UPTAKE OF MODERN CONTRACEPTIVE METHODS AMONG FEMALE ADOLESCENTS AFTER THE FIRST BIRTH IN KITUI COUNTY, KENYA

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DECLARATION

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This thesis is my original work and has not been presented for a degree in any other University

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DEDICATION

I dedicate my dissertation work to my only and lovely wife, Zipporah Saitoti and my children Salem, Reuel and Nahaliel for their selfless support. To my father In-law who always believed in me and always told me, “Yes, you can”. Also, to Reverend Meshack and Pastor Eunice, who gave me accommodation during my time at Kenyatta University. Indeed, it would not have been easy if you did not support me.

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LIST OF ABBREVIATIONS

AIDS:	Acquired Immunodeficiency syndrome
APHRC:	African population and health research centre
ARH&D:	Adolescent Reproductive Health and Development
HIV:	Human Immunodeficiency Virus
KDHS:	Kenya demographic health survey
KHIS:	Kenya Health Information system
KHIS:	Kenya Health Information Software
MMR:	Maternal Mortality Rate
MOH:	Ministry of Health
NYC:	National Youth Council
PNC:	Post-partum care
RA:	Researcher assistants
UNICEF:	United Nations Children's Fund
WHO:	World Health Organization
WPAY:	World Programme of Action for Youth

DEFINITION OF OPERATIONAL TERMS

Confidentiality	Confidentiality in healthcare refers to the act of safeguarding a patient's medical information and preventing its disclosure to unauthorized individuals or entities without the patient's consent.
Culture	The beliefs, values, and behaviours that are shared within a group, such as a religious group or a nation.
Gender	Social construct that refers to the roles, behaviors, and identities of people.
Health care providers	Individuals who is licensed to provide health care services and include but not limited to Doctors, Nurses, pharmacists,
Immoral	Deliberately violating accepted principles of right and wrong.
Implants	A Small rod-like devices inserted under the woman's skin that release hormones to prevent pregnancy.
Incentives	Incentives are things or fare treatment that motivate or encourage someone to participate in a given activity.
Injectables	An injection of a hormone that a woman gets to prevent pregnancy.
Intrauterine contraceptive device	Small, T-shaped devices inserted into the uterus, are a highly effective and long-acting reversible form of contraception, available in both hormonal and copper type.
Modern contraceptive methods	They are medicines, devices which are used to prevent pregnancy
Myths	A widely held idea or belief that is false or incorrect,

Pills	Contain synthetic hormones that prevent pregnancy.
Private facility	It's a healthcare facility owned and operated by private companies or individuals, offering medical services.
Promiscuous	The practice of women engaging in unrestricted sexual activities with many different partners with understanding that they are protected against pregnancy.
Public facility	Broadly refers to government-funded healthcare centers and hospitals, including those providing primary care, community health services, and possibly specialized treatments at various levels of the healthcare system.
Religion	Encompasses a wide range of cultural systems and belief systems that relate humanity to spirituality and/or moral values, often involving narratives, symbols, and traditions that offer meaning or explanations about life and the universe
Sex	It is a set of biological attributes of a person, being female or male.

ABSTRACT

Adolescence is the transition phase from childhood to adulthood. An adolescent is any person between the ages of 10 -19 years. In the 21st century, the reproductive health problems of adolescents have become one of the most important health care indicators. Globally, the total population of the adolescents is 16% and 55% of the unwanted pregnancies to the adolescents ends in abortion. Africa has the highest number of adolescents (23%). Adolescents in Kenya experience a higher risk of unintended pregnancies than older women. However, modern contraceptive use remains very low. Despite the various efforts by Kenya's national and County Governments and Non-Governmental Organisations to promote abstinence among adolescents, it has not yielded fruits. It is in this view that this study sought to assess the uptake of modern contraceptive methods among adolescents after the first birth attending postnatal care in Kitui County. The main objective was to determine the usage of modern contraceptive methods by adolescent girls after first birth in Kitui County. This study was conducted in Kitui County and employed a cross-sectional descriptive survey design targeting adolescent girls between 10 and 19 years who had given birth in the last six months and attended postnatal care in Kyuso, Tseikuru, Mwingi, Nguni, and Nuu sub county Hospitals. The results showed that the usage of modern contraceptives was generally low (35.2%) however based on the factors influencing the uptake, it was high among the respondents aged 19 years (57.4%) and those with college education qualifications (50.0%). Female adolescents with a college education were 3.55 times more likely to use modern contraception (AOR=3.55; p=.000) than those with primary school qualifications. Moreover, it was observed where the religion and the community embraced and allowed the adolescents to use modern contraceptives were 2.25 times (AOR=2.35, p=.000) and 2.23 times (AOR=2.23, p=.000) more likely to use the contraceptives respectively. Again, it was noted where contraceptives services were offered in 24/7, the adolescents had a high chance of 2.83 times to use the methods (AOR=2.83, p=.000). The results revealed that age, education, marital status, religion, knowledge, social media platforms, community myths and beliefs, and healthcare facility-related factors were determinants of modern contraceptives uptake among the adolescents. The study advocate for increasing usage of modern contraceptive to female adolescents in Kitui County is a multi-faceted problem that will require concerted efforts by all key stakeholders to provide wide interventions. Such stakeholders include the community, parents, guardians, peers, school teachers and tutors, religious leaders, healthcare practitioners, and policymakers.

CHAPTER ONE: INTRODUCTION

1.1 Background

Adolescent is a young person aged 10 – 19 years who is experiencing both physical and developmental changes (WHO, 2018). It is the transition phase from childhood to adulthood. Globally, the adolescents make 16% of the total population (WHO 2018). The highest percentage of the adolescents (80%) live in countries which are developing (UNICEF, 2015). Adolescent reproductive health issue is one of the twenty-first century's most important health care indicators (WPAY, 2018). The reason being globally a big number of adolescents (21 million) give birth every year, in addition, a significant number (55%) have procured abortion (WHO, 2019). In 2013 an estimated 1.3 million deaths occurred worldwide between 10 to 19 years due to pregnancy-related causes (WHO 2019). Adolescent marriage is a serious violation of human rights, although there are many factors which fuel such practices, such as poor state of the family, religious practices which permit such practices, search for protection, community myths and sense of entitlement for respect, cultural law which support such practices and inadequate legislative frameworks (UNICEF, 2019).

Adolescent make a significant population in Africa, of the total population, they account for 23% (UNICEF, 2019). For adolescents who have begun child bearing, the greatest proportion are found in Sub- Saharan (UNICEF, 2017). Adolescents' reproductive health, over a long time has remained a grey area for ethical and church practice issues in many areas of sub-Saharan Africa (Wado et al., 2019). Sully and Mumah (2019) revealed that there was low uptake of contraceptives in sub-Saharan Africa, yet recorded most of unplanned pregnancies among adolescent girls.

In Kenya Adolescents face a higher danger of unplanned pregnancies than adults. However, usage of modern contraception methods lingers very low. Despite the various efforts by Kenya's National and County Governments and non-Governmental Organisations to promote abstinence among adolescents in Kenya, the impact of unsafe sex has continued to be felt in the country. It has been found that at 16 years, 14% of the adolescent girls in Kenyan slums already had experienced sexual intercourse (APHRC, 2016). While this truth remains, in Kenya, sex education is limited in our schools, also there is low or no modern contraception services directed to the adolescents which has resulted to high adolescents' pregnancies in Kenya (Ministry of Health [MOH], 2017).

Adolescent pregnancy is one of the causes to maternal and child mortality leading to intergenerational series of poor health (WHO, 2018). Muhammad et al. (2019) found that adolescents face a high risk of Eclampsia, puerperal endometritis, and breast conditions due to physiological and psychological prematurity. Again the adolescents are at high risk of maternal complications like obstructed labour, fistulas, low-birth-weight and premature births due to their physical and mental prematurity women (Maravilla et al., 2019). Besides death, adolescents who procure unsafe abortions are prone to experience post abortal complications like post-abortion sepsis, hypertension, haemorrhage, amniotic fluid embolism, and infertility (Bridwell et al., 2022)

Sex education is viewed as though it encourages the adolescents to engage in sexual activities by the Parents and educators. But studies have shown sex education does not seduce the adolescents into sexual activities (Engel et el., 2019). For example, in Kitui county, of adolescent girls who are active sexually, only 9.3% use contraceptives

predisposing them to unintended pregnancies (Kenya Demographic and Health Survey [KDHS], 2022).

1.2 Problem Statement

Worldwide, adolescent births are estimated to be 14.3 million, with 2.5 million girls procuring unsafe abortion every year (WHO, 2018). Generally, adolescents encounter barriers and discrimination while seeking for reproductive health services leading to low modern contraceptives utilization globally, this predisposes them to an unintended conception and the likelihood of unsafe termination of pregnancies (Lichter et al., 2019). In Kenya, the same is seen where one fifth of the adolescents have never escaped pregnancy (Khan & Mishra, 2016). Therefore, to reduce the preventable maternal deaths remains one of the major challenges. To Embrace and Promote maternal well-being, efforts to increase adolescents' access to and utilisation of contraceptives should be advocated.

By the end of 15 years the highest number of adolescents already had their first sexual experience (KDHS, 2022). Although most of them would like to avoid pregnancy, but are not using any contraceptive method predisposing all to unplanned pregnancies and sexually transmitted infections. The population council (2021) revealed that the number of adolescent girls getting pregnant was more in rural than in urban areas, 30% and 28% respectively. proportion of adolescent girls reporting experiencing unintended pregnancy was higher in remote areas than in towns, 30% and 28%, respectively.

Contraceptive prevalence rate for any contraceptive methods has remained very low at 23% among young girls (15 -19) years who are unmarried in Kenya. The KDHS (2022) reports the current prevalence rate of contraceptive in Kenya for both married and unmarried adolescents is 62%. In Kitui County, the adolescents aged 15-19, only 36.9%

use contraceptives which is lower than the national level (62%). Therefore, the gap for contraceptives use currently among the married adolescents in Kitui is above the national level. Now, the married young girls aged 15-19, 34% are not planning to conceive but are not taking measures to prevent pregnancy compared to 23% at the national level (KDHS, 2022). Consequently, it is logical that after the first pregnancy, an adolescent will start taking contraceptives to prevent future pregnancies; 37% to 64% of adolescent mothers will conceive again within 18 – 24 months after the first birth in Kitui County (Muhammad et al., 2019).

1.3 Purpose of the Study

The study wanted to analyse the factors affecting modern contraceptive use and the utilisation level of contraceptives among adolescents who have had their first delivery in Kitui county Kenya. Nzomo, the chairman of the National Youth Council (NYC, 2018), noted that Kitui County registered the highest number of adolescent pregnancies at 14% in 2018. Consequently, the contraceptive uptake in Kitui County, especially in remote rural areas, is still very low. As a result, the unmet need for adolescent contraceptive rate is higher at 19% compared to the nation at 14% (KDHS, 2022). Furthermore, the number of adolescents getting another pregnancy shortly after the first birth is increasing daily. Now nearly half of the adolescent mothers attending postnatal clinics have more than one child, and intervention should be sought to better the livelihood of the adolescents in Kitui County (AphiaHalis Non-KHIS Reporting Tool, 2019).

1.4 Research Question

1. What are the social demographic factors affecting the uptake of contraceptives among the adolescents attending PNC after first birth in Kitui County?
2. What is the level of knowledge on contraceptives among the adolescent girls attending PNC after first birth in Kitui County?
3. What social-cultural factors influence the uptake of contraceptives among adolescents attending PNC after first birth in Kitui County?
4. What are the health care system factors affecting the uptake of contraceptives among adolescents attending PNC after first birth in Kitui County?

1.5 Research Objectives

1.5.1 Broad Objectives

To determine the uptake of modern contraceptives among adolescent girls after first birth in Kitui County.

1.5.2 Specific Objectives

1. To assess the sociodemographic factors affecting the uptake of modern contraceptives among the adolescents attending PNC after first birth in Kitui County.
2. To establish the level of knowledge on modern contraceptives among the adolescent girls attending PNC after first birth in Kitui County.
3. To investigate the socio-cultural factors that influence the uptake of modern contraceptives among the adolescents attending PNC after first birth in Kitui County.

4. To establish the health care system factors affecting the uptake of modern contraceptives among the adolescents attending PNC after first birth in Kitui County.

1.6 Delimitations of the Study

The study wanted to investigate the influence of only four factors comprising socio-demographic factors, level of knowledge, socio- cultural factors, and health care-related factors on the uptake of modern contraceptives among female adolescents visiting post-natal care clinics after first birth in Kitui County. The data was collected using questionnaires to collect quantitative data from the participants.

1.7 Limitations of the Study

The study was limited to female adolescents visiting post-natal care clinics after the first birth in Kitui County, thus limiting the generalizability of the results to other populations in the region and beyond. Consequently, caution should be exercised when generalizing the results. In addition, this study was prone to self-reporting bias as data were gathered using structured questionnaires. However, to counter this limitation, questions were reworded for clarity to boost understanding of the required responses, making it easy for the respondents to answer. Moreover, given the nature of the topic, this study was limited by non-response bias as potential respondents were reluctant to provide information. Nonetheless, the researcher and hospital nurses ensured the respondents' confidentiality of the data the questionnaire intended to collect and assured them of privacy, thus reducing the likelihood of non-response bias.

1.8 Conceptual Framework

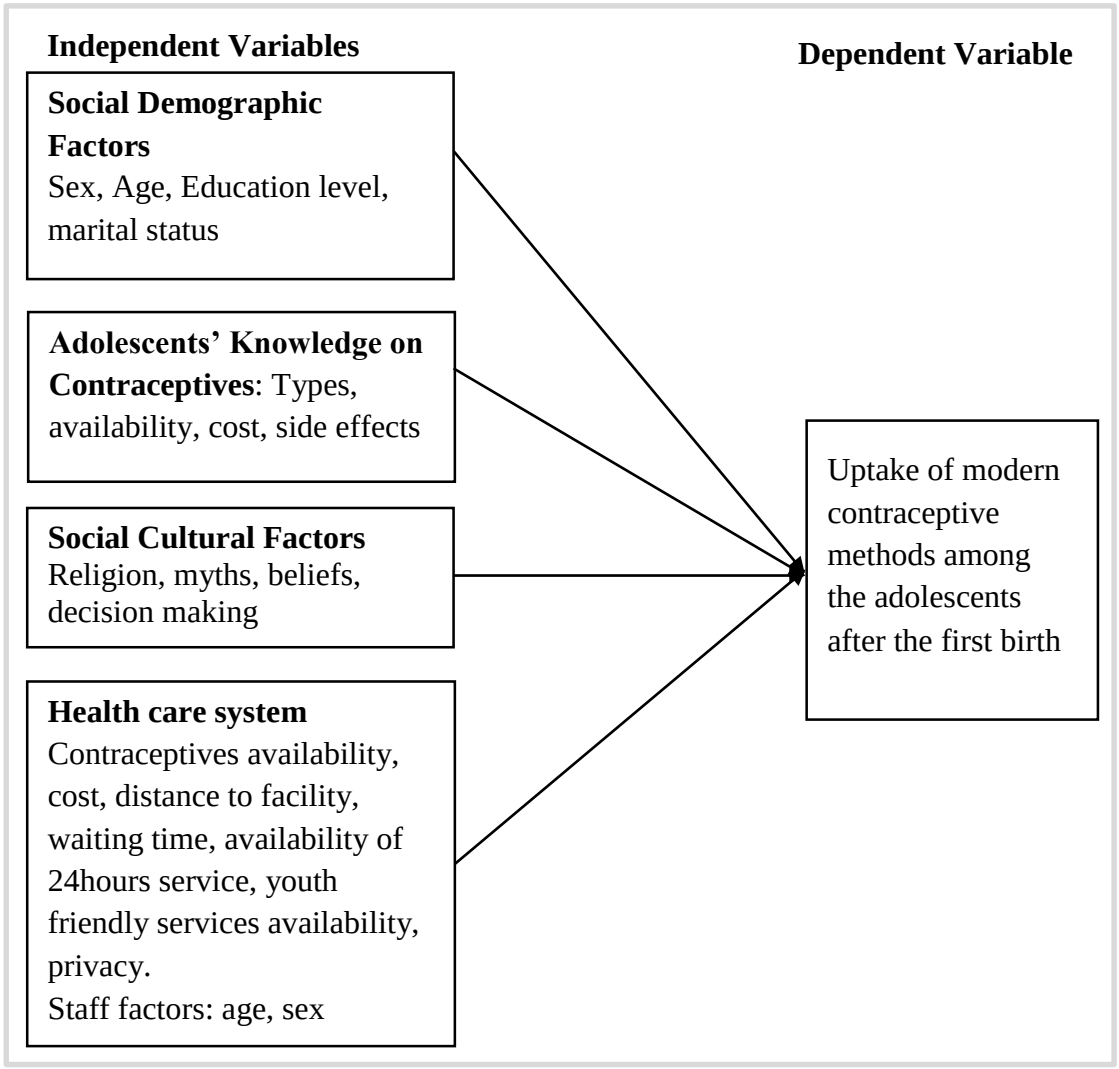

Figure 1.1: Conceptual Framework

Adopted from**: Ajzen & Fishbein, 1980**

1.9 Significance of the Study

Most of the research on this age group focused on risky behaviours and sexual activities. However, little has been done on contraceptive use after the first birth among adolescents in Kenya (Hardy et al., 2019). Therefore, the findings of this study may enlighten the level of contraceptive use, facilitators, and limitations to contraceptive use among adolescents. Indeed, most adolescents report back to the health facilities with the second pregnancy shortly following the first birth seeking to procure an

abortion or even with post-abortive complications (MOH 405 registers). Additionally, the findings of this study may bridge the gap by informing the policies, guidelines, and practices regarding adolescent sexual and reproductive health. Furthermore, the results of this study may be shared with parents, legislators, leaders in different settings, and the adolescents of Kitui County.

CHAPTER TWO: LITERATURE REVIEW

2.1 Prevalence of contraceptive use among adolescents

Adolescent contraceptive use is one of the most important issue of the twenty-first century. The reason is because around the world, above 16 million adolescent ladies conceive consistently, a huge number (5million) of them have terminated the pregnancy (WHO, 2019). Notably half of these births take place in Sub-Saharan Africa. Over 60% of young girls (15-19) years in sub-Saharan Africa and Asia, who wish to keep away from pregnancy have a neglected requirement for family planning method. Young girls (10-19) years who don't utilise contraception or depend rather on a conventional technique for family arranging record highest number (above 80%) of unplanned pregnancies. Thus, requirement for exceptionally customised young girls (10-19) years reproductive health and regenerative well-being administrations has gotten additional squeezing (Boku et al., 2024)

In Kenya, 13,000 adolescent young ladies abandon school each year due to an impromptu pregnancy. Furthermore, adolescents' spontaneous pregnancies bring about risky abortion which can lead to serious conditions like anaemia, sepsis and even death (Habib et al., 2019). Therefore, modern contraceptive methods have been prioritised as a good approach for achieving good health, promoting the well-being of individuals of all ages, and realising gender equality and empowerment for all adolescent girls by 2030 (Coll et al., 2019).

However, achieving the above SDG goals is least unlikely with the current trends in the low uptake of contraceptives among the adolescents in Kenya. A huge gap still exists in the utilisation of contraceptives among adolescents, as seen from the statistics that

approximately 16 million of them aged 15-19 years give birth annually, with unintended pregnancies forming a majority of the statistics (Coll et al., 2019). Consequently, it translates into the need for research on its associated factors at the local level to inform the strategies needed to improve modern contraceptive methods use among adolescents in the country.

2.2 Knowledge Level on modern contraceptive methods among the adolescents

Knowledge is a key determinant of the modern contraceptive's uptake by adolescents. Concerning modern contraceptive use, knowledge is defined as the state of one's awareness about the methods of contraceptives, specific types available, side effects and their sources (Kirubarajan et al., 2022).

It is assumed that one's knowledge about a modern contraceptive method logically precedes its use, hence, the need for its determination among women of reproductive age (Sserwanja et al., 2022). As a result, it is recommended that improving the level of knowledge among adolescents on modern contraceptives and their related services with a focus on their empowerment will result in better uptake of modern contraceptives (Subedi et al., 2018).

Numerous studies have examined how the knowledge level influences modern contraceptives uptake among the young girls. A majority of these studies demonstrate that the level of knowledge among adolescents on modern contraceptives is significantly high (Subedi et al., 2018; Okpokumoku et al., 2018; Habib et al., 2017; Beson, 2018; Agyemang et al., 2019). However, their level of knowledge does not translate to using modern contraceptive methods. For example, Chimah et al. (2016) found that while the level of knowledge among 400 adolescents was 67.5%, modern contraceptive use and timing were poor. The National institute of health (NIH)(.gov)

2022, found that while greater knowledge generally correlates with a higher likelihood of contraceptive use, this relationship isn't always linear or strong. Okpokumoku et al. (2018) also found that of the 1155 secondary school students who participated in a study in Nigeria, 85% reported being non-users of any modern method of contraception. Furthermore, Habib et al. (2017) found that despite 89.9% of the research respondents in their study being knowledgeable about modern contraceptive methods, their use was significantly low. This can be seen from the conclusions of their study, 19% of the adolescent girls used condoms, injections (9.7%), pills (9.6%), IUCDs (2.9%), and 2.5% implants for pregnancy prevention. Despite knowledge of modern contraceptives among the adolescents being a major factor on their usage, marital status, age and community beliefs plays an important role.

Studies conducted in the past also show closely related trends in the type of modern contraceptive method adolescents know. A majority of them show that adolescents are well aware of the use of condoms for pregnancy prevention (Chimah et al., 2016; Yidana et al., 2015; Habib et al., 2017; Beson et al., 2018; Agyemang et al., 2019). For example, Moyo and Rusinga (2017) found that 84% of the study participants were aware of condoms, 11% of pills, 2% of implants, and 3% injectables. Nsubuga et al. (2018) found closely related findings where 88.4% of the participants were aware of condoms, pills 86.7%, injectables 50.3%, implants 26.7%, and intrauterine devices 35%. However, results reported by Habib et al. (2017) differ from those of the above authors, where 96.2% of the study participants were aware of pills, 88.3% of condoms, 94.6% of injectables, IUCDs, 83.5% of bilateral tubal ligation (60.9%), vasectomy (15.1%), and implants 73.5%.

Knowledge of modern contraceptive methods among adolescents depends on several factors. Subedi et al. (2018) discovered that adolescents do not possess an adequate or comprehensive understanding of efficacy, source, reactions, use, and if the modern contraceptive methods were available in their localities. The insufficiency of knowledge translates into poor practice regarding modern contraceptive use among them. The media in which adolescents receive information about contraceptives also determine their level of expertise. Subedi et al. (2018) assert that most adolescents obtain information from the media that target the general population, peers, and other informal sources. These sources make the information unreliable, hence, the low uptake of modern contraceptives among them.

The adolescents' perception, as well as attitude, also determines their utilisation of methods of modern contraceptives (Subedi et al., 2018; Beson et al., 2018; Agyemang et al., 2019). For example, Agyemang et al. (2019) found that 33.0% of the study participants did not use any modern contraceptive method because they believed it promoted promiscuity. They also perceived them to be associated with health risks (70%), embarrassment (47.0%), and responsibility of women (39.0%). The feeling of modern contraceptives being embarrassing, failure of partner approval, and phobia for the effects of the modern contraceptives can also be seen in a study Subedi et al., (2018). In some cases, it becomes difficult for adolescents to discuss issues related to modern contraceptive use due to fear, perceiving them as not for the poor in society and respecting their traditional norms, considering it wrong to use them (Jalinga et al., 2023). Preconceived attitudes towards contraceptive use among adolescents can also be seen in research by Moyo and Rusinga (2017), where adolescents did not use condoms as they perceived them as emasculate and could not enjoy the natural feeling of sex. Condoms have small holes, which allow the passage of HIV and STIs. Therefore, a

negative attitude or perception toward modern contraceptives is associated with their non-use (Beson et al., 2018).

2.3 Sociodemographic factors affecting uptake of modern contraceptive methods among adolescents

2.3.1 Age

Age is one of the sociodemographic factors that influence the uptake of modern contraceptives among adolescents. It is a major variable in determining the uptake of modern contraceptive methods since reproductive matters begin from age 15 to 49 years. In addition, age is a criterion when determining a suitable modern contraceptive method (Nakirijja et al., 2018). The effect of age on the uptake of modern contraceptive methods has been established in research. For example, Nakirijja et al. (2018) reported a higher likelihood of older women utilising modern contraceptive methods than adolescents.

In addition, age also determines the sexual encounters of adolescents, as a majority of them engage in sexual intercourse between the ages of 15 and 19. As a result, there is an increased need to use different family planning methods among them (Nakirijja et al., 2018; Wirsiy & Yeika, 2019; Solanke, 2017). However, Wiley (2022) found contrasting evidence in his research, as there was no significant association between participants' age with the use of modern contraceptives. Therefore, this study sought to explore whether age determines adolescents' uptake of modern contraceptive methods after their first pregnancy.

2.3.2 Level of Education

Education among adolescents is also a major determinant of modern contraceptives uptake. The level of education in adolescents is highly correlated with the increased use modern of contraceptives, as they can make healthy choices during child birth (Maness et al.; 2022). In addition, Olika et al.; (2021) showed that the use of modern contraceptives was higher in participants with primary (18.3%) and secondary education (24.3.2%) when compared to those without formal education (3.6%). Furthermore, their partner's education level positively predicts an adolescent using modern contraceptive methods (Thompson et al.; 2023). However, the negative relationship between education and non-use of modern contraceptives has been documented in other studies, including Solanke (2017), Alemayehu et al. (2018), Obwoya et al. (2018), Ontiri et al. (2019), Nyewie (2019), and Blackstone et al. (2017).

Furthermore, the effect of education also extends to those with HIV/AIDS. Blackston et al. (2017) found that HIV-positive women and adolescents were least likely to bear children and use modern contraceptives to prevent pregnancy, as they did not want to infect their children. This was contrary to those with low education, as they had children irrespective of their HIV status. The uptake of modern contraceptives increases with one's level of education. Adolescents with tertiary education were highly likely to utilise modern contraceptive methods (30.2%) compared to those with primary or no education (Ontiri et al., 2019).

2.3.3 Parity

Parity also determines the uptake of modern contraceptives among adolescents. Adolescents with more children are highly likely to use modern contraceptives compared to those with less than one child (Alemayehu et al., 2018). The effect of parity

is also seen in the studies by Apanga and Adam (2015) and Obwoya et al. (2018), which strongly predict the lifetime use of modern contraceptive methods.

2.3.4 Marital Status

Whether an adolescent is married or not also determines the uptake of modern contraceptives. The prevalence of modern contraceptive use is mostly higher in married adolescents than in those not married. This is attributed to the perception that contraceptives are used for child spacing purposes and limiting the number of children. The decreased use of modern contraceptives among adolescents is attributed to societal norms that do not allow modern contraceptive use and disapproval from the parents, as it increases the risk of early sexual activity (Obwoya et al., 2018). The nature of the marital relationship also influences the uptake of modern contraceptives. Blackstone et al. (2017) found a positive association among the marital gratification and modern contraceptive use. This relationship is attributed to the perception that having more children stabilises marriages and prevents infidelity (Blackstone et al., 2017). However, Apanga and Adam (2019) found that marital status did not have any statistical significance on the use of modern contraceptives.

2.4 Socio-cultural Factors Influencing the Uptake of Modern Contraceptive Methods among Adolescents

Socio-cultural factors also influence the uptake of modern contraceptive methods by adolescents. One is community-level influences, as Mutumba et al. (2018) examined. According to Mutumba et al. (2018), there is a high likelihood of contraceptive use among adolescents in societies where the adolescents have greater autonomy in household decision-making, have higher educational attainment, and live in healthier communities. Social networks within the community level also influence the uptake of

modern contraceptive methods among adolescents. Blackstone et al. (2017) assert that social networks promote the acceptability of modern contraceptives use in communities. An example is given of Ghana, where men's social network was used to encourage contraceptive uptake among their married adolescents

2.4.1 Beliefs and Myths

Despite a modest decline in the last 10 years still more than 35% of young girls in Eastern and Southern Africa are married before their 18th birthday, Young women face very strong pressure to bear children soon after marriage to prove their fertility potential (Lemessa et al 2023). The societal belief on family size also influences the uptake of modern contraceptive methods among adolescents. In some communities, having many children shows respect and insurance from high mortality among children (Warwick et al., 2023). The outcome is poor uptake of modern contraceptives among adolescents.

Woods (2019) found that most adolescents' fears and worries about family arranging were significant barriers to utilising modern contraceptives. A large number of their feelings of dread depended on fantasies and misinterpretations. The biggest concern referred to by members was dread that a specific strategy would render them fruitless; as a rule, this kept them from utilising modern contraceptive methods.

A study by CSA Kenya (2019) revealed that adolescents face many myths and misconceptions about modern contraceptives. These myths and misconceptions are cultivated by adolescents seeking knowledge from sources that do not give informed information. Many adolescents turn to their peers and the internet or rely on hearsay to get information about modern contraceptives. For example, most believe that IUDs travel to the heart, which is not true. In contrast, others thought using certain modern contraceptive methods, especially pills, lead to cancer and birth deformities.

2.4.2 Religion

Religion is another socio-cultural aspect that affects the uptake of modern contraceptives among adolescents (Tamang et al., 2017). In most African settings, modern contraceptive methods are based on religious doctrines. Religious beliefs shape people's knowledge and behaviour regarding reproductive health. For instance, women from the catholic faith quote Genesis where the word of God instructs humans to multiply and fill the earth (Nakirijja et al., 2018). Such religious belief implies that the use of modern contraceptive methods is significantly reduced. The effect of religious beliefs can be seen in the study by Tigabu et al. (2018), where modern contraceptives were not utilised in Ethiopia despite being available at healthcare facilities. The low use was attributed to the influence of religion, where adolescents were not allowed to use modern contraceptives. The effect of religion implies that religious leaders should be used to spread information on modern contraceptive use as they have a strong influence on religious followers than the healthcare systems do (Adedini et al., 2018).

2.5 Healthcare System Factors Affecting the Uptake of Modern Contraceptive Methods among Adolescents

The healthcare system is the main source of different modern contraceptives methods. As a result, health systems influence how adolescents utilise modern contraceptive methods. One of the ways it affects is by acting as a source of information for adolescents (Mardi et al., 2018). Seekers of contraceptives in healthcare institutions require adequate information, time, attention, and educational resources to aid decision-making. However, as seen in the research by Mardi et al. (2018), a lack of these requisites due to overcrowding resulted in dissatisfaction with the quality of modern contraceptives and time at healthcare centres, hence, poor uptake of modern

contraceptives among adolescents. Swamy et al. (2017) share closely related findings in their research where the health care providers gave negative responses to the adolescents seeking modern contraceptive methods. Additionally, where there was low male involvement in decision making on modern contraceptives influenced the uptake negatively.

The availability of healthcare centres offering modern contraceptive services also influences the uptake of these services. This is attributed to factors such as adolescents' easy accessibility to services whenever they are in need (Blackstone et al., 2017). Due to this, living in towns has been associated with the higher use of modern contraceptive methods among adolescents in relation to those living in remote areas. This could be due to the proximity to the healthcare institutions offering modern contraceptive services (Babazadeh et al.; 2021). Blackstone et al. (2017) also identify that the availability of different modern contraceptive methods influences adolescents' utilisation. The increased availability allows them to make informed choices, hence, the enhanced Utilisation.

The cost of modern contraceptive methods also hinders most adolescents from utilising them. Generally, most governments have subsidised the cost of contraceptives to increase affordability and usability. However, some adolescents might still be unable to afford them, as some, such as intrauterine contraceptive devices, might be expensive (Farah et al.; 2022). There is also the effect of patient-provider interaction, which affects adolescents' uptake of modern contraceptives. Limited healthcare provider skills in establishing patient-care provider relationships affect the uptake negatively. The exchange is further affected by factors such as the lack of enough modern

contraceptive methods and educational tools for the patients and healthcare providers (Blackstone et al., 2017).

CHAPTER THREE: MATERIALS AND METHODS

3.1 Introduction

This chapter is about the research methodology and design. It comprises the study design, the instruments, data collection and analysis and the ethical aspects of the research.

3.2 The Design of the study

The study employed analytical cross-sectional survey to collect data from respondents. This research design was appropriate for this study because it allowed data to be collected from the respondents at a single point in time efficiently and cost-effectively (Kothari, 2012).

3.3 The Study Variables

3.3.1 The Dependent Variable

The dependent variable of this study was the uptake of modern contraceptive methods among the adolescents after their first birth in Kitui County

3.3.2 The Independent Variables

The explanatory variables in this study were social demographic factors such as age, parity, education level, marital status, economic status; the adolescents' knowledge of modern contraceptive types, side effects, cost and availability of the modern contraceptive, and their influence on the uptake among the adolescents after the first child birth. Other explanatory variables included social-cultural factors such as religion, beliefs, myths, and decision-making and how these influence the uptake of modern contraceptives among adolescents after the first birth, and health care system factors

such as privacy, cost of accessing modern contraceptives, availability of adolescent-cantered care, and distance to the facility.

3.4 Study Area

This study was conducted in Kitui County. The county is perhaps the biggest region in the nation, with an area of about 30,496 Km^2. Kitui County is in the previous Eastern Province of Kenya, about 170 km East of Nairobi. It fringes seven districts; Tharaka and Meru toward the North, Embu toward the Northwest, Machakos, and Makueni toward the West, Tana River toward the East and Southeast, TaitaTaveta to the South, and is largely semi-arid. Since the rains are almost always inadequate, the main source of income is livestock keeping.

In addition, according to the Kenya National Bureau of Statistics (KNBS, 2019) census report, the population stands at 1,136,187 with 549003 males, which translates to 48.3%, and 587151 females, translating to 51.7%. The adolescents (15-19) who got pregnant in the financial year 2018/2019 were 9872, while 4860 used contraceptive methods (KHIS, 2019). The county's population is served by one (1) County hospital, eleven (11) sub-county hospitals, two (2) mission hospitals, three (3) private hospitals, 24 health Centres and 220 dispensaries.

Moreover, Kitui County is implementing universal health coverage with an insurance cover (KCHIC), where every family pays Ksh.1000 per year. Consequently, the community can access all healthcare services in the public health facilities, county-contracted private and mission hospitals. This study is undertaken in Kitui county, Mwingi North, and Mwingi central sub-county hospitals (Kyuso, Tseikuru, Mwingi, Nguni, and Nuu).

3.5 Study Population

The study population in this study was adolescent girls aged (10 – 19) who had their first birth in the last six months and attending postnatal clinics in Kyuso, Tseikuru, Mwingi, Nguni, and Nuu sub county Hospitals at the time of the survey.

3.6 Inclusion Criteria and Exclusion Criteria

3.6.1 Inclusion Criteria

All the adolescents aged (10 -19), who had given birth in the last six months and attended the postnatal care in Kyuso, Tseikuru, Mwingi, Nguni, and Nuu Sub County hospitals.

3.6.2 Exclusion Criteria

All the adolescents aged (10-19) who had given birth in the last six months and their babies died and were attending the postnatal care in the said health facilities were not considered in this study. The mothers whose babies died did not continue with the young mothers' clubs, but were referred for counselling and psychological support. This is the reason why were excluded from the study.

3.7 Sampling Technique and Sample Size

3.7.1 Sampling Technique

Kitui County is divided into Kitui and Mwingi sub-counties. Six Sub- County hospitals are implementing the young mother's clubs in Mwingi sub-counties. The facilities established clubs to be meeting all the pregnant adolescents in groups to attend to their unique needs because some were students. The aim of the young mothers' clubs was to walk the pregnancy journey with them and final after delivery link them back to school. This study used a purposive sampling technique to select five (5) sub-county hospitals

for inclusion into the study population. The facilities young (Adolescent) mothers clubs had different number of young(adolescent) mothers as shown below which was the basis for sample size determination. Kyuso 253, Tseikuru 198, Mwingi 247, Nguni136, and Nuu 123The total number young (adolescent) mothers served in the facilities were 957 mothers (Afyia Halisi Non DHIS Repporting tool, 2019). During data collection, sampling the clients to be interviewed we used simple random sampling method. We used this method to avoid biasness and allowed each adolescent equal chance to be selected for the survey. The facilities used hold the young mothers club meeting once a week, therefore the interviews took three months to be completed. The schedule for the interviews was guided by the individual facility schedule.

3.7.2 Sample Size Determination

Fisher *et al.* (1999) formula was used to determine the sample size.

$$n_0 = \frac{Z^2\, pq}{e^2}$$

Where:

- *n*-desired minimum number of subjects
- *z*-normal standard deviation (equal to 1.96) matching with a 95% level confidence
- *p*-estimated percentage of the population with the preferred features (9.3%, KDHS, 2014)
- *q*-proportion of the population without the preferred features (1 - 0.093 = 0.907)
- *e*-precision level (equal to 0.05).

Consequently,

$$n_0 = \frac{1.96^2\, x\, 0.093(0.907)}{(0.05)^2} = 130$$

Since the adolescents attending PNC in the said facilities are approximately less than 10,000, the sample size adjustment formula was used to correct the sample size (Mugenda & Mugenda, 2008).

$$nf = \frac{130}{1 + \frac{(130 - 1)}{957}} = 115$$

Thus, the sample size was 115. However, 10% (n = 12) of the subjects was considered then included to the total number of subjects to cater for non-response bias (Fisher et al., 1999), yielding a total sample size of 127 (Table 3.1).

Table 3.1: Population Targeted

Hospital	Study Population	Number of subjects
Kyuso	253	34
Tseikuru	198	26
Mwingi	247	32
Nguni	136	18
Nuu	123	17
Total	**957**	**127**

3.8 Data Collection Instruments

The data were collected using structured questionnaires adapted using validated instruments used to examine the utilisation of modern contraceptives in previous studies with comparable aims. The structured questionnaire was designed to have four sections, namely; A (sociodemographic factors), B (knowledge of contraceptives), C (socio-cultural issues), and D (healthcare facility factors).

3.9 Pre-test of Data Collection Tools

A pre-test to examine the variability and reliability and refine the questionnaire was done, also to assess ability of the researcher assistant to use the questionnaire for data collection. The pre-test sample size was 10% of the study sample size, which translated

to 13 respondents, as Mugenda and Mugenda (2003) recommended. The purpose of the pre-test was to detect misunderstandings, ambiguities, or other difficulties participants may encounter with the instrument while collecting the data. The pretesting was conducted in Migwani Sub County hospital because the health facility shares similar characteristics to those considered in this study. In addition, the hospital is located in Mwingi west Sub County bordering Mwingi North and Mwingi central sub-counties. From the pilot study, the questionnaires did not require major adjustments or correction only minor grammatical corrections which was done before the data collection exercise begun.

3.9.1 Validity

It is the integrity of a test to accurately measure what it is intended to measure and subsequently allows suitable translation of the scores. Thus, a technique to measure the accuracy of the questionnaire was used, which was assured through supervisors' expert reviews and professional judgment of the adequacy, suitability, and measurement of the variables used in the questionnaires. The questions were defined and appropriate measurement tools used, construct validity was ensured and the questionnaire accurately capture the intended concepts. To minimize bias, good sampling technique was employed, and the research question and objectives were well designed to capture accurate data. The collected data was cleaned, verified and statistical analysis done to test the findings.

3.9.2 reliability

It refers extend to which measurement tool or procedure gives the same outcome on repeated trials. The reliability of the questionnaire was important in eliminating common errors. The test-retest consistency of the results was used to estimate how

reliable the structured questionnaire was. It was accomplished during pretesting and involved conducting the survey with a group of respondents and repeating the same survey with the same group. The time lag between the two surveys was two months. To ascertain the reliability of the structured questionnaire, cross-tabulation analysis was performed to reveal the percentage of agreement among the first test and the retest results.

3.10 Technique of Data Collection

Collection of data was achieved by use of a questionnaire during postnatal clinic. Before data collection, two female nurses with a minimum diploma qualification were enrolled as research assistants. The principal researcher took through the research assistants on how to administer the questionnaires while highlighting the importance of observing the confidentiality and privacy of the data collected. The questionnaires were administered to respondents during postnatal clinic visits. The structured questionnaire was written in English. However, for any issues or questions the respondents had, were addressed by the researcher and the trained assistant who were available in the clinic. During data collection, each respondent was requested to read and provide informed consent to participate in the study by signing the informed consent form. Once the respondents accepted to participate in the study, they were issued the questionnaires to fill out. Consequently, the participants were supposed to complete and submit the questionnaires—an exercise that each respondent took 10 minutes to complete. Submitted questionnaires were sealed in an envelope awaiting data analysis.

3.11 Data Management and Analysis

3.11.1 Data Management

The gathered questionnaires were examined for completeness. Consequently, data was coded, cleaned and analysed using Statistical Package for Social Sciences (SPSS, v.28)

3.11.2 Data Analysis

The quantitative data were analyzed using descriptive and inferential statistics. Descriptive analyses were conducted using frequency and percentages the summarize the dependent and independent variables. Binary logistical regression and multivariable logistic regression analyses were done to describe the relationship between outcome and explanatory variables and examine the predictors of using modern contraception by the respondents. The crude odds ratio (COR) and adjusted odds ratio (AOR) were used for gauging associations between independent and dependent variables. The CORs expressed the association between one independent variable and the dependent variable. At the same time, AORs involved entering multiple independent variables in one logistic model to examine the association between each and the dependent variable, holding other independent variables constant. Statistical significance was alluded to at a 5% significant level. The results were presented in tables, bar graphs and pie chart.

3.12 Ethical Considerations

3.12.1 Research Ethics Committee Approval

Ethical approval was acquired from Kenyatta University Research Ethics Committee before the process of data collection. In addition, authority to conduct the research in Kitui County was obtained from the National Commission for Science, Technology, and Innovation (NACOSTI) and the County Director of Health, Kitui County.

3.12.2 Consent for the questionnaire

The respondents were notified about their voluntary participation in the research before data collection. They were also notified of their right to refuse to participate or to terminate the process without any consequences. Each participant gave informed consent before administration of the questionnaire by signing informed consent forms. Furthermore, participants were exempted from writing identification on the questionnaire to ensure that information kept confidential. To ensure confidentiality is maintained, the data collected was stored in lockable cabinet and was only accessible to the principal researcher.

3.12.3 Consent from Adolescents below 18 years

The current policy dictates that children under 18 require parental or guardian consent before accessing contraceptives. Although this infringes the rights of confidentiality for the minors, the policy and the law need to be realigned that reproductive health services can be offered to the sexually active adolescents without discrimination.

Parental or guardian consent and the adolescent assent for adolescents below 18 years is required to participate in research. During the study, consent for the minors to participate in this study was obtained from parents/guardians, then the minors gave assent.

CHAPTER FOUR: RESULTS

4.1 Introduction

The collected data from female adolescents attending postnatal clinic is analysed, the findings interpreted and presented in simple ways which easily can be understood. First the results of the prevalence of the adolescent's contraceptive use among the adolescents attending postnatal clinics in Kitui county.

This is followed by a presentation of the results aligned with the specific objectives of this study which were to; a) assess the sociodemographic factors affecting modern contraceptive use, b) establish the knowledge factors affecting the use of modern contraceptives, c) identify the socio-cultural factors influencing the use of modern contraceptives, and d) establish the healthcare-system factors affecting the uptake of modern contraceptives.

4.2 Usage of Modern Contraception

The usage of modern contraception among female adolescents considered in this study was 35.2% (Table 4.1).

Table 4.1: Usage of Modern Contraception

Category	**Frequency (*n*)**	**Percentage (%)**
Non-usage	81	64.8
Usage	44	35.2

Note. $n = 125$

4.3 Sociodemographic Characteristics

4.3.1 Age Profile

The mean age of female adolescents visiting the postnatal clinic after delivery was 18.09 ±0.813 years and ranged between 17 and 19 years. The majority (37.6%) of

respondents were 19 years, followed by those aged 18 and 17, accounting for 33.6% and 28.8%, respectively.

4.3.2 Level of Education

Regarding the level of respondents' education, most (54.4%) were holders of primary education qualifications, followed by those with secondary education (40.8%). The respondents with a college education accounted for 4.8% (Figure 4.1).

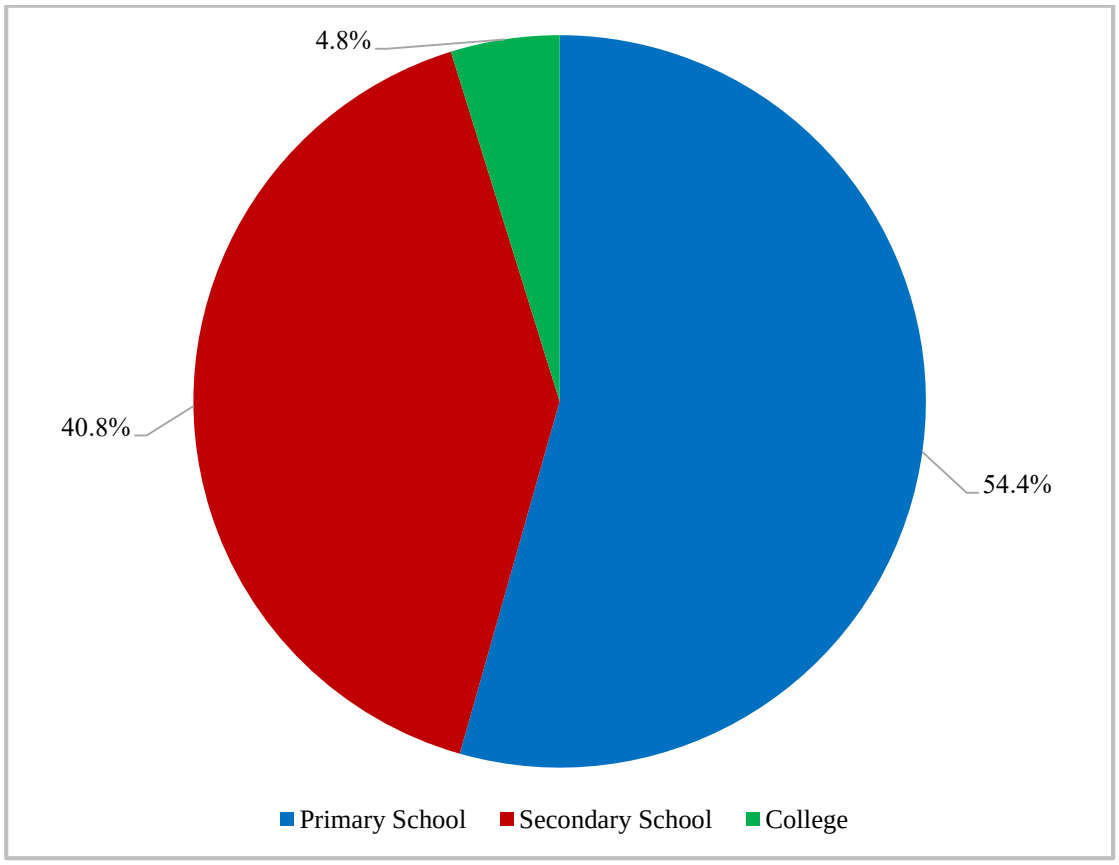

Figure 4.1: Respondents' education level

4.3.3 Respondents' Religion Affiliation

The majority (94.4%) of respondents were Christians. However, 5.6% of respondents did not belong to any religion (Non-practising) (Figure 4.2). There was no Muslim respondent in this study.

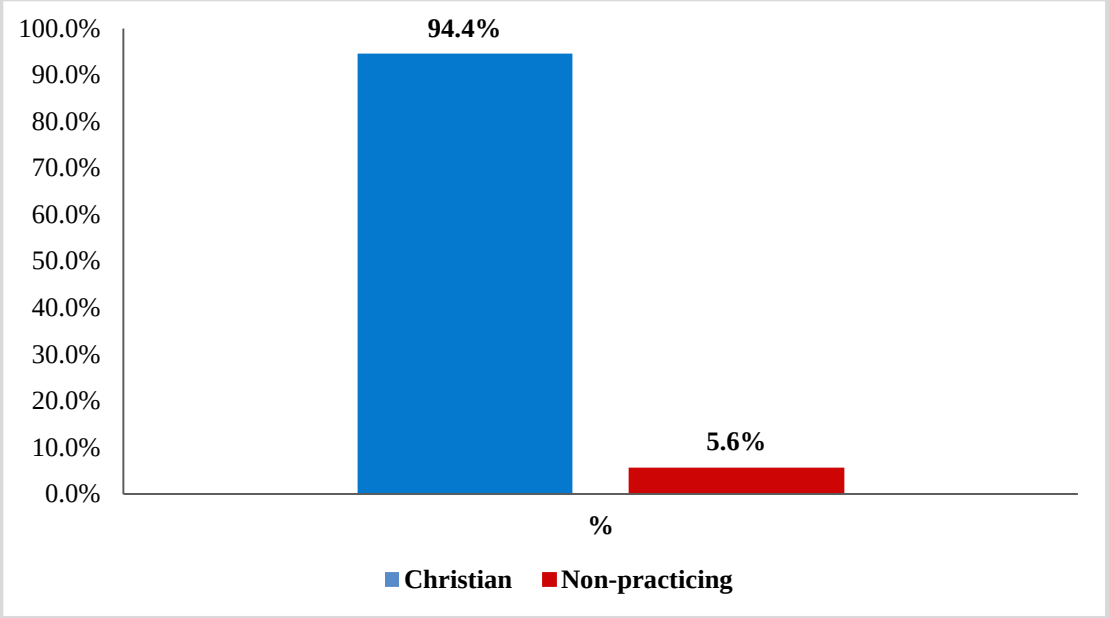

Figure 4.2: Respondents' religious affiliation

4.3.4 Marital Status of the Respondents

Regarding marital status, most (72.0%) respondents identified as single, 25.6% as married, and 2.4% as widowed (Figure 4.3).

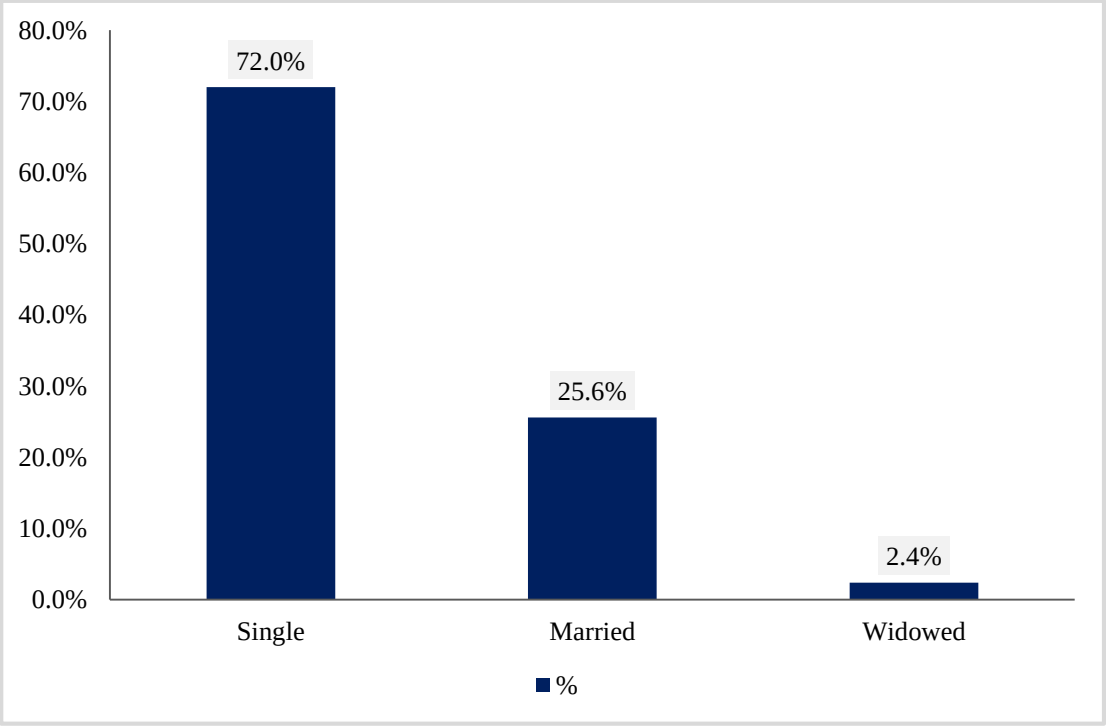

Figure 4.3: Respondents' marital status

4.3.5 Schooling Status of the respondents

Most (54.4%) respondents were schooling at the time of the study (Figure 4.4).

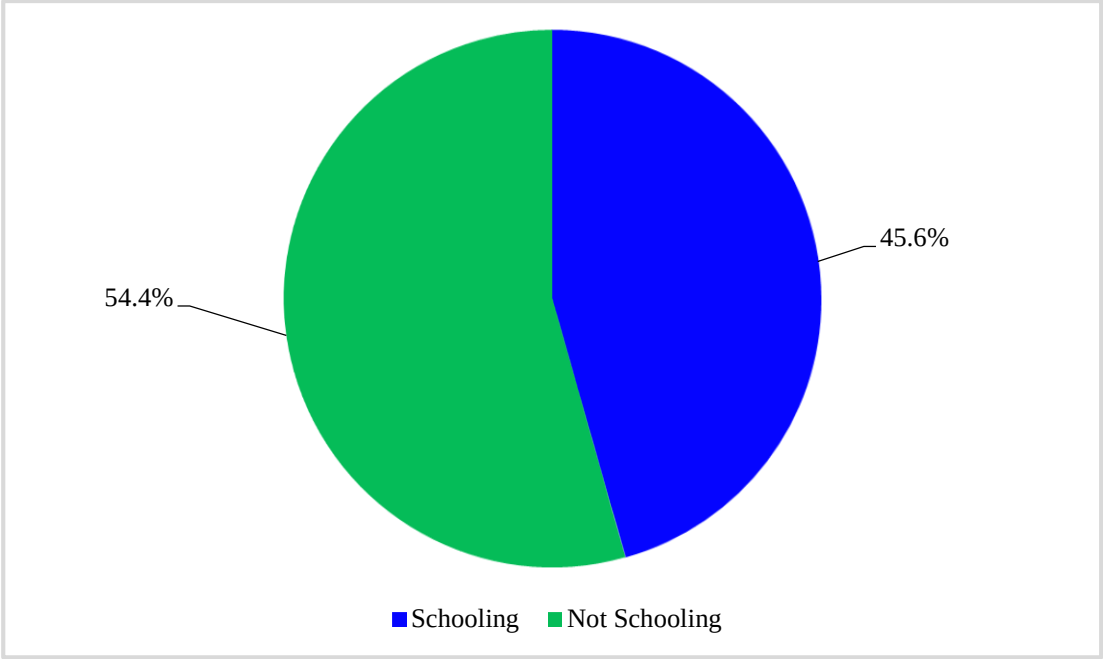

Figure 4.4: Respondents' schooling status

4.4 Sociodemographic Factors and Usage of Modern Contraceptives

In a descriptive analysis (Table 4.2), the usage of modern contraceptives was high among the respondents aged 19 years (57.4%) and those with college education qualifications (50.0%). Additionally, the usage of modern contraceptives was more pronounced among the respondents who did not belong to any religion (42.9%), married (71.9%), and not schooling at the time of this study (47.4%).

Table 4.2: Sociodemographic characteristics and modern contraceptives usage

	Usage of Modern Contraceptives	
Variable	Non-Usage [*n*(%)]	Usage [*n*(%)]
Age		
17	30 (83.3)	6 (16.7)
18	31 (73.8)	11 (26.2)
19	20 (42.6)	27 (57.4)
Education Level		
Primary School	47 (69.1)	21 (30.9)
Secondary School	31 (60.8)	20 (39.2)
College	3 (50.0)	3 (50.0)
Religion		
Non-practising	4 (57.1)	3 (42.9)
Christian	77 (65.3)	41 (34.7)
Marital Status		
Single	72 (77.4)	21 (22.6)
Married	9 (28.1)	23 (71.9)
Schooling Status		
Not-schooling	30 (52.6)	27 (47.4)
Schooling	51 (75.0)	17 (25.0)

4.4.1 Sociodemographic Predictors and Usage of Modern Contraceptives

The results of the multivariable logistic regression analysis of the association between the sociodemographic characteristics and usage of modern contraceptives are presented in Table 4.3. As indicated, female adolescents aged 19 years were 2.81 times more likely to use modern contraceptives as compared to those aged 17 years (AOR=2.81; p=.000). However, female adolescents aged 18 years were 1.45 times more likely to use modern contraception (AOR=1.45) compared to those aged 17 years; however, this variation was not statistically significant (p=0.571).

Table 4.3: Sociodemographic Predictors of Usage of Modern Contraceptives

Variable	COR	[95%CL]	p-value	AOR	[95%CL]	p-value
Age						
17 years (*Ref*)	-	-	-	-	-	-
18 years	1.77$^{N.s}$	0.58-5.41	.313	1.45 $^{N.s}$	0.40-5.24	.571
19 years	3.75***	2.36-9.29	.000	2.81** *	0.80-9.89	.000
Education Level						
Primary School (*Ref*)	-	-	-	-	-	-
Secondary School	2.44*	0.67-3.09	.021	2.74*	0.77-6.05	.026
College	3.24***	0.62-8.02	.000	3.55** *	0.84-8.44	.000
Religion						
Non-religion	1.41*	0.85-3.33	.020	1.55*	0.90-7.90	.017
Christian	-	-	-	-	-	-
Marital Status						
Single (*Ref*)	-	-	-	-	-	-
Married	8.76***	3.52-1.79	.000	6.20**	1.79-1.53	.004
Schooling Status						
Not-schooling (*Ref*)	-	-	-	-	-	-
Schooling	1.37*	1.17-3.79	.011	1.90** *	1.05-4.32	.000

Note. *Ref*. – reference group. *CI* – confidence interval. *COR* – Crude Odds Ratio/Unadjusted Odds Ratio. *AOR* – Adjusted Odds Ratio. The odds ratios are statistically significant at a .05 alpha level.
$^{*}p< .05$. $^{**}p< .01$. $^{***}p< .001$. N.s – not significant.

In addition, female adolescents with a college education were 3.55 times more likely to use modern contraception (AOR=3.55; p=.000) than those with primary school qualifications. Likewise, compared to female adolescents with primary school education, those with secondary school education were 2.74 times more likely to use modern contraception (AOR=2.74; p=.026); however, their likelihood to take up contraception methods was slightly lower in comparison with those with college education qualifications.

Furthermore, non-religion female adolescents were 1.55 times more likely to take up the contraception methods (AOR=1.55; p=.017) than Christians. Similarly, in comparison with female adolescents who were single, the married female adolescents

were 6.20 times more likely to use modern contraception (AOR=6.20; p=.004), while schooling female adolescents were 1.90 times more likely to take up modern contraception (AOR=1.90; p=.000) compared to those who were non-schoolers.

4.5 Knowledge Factors and the uptake of Modern Contraceptives

Table 4.4 presents the results of the respondents' knowledge of modern contraception and the distribution of modern contraceptive use across the knowledge factors.

Table 4.4: Knowledge Factors and the uptake of Modern Contraceptives

Variable	*n*	%	Usage of Modern Contraceptives	
			Non-Usage [n(%)]	Usage [n(%)]
Modern Contraceptives knowledge				
Not knowledgeable (who scored below 50%)	85	68.0	60 (70.6)	25 (29.4)
Knowledgeable (who scored above 50%)	40	32.0	21 (52.5)	19 (47.5)
Knowledge on the right use				
Who had no knowledge (*Number of Respondents who reported terminating a pregnancy and preventing STIs*)	9	7.2	3 (33.3)	6 (66.7)
Had knowledge (*Number of Respondents who reported preventing unintended pregnancy*)	31	24.8	18 (58.1)	13 (41.9)
Source of information				
Peers	17	13.6	11 (64.7)	6 (35.3)
Parents/Guardians	4	3.2	2 (50.0)	2 (50.0)
School teachers	7	5.6	3 (42.9)	4 (57.1)
Mass media/social media	12	9.6	21 (52.5)	19 (47.5)
Known contraceptive methods				
Implants	3	2.4	1 (33.3)	2 (66.7)
Injectables	17	13.6	11 (64.7)	6 (35.3)
Pills	20	16.0	9 (45.0)	11 (55.0)
Known side effects				
Bleeding	14	11.2	8 (57.1)	6 (42.9)
Nausea	4	3.2	1 (25.0)	3 (75.0)
Weight gain	5	4.0	2 (40.0)	3 (60.0)
Decreased sex drive	14	11.2	8 (57.1)	6 (42.9)
Infertility	3	2.4	2 (66.7)	1 (33.3)
Knowledge on the right users of contraceptives				
Not knowledgeable (*Number of Respondents who reported married women, women above 40 years, and women with desired family size*)	34	27.2	19 (55.9)	15 (44.1)
Knowledgeable (*Number of Respondents who reported any woman of reproductive age*)	6	4.8	2 (33.3)	4 (66.7)

On knowledge measurement was attained by analysing the adolescents who answered the questions on contraceptives knowledge correctly. Those who answered correctly more than 50% were termed as knowledgeable. The questions were on what modern contraceptives were, the right use, side effects and who can use modern contraceptives. Most (68.0%) respondents did not know modern contraceptives. However, from of the female girls aged (10-19) years who knew family planning methods, most (24.8%) knew that are used to prevent unintended pregnancy. In addition, the majority (13.6%) of female adolescents who knew had gotten the information about modern contraceptives from their peers, followed by 9.6% whose source of information was social/mass media; and most (16.0%) of them knew oral pills as a modern contraceptive method. In addition, equal (11.2%) proportions of female adolescents who knew modern contraceptives also knew that modern contraception could lead to bleeding and decreased sex drive. However, most (27.2%) female adolescents who knew modern contraceptives did not that any woman of reproductive age could use modern contraception.

In addition, the uptake of modern methods of contraception was high among female girls aged (10-19) years who knew the meaning of the methods. Besides, the use of modern contraceptives was high among female adolescents who thought modern contraceptives could be used to terminate a pregnancy and prevent STIs (66.7%), the adolescents who got the information about modern contraceptives from school teachers (57.1%), and those who knew implants as a modern contraceptive method (66.7%). Moreover, the usage of modern contraceptives was high (75.0%) compared to female girls aged (10-19) years who knew nausea was a possible side effect of modern contraceptives and high (66.7%) among those who knew that any woman of reproductive age could use modern contraceptives.

4.5.1 Knowledge Predictors and Usage of Modern Contraceptives

In a multivariable logistical regression analysis (Table 4.5), female adolescents who had knowledge about contraceptives had 5.87 times chances of using modern contraceptives (AOR=5.87, p=.003) compared to those who were not knowledgeable Additionally, female adolescents who did not know the proper use of modern contraception were 0.42 less likely to use modern contraceptives (AOR=0.42); nevertheless, this variation was insignificant (p=.072).

Table 4.5: Knowledge Predictors and Usage of Modern Contraceptives

Variable	COR	95%CL	p-value	AOR	95%CL	p-value
Contraceptives knowledge						
Those who not knowledgeable (*Ref*)	-	-	-	-	-	-
Those who were knowledgeable	2.17*	1.00-4.72	.039	5.87**	1.10-21.12	.003
Know the right use						
Did not know	0.77N.s	0.08-1.06	.235	0.42 N.s	0.03-0.70	.072
knew (*Ref*)	-	-	-	-	-	-
Source of information						
Peers (*Ref*)						
Parents/Guardians	1.83*	0.20-16.51	.021	0.66*	0.03-4.37	.038
School teachers	2.44*	0.41-14.75	.011	0.36**	0.01-2.92	.001
Mass media/social media	2.57***	0.56-11.72	.000	1.75***	0.21-4.86	.000
Known contraceptive methods						
Implants	0.64N.s	0.13-1.78	.224	0.47 N.s	0.08-1.96	.092
Injectables	0.45 N.s	0.12-1.69	.083	0.33 N.s	0.13-1.23	.088
Pills (*Ref*)	-	-	-	-	-	-
Known side effects						
Bleeding (*Ref*)	-	-	-	-	-	-
Nausea	4.00***	0.33-48.66	.000	2.49***	0.17-35.59	.000
Weight gain	2.00*	0.25-15.99	.012	1.11**	0.06-20.93	.001
Decreased sex drive	1.00***	0.22-4.47	.000	0.63***	0.10-4.09	.000
Infertility	0.67**	0.05-9.19	.001	0.16**	0.01-4.98	.001
Knew the right users of contraceptives						
Did not know (*Ref*)	-	-	-	-	-	-
knew	2.53***	0.41-15.75	.000	4.06***	0.36-16.09	.000

Note. *Ref*. – reference category. *CI* – confidence interval. *COR* – Crude Odds Ratio/Unadjusted Odds Ratio. *AOR* – Adjusted Odds Ratio. The odds ratios are statistically significant at a .05 alpha level. *p< .05. **p< .01. ***p< .001. N.s – not significant.

Furthermore, in comparison with female adolescents whose source of modern contraception information was peers, those who got the same information from the mass/social media were 1.75 times more likely to use modern contraceptives (AOR=1.75, p=.000). Similarly, female adolescents whose source of information about modern contraception were parents/guardians were 0.66 unlikely to take up the modern family planning methods (AOR=0.66, p=.038) compared to those who got the same information from their peers. Likewise, female adolescents who got information about modern contraception from school teachers were 0.36 times less likely to use modern contraceptives (AOR=0.36, p=.001).

In addition, female adolescents who knew implants and injectables as types of modern contraception were 0.47 (AOR=0.47) and 0.33 (AOR = 0.33) times unlikely to take up the modern family planning methods in comparison to female girls aged (10-19) years who knew oral pills as a type of contemporary contraception; nevertheless, these variations were not significant, p=.092 and p=.088 respectively.

Moreover, female adolescents who only reported nausea as an associated side effect of modern contraception had 2.49 times chances to take up the modern contraception (AOR=2.49, p=.000) compared to those who reported bleeding as a side effect. Similarly, female adolescents who only reported weight gain as a side effect had 1.11 times chances of using the modern contraceptives (AOR=1.11, p=.001) than those who reported bleeding as a side effect. However, female adolescents who only reported decreased sex drive as a side effect had 0.63 times less chances to use modern contraceptives (AOR=0.63, p=.000) than those who reported bleeding as a side effect. On the same note, female adolescents who only reported infertility as an associated side effect of modern contraception were 0.16 times less likely to use modern contraceptives

(AOR=0.16, p=.001). Besides, female adolescents who knew the right users of modern contraception had 4.06 times unlikelihood of usage of modern contraceptives (AOR=4.06, p=.000) than those who did not know.

4.6 Socio-cultural Factors and Usage of Modern Contraceptives

Table 4.6 presents the results of the respondents' socio-cultural factors with the spread of modern contraceptive use through the socio-cultural aspects. Equal (41.6%) proportions of respondents reported that culture and religion would influence their choice to use modern contraceptives. Additionally, most (81.6%) respondents said their community believed that female adolescents using modern contraceptives after delivery are promiscuous. Furthermore, the majority (92.0%) of the respondents indicated that their religion would not allow them to use modern contraceptives. Besides, nearly all (99.2%) respondents reported that their community would not allow them to use modern contraceptives. In addition, most (63.2%) respondents said that their community believed modern contraception causes barrenness.

Table 4.6: Socio-cultural Factors and Usage of Modern Contraceptives

			Usage of Modern Contraceptives	
Variable	*n*	%	Non-Usage [n(%)]	Usage [n(%)]
Influencers of choice to use contraceptives				
Culture	52	41.6	36 (69.2)	16 (30.8)
Religion	52	41.6	35 (67.3)	17 (32.7)
Peers	8	6.4	3 (37.5)	5 (62.5)
Parents	12	9.6	7 (58.3)	5 (41.7)
Self	1	0.8	0 (0.0)	1 (100.0)
Community beliefs about female adolescents using contraceptives				
Are promiscuous	102	81.6	68 (66.7)	34 (33.3)
Are immoral	8	6.4	5 (62.5)	3 (37.5)
Will remain unmarried	15	12.0	8 (53.3)	7 (46.7)
Whether religion allows the use of contraceptives				
Does not allow	115	92.0	76 (66.1)	39 (33.9)
Allows	10	8.0	(5 (50.0)	5 (50.0)
Whether the community allows the use of contraceptives				
Does not allow	124	99.2	80 (64.5)	44 (35.5)
Allows	1	0.8	1 (100.0)	0 (0.0)
Community myths against adolescents' use of contraceptives				
Cause barrenness	79	63.2	50 (63.3)	29 (36.7)
Leads to cancer	46	36.8	31 (67.4)	15 (32.6)

Further results of the distribution of modern contraceptive usage across socio-cultural factors (Table 4.6) revealed that usage of modern family planning methods was relatively high (62.5%) among female girls (10-19) years whose choice to use modern contraceptives would be influenced by self (100.0%), followed by those who reported that their peers would influence their choice to use modern contraceptives. Moreover, usage of modern contraceptives was high (46.7%) for female adolescents who reported that their community held onto the belief that those using modern contraceptives would remain unmarried. Moreover, usage of modern contraceptives was high (50.0%) for female adolescents who believed their religion would allow them to use contraceptives, those who thought that their community would allow them to use modern

contraceptives (35.5%), and those who reported barrenness as a myth their community held against the use of modern contraceptives (36.7%).

4.6.1 Socio-cultural Predictors of Usage of Modern Contraceptives

Table 4.7 shows the findings of multivariable logistical regression analysis of modern contraception usage on the social-cultural factors of female adolescents in this study.

Table 4.7: Socio-cultural Predictors of Modern Contraceptives Usage

Study Variable	COR	95%CI	*p*-value	AOR	95%CI	*p*-value
Influencers of choice to use contraceptives						
Culture (*Ref*)	-	-	-	-	-	-
Religion	1.88***	0.53-4.54	.000	1.49***	0.17-5.59	.000
Peers	2.11*	0.65-12.92	.032	2.05*	0.66-8.92	.021
Parents	2.02***	0.62-4.47	.000	1.98***	0.45-8.08	.000
Self	2.67*	0.55-9.19	.013	2.36*	0.41-11.13	.025
Community beliefs about female adolescents using contraceptives						
Are promiscuous	2.57*	0.29, 6.71	.012	2.12***	0.34-9.88	.000
Are immoral	2.69***	0.52, 9.96	.000	2.24***	0.63-10.16	.000
Will remain unmarried (*Ref*)	-	-	-	-	-	-
Whether religion allows the use of contraceptives						
Does not allow (*Ref*)	-	-	-	-	-	-
Allows	1.95***	0.53-7.14	.000	2.35***	0.83-9.33	.000
Whether the community allows the use of contraceptives						
Does not allow (*Ref*)	-	-	-	-	-	-
Allows	1.95**	0.53-7.14	.003	2.23***	0.64-8.13	.000
Myths against adolescents' use of contraceptives						
Cause barrenness (*Ref*)	-	-	-	-	-	-
Leads to cancer	0.83*	0.39-2.89	.038	0.63*	0.19-4.82	.021

Note. *Ref*. – reference category. *CI* – confidence interval. *COR* – Crude Odds Ratio/Unadjusted Odds Ratio. *AOR* – Adjusted Odds Ratio. The odds ratios are statistically significant at a .05 alpha level. *p< .05. **p< .01. ***p< .001. N.s – not significant.

As shown in Table 4.7, female adolescents whose choice to take modern contraceptives would be influenced by self, had 2.36 times chances of using modern contraceptives (AOR=2.36, p=.025) compared to those whom their culture would influence. Similarly, female adolescents who reported their choice to use modern contraceptives would be

affected by peers, had 2.05 times more chances of using modern contraception methods (AOR=2.05, p=.021) compared to those who would be influenced by culture. Besides, female adolescents who revealed that their parents and religion would influence their choice to use modern contraceptives had 1.98 times (AOR=1.98, p=.000) and 1.49 times (AOR=1.49, p=.000) respectively more chances to take up the modern contraception methods in comparison to those who culture would influence the choice to use modern contraceptives.

Moreover, respondents who reported that their community perceived any female adolescents using modern contraceptives as immoral had 2.24 times chances to use modern methods (AOR=2.24, p=.000) compared to those who indicated that their community believed female adolescents using modern contraceptives would remain unmarried. In the same connection, respondents who revealed that their community perceived any female adolescents using modern contraceptives as promiscuous had 2.12 times chances to use modern family planning methods (AOR=2.12, p=.000) compared to those who indicated that their community believed female adolescents using modern contraceptives would remain unmarried.

Furthermore, female adolescents who believed that their religion and community would allow them to use modern contraceptives were 2.25 times (AOR=2.35, p=.000) and 2.23 times (AOR=2.23, p=.000) more likely to use modern contraceptives compared to those who thought that their community would not allow them to use modern contraceptives. Finally, female adolescents who reported the myth that modern contraceptives would cause cancer had 0.63 times unlikely to use contraceptives methods (AOR=0.63, p=.021) compared to those who reported the myth that usage of modern contraceptives would cause barrenness.

4.7 Healthcare Facility Factors and Usage of Modern Contraceptives

Most (68.0%) respondents had never sought modern contraceptive services (Table 4.8).

Table 4.8: Health Care Systems Factors and Usage of Modern Contraceptives

Variable	n	%	Usage of Modern Contraceptives	
			Non-Usage [n(%)]	Usage [n(%)]
Contraceptive services sought				
No	85	68.0	60 (70.6)	25 (29.4)
Yes	40	32.0	21 (52.5)	19 (47.5)
Type of health facility where service was sought				
Government-owned	26	20.8	15 (57.7)	11 (42.3)
Private	14	11.2	6 (42.9)	8 (57.1)
Contraceptive services availability 24/7				
Not available	37	29.6	21 (56.8)	16 (43.2)
Available	3	2.4	0 (0.0)	3 (100.0)
Distance of health facility from the residential area				
< 1 km	11	8.8	7 (63.6)	4 (36.4)
1 to 5 km	11	8.8	5 (45.5)	6 (54.6)
> 5 km	18	14.4	9 (50.0)	9 (50.0)
Availability of youth-friendly services				
Not available	32	25.6	25 (78.1)	16 (21.9)
Available	8	6.4	5 (62.5)	3 (37.5)
Sex of personnel at the health facility				
Male	22	17.5	10 (45.5)	12 (54.5)
Female	18	14.4	11 (61.1)	7 (38.9)
Age of personnel at the health facility				
Elderly	21	16.8	11 (52.4)	10 (47.6)
Youthful	19	15.2	10 (52.6)	9 (47.4)
Satisfaction with contraceptive services provided				
Not satisfied	33	26.4	17 (51.5)	16 (48.5)
Satisfied	7	5.6	1 (14.3)	6 (85.7)

As shown in Table 4.8, out of the female adolescents who had sought modern contraceptive services, the majority (20.8%) received such services from a government-owned health facility. In addition, most (29.6%) respondents indicated that modern contraceptive services in health facilities were unavailable 24/7.

Furthermore, most (14.4%) respondents reported that health facilities providing modern contraceptive services are located at a distance greater than 5 kilometres from their

residential area. Besides, most (25.6%) respondents revealed that modern contraceptive services provided by health facilities were not youth friendly. Additionally, most (17.5%) respondents reported that the personnel providing modern contraceptive services in the health facilities were elderly. Besides, most (26.4%) respondents indicated that they were not satisfied with the modern contraceptive services provided by the health facilities.

The distribution of modern contraceptive usage across the factors associated with health facilities (Table 4.8) shows that usage of modern contraceptives was more pronounced (47.5%) among female adolescents who had sought modern contraceptive services. In addition, using modern contraceptives was high among female adolescents who received modern contraception services from private-owned health facilities (57.1%) and those who indicated that modern contraceptive services were available 24/7 (100.0%). Additionally, using modern contraceptives was high among female adolescents whose residential places were between 1 and 5 kilometres from the health facilities providing contraceptive services (54.6%).

Furthermore, the use of modern contraceptives was high for female adolescents who had received youth-friendly modern contraceptive services (37.5%) and had been served by male personnel (54.5%). Similarly, the use of modern contraceptives was high for female adolescents who had received contraceptive services from elderly healthcare personnel (47.6%). Besides, modern contraception usage was high among female adolescents who had been satisfied with the modern contraceptive services provided by the health facilities (85.7%).

4.7.1 Healthcare Facilities' Predictors and Usage of Modern Contraceptives

In a multivariable logistical regression analysis (Table 4.9), female adolescents who had sought modern contraception services had 2.08 times chances of using modern family planning methods (AOR=2.08, p=.000) compared to those who had not.

Table 4.9: Healthcare Facilities Predictors and Usage of Modern Contraceptives

Variable	COR	95%CL	p-value	AOR	95%CL	p-value
Contraceptive services sought						
No (*Ref*)	-	-	-	-	-	-
Yes	2.17*	1.00-4.72	.048	2.08***	0.99-9.13	.000
Type of health facility where service was sought						
Public (*Ref*)	-	-	-	-	-	-
Private	1.82*	0.49-6.76	.035	2.15**	0.68-8.67	.002
Contraceptive services availability 24/7						
Not available (*Ref*)	-	-	-	-	-	-
Available	1.52*	0.66, 5.61	.042	2.83***	0.76, 13.44	.000
Distance of health facility from the residential area						
< 1 km (*Ref*)	-	-	-	-	-	-
1 to 5 km	0.78Ns.	0.38-5.59	.213	0.97 Ns.	0.39-5.52	.331
> 5 km	0.45 Ns.	0.12-8.14	.443	0.23 Ns.	0.06-3.63	.532
Availability of youth-friendly services						
Not available (*Ref*)	-	-	-	-	-	-
Available	1.67**	0.34-8.18	.002	1.64*	0.11-6.36	.023
Sex of personnel at the health facility						
Male (*Ref*)	-	-	-	-	-	-
Female	0.53*	0.15-1.88	.032	0.88*	0.37-8.77	.022
Age of personnel at the health facility						
Elderly	1.11**	0.29-3.50	.002	1.84*	0.28-6.51	.021
Youthful (*Ref*)	-	-	-	-	-	-
Satisfaction with contraceptive services provided						
Not satisfied	0.86N.s	0.24-6.50	.187	0.73*	0.12-7.54	.040
Satisfied (*Ref*)	-	-	-	-	-	-

Note. Ref. – reference category. *CI* – confidence interval. *COR* – Crude Odds Ratio/Unadjusted Odds Ratio. *AOR* – Adjusted Odds Ratio. The odds ratios are statistically significant at a .05 alpha level. $^{*}p< .05$. $^{**}p< .01$. $^{***}p< .001$. N.s – not significant.

Additionally, of the female adolescents who had sought modern contraceptive services, those who had gotten such services from a private health facility had 2.15 times more chances of using the methods of contraception (AOR=2.15, p=.002) compared to those

who had gotten such services from a government-owned facility. Besides, female adolescents who reported that contraceptive services in the health facilities were available throughout were 2.83 times more likely to use modern contraceptives (AOR=2.83, p=.000) compared to those who revealed that modern contraception services were not always available in the health facilities.

Furthermore, female adolescents who indicated that health facilities providing modern contraception services were located within 1 to 5 km and above 5 km were 0.97 times (AOR= 0.97) and 0.23 times (AOR=0.23) less likely to use modern contraceptive services compared to those who revealed that health facilities providing modern contraception services were located within 1 km; however, these variations were not significant, p=.331 and p=.532 respectively. Additionally, female adolescents who reported that contraceptive services were 24/7 had 1.64 times more chances of using methods of contraception (AOR=1.64, p=.023) than those who revealed that such services were unavailable 24/7.

Moreover, female adolescents who had received modern contraception services from female healthcare personnel were 0.88 times less likely to use modern contraception (AOR=0.88, p=.022) compared to those whom male healthcare personnel had served. Besides, female adolescents who had received modern contraception services from elderly healthcare personnel had 1.84 times chances of using the modern contraceptives (AOR=1.84, p=.021) compared to those who had received such services from youthful healthcare personnel. Likewise, female adolescents who were not satisfied with modern contraception services they had received from health facilities had 0.73 times less chances of using the modern contraceptives (AOR=0.73, p=.040) compared to those who were satisfied with such services.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussion

5.1.1 Usage of Modern Contraceptives

The overall uptake of modern contraceptives among the female adolescents in this study was 35.2%. This low uptake suggests that use of modern contraceptives for fertility prevention is still a problem among female adolescents in this study. The study observation agrees with Musaba et al. (2021), who revealed low utilization of modern contraceptive among the adolescents in Uganda.

5.1.2 Sociodemographic Predictors of Modern Contraceptive Use

Consistent with Nakirijja et al. (2018) finding that age is one of the sociodemographic factors that influence the uptake of contraceptives among adolescents and is a criterion when determining a suitable contraceptive method, this study found that female adolescents aged 19 years were more likely to use modern contraceptives compared to those aged 17 years. However, previous research by Apanga and Adam (2015) has revealed that age factor was not always related to the uptake of modern methods of contraception. The reason being educational and marital status was a major determinant of modern contraceptive use among the adolescents in their study.

Additionally, female adolescents with college and secondary school qualifications were more likely to use modern contraceptives than those with primary educational qualifications. This finding resonates with Apanga and Adam (2015), who found that women's education is significantly associated with the increased use of modern contraceptives. The higher modern contraceptive use might be because female

adolescents with college and secondary school educational qualifications might be more informed about the effective use of modern contraceptives in controlling pregnancy. Another plausible reason might be that female adolescents with college and secondary school educational qualifications might not want to have another child to interrupt their educational activities. They might be in a position to make informed choices regarding their needs of reproductive health better than those with lower educational qualifications. Nevertheless, insignificant associations between the level of education and uptake of modern contraceptives have been found in Northwest Ethiopia among married adolescents (Alemayehu et al., 2018), sub-Saharan Africa (Blackstone et al., 2017), and in Kenya among adolescents with an unmet need for modern contraception (Ontiri et al., 2019).

Moreover, in unity with Tamang et al. (2017) finding that religion influences the uptake of contraceptives among adolescents, this study found that female adolescents not affiliated with any religion were more likely to use modern contraceptives than those who were Christians. This finding might be because religious beliefs shape people's knowledge and behaviour regarding reproductive health. Religious resistance to modern contraceptive use may be more pronounced among Christians than among non-religious affiliated female adolescents. Similarly, previous research has indicated that religion reduces the uptake of modern contraceptives among adolescent girls. For example, previous research in Ethiopia by Tigabu et al. (2018) found that contraceptives were not utilised despite being available at the healthcare facilities and attributed the low utilisation to religion.

In addition, this study reported higher chances of modern contraceptive use among married female adolescents than those with single marital status. A plausible reason for this finding could be that married female adolescents might not want to have another

child, given the challenges associated with caring for a baby. Moreover, schooling female adolescents might not want to have another child interrupting their educational activities. Adebowale et al. (2018) found similar results in Nigeria among women with no fertility intention.

5.1.3 Knowledge Predictors of Modern Contraceptive Use

Regarding the knowledge predictors, female adolescents who had knowledge of modern contraceptives were more likely to use them than those who did not have the knowledge. Consequently, informed female adolescents are likely to be more exposed to useful and appropriate information regarding modern contraceptives to make concrete decisions concerning their reproductive health needs.

With social media exposure, female adolescents exposed to social media platforms as sources of modern contraceptive information were more likely to use modern contraceptives than those who received such information from peers. This finding highlights the important role of social media in spreading information regarding reproductive health needs. In addition, previous studies in Ethiopia and Nigeria have reported social media's efficacy in boosting the usage of modern methods of contraception.

Nevertheless, the findings demonstrated that female girls aged (10-19) years whose sources of information about modern contraceptives were school teachers and parents were unlikely to use modern contraceptives than those who got such information from their peers. The rationale behind this finding might be that parents and school teachers could withhold information about modern contraceptive use.

In addition, female adolescents who reported nausea and weight gain as side effects associated with modern contraceptive use were more likely to use them than those who

reported bleeding as an associated side effect. A plausible reason for this finding might be that modern contraceptives' bleeding as a side effect might scare female adolescents in this study against use.

Moreover, this study reported a lower likelihood of usage of modern contraception methods among female girls aged (10-19) years who reported decreased libido and infertility as associated side effects compared to those who reported bleeding as a side effect. In addition, this study showed that having information on the right users of modern contraceptives was an effective catalyst needed to boost modern contraceptive use among female adolescents.

5.1.4 Sociocultural Predictors Usage of Modern Contraception methods

Regarding the socio-cultural predictors of usage of modern contraception methods, female adolescents whose choice of contraceptives would be influenced by self, peers, parents, and religion had a high chance of using modern contraception methods than who would culture influence their choices. Corroborating Mutumba et al.'s (2018) finding that community beliefs influence contraceptive uptake among adolescents, this study found that female adolescents who thought that their community believed those using modern contraceptives as immoral and promiscuous had more chances of usage of modern contraception methods than who thought their community believed the users of modern contraception methods would remain unmarried. These findings underline the importance of marriage glorified by cultural practices in rural areas.

Additionally, female adolescents who believed their community and religion would allow them to use modern contraceptives were more likely to use them than those who thought their community and religion would not allow them. However, consistent with previous studies that myths and beliefs are barriers to the utilization of contraceptives

(CSA Kenya, 2019; Wood, 2019), this study found that usage of modern contraceptives was lower among female adolescents who reported the myth that modern contraceptives would cause cancer than those who reported the myth that modern contraceptives would make a woman barren. This finding highlights the fear instigated by societal myths regarding modern contraceptives, which reduce the likelihood of usage of contraceptive methods among female girls aged (10-19) years in this study.

5.1.5 Health facility Predictors of Modern Contraceptive Use

Healthcare systems act as a main source of information for adolescents regarding modern contraceptives (Mardi et al., 2018) and hence act as an important factor in promoting the utilization of contraceptives. On the same note, this study found that female adolescents who had earlier sought modern contraception methods from health facilities had a upper hand to use them than those who did not. A credible rationale for this finding is that it is likely that female adolescents with prior experience with modern contraceptives would not hesitate to use them compared to first-timers.

In addition, female adolescents who sought modern contraceptive services from private-owned health facilities providing around-the-clock services were more likely to use contraceptives than those who sought such services from public health facilities without around-the-clock services. Consistent with Blackstone et al. (2017), this study recorded lower chances of usage of modern contraception methods among female girls aged (10-19) years who indicated that health facilities were between 1 and 5 kilometres and above from their residences. Even though the results were not statistically significant, the reason for this finding might be that transportation costs are a barrier to the utilization of family planning services (Adebowale et al., 2013). Furthermore, female adolescents who had received modern contraception services from female health

personnel were less likely to use modern contraception than those who had been served by male healthcare personnel. This finding is because female adolescents might prefer to be served by male healthcare personnel than their female counterparts. Likewise, this study reported higher chances uptake of modern contraception methods among female girls aged (10-19) years who had been satisfied by the modern contraceptive services provided by healthcare facilities and who had been served by elderly healthcare personnel.

5.2 Conclusions

This study makes several conclusions based on the results. First, concerning the influence of sociodemographic predictors of modern contraceptives' use, this study concludes that there is low usage of modern contraceptives among female adolescents with one baby and visiting postnatal clinics within the first six months after birth. In addition, the higher the age of female adolescents, the more likely they are to use modern contraceptives. Moreover, the higher the educational qualifications, the more likely female adolescents will utilize modern contraceptives. Besides, Christian and single-marital-status female adolescents are less likely to use modern contraceptives.

Second, concerning the knowledge predictors of modern contraceptives' use, this study concludes that female adolescents with higher levels of modern contraceptive awareness are more likely to utilize them. Similarly, social media exposure is an important predictor of modern contraceptive use than other sources of information such as peers, teachers, and parents. Additionally, bleeding as a side effect associated with modern contraceptives may hinder their usage among female adolescents in this study. Along similar lines, modern contraceptive use might be higher among female

adolescents possessing the appropriate information on the right users of modern contraceptives.

Third, regarding sociocultural predictors of modern contraceptive use, peers, parents, and religion are more important factors that might boost the uptake of contraceptives among the female respondents in this study. Additionally, negative community beliefs and myths concerning modern contraceptive use are inhibitors of contraceptive use among the female adolescents in this study.

Finally, concerning health facility predictors of modern contraceptive use, the findings of this study suggest that it might be easier for female adolescents to seek contraceptive services from private-owned health facilities than from government-owned health facilities. Additionally, female adolescents served by male health personnel are more likely to use modern contraceptives than their counterparts served by female health personnel. Besides, female adolescents satisfied with modern contraceptive services are more likely to use them than unsatisfied ones.

5.3 Recommendations

5.3.1 The Recommendations for Policy and Education

1. Increasing uptake of modern contraception methods among female girls aged (10-19) years in Kitui County is a multi-faceted problem that will require concerted efforts by all key stakeholders to provide wide interventions. Such stakeholders include the community to participate in campaigns targeting adolescents contraceptive use, parents/guardians, to be involved in matters of reproductive health of their adolescents, peers to support their peers by giving them the right information on modern contraceptives, school teachers and tutors to provide

information about contraceptive use among the adolescents, religious leaders to be in fore front in advocating for adolescent reproductive health, healthcare practitioners to over non-discriminatory, and policymakers to provide legal framework and guide the process on the contraceptive use among the adolescents. In addition, the interventions should aim to inform female adolescents through appropriate information while counteracting negative perceptions, beliefs, and myths.

2. From the study, the married and the higher the educational level were more likely to use contraceptive method which gives good entry for any implementational project in an area with low modern contraceptive uptake. Targeting the population who are likely to use the modern contraceptive methods would boost the uptake and as well will become role models to those who were less likely to use. The single and the primary school level female adolescents who were less likely to use the contraceptive methods, using their peers as role models, group counselling and organizing seminars to provide the correct information about modern contraceptive use among the adolescents would improve the uptake. Moreover, adolescent girls shy off seeking reproductive health services together with older population, age of their parents, adjusting the health facility working hours to attend to them over the weekends and later hours of the day like from five to six in the evening would yield better results.
3. Moreover, the results indicated that Christian female adolescents were unlikely to take up the modern contraception methods, yet they were active sexually. Thus, this study calls for religious leaders to initiate and participate in programmes aimed at addressing the uptake of modern contraception methods among adolescents in this study. For example, they can design seminars to inform female

adolescents about modern contraceptives while also helping to lessen the resistance between Christianity and contraceptive use.

4. In addition, a high level of modern contraceptive knowledge was associated with high usage among female adolescents. As such, stakeholders such as healthcare practitioners and policymakers need to appreciate and understand the importance of directing modern contraceptives information and education not just toward female reproductive adolescents but also toward those crucial people who participate in their reproductive health decisions, such as peers, teachers and tutors, guardians, sponsors, and parents. The results of this study revealed the importance of social media in boosting modern contraceptive use among female adolescents. Consequently, social media platforms could be embraced to connect female adolescents to reliable and credible online sources of information regarding modern contraceptives.
5. Additionally, this study recommends that healthcare practitioners address female adolescents' understanding of modern contraceptive use. To accomplish this important task, they can begin by asking easy-to-answer questions about female adolescents' knowledge of modern contraceptives, sources of information, side effects, users and use of modern contraceptives, and decision-makers, which may boost their understanding and use. This can be done during organised seminars at postnatal clinics, churches, and schools. Healthcare providers might also encourage female adolescents visiting hospitals for postnatal clinics to bring an important member of their family or their reproductive health decision-makers, such as mothers, sisters, or best friends, to a modern contraceptive counselling session. This would ensure that all involved parties understand different modern

contraceptives, their efficiency, and associated side effects, eventually boosting their usage.

6. Besides, the findings of this study regarding the importance of community beliefs and myths highlight the need to initiate community-based counselling to boost community understanding regarding the importance and usage of modern contraception methods among female girls aged (10-19) years . For example, it may be beneficial to consider group counselling sessions with female adolescents in the community. Not only will this provide an avenue to bust community negative myths and beliefs surrounding the use of modern contraceptives, but it will provide a good opportunity for accurate and appropriate information to be shared with female adolescents, who are likely to relay this information to their peers, which might eventually boost modern contraceptive use.

5.3.2 Recommendations for Further Research

1. This study makes the following recommendations for further research. First, this research can be replicated by considering the same population from the other counties in Kenya to generalise the results.
2. The study on the impact of the social media on the uptake of modern contraceptive use among the adolescents across all the counties.

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APPENDICES

Appendix A: Introductory Letter

Dear Participant,

My name is John Kyalo Ndambuki, and I am doing post-graduate degree at Kenyatta University (KU). The topic of the research is entitled ***uptake of modern contraceptive methods among adolescents after the first pregnancy in Kitui county***. You have been requested to take part in the study, and your participation will be highly valued. Once the study is complete, it will facilitate the government through the Ministry of Health and stakeholders to institute mechanisms to ensure modern contraceptives are availed for the adolescents. The Ministry of Health and other stakeholders can also use this information to make informed moves concerning contraceptives and family planning. Filling this questionnaire will take a short time. Feel free to answer all questions honestly for this study will count on your participation. please Do Not shy off or write your name in the questionnaire.

I really appreciate your participation in this study by giving the necessary information.

Yours sincerely,

John Kyalo Ndambuki - R50/CE/34279/2017

Appendix B: Informed Consent

My name is John Kyalo Ndambuki. I am a Master's student at Kenyatta University. I am carrying out a study titled: **Uptake of Modern Contraceptive Methods Among the Adolescents after the First birth Attending in Kitui County**.

The Ministry of Health will use the information, Division of Reproductive Health and the County Government of Kitui will use the information you give to scale up the Utilisation of contraceptives among adolescents in our Nation, thereby reducing consequences of unplanned pregnancies which have resulted in a high rate of maternal morbidities and mortalities.

Procedures to administer the questionnaire

The participants will be asked simple questions on utilization of contraceptive. Participation in this study will require I ask you some questions concerning utilising contraceptives. I may require to record the information you give using a gadget for clarity and assist in data analysis

You have freedom to answer all or part of the question or to opt out in the process, your opting will not be creation to deny you services from the various hospitals within the study.

Its voluntarily taking part in the study and your concerns can be raised any time concerning the study. If you are not comfortable with a question you can leave unanswered and your participation or not will not change your medical care in this facility or any other facility.

Discomforts and Risks

In any case in the questionnaire there is/are questions/question which is/are hard or embarrasses you, you have freedom not to answer or quite the interview at any time.

Benefits

Your participation in this study will assist us to identify the gaps and what needs to be done to improve the full Utilisation of contraceptives in Kitui County, thereby improving the health of mothers and their babies. In addition, you will also benefit as an individual since the interviewer will address some of your worries about contraceptives.

Incentives

Participation in this study will not attract any reward or favour now or later.

Confidentiality

The interviews will be conducted in various health facilities in private rooms where any unintended person will not hear the communication. You will not need to write your name, only write a unique number provided on the questionnaire. The questionnaires will be reserved in Kenyatta University under lock safely, and privacy will be maintained.

Participants' statement

I have understood everything about taking part in this study. I have given permission to be asked questions and I will answer the questions to my satisfaction. Its now clear that taking part in the study is voluntary and I can exit the study at any time without being discriminated against.

Your unique number: ……..

Signature/ Thumbprint: ……. Date: ……...

Statement of the researcher

I have explained the participant what is expected of her and what happens there after in a language they can understand.

Researcher/Assistant name: ……...

For any questions or clarification, you can conduct the following:

THE CHAIRPERSON

Kenyatta University Research Ethics Committee

Email: kuerc.chairman@ku.ac.ke

Dr Priscilla Kabue

Department of Community Health and Reproductive Health Nursing

Email:kabue.priscilla@ku.ac.ke

Mobile: 0722466297

Elizabeth Ambani, MPHE

Department of Community Health and Reproductive Health Nursing

Email: ambani@gmail.com

Mobile: 0729496970

Appendix C: Questionnaire for Female Adolescents Visiting Postnatal Clinic in Kitui County

Informed Consent

I have understood the content of the questionnaire and having been assured that the information will not leak from the researcher, I accept to write all the answers in spaces provided without bias to facilitate the study.

Sign: ……..……. input date……...……

Instructions

1. *don't input your known identity*
2. *Write all you're the answers as you can.*
3. *Put a tick in the boxes provided where applicable.*
4. *Attempt all the questions*
5. *The information you give will not go to unintended persons.*

Section A: Socio-Demographic Data

1. **What is your age in years**

   ☐15 ☐16 ☐17 ☐18 ☐19 Others specify……..

2. **What is the level of your education**

   ☐Primary school ☐Secondary school

   ☐College ☐University

   Others specify:_____

3. **Which religion do you belong to?**

   ☐Christian ☐Muslim

   ☐Buddhist ☐Non-Practicing

   Others specify:_____

4. **State your marital status?**

   ☐Single ☐Married ☐Divorced

   ☐Widowed

   ☐Separated

5. **Are you currently in school?**

   ☐Yes ☐No

Section B: Perceived Knowledge level on Contraceptives

6. **Do you know what contraceptives are?**

   ☐Yes ☐No (*If the answer is **No,** go to **Section C***)

7. **What are contraceptives used for?**

   ☐To prevent unintended pregnancy

   ☐To terminate a pregnancy

   ☐To prevent STIs

8. **How did you get the information on contraceptives?**

   ☐Peers

   ☐Parents/ guardians

   ☐School teacher

   ☐Health worker/community health volunteers

   ☐Mass Media / social media

   Others (specify):_____

9. **Which contraceptive methods do you know?**

   ☐Implants

   ☐Injectables

   ☐Pills

   ☐IUCD (Intrauterine Contraceptive Device)

10. **From the list below, tick all the contraceptives side effect you know.**

    ☐They cause bleeding

    ☐They cause nausea

    ☐Make people fat

    ☐They lower libido

    ☐They cause infertility

11. **In your opinion, who should use contraceptives**

    ☐The married

    ☐Women above 40 years

    ☐Women who have attained the desired number of children

    ☐Any woman of reproductive age

Section C: Socio-Cultural Issues

12. **If you would like to take up a contraceptive method, who would influence your choice?**

    ☐Culture ☐Religion ☐Peers ☐Parents ☐Self

13. **In your opinion, what does the community believe about adolescents using contraceptives?**

    ☐They are promiscuous

    ☐They are immoral

    ☐They will not be married

    ☐It is right

14. **Would your religion allow you to use modern contraceptives?**

    ☐Yes ☐No

15. **Does the community allow adolescents to use modern contraceptives?**

    ☐Yes (*If yes, go to No 20*) ☐No

16. **What are some of the myth's community does community has about adolescents using modern contraceptives?**

    ☐Believes can cause bareness

    ☐It can kill the adolescent

    ☐Some, like IUCD, can travel to the brain

    ☐Can cause cancer

17. **Would you use modern contraceptives?**

    ☐Yes (*If Yes, Go to Section D*)

    ☐No

18. **What is your reason for not using modern contraceptives?**

    ☐They can cause bareness ☐They can cause STIs

    ☐They can cause cancer

Section D: Health Care Systems

19. **Have you ever sought modern contraceptive services?**

☐Yes ☐No

20. **What type of health facility where you sort for modern contraceptive services?**

☐Private ☐GoK ☐ Mission ☐Pharmacy

21. **Were the services available in 24hours a week?**

☐Yes ☐No

22. **How far is the facility from your residence?**

☐Less than 1km ☐1 to 5 km ☐More than 5km

23. **Does the facility have youth friendly centre or services?**

☐Yes ☐No

24. **The sex of the staff working in these facilities**

☐Male ☐Female

25. **Staff ages**

☐Youth ☐Elderly

26. **Were you satisfied with the services given to you?**

☐Yes ☐No

27. If NO, please explain why_____

_____

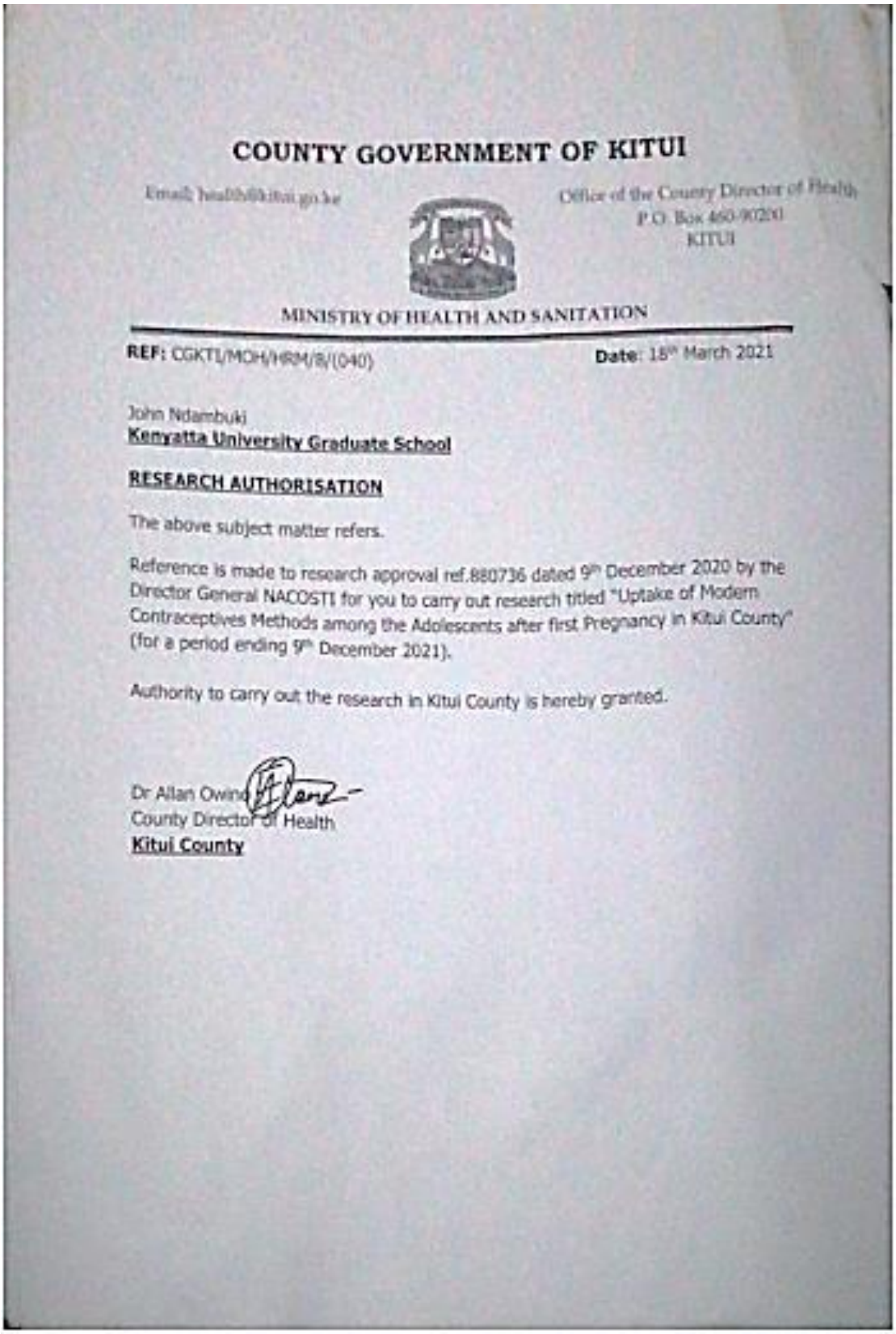
_____

_____

_____

_____

Appendix D: Kitui County Approval



COUNTY GOVERNMENT OF KITUI

Email: healthdkitui.go.ke

Office of the County Director of Health
P.O. Box 460-90200
KITUI

MINISTRY OF HEALTH AND SANITATION

REF: CGKTL/MOH/HRM/8/(040) **Date**: 18th March 2021

John Ndambuki
Kenyatta University Graduate School

RESEARCH AUTHORISATION

The above subject matter refers.

Reference is made to research approval ref.880736 dated 9th December 2020 by the Director General NACOSTI for you to carry out research titled "Uptake of Modern Contraceptives Methods among the Adolescents after first Pregnancy in Kitui County" (for a period ending 9th December 2021).

Authority to carry out the research in Kitui County is hereby granted.

Dr Allan Owino
County Director of Health
Kitui County

Appendix E: NACOSTI Research Licence

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 880736

Date of Issue: 09/December/2020

RESEARCH LICENSE

This is to Certify that Mr.. JOHN kyallo NDAMBUKI of Kenyatta University, has been licensed to conduct research in Kitui on the topic: UPTAKE OF MODERN CONTRACEPTIVE METHODS AMONG THE ADOLESCENTS AFTER THE FIRST PREGNANCY IN KITUI COUNTY, KENYA. for the period ending : 09/December/2021.

License No: NACOSTI/P/20/8109

880736

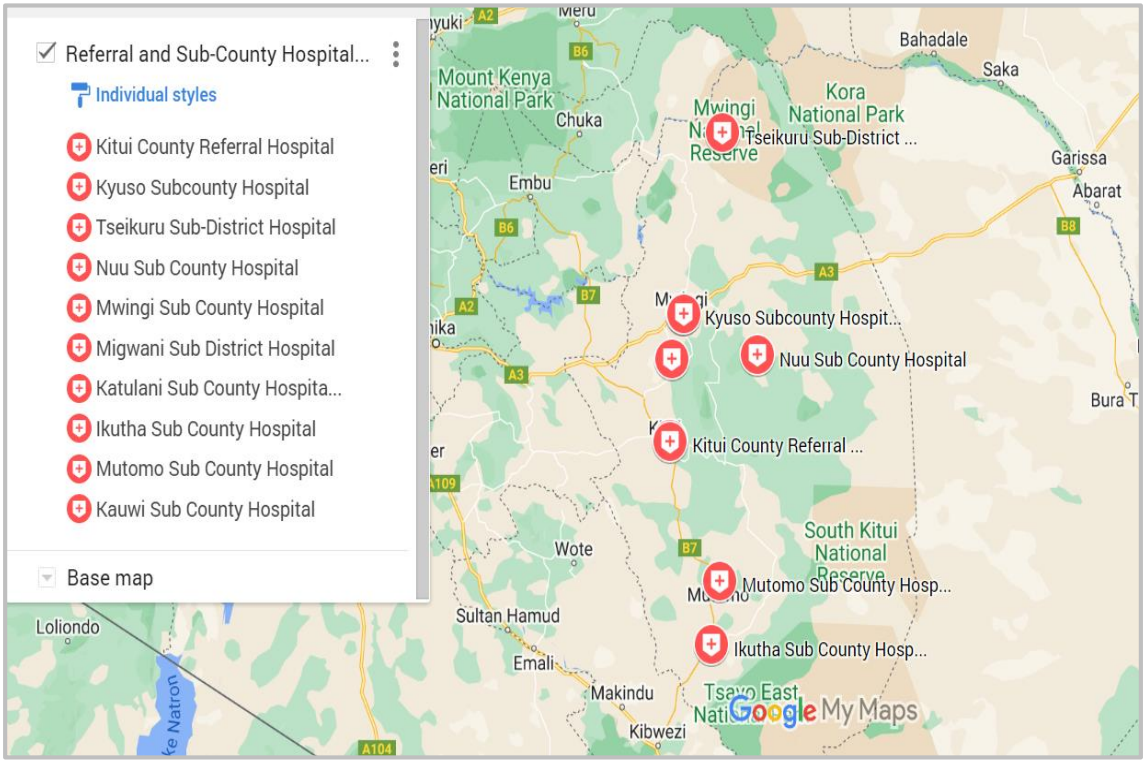
Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Appendix F: Map Of Kitui County Showing Public Hospitals



Source: ©Google Maps (2022)

Note. To access the live map, follow this link: Map of Kitui County Showing Public Hospitals - Google My Maps