?	HIGH.....01 LOW.....02
9	How will you rate your father's income status?	HIGH.....01 LOW.....02

SECTION 2: SOCIO-CULTURAL FACTORS ASSOCIATED WITH ADOLESCENT PREGNANCY

No	QUESTIONS AND FILTERS	CODING CATEGORIES
10	What is the level of strictness of rules and regulations in your family? ( <b>For pregnant adolescents, before pregnancy</b> )	VERY STRICT.....01 MODERATELY STRICT....02 NOT STRICT.....03
11	Did/do you have the freedom within the family to discuss issues related to sexuality? ( <b>For pregnant adolescents, before pregnancy</b> )	YES.....01 NO.....02
12	Does your religion support sex before marriage?	YES.....01 NO.....02
13	Did/do your friends influence you to have sex? ( <b>For pregnant adolescents, before pregnancy</b> )	YES.....01 NO.....02
14	How will your parents feel if you get	Sad.....01

	pregnant/how did you parents feel when you got pregnant?	Happy.....02
15	How will your siblings feel if you get pregnant/how did you parents feel when you got pregnant?	Sad.....01 Happy.....02

SECTION 3: ACCESS TO PREGNANCY PREVENTION INFORMATION AND SERVICES

No	QUESTIONS AND FILTERS	CODING CATEGORIES
16	Did/do your parents discuss issues related to pregnancy prevention with you? ( <b>For pregnant adolescents, before pregnancy</b> )	YES.....01 NO.....02
17	Did/do your friends give you information on how to avoid pregnancy?( <b>For pregnant adolescents, before pregnancy</b> )	YES.....01 NO.....02
18	Have you had any information on pregnancy prevention from any health worker ( <b>For pregnant adolescents, before pregnancy</b> )	YES.....01 NO.....02
19	Have you had information on pregnancy prevention from any media (Radio, Television, Newspaper and	YES.....01 NO.....02

	Internet) ( <b>For pregnant adolescents, before pregnancy</b> )	
20	Could/can you easily walk to any health facility to buy any contraceptive (condom, pills, etc)?	YES.....01 NO.....02

SECTION 4: KNOWLEDGE ABOUT PREGNANCY

No	QUESTIONS AND FILTERS	CODING CATEGORIES
21	I know that a girl is capable of getting pregnant at any time after menarche	YES.....01 NO.....02
22	I know that conception can occur even with a single unprotected sexual intercourse	YES.....01 NO.....02
23	I know that there is a specific period in the menstrual cycle in which a woman can get pregnant	YES.....01 NO.....02
24	I know that females at teenage are not physically prepared for a pregnancy	YES.....01 NO.....02
25	I Know that females at teenage are not mentally prepared for a pregnancy	YES.....01 NO.....02
26	Did/do you know about contraceptive methods? ( <b>For pregnant adolescents, before pregnancy</b> )	YES.....01 NO.....02

27	<p>If your response to Q26. Above is “yes” Which types of contraceptive method do you know? (<b>tick all that apply</b>)</p>	<p>FEMALE  STERILIZATION.....01  MALE  STERILIZATION.....02  IUD.....03  INJECTABLES.....04  IMPLANTS.....05  PILL.....06  CONDOM.....07  DIAPHRAGM.....08  FOAM/JELLY.....09  LAM.....10  RHYTHM METHOD.....11  WITHDRAWAL.....12  OTHER MODERN  METHOD.....13  OTHER TRADITIONAL  METHOD.....14</p>
----	--	---

SECTION 5: ATTITUDE TOWARDS USE OF CONTRACEPTIVES

No	QUESTIONS AND FILTERS	CODING CATEGORIES
28	Contraceptives are for only adult married persons	AGREE.....01 DISAGREE.....02
29	Adolescents who use contraceptives are bad	AGREE.....01 DISAGREE.....02
30	Using contraceptives can harm the future pregnancies	AGREE.....01 DISAGREE.....02
31	It feels bad to receive contraceptive information from parents	AGREE.....01 DISAGREE.....02
32	The process of acquiring contraceptives is often embarrassing	AGREE.....01 DISAGREE.....02

SECTION 6: USE OF CONTRACEPTIVES

No	QUESTIONS AND FILTERS	CODING CATEGORIES
33	Have you ever used any contraceptive method before?	YES.....01 NO.....02
34	If yes to 33 which type of contraceptive method(s) have you ever used?	FEMALE STERILIZATION.....01 MALE STERILIZATION.....02 IUD.....03 INJECTABLES.....04 IMPLANTS.....05



	PILL.....06
	CONDOM.....07
	DIAPHRAGM.....08
	FOAM/JELLY.....09
	LAM.....10
	RHYTHM METHOD.....11
	WITHDRAWAL.....12
	OTHER MODERN METHOD.....13
	OTHER TRADITIONAL METHOD.....14

APPENDIX B

UNIVERSITY OF CAPE COAST IRB APPROVAL LETTER

UNIVERSITY OF CAPE COAST

INSTITUTIONAL REVIEW BOARD SECRETARIAT

TEL: 03321-33172/3 / 0207355653/ 0244207814

C/O Directorate of Research, Innovation and Consultancy

E-MAIL: [irb@ucc.edu.gh](mailto:irb@ucc.edu.gh)

OUR REF: UCC/IRB/A/2016/46

YOUR REF:

OMB NO: 0990-0279

IORG #: IORG0009096



19<sup>TH</sup> JANUARY, 2017

Mr. Bright Opoku Ahinkorah  
Department Health, Physical Education and Recreation  
University of Cape Coast

Dear Mr Ahinkorah,

**ETHICAL CLEARANCE –ID :( UCCIRB/CES/2016/15)**

The University of Cape Coast Institutional Review Board (UCCIRB) has granted **Provisional Approval** for the implementation of your research protocol titled **‘Risk factors for pregnancy among adolescent girls in the Komenda-Edina-Ebrem Municipality.’**

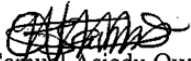
This approval requires that you submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

Please note that any modification of the project must be submitted to the UCCIRB for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

  
Samuel Asiedu Owusu  
Administrator

.....  
**ADMINISTRATOR**  
**INSTITUTIONAL REVIEW BOARD**  
**UNIVERSITY OF CAPE COAST**  
Date:.....

## APPENDIX C

### GHANA HEALTH SERVICE ERC APPROVAL LETTER

#### GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

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



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

My Ref: GHS/RDD/ERC/Admin/App/17/224  
Your Ref. No.

Bright Opoku Ahinkorah  
College of Education Studies  
Department of Health, Physical Education and Recreation  
University of Cape Coast  
Central Region

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

GHS-ERC Number	<b>GHS-ERC: 13/12/2016</b>
Project Title	Risk Factors for Pregnancy among Adolescent Girls in the Komenda-Edina-Eguafo-Abrem Municipality "
Approval Date	16 <sup>th</sup> February, 2017
Expiry Date	15 <sup>th</sup> February, 2018
GHS-ERC Decision	<b>Approved</b>

**This approval requires the following from the Principal Investigator**

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

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

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

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

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

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

**APPENDIX D**  
**CONSENT FORM FOR PARENTS/GUARDIANS**  
**UNIVERSITY OF CAPE COAST**  
**COLLEGE OF EDUCATION STUDIES**  
**FACULTY OF SCIENCE AND TECHNOLOGY EDUCATION**  
**DEPARTMENT OF HEALTH, PHYSICAL EDUCATION AND**  
**RECREATION**

**INFORMATION SHEET**

**Title:** Risk factors for pregnancy among adolescent girls in the Komenda-Edina-Eguafo-Abrem Municipality

**Introduction:** I am Bright Opoku Ahinkorah, a 2<sup>nd</sup> year MPhil student of the Department of Health, Physical Education and Recreation

**Address:** University of Cape Coast

College of Education Studies

Department of Health, Physical Education and Recreation

Cape Coast

**Nature of the study:** As part of my academic work, I am conducting a case-control study on ‘Risk Factors for Pregnancy among Adolescent Girls in the Komenda-Edina-Eguafo-Abrem (KEEA) Municipality. The purpose of the study is to examine the risk factors associated with pregnancy among adolescents in the KEEA Municipality. In the 2014 Ghana Demographic and Health Survey Report, the number of adolescents who were pregnant with one child in the Central Region was 7%. Within the Central Region, the Komenda-Edina-Eguafo-Abrem municipality recorded the highest prevalence rate in the region in 2014 (Ghana Statistical Service (GSS), Ghana Health Service

(GHS), & ICF Macro, 2015). Thus, this research would want to examine the risk factors associated with pregnancy among adolescents in the KEEA Municipality. The questionnaire would take about 15-20 minutes to administer. Respondents would be expected to answer questions relating to risk factors associated with adolescent pregnancy.

**Participants' involvement:**

**Duration:** I will like to seek the views of your ward on the risk factors for pregnancy among adolescent girls in the KEEA Municipality. The interview process will take approximately 20-35 minutes.

**Potential Risk:** Some of the questions may bring to mind emotions since your ward may be required to recall some experiences.

**Benefits:** The results of the study will be shared with the participating facility. However, there is no direct financial benefit for your wards for participating in the study.

**Cost:** The interview process will cost approximately 20-35 minutes of the time of your wards.

**Compensation:** There is no financial or material compensation to be given to the participants in the study.

**Confidentiality:** The information your ward gives in this questionnaire will be kept and used later in the study analysis but you are assured that information about your ward will be protected to the best of our ability. The questionnaires would be locked at a safe place to prevent unauthorized people from having access to the data. Your ward will not be named in any reports.

**Voluntary participation/withdrawal:** The participation of your ward is voluntary and she can withdraw from this research at any point in time she feels uncomfortable with the questions being asked without any consequences.


**Outcome and Feedback:** After the analysis, the data will be kept safe by the principal investigator. The results of the study will be shared with the selected health facilities for the study to be disseminated to participants and the municipality.

**Funding:** The study is entirely an academic work and has no internal or external funding. All expenses regarding the conduct of the study will be beard by the student who is the Principal Investigator.

**Contacts for Additional Information:** Your ward may contact Bright Opoku Ahinkorah, Department of Health, Physical Education and Recreation on 0241804557 or [brightahinkorah@gmail.com](mailto:brightahinkorah@gmail.com). She may also contact my principal supervisor Prof. J. K. Ogah of the Department of Health, Physical Education and Recreation for any clarification on 0243102322. She can also contact Hannah Frimpong on 0243235225, the administrator of the Ethics Committee of Ghana Health Service

### PARENT/GUARDIAN AGREEMENT

The above document describing the benefits, risks and procedures for the risk factors for pregnancy among adolescent girls in the KEEA Municipality has been read and explained to me on behalf of my ward. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree for my ward to participate in the study.

.....  
Parent/guardian  .....  
.....  
Witness Date

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

.....  
Principal Investigator Date

**APPENDIX E**

**ASSENT FORM FOR PARTICIPANTS**

**UNIVERSITY OF CAPE COAST**

**COLLEGE OF EDUCATION STUDIES**

**FACULTY OF SCIENCE AND TECHNOLOGY EDUCATION**

**DEPARTMENT OF HEALTH, PHYSICAL EDUCATION AND**

**RECREATION**

**INFORMATION SHEET**

**Title:** Risk factors for pregnancy among adolescent girls in the Komenda-Edina-Eguafo-Abrem Municipality

**Introduction:** I am Bright Opoku Ahinkorah, a 2<sup>nd</sup> year MPhil student of the Department of Health, Physical Education and Recreation

**Address:** University of Cape Coast

College of Education Studies

Department of Health, Physical Education and Recreation

Cape Coast

**Nature of the study:** As part of my academic work, I am conducting a case-control study on ‘Risk Factors for Pregnancy among Adolescent Girls in the Komenda-Edina-Eguafo-Abrem (KEEA) Municipality. The purpose of the study is to examine the risk factors associated with pregnancy among adolescents in the KEEA Municipality. In the 2014 Ghana Demographic and Health Survey Report, the number of adolescents who were pregnant with one child in the Central Region was 7%. Within the Central Region, the Komenda-Edina-Eguafo-Abrem municipality recorded the highest prevalence rate in the



region in 2014 (Ghana Statistical Service (GSS), Ghana Health Service (GHS), & ICF Macro, 2015). Thus, this research would want to examine the risk factors associated with pregnancy among adolescents in the KEEA Municipality. The questionnaire would take about 15-20 minutes to administer. You will be expected to answer questions relating to risk factors associated with adolescent pregnancy.

**Participants' involvement:**

**Duration:** I will like to seek your views on the risk factors for pregnancy among adolescent girls in the KEEA Municipality. The interview process will take approximately 20-35 minutes.

**Potential Risk:** Some of the questions may bring to mind emotions since you may be required to recall some experiences.

**Benefits:** The results of the study will be shared with the participating facility. However, there is no direct financial benefit for your wards for participating in the study.

**Cost:** The interview process will cost approximately 20-35 minutes of the time of your wards.

**Compensation:** There is no financial or material compensation to be given to the participants in the study.

**Confidentiality:** The information you give in this questionnaire will be kept and used later in the study analysis but you are assured that information about you will be protected to the best of our ability. The questionnaires would be locked at a safe place to prevent unauthorized people from having access to the data. You will not be named in any reports.

**Voluntary participation/withdrawal:** Your participation is voluntary and you can withdraw from this research at any point in time you feel uncomfortable with the questions being asked without any consequences.


**Outcome and Feedback:** After the analysis, the data will be kept safe by the principal investigator. The results of the study will be shared with the selected health facilities for the study to be disseminated to participants and the municipality.

**Funding:** The study is entirely an academic work and has no internal or external funding. All expenses regarding the conduct of the study will be beard by the student who is the Principal Investigator.

**Contacts for Additional Information:** You may contact Bright Opoku Ahinkorah, Department of Health, Physical Education and Recreation on 0241804557 or [brightahinkorah@gmail.com](mailto:brightahinkorah@gmail.com). You may also contact my principal supervisor Prof. J. K. Ogah of the Department of Health, Physical Education and Recreation for any clarification on 0243102322. You can also contact Hannah Frimpong on 0243235225, the administrator of the Ethics Committee of Ghana Health Service for further information.

### PARTICIPANTS AGREEMENT

The above document describing the benefits, risks and procedures for the risk factors for pregnancy among adolescent girls in the KEEA Municipality has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate in the study.

.....  
Participant                                            .....                      .....  
Participant                      Witness                      Date

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

.....  
Principal Investigator                      Date